

1. City Council Meeting Agenda

Documents:

[REGULAR COUNCIL - 10 SEP 2019 - REVISED AGENDA.PDF](#)

2. City Council Meeting Packet

Documents:

[REGULAR COUNCIL - 10 SEP 2019 - PACKET.PDF](#)

3. Road Diet Draft Report

Documents:

[ROAD DIET REPORT DRAFT.PDF](#)

4. Road Diet Review Draft

Documents:

[YPSILANTI ROAD DIET REVIEW_DRAFT .PDF](#)



**CITY OF YPSILANTI
REGULAR COUNCIL MEETING
Tuesday, September 10, 2019 @ 7:00 PM
Council Chambers
One South Huron, Ypsilanti, MI 48197**

REVISED 9-10-19

Page

I. CALL TO ORDER

II. ROLL CALL

III. INVOCATION

IV. PLEDGE OF ALLEGIANCE

- A. I pledge allegiance to the flag, of the United States of America, and to the Republic for which it stands, one nation, under God, indivisible, with liberty and justice for all.

V. AGENDA APPROVAL

VI. INTRODUCTIONS

VII. PRESENTATIONS

- A. Edward Byrne Memorial Grant - Chief Tony DeGiusti
- B. Parking Strategy Implementation Plan Presentation - Christopher Jacobs - Community Development/DDA Director
- C. Road diets on Hamilton, Huron, & Washtenaw - Bonnie Wessler, City Planner - Click [Here](#) for Full Draft Report or Click [Here](#) for Report Review

VIII. PUBLIC COMMENT (3 MINUTES)

IX. ORDINANCES FIRST READING

- A. *Ordinance No. 1342* - An Ordinance entitled, "An ordinance to amend City Code adding Chapter 79, Article I Ypsilanti Arts Commission".
1. Resolution No. 2019-169, determination
 2. Open Public Hearing
 3. Resolution No. 2019-170, close public hearing
- B. *Ordinance No. 1343* - An Ordinance entitled, "An ordinance to amend City Code repealing Division 4. Heritage Festival, sections 10-306 and 10-307".
1. Resolution No. 2019-188, determination

2. Open Public Hearing
 3. Resolution No. 2019-189, close public hearing
- C. *Ordinance No. 1344*- An Ordinance entitled, "An ordinance to amend City Code adding a new Chapter 8 Recreational Marijuana - Adult Use".
1. Resolution No. 2019-190, determination
 2. Open Public Hearing
 3. Resolution No. 2019-191, close public hearing
- D. *Ordinance No. 1345* - An Ordinance entitled, "An ordinance to amend City Code by adding Chapter 99 - Small Cell Wireless Facilities".
1. Resolution No. 2019-192, determination
 2. Open Public Hearing
 3. Resolution No. 2019-193, close public hearing
- E. *Ordinance No. 1346*- An Ordinance entitled, "An ordinance to amend Chapter 1 General Provisions of the Ypsilanti City Code, by amending section 1-14 Enforcement Authority for the code to include all law enforcement officers with jurisdiction to act as law enforcement officers within the city".
1. Resolution No. 2019-194, determination
 2. Open Public Hearing
 3. Resolution No. 2019-195, close public hearing
- F. *Ordinance No. 1347* - An Ordinance entitled, "An ordinance to approve Traffic Control Orders".
1. Resolution No. 2019-196, determination
 2. Open Public Hearing
 3. Resolution No. 2019-197, close public hearing

X. CONSENT AGENDA

- A. Resolution No. 2019-198, approving the Consent Agenda.
- B. Resolution No. 2019-199, approving the minutes of August 27, 2019.
- C. Resolution No. 2019-200, approving *Ordinance No. 1340* - An Ordinance entitled, "An ordinance to amend Chapter 106, Article V, Section 106-454(a) of the Code of Ordinances to adjust sewage disposal rates. **(Second Reading)**
- D. Resolution No. 2019-201, approving *Ordinance No. 1341* - An Ordinance entitled, "An ordinance to amend Chapter 106, Article V, Section 106-454(b) of the Code of Ordinances to adjust water service rates. **(Second Reading)**
- E. Resolution No. 2019-202, approving the purchase of two 2020 Ford Police Interceptor SUVs from Gorno Ford.
- F. Resolution No. 2019-203, appointing City Manager Frances McMullan as an officer delegate to the MERS Conference.
- G. Resolution No. 2019-204, approving a fireworks display permit for ACE Pyro, LLC, on behalf of Eastern Michigan University.

XI. RESOLUTIONS/MOTIONS/DISCUSSIONS

- A. Resolution No. 2019-205, approving fees associated with Small Cell Wireless Facilities.
- B. Resolution No. 2019-206, awarding a mini-grant to The CREAM Inc., in the amount of \$5,000.
- C. Resolution No. 2019-207, approving the DTE Easement to provide electrical services to 116-118 Michigan Ave.
- D. Resolution No. 2019-208, approving agreement between Washtenaw County and the City of Ypsilanti for Subaward of Federal Financial Assistance (CDBG)
- E. Resolution No. 2019-180, approving the Community Development Block Grant ADA Ramp Program to Saladino Construction. **(tabled August 27, 2019)**
- F. Resolution No. 2019-211, approving the grant application from Washtenaw County Parks and Recreation Commenting Communities Program. **(added)**

XII. LIAISON REPORTS

- 1. SEMCOG Update
- 2. Washtenaw Area Transportation Study
- 3. Urban County
- 4. Ypsilanti Downtown Development Authority
- 5. Friends of Rutherford Pool
- 6. Housing Equity Leadership Team

XIII. COUNCIL PROPOSED BUSINESS

XIV. COMMUNICATIONS FROM THE MAYOR

XV. COMMUNICATIONS FROM THE CITY MANAGER

XVI. COMMUNICATIONS

- A. Potential Meeting Date to Schedule Road Prioritization
- B. Proposed Downtown Parking Permit Ordinance - **(First Reading September 24, 2019)**
- C. Parliamentary Training Dates - October 9, 10, 16, & 24.
- D. **Nominations - Added**

Historic District Commission
Amy Swift

203 Jarvis St
Ypsilanti, MI 48197

Human Relations Commission

Liano Sharon
2022 Washtenaw Road
Ypsilanti, MI 48197

XVII. PUBLIC COMMENT (3 MINUTES)

XVIII. REMARKS FROM THE MAYOR

XIX. CLOSED SESSION

- A. Closed session to discuss labor negotiations. OMA 15-268(c) **(added)**
- B. Resolution No. 2019-210, approving a collective bargaining agreement between the City of Ypsilanti and IAFF. **(added)**

XX. ADJOURNMENT

- A. Resolution No. 2019-209, adjourning the City Council meeting.



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[City of Ypsilanti Parking Implementation Strategy](#)

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City of Ypsilanti

**Phased Parking
Implementation Strategy**



Phase 1

1- 3 months

On Street Public Parking: Staff recommends on-street parking convenient to adjacent businesses should have a maximum time limit of two hours. Less convenient parking or parking where turnover is not required can have longer periods and serve as alternative permit parking.

Off Street Public Parking: The most convenient off street spaces in various parking lots should have a time restriction of three hours to discourage use by employees while affording customers and visitors with parking with longer time frames than on-street. With this in mind staff recommends that the addition of meters and kiosks take place in three phases.

1. Pay by phone technology in Downtown, Depot Town, and West Cross. The City will work with Passport Inc. to allow this new payment option by app. There are approximately 367 meters that will require these stickers. Work will be performed by DPS.
2. New Kiosk Installation by District, illustrated in attached maps.
 - Depot Town 31 spaces in Freighthouse Lot and 17 spaces on Cross Street.
 - Downtown 45 spaces on Michigan Ave.
3. Residential and Employee Permit Changes Downtown
 - Downtown Employee and Residential Permits will now allow parking at the designated areas illustrated by Attachment A.

- Ferris St converted to permit parking only (39 spaces)
 - Washington St Lot will become permit parking and long term metered (141 spaces)
 - The City will no longer maintain a policy allowing for residential or employee permits to use metered spots without additional payment.
4. Parking System Management - Per the parking strategy recommendations a new position was created to oversee the parking system and comprehensively implement these phased approach. Additionally it is recommended that a parking advisor committee be established with representatives from the City, DDA and citizens to develop the policies for paid parking locations, permit areas, rates, enforcement policies, capital equipment and parking facility upgrades.

Phase 2
3 – 9 Months

In Downtown most remaining public off street parking will be converted to 3 hour paid, eliminating the 1-2 hour free parking in the North and South Huron Parking Lots. This will be accomplished by new kiosks and include new signage to signal all of these various changes with a comprehensive communication strategy and grace period as people adjust. This will convert approximately 148 new paid spaces Downtown.

The Parking Manager will implement a comprehensive lot identification system and signage overhaul during this time frame. This person will also identify additional handicap spaces and enforce landscaping criteria in the public lots as necessary. The Parking Manager will begin to develop an enterprise fund needed for capital improvements and prioritize maintenance needs.

Phase 3
9 months – 15 months

Add Kiosks in North Adams, Washington St, Perrin St, and Normal St Lots. These lots and Ballard St lot once repaired could have times ranging from 2-10 hours to accommodate permit parking for the West Cross District.

Budget Notes

Labor Cost

	Post Installations Needed	Hours Needed	Cost per installation regular time	Over Time	Total Man Hours
Phases 1 and 2					
Depot Town	101	50.5	\$2,020	\$3,030	101
Downtown	193	96.5	\$3,860	\$5,790	193
West Cross	37	18.5	\$740	\$1,110	37
	331	165.5	\$6,620	\$9,930	331

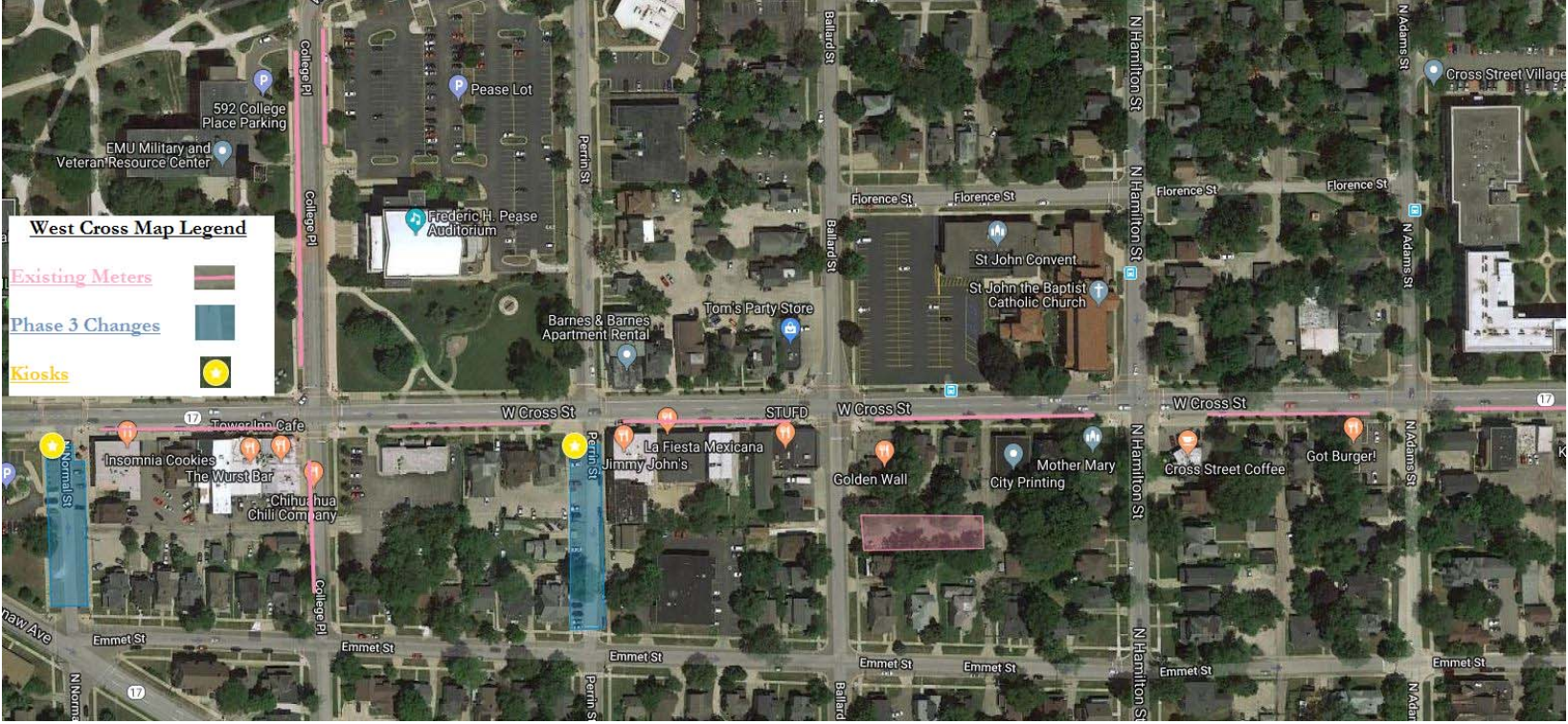
Equipment

	Luke® Cosmo Kiosks	Quantity	Total
Purchase Price	9500	13	\$123,500
Recurring Annual Cost	660	13	\$8,580

Phase 1 and 2 Revenue Projections from New Kiosks and Metered Spaces

Estimated Kiosk and New Meter Revenue	New Spaces	Revenue Per meter	Days Per Week	Weeks Collected	
Depot Town	101	1.75	5	51	\$45,071
Downtown	197	1.75	5	51	\$87,911
West Cross	37	1.75	5	51	\$16,511
Total New Spaces	335				
Total Projected Revenue					\$149,494





Downtown Map Legend

Phase 1 Changes

Existing Meters

Phase 2 Changes

Phase 3 Changes

New Permit Parking

Kiosks





City of Ypsilanti

Community & Economic Development Department

Memo

To: Mayor & City Council
From: Bonnie Wessler, City Planner
Subject: Huron, Hamilton, & Washtenaw: Road Diet Checklist Progress

SUMMARY & BACKGROUND

In mid-2012, as a result of speed limit increases on Michigan Department of Transportation (MDOT) trunklines through the City enacted by the Michigan State Police (MSP), Council and Planning Commission directed staff to investigate potential options to increase safety on those roadways. In Michigan, speed limits on trunklines may only be set by the MSP following a speed study, and must be set at the 80th percentile speed. Thus, to decrease speed limits, the actual travel speed must be lowered. To lower the actual travel speed, the design of the road would need to change. Staff worked with MDOT and WATS to propose several lane-reduction scenarios, as the travel speed on these streets is correlated with the amount of "open space" available to drivers, and travel speed through dense residential/commercial areas is directly related to safety.

In 2014, design checklists were provided by MDOT, preliminary studies were completed and tweaked, and next steps were discussed. In March of 2015, Council held two public hearings at which they expressed unanimous support of the project (full presentations and packet available here: <http://cityofypsilanti.com/AgendaCenter/ViewFile/Item/515?fileID=764>. WATS' presentation of a nonmotorized crossing over I-94 begins on page 31; staff's of the road diet on page 45). In mid-2015, however, the project stalled.

In February of 2018, Council reaffirmed their support of the project, and approved release of an RFP for a traffic study, the next step in the road diet checklist provided by MDOT. Work began in late 2018 with Hubbell, Roth, and Clark, including collecting new vehicle counts; a draft of the feasibility study is complete and has been submitted to MDOT for comment. We have received those comments, and HRC is working with staff to see those addressed.

DRAFT FEASIBILITY STUDY RESULTS

The current proposal is essentially to remove a lane on each of the three-lane portions of Hamilton, Huron, and Washtenaw within the project bounds. On Hamilton and Huron, those lanes would be replaced with a buffered bike lane; on Washtenaw, with parking. There are exceptions at certain intersections and in certain areas in order to maintain an acceptable level of service (LOS), to handle turning traffic, and/or due to space constraints. These are detailed further in the accompanying presentation.

NEXT STEPS

The most important next step is a public meeting regarding the potential road diet. In particular, MDOT wishes to see that not only residents/businesses have been engaged at this meeting, but also those who commute to and through the area affected. We will plan this meeting in coordination with MDOT, and hope to have it mid-to-late October/early November. It will likely be late afternoon/early evening, midweek, not at City Hall, and be an open house format with scheduled presentations; we would also have a fifteen day public comment period after the meeting.

Following the public meeting, the next step would be to bring the road diet back to Council for a determination of support. If Council wishes to move forward with the project, staff would then work with MDOT on final approvals, geometric design, maintenance agreements for on-street parking and potentially other items, and scheduling. If all goes smoothly and positively with this project, and MDOT's current Transportation Improvement Program (TIP) stays on schedule, the road diet could be implemented in 2022 in conjunction with MDOT's scheduled maintenance project.



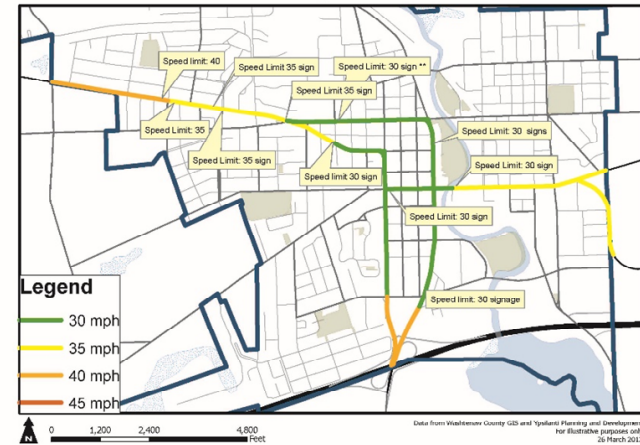
Huron, Hamilton, & Washtenaw Road Diet Progress

CITY OF YPSILANTI, MI
SEPTEMBER 2019

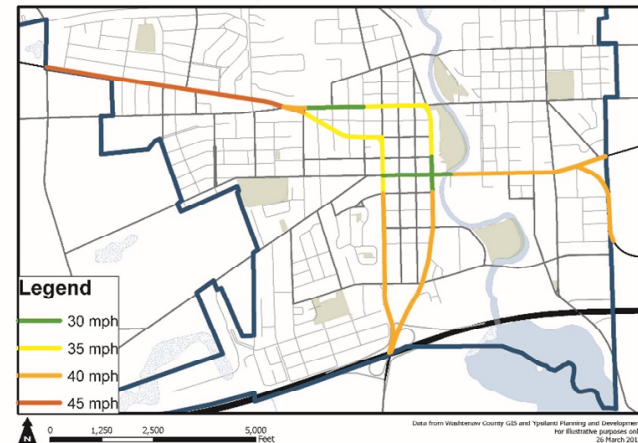
Background

- 2011-12: Michigan State Police perform a speed study on the trunklines; speed limits are raised significantly.
- 2012: Staff work with stakeholders on a proposal to reduce the number of lanes on Hamilton/Huron/Washtenaw; shelved due to budget considerations
- 2013: WATS/County use grant money for a feasibility study of a nonmotorized crossing of I-94 at Huron; would tie in to lane reduction well
- 2014: Progress made on lane reduction concepts
- 2015: Project stalls
- 2018: Council reaffirms support of project and moves forward with technical feasibility study
- 2019: Feasibility study completed.

MDOT Trunkline Speed Limits- Current



MDOT Trunkline Speed Limits- Summer 2012 (future)



Reasoning

- The City has long had as part of its Master Plan and various other visioning documents to switch back to two-way traffic to improve safety and legibility
 - Due to the volume of traffic currently borne on the one-way pairs, it would be essentially impossible that the City could switch and be able to maintain road widths, or things like on-street parking on West Cross and on Huron, or the bike lane on West Cross, so other solutions to improve safety and legibility were explored
- At current speeds, pedestrian travel, local vehicle travel (to/from driveways and parking lots/alleys/side streets), and bike travel can be dangerous; at current speeds, risk of death and serious injury for pedestrians/bicyclists is very likely
 - Thus, need to improve safety by lowering speeds was established
- Currently no bicycle facility on these roads; important north-south connectors; dangerous, especially for novice/casual riders, to ride in traffic due to speeds
 - Thus, need to provide safe bike facilities was established

Proposal - Overall

Washtenaw, Emmet/Normal to Hamilton

- Due to curve and intersection with Hamilton, no good place for bike lane
- Normal to Ballard: Parking proposed north side
- Ballard to Hamilton: return to 3-lane

Hamilton, Washtenaw to Harriet

- Washtenaw-Pearl: Maintain current configuration; rightmost lane becomes right-only to Pearl
- Pearl-Harriet: rightmost lane (west side) becomes bike lane

Huron, Harriet to Cross

- South of Harriet: current right-only lane is removed (replace with streetscaping); rightmost lane becomes right-only
- Harriet – Ferris: rightmost lane (east side) becomes bike lane
- Ferris-Michigan: current no-parking area becomes bike lane
- Michigan-Pearl: “share the road” signage and pavement markings
- Pearl-Cross: rightmost lane (east side) becomes bike lane

Washtenaw

Due to curve and intersection with Hamilton, no good location for bike lane

- Normal to Ballard: Parking proposed north side
- Ballard to Hamilton: return to 3-lane

Levels of Service (AM Peak Hour)

- Washtenaw/Summit: B (current), B (2038 unchanged), B (2038 Road Diet Mitigated)
- Washtenaw/Ballard: A (current), A (2038 unchanged), A (2038 Road Diet Mitigated)



Figure 8: Proposed Condition along Washtenaw Avenue at Perrin Street

Hamilton

- Washtenaw-Pearl: Maintain current configuration; rightmost lane becomes right-only to Pearl
- Pearl-Harriet: rightmost lane (west side) becomes bike lane

Levels of Service (AM Peak Hour)

- Hamilton/Michigan: B (current), B (2038 unchanged), B (2038 Road Diet Mitigated)
 - PM Peak Hour: C (current), D (2038 unchanged), D (2038 Road Diet Mitigated)

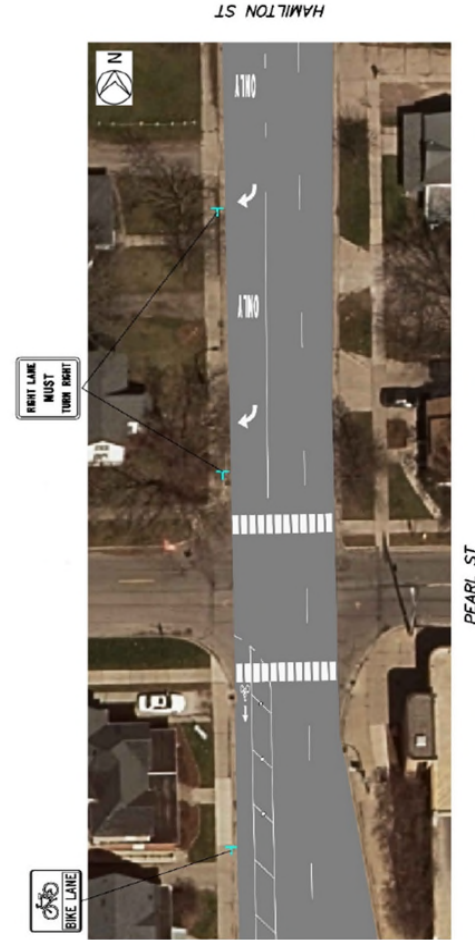


Figure 9: Proposed Condition along Hamilton Street at Pearl Street

Huron (1/4)

- South of Harriet: current right-only lane is removed (replace with streetscaping); rightmost lane becomes right-only
- Harriet – Ferris: rightmost lane (east side) becomes bike lane

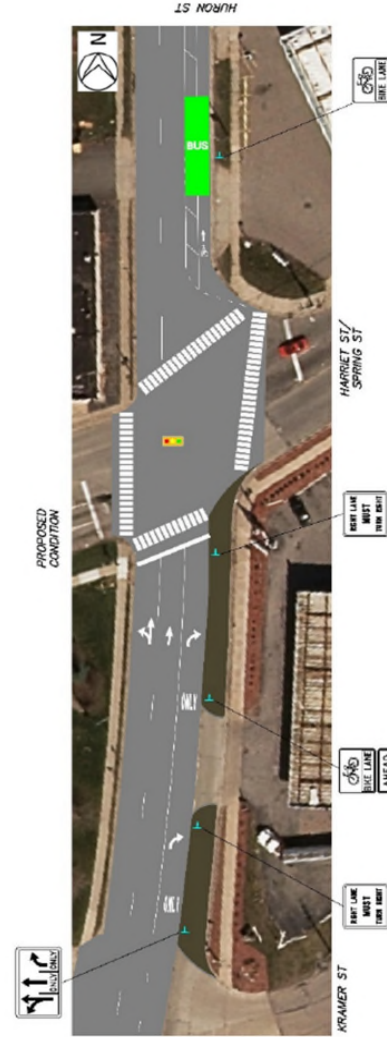


Figure 11: Proposed Condition along Huron Street at Harriet/Spring Street

Huron (2/4)

- Ferris-Michigan: current no-parking area becomes bike lane
- Michigan-Pearl: “share the road” signage and pavement markings
- *No vehicle lanes removed*

Levels of Service (AM Peak Hour)

- Huron/Michigan: C (current), C (2038 unchanged), D (2038 Road Diet Mitigated)
 - PM Peak Hour: C (current), D (2038 unchanged), D (2038 Road Diet Mitigated)



Figure 12: Proposed Condition along Huron Street at Michigan Avenue

Huron (3/4)

Pearl-Cross: rightmost lane (east side) becomes bike lane



Figure 13: Proposed Condition along Huron Street at Pearl Street

Huron (4/4)

At Cross: 2-stage left for bikes (not shown)

Levels of Service (AM Peak Hour)

- Huron/Cross: C (current), C (2038 unchanged), B (2038 Road Diet Mitigated)

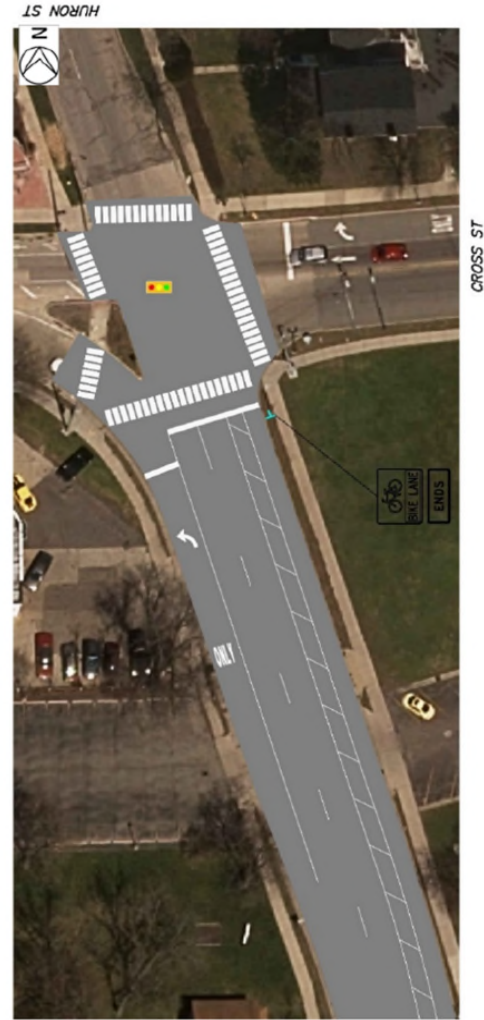


Figure 14: Proposed Condition along Huron Street at Cross Street

Other Intersections: “Downstream” Effects

Levels of Service (AM Peak Hour)

- Michigan/Congress/Ballard:
 - C (current)
 - C (2038 unchanged)
 - C (2038 Road Diet Mitigated)
- Michigan/Adams:
 - A (current)
 - A (2038 unchanged)
 - A (2038 Road Diet Mitigated)
- Michigan/Washington:
 - B (current)
 - B (2038 unchanged)
 - A (2038 Road Diet Mitigated)
- Huron/Harriet:
 - B (current)
 - B (2038 unchanged)
 - C (2038 Road Diet Mitigated)
- Hamilton/Harriet:
 - B (current)
 - B (2038 unchanged)
 - B (2038 Road Diet Mitigated)
- Huron/Catherine:
 - A (current)
 - A (2038 unchanged)
 - A (2038 Road Diet Mitigated)

Summary & Next Steps

The project would:

- Add a significant amount of buffered bike lanes to the community, enabling more people who cannot or choose not to drive (and park) to bike instead.
- Improve pedestrian and bicyclist safety.
- Slow vehicular traffic speeds.
- Cause a greater level of congestion at certain intersections.
- Tie in to the planned pedestrian/bike crossing of I-94.

Next Steps:

- HRC to respond to MDOT memo
- Public meeting
- Council determination



REQUEST FOR LEGISLATION

TO: Mayor and City Council
FROM: John Barr
DATE: September 10, 2019
SUBJECT: Art Commission Ordinance

DESCRIPTION:
Art Commission Ordinance

SUMMARY:

Mayor Bashert requested an ordinance to create an Art Commission. A draft ordinance is attached for consideration. I spoke today with Ms. Jennifer Goulet, a local consultant versed in government and creative matters and she has some ordinance suggestions to consider. She will attend the meeting and answer questions and offer suggestions.

RECOMMENDED ACTION: Review draft ordinance and adoption on first reading.

CITY MANAGER APPROVAL: _____ COUNCIL AGENDA DATE: _____

CITY MANAGER COMMENTS: _____

FISCAL SERVICES DIRECTOR APPROVAL: _____



**Barr,
Anhut &
Associates, P.C.**
ATTORNEYS AT LAW

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John M. Barr
Karl A. Barr

Jesse O'Jack ~ Of Counsel
William F. Anhut ~ Of Counsel – Retired
Jennifer A. Healy ~ Legal Assistant

MEMORANDUM

To: Hon. Mayor and Ypsilanti City Council
From: John M. Barr, Ypsilanti City Attorney
Date: September 8, 2019
Re: Art Commission

I again reviewed the comments of Ms. Jennifer H. Goulet regarding the proposed Art Commission Ordinance, and have incorporated some of her comments in the proposed ordinance.

The City Charter section 9.03¹ limits Board and Commissions to an advisory role, with limited powers, because commission members are not immediately responsible to the voters. So, some of Ms. Goulet's comments are not incorporated in the proposed ordinance.

I recommend that Council consider the matter and adopt either the original draft or the revised draft with Ms. Goulet's suggestions as indicated.

Non-substantive changes can be incorporated in a second reading. After the Commission is up and running, additional changes may be warranted by experience.

¹ "The Council may create, by ordinance, boards and commissions which the Council deems necessary or of benefit to the City of Ypsilanti and provide for their duties and functions subject to law. The boards and commissions shall not administer any activity, department, or agency of the City government unless specifically required to do so by State statute, but shall serve solely in an advisory capacity or in the capacity of a quasi-judicial appeal board."



Resolution No. 2019-169
September 10, 2019

RESOLVED BY THE COUNCIL OF THE CITY OF YPSILANTI:

The certain ordinance entitled "Art, Ypsilanti Art Commission" to add Chapter 79 to the Ypsilanti City Code, be adopted on first reading.

OFFERED BY: _____

SECONDED BY: _____

YES: NO: ABSENT: VOTE:

This resolution is adopted by the Council of the City of Ypsilanti and approved by the Mayor this 10 day of September 2019

#Resolution No. 2019-169



**CITY OF YPSILANTI
NOTICE OF ADOPTED ORDINANCE
ORDINANCE NO. 1342 Amended**

An Ordinance Entitled "Arts Commission"

THE CITY OF YPSILANTI ORDAINS:

Sec. 79.00 Intent

The state of Michigan has recognized, through the enactment of The Faxon-McNamee Art in Public Places Act (MCL 18.71 et. seq.), the importance of promoting art in government spaces and facilities. City council has determined that the creation and presence of public art will advance the interests of the City, aid in enhancement of property values, improve the aesthetic quality of public spaces and structures, provide cultural and recreational opportunities, contribute to the local heritage, stimulate economic activity and promote the general welfare of the community. City council recognizes the responsibility of government to foster the development of culture and the arts. It is therefore declared to be municipal policy to promote public art.

- (1) Public art definition. *Public art* means works of art created, purchased, produced or otherwise acquired for display in public spaces or facilities. Public art may include artistic design features incorporated into the architecture, layout, design or structural elements of the space or facility. Public art may be any creation, production, conception or design with an aesthetic purpose, including freestanding objects d'art, sculptures, murals, mosaics, ornamentation, painting, paint or decoration schemes, use of particular structural materials for aesthetic effect, spatial arrangement of structures, architectural design features, mixed media, digital art, photography, and performance art and music.
- (2) Diversity. The City of Ypsilanti is a diverse community as reflected in the City Logo, Pride, Diversity, Heritage. The policy of the City of Ypsilanti is to celebrate Pride, Diversity and Heritage and the Ypsilanti Art Commission is charged to recognize this policy and promote the policy in the work and selections of the Commission.

Sec. 79.01 Creation; Composition; Appointment

The Ypsilanti Art Commission is created and shall consist of not less than five and not more than Eleven members appointed by the mayor, subject to the confirmation of city council.

Sec. 79.02 Purpose, Objectives, Powers and Duties

#Ordinance No. 1342 Amended-Arts Commission

(1) Purpose. The purpose of the Ypsilanti Art Commission (YAC) is to act as an advisory body to the mayor, city council and city manager for all things art in the City of Ypsilanti.

(2) Objectives. The YAC shall promote art in the City of Ypsilanti and promote the City policy of Pride, Diversity and Heritage. To educate the public why the arts, culture and creative industries are important to the City of Ypsilanti and to cultivate a community culture and environment that embraces and nurtures artistic and creative assets. To promote and further diversity, equity and inclusion of all of Ypsilanti in the arts.

(3) Powers. The YAC shall have the following powers:

- (A) Promulgate guidelines, subject to the approval of City Council, to support art in the City of Ypsilanti and provide procedures for soliciting and selecting public art and artistic events and for determining suitable locations for events and the display of art within the City.
- (B) To recommend to City Council a budget for the YAC to implement YAC goals for the year.
- (C) By April 1 of each year, submit to City Council a plan detailing potential projects and desirable goals to be pursued in the next fiscal year;
- (D) Make determinations, subject to the approval of the City Manager, for each proposed project as to whether it is eligible for public art funding and, if so, calculate the total costs of the project and the total amount of City art funding required;
- (E) Make recommendations, subject to the approval of the City Manager, regarding disbursement of public art funds to promote, show, acquire, produce, install, maintain, alter, relocate or remove art;
- (F) Make recommendations to the City Manager and City Council regarding proposed art for urban art, billboards, parks, DDA area, alleyways, bridges, overpasses, Boarder to Boarder Trail, undeveloped and underdeveloped property or foreclosed properties.
- (G) Raise funds for public, interact with donors of funds or art works on behalf of the city, and foster public/private partnerships to support public art;
- (H) Investigate and promote cooperative ventures, collaboration, joint ventures and partnerships for art, art projects and art installations with the State of Michigan, County of Washtenaw, Eastern Michigan University, Ypsilanti Community Schools, Washtenaw Intermediate School District, Ann Arbor Area Transportation Authority, Huron River Water Council, Ozone House and other entities, subject to final approval of the City Council.

- (I) Promote awareness of art;
- (J) Promote economic development in art by encouraging and promoting opportunities and business that engage and/or employ artists, performers and other people in the arts.
- (K) Identify public functions and services and non-profit and profit business and cultural opportunities to support local artists and artistic services.
- (L) Present an annual report to City Council within 60 days after the end of each fiscal year containing:
 - (i) A report on the status of all art incorporated into or funded by City projects in progress or completed during the preceding fiscal year;
 - (ii) A maintenance report on each work of public art presently under City management detailing maintenance costs for the preceding fiscal year, anticipated maintenance costs for the next fiscal year, and any significant future maintenance concerns, including prioritized recommendations for the maintenance, repair or renovation of particular works;
 - (iii) A review of the City's public art.
 - (iv) A report on YAC's efforts to promote awareness of public art;
 - (v) A report on donations of art and where such art was placed;
 - (vi) A report on additional funds raised and how such funds were used; and
 - (vii) Any other matter of substantial financial or public importance relating to the art in the City.
- (M) Perform any related duty delegated by City Council; and
- (N) Provide advice to and assist both potential donors of art and other governmental entities regarding possible public locations for placement of art when such art cannot be placed on any City property or incorporated into a capital project of the City.
- (O) Act as City liaison with the general public for City public art projects.

Sec 79.03 **Limitations on powers.** YAC does not have authority to enter into contracts or otherwise create a contractual obligation for the City. The selection of public works of art, artists and contractors to design, create, maintain or perform work otherwise related to public works of art, and all contracts for such works of art and work, shall be done and

awarded in accordance with City Charter, City Code and City policies and procedures governing the award of contracts.

Sec 79.04 Membership

Section 1. The YAC shall consist of not less than five nor more than nine voting members nominated by the Mayor and approved by City Council. The City Manager or her designee shall be a nonvoting ex-officio member of YAC. Appointments of the voting members shall be made from candidates who have the following expertise or affiliation:

- Persons who, insofar as possible, have experience and/or an interest in the placement, creation, or design of public art, including but not limited to painting, sculpture, architecture, music, theater, film, dance.

Section 2. All members of YAC, including members of its subcommittees, shall serve without compensation.

Section 3. All voting members of YAC shall be appointed for a three-year term. In order to ensure that approximately one third of the voting members' appointments expire each year, initial appointments shall be one third of members for a one-year term, One third of members for a two-year term, and one third of members for a three-year term.

Section 4. Recognizing that art has no geographical boundaries, one member of the YAC shall be a non-resident of the City. Consistent with City Code sec. 2.111, all other members of YAC shall be residents of the City of Ypsilanti, unless an exception is granted by a resolution of City Council with an affirmative vote of at least 5 members.

Section 5. Any vacancy on YAC occurring in the middle of a term shall be filled for the remainder of the term in the same manner as for full-term appointments.

Section 6. Members are expected to attend regularly scheduled meetings and to notify the Chair and the City Clerk in advance if they expect to be tardy or absent. If a member misses more than three (3) regularly scheduled meetings in a twelve (12) month period, the Chair shall notify the Mayor and may recommend removal of the member.

Section 7. A member of YAC may be removed by City Council for cause following notice and a hearing.

Section 79.05 Ethics and Conflicts of Interest

Section 1. A member of YAC shall abstain from discussion or voting on any matter where that member is involved in a real or apparent conflict of interest.

Section 2. A member of YAC shall neither solicit nor accept gratuities, favors, or anything of monetary value from persons or entities in a position to benefit from a decision of YAC.

Section 3. A member of YAC shall not obtain, for himself/herself or for any person with whom he/she has business or family ties, any financial or beneficial interest in a matter which may be affected by a decision of YAC. This restriction shall apply during the member's tenure on YAC and for one year thereafter.

Section 4. A member of YAC shall abstain from discussion or voting on any matter from which that member, any member of his/her immediate family, his/her partner, or a person with whom the member has family or business ties may obtain a financial interest or other benefit.

Section 5. Except where it violates a confidence, a member of YAC shall disclose all pertinent facts regarding any possible conflict, real or apparent, and those facts shall be recorded in the minutes of the proceedings. The member may then abstain from discussion and voting on the matter.

Section 6. Members of YAC shall complete an annual disclosure of organization affiliations and shall update this disclosure in writing at any time during the year when such affiliations change.

Section 7. Members of YAC shall comply with the above ethical requirements and the City of Ypsilanti Ethics Ordinance, Ypsilanti City Code sec. 46.71 et seq. and all applicable laws governing conflicts of interest.

Section 8. Employment by or membership in an educational organization, art association, art museum, library, art gallery, or any art associated business shall not be a conflict of interest per se that would prohibit being a member of YAC.

Section 8: A member of YAC shall not use his/her position on YAC to advance his/her own personal gain or advantage.

Sec. 79.06 Meetings. The YAC shall hold meetings not less than every 30 days. All meetings of YAC and its subcommittees shall be open to the public and conducted in accordance with the Michigan Open Meetings Act (PA 267 of 1976), as amended. Closed sessions may be called for purposes listed in the Open Meetings Act.

Sec. 79. 06 Bylaws. The YAC shall adopt bylaws subject to the approval of the City Attorney and City Council on or before the YAC third meeting.

MADE, PASSED, AND ADOPTED BY THE YPSILANTI CITY COUNCIL THIS _____ DAY OF _____, 2019

#Ordinance No. 1342 Amended-Arts Commission

Andrew Hellenga, City Clerk

Attest

I do hereby confirm that the above Ordinance No. _____ was published in the Washtenaw
Legal News on the _____ day of _____, 2019.

Andrew Hellenga, City Clerk

CERTIFICATE OF ADOPTING

I hereby certify that the foregoing is a true copy of the Ordinance passed at the regular meeting
of the City Council held on the _____ day of _____, 2019.

Andrew Hellenga, City Clerk

Notice Published: _____

First Reading: _____

Second Reading: _____

Published: _____

Effective Date: _____

#Ordinance No. 1342 Amended-Arts Commission



Resolution No. 2019-170
September 17, 2019

RESOLVED BY THE COUNCIL OF THE CITY OF YPSILANTI:

That the public hearing for an ordinance entitled "Art, Ypsilanti Art Commission" to add Chapter 79 to the Ypsilanti City Code, be officially closed.

OFFERED BY: _____

SECONDED BY: _____

YES:

NO:

ABSENT:

VOTE:

This resolution is adopted by the Council of the City of Ypsilanti and approved by the Mayor this
17 day of September 2019

#Resolution No. 2019-170



REQUEST FOR LEGISLATION

TO: Mayor and City Council
FROM: John Barr
DATE: September 10, 2019
SUBJECT: repeal of Heritage Festival Ordinance

DESCRIPTION:
repeal of Heritage Festival Ordinance

SUMMARY:

Council Member Somerville and Mayor Pro-Tem Richardson requested that I prepare legislation to repeal the Heritage Festival Ordinance. A resolution to approve on First Reading and a proposed Ordinance are attached.

RECOMMENDED ACTION: Review and Consider proposed Ordinance.

CITY MANAGER APPROVAL: _____ COUNCIL AGENDA DATE: _____

CITY MANAGER COMMENTS: _____

FISCAL SERVICES DIRECTOR APPROVAL: _____



Resolution No. 2019-188
September 10, 2019

RESOLVED BY THE COUNCIL OF THE CITY OF YPSILANTI:

That an ordinance entitled "An Ordinance to Repeal the Heritage Festival Ordinance" be approved on first reading.

OFFERED BY: _____

SECONDED BY: _____

YES: NO: ABSENT: VOTE:

This resolution is adopted by the Council of the City of Ypsilanti and approved by the Mayor this
10 day of September 2019

#Resolution No. 2019-188



**Resolution No. 1343
September 10, 2019**

RESOLVED BY THE COUNCIL OF THE CITY OF YPSILANTI:

Whereas,

Whereas,

Whereas,

Whereas,

Whereas,

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Ypsilanti

OFFERED BY: _____

SECONDED BY: _____

YES:

NO:

ABSENT:

VOTE:

This resolution is adopted by the Council of the City of Ypsilanti and approved by the Mayor this
10 day of September 2019

#Resolution No. 1343



Resolution No. 2019-189
September 10, 2019

RESOLVED BY THE COUNCIL OF THE CITY OF YPSILANTI:

That the public hearing for an ordinance entitled "An Ordinance to Repeal the Heritage Festival Ordinance" be officially closed.

OFFERED BY: _____

SECONDED BY: _____

YES: NO: ABSENT: VOTE:

This resolution is adopted by the Council of the City of Ypsilanti and approved by the Mayor this 10 day of September 2019

#Resolution No. 2019-189



REQUEST FOR LEGISLATION

TO: Mayor and City Council
FROM: John Barr
DATE: September 10, 2019
SUBJECT: Recreational Marihuana Opt-in Ordinance

DESCRIPTION:
Recreational Marihuana Opt-in Ordinance

SUMMARY:

The law and regulations require a city to opt-in to recreational marihuana if it is to be allowed in the city. Attached is a draft opt-in recreational marihuana ordinance for review and approval.

ATTACHMENTS: Proposed Ordinance

RECOMMENDED ACTION: Adoption of the ordinance

CITY MANAGER APPROVAL: _____ COUNCIL AGENDA DATE: _____

CITY MANAGER COMMENTS: _____

FISCAL SERVICES DIRECTOR APPROVAL: _____



Resolution No. 2019-190
September 10, 2019

RESOLVED BY THE COUNCIL OF THE CITY OF YPSILANTI:

The certain ordinance entitled: An ordinance to add a new chapter to the Ypsilanti City Code entitled Chapter 8 -Marihuana, be adopted on first reading.

OFFERED BY: _____

SECONDED BY: _____

YES: NO: ABSENT: VOTE:

This resolution is adopted by the Council of the City of Ypsilanti and approved by the Mayor this 10 day of September 2019

#Resolution No. 2019-190



**CITY OF YPSILANTI
NOTICE OF ADOPTED ORDINANCE
ORDINANCE NO. 1344**

An Ordinance Entitled "Adult USE Marijuana"

THE CITY OF YPSILANTI ORDAINS:

the Ypsilanti City Code is hereby amended by adding a new Chapter 8 – ADULT USE - RECREATIONAL MARIJUANA, Which Chapter reads as follows:

Chapter 8 – ADULT USE - RECREATIONAL MARIJUANA

Sec. 8-1 Purpose.

The purpose of this article is to make marijuana legal within the City of Ypsilanti in accordance with the Michigan Regulation and Taxation of Marihuana Act, *Initiated Law 1 of 2018*, MCL 333.27951, et sec., and in accordance with the act:

- a) establish standards and procedures for the review and input of the City of Ypsilanti on the issuance, renewal and/or revocation of permits for marihuana establishments within the boundaries of the City,
- b) place limits on the number of marihuana establishments within the City,
- c) regulate the time place and manner of operation of marihuana establishments within the City,
- d) regulate the production, manufacture, sale or display of marihuana accessories,
- e) authorize the sale of marihuana for consumption in designated areas that are not accessible to persons under 21 years of age, or special events in limited areas and for a limited time,
- f) designate for a civil infraction for a violation of the ordinance by a marihuana establishment and provide a penalty of civil fine not more than \$500,
- g) require a City permit for a marihuana establishment within the city and impose qualifications for such permit that do not conflict with state law,
- h) charge an annual fee for marihuana establishments of not more than \$5,000 to help to defray application, administrative and enforcement costs associated with the operation of the marihuana establishment, all in order to:

1. Serve and protect the health, safety, and welfare of the general public;

#Ordinance No. 1344-Adult USE Marijuana

2. Establish a set of rules and regulations which are fair and equitable for those interested in establishing marihuana facilities; and
3. To provide reasonable regulation pursuant to the city's general police power granted to cities by the Michigan Constitution of 1963 and the Home Rule City Act, MCL Section 117.1 et seq., as amended, and to comply with state law, especially the Michigan Regulation and Taxation of Marihuana Act, MCL 333.27951 et seq.

Nothing in this chapter, or in any companion regulatory provision adopted in any other provision of this Code, is intended to grant, nor shall they be construed as granting, immunity from civil or criminal prosecution with any federal law or regulation, or from having property seized by federal authorities under federal law.

Sec. 8-2 – Definitions.

All of the words, terms and phrases defined by the MRTMA, as amended, are adopted herein by reference. As used in this chapter, they have the same meaning as provided in the MRTMA. The following words, terms and phrases when used in this chapter shall have the meaning ascribed to them in this section, except when the context clearly indicates a different meaning:

MRTMA means the Michigan Regulation and Taxation of Marihuana Act, *Initiated Law 1 of 2018*, MCL 333.27051 et seq.

MARIJUANA has the same meaning as “marihuana” under the MRTMA, MMFLA, MTA, and MMMMA.

Sec. 8-3 – Marihuana is legal in Ypsilanti

Marijuana is legal in the City of Ypsilanti to the extent allowed by the MRTMA.

Sec. 8 -4 – Permit require for Marihuana Establishment.

A Marihuana Establishment in the City of Ypsilanti must acquire a City permit before operation or doing any business.

Pursuant to the MRTMA, the City of Ypsilanti authorizes the operation in the city of the following marijuana facilities, provided they possess a state operating license issued under the MRTMA and they comply with the additional requirements of this chapter, chapter 122 of this Code, and all other applicable laws and ordinances:

- (1) Grower, including Class A, Class B, and Class C grower.
- (2) Processor.
- (3) Provisioning center.

#Ordinance No. 1344-Adult USE Marijuana

Sec. 8-5 – Permit requirements.

- (a) No person shall own or operate [a marihuana establishment](#) in the City without first applying for and receiving a permit from the city clerk's office
- (b) Licenses are transferrable upon state approval and payment of the transfer fee.
- (c) Permit shall be valid for a period of one year, from January 1 to December 31
- (d) A Permit shall be issued or renewed upon payment of the required fee and submission of a completed application in compliance with the provisions of this article, and compliance with all provisions and requirements of this article. Application to renew a permit shall be filed at least 30 days prior to the date of expiration. Such renewal shall be annual and shall be accompanied by the annual fee.
- (e) Every applicant shall pay a fee at the time of the application for an initial or renewal permit, or transfer of permit, which fee shall be set by council resolution. Said fee is non-refundable if the application is reviewed.
- (f) The permit requirements set forth in this chapter shall be in addition to, and not in lieu of, any other licensing and permitting requirements imposed by any other federal, state or local law.
- (g) The issuance of any permit pursuant to this chapter does not create an exception, defense or immunity to any person in regard to any potential civil or criminal liability under federal law.

Sec. 8-6 Application

Every applicant for an adult use marijuana establishment must file an application under oath with the city clerk's office upon a form provided by the city, which shall fulfill all of the requirements indicated on the form, including but not limited to:

- (a) The name, age, and address of applicant and operator
 - i. Name, age and address of the applicant and all partners of the applicant, including proof that the applicant and/or proposed employees are at least 21 years of age.
 - ii. Name, age and address of the operator of the facility in cases where this differs from the applicant.
 - iii. In the case of corporations, partnerships, non-profit organizations, or other business types, the applicant shall be the highest level official or employee of the entity such as, Board President, Chief Executive Officer, Executive Director, or comparable position.
 - iv. If the applicant is a corporation, a copy of the articles of incorporation and current corporation records disclosing the identity and residential addresses of all directors, officers, and shareholders. Include the address of the corporation itself, if different from the address of the Marijuana dispensary or Marijuana

growing/manufacturing facility and the name and address of the resident agent for the corporation.

- v. If the applicant is a partnership, the names and residence address of each of the partners and the partnership itself, if different from the address of the Marijuana dispensary or Marijuana growing/manufacturing facility, and the name and address of the resident agent.
- vi. Photo identification of the applicant and operator and/or driver's license
 - (b) The location and mailing address and all telephone numbers where the business is to be conducted, and the name and address of the property owner, if different from the holder of the permit, and written evidence of the applicant's right to possession of the premises.
 - (c) An area map, drawn to scale, indicating within a radius of one thousand feet (1,000) from the boundaries of the proposed facility site, the proximity of the site to any school, existing medical or adult use facility, zoning permit or similar clearance from the zoning administrator verifying the proposed use of the location at which the permit will be utilized is in compliance with the zoning ordinance.
 - (d) A certificate of occupancy or similar clearance from the building department verifying the structure and premises at which the permit will be utilized is in compliance with building, property maintenance and all other applicable local code provisions. The certificate of occupancy is required within 60 days of the permit being issued, and is required before opening of the facility.
 - (e) A statement that the applicant will not violate any of the laws of the State of Michigan or the ordinances of the City of Ypsilanti in conducting the business in which the license will be used, and that a violation on the premises may be cause for objecting to renewal of the license, or for requesting revocation of the license.
 - (f) A copy of state license approval.
 - (g) A description of the security plan for the facility, including, but not limited to, any lighting alarms, barriers, recording/monitoring devices, and /or security guard arrangements proposed for facility and premises.
 - (h) Proof of insurance for fire damage in the amount of the value of the premises and liability insurance with minimum limits of \$500,000.
 - (i) Description of the process for tracking marijuana quantities and inventory controls including marijuana products received from outside sources.

Description of an operating plan including the following:

- (j) A description of the products and services to be including retail sales of food and/or beverages, if any, and any related accommodations or facilities;
- (k) Detailed description of all marijuana storage facilities

Sec. 8-7 Approval of application

The City Manager or designee may issue a permit for a marihuana establishment if inspections for safety, zoning compliance, state approval, and all other information available to the City verify that the applicant has submitted a full and complete

application, paid the appropriate fee, and has made improvements to the business location consistent with the application and is prepared to operate the business with in compliance with this Code and any other applicable law, rule or regulation. The City Manager or designee will deny any application that does not meet the requirements of this chapter or any other applicable law, rule or regulation or that contains any false or incomplete information.

Sec. 8-8 Violations and penalties

Any person who is found to be in violation of this article shall be responsible for a civil infraction and shall be subject to a fine of not more than \$500.

Sec. 8-9 Social Equity.

1. The City of Ypsilanti will not drug-test workers who are not in safety-sensitive jobs, without reasonable documented cause; random drug-testing is prohibited.
 - a. \$1,000 from each permit fee will be used to promote social equity to negatively impacted communities such as youth program fund, expungement fairs, education on adult-use recreational marihuana.
 - i. Good-faith effort in employment: any person or entity receiving more than \$10,000 in contract value or benefit from the city must use good-faith efforts in hiring employees who have been negatively impacted by marihuana prohibition. Adult-use recreational marihuana businesses should use good-faith efforts in hiring 25% employees who are low income and live in the area codes of 48197 or 48198
 - ii. The City of Ypsilanti may add requirements that applicants enter Community Benefits Agreements, which may or may not apply to equity applicants a well.
 - iii. LOWEST LAW ENFORCEMENT: This ordinance instructs and authorizes local law enforcement to de-prioritize marihuana investigations (except as conducted in conjunction with licensing authorities) and arrests. The possession or smell of marihuana will no longer constitute probable cause for investigation or arrest.

The investigation, citation, and arrest for marihuana law violations in the City of Ypsilanti shall have the lowest law enforcement priority. This does not apply to distribution to minors.

- iv. For the purpose of law enforcement in the City of Ypsilanti, the following shall not constitute reasonable articulable suspicion of a crime in the absence of other factors:
 - a. The odor of burnt or unburnt marihuana

- b. The possession of or suspicion of possession of marihuana that does not exceed the legal limit in Michigan
- c. The possession of multiple containers of marihuana without evidence of excess of the legal limit in Michigan.
- v. The City of Ypsilanti shall make all reasonable efforts to create spaces for on-site consumption as allowed under state law.

Sec. 8-10. - Non-renewal or revocation.

The city manager may choose to not renew or revoke a permit based on any of the following:

- (1) A failure to meet the conditions or maintain compliance with the standards established by this chapter in reference to applications for a new permit or the renewal of an existing permit;
- (2) One or more violations of any city ordinance on the premises;
- (3) Maintenance of a nuisance on the premises;
- (4) A demonstrated history of excessive calls for public safety (police, fire, and EMS) originating from the premises, being three or more calls in any 30-day period; or
- (5) Nonpayment of real and/or personal property taxes, fines, fees, or liens owed to the city.

Sec. 8-11. - Appeal process.

If an applicant or permitted marihuana facility chooses to appeal denial of a permit or revocation of a permit, they can enter in a written appeal to the clerk's office using a city generated form including the appellant's signature, the requirement or decision from which the appeal is made, and shall state the specific grounds on which the appeal is based. The applicable fee shall be submitted with the notice of the appeal; such fee shall be nonrefundable. Appeals shall be filed within 30 days of the decision in question. City council shall consider the appeal within 30 days of receipt of the appeal.

2. Severability. If any clause, sentence, section, paragraph, or part of this ordinance, or the application thereof to any person, firm, corporation, legal entity, or circumstances, shall be for any reason adjudged by a court of competent jurisdiction to be unconstitutional or invalid, such judgment shall not effect, impair, or invalidate the remainder of this Ordinance and the application of such provision to other persons, firms, corporations, legal entities, or circumstances by such judgment shall be confined in its operation to the clause, sentence, section, paragraph, or part of this Ordinance thereof directly involved in the case or controversy in which such judgment shall have been rendered and to the person, firm, corporation, legal entity, or circumstances then and there involved. It is hereby declared to be the legislative intent of this body that the Ordinance would have been adopted had such invalid or unconstitutional provisions not have been included in this Ordinance.

3. Repeal. All other Ordinances inconsistent with the provisions of this Ordinance are, to the extent of such inconsistencies, hereby repealed.

4. Savings Clause. The balance of the Code of Ordinances, City of Ypsilanti, Michigan, except as herein or previously amended, shall remain in full force and effect. The repeal provided herein shall not abrogate or affect any offense or act committed or done, or any penalty or forfeiture incurred, or any pending fee, assessments, litigation, or prosecution of any right established, occurring prior to the effective date hereof.

5. Copies to be available. Copies of the Ordinance are available at the office of the city clerk for inspection by, and distribution to, the public during normal office hours. A complete copy of the ordinance is also available for inspection on the City's website, www.cityofypsilanti.com.

6. Publication and Effective Date. The City Clerk shall cause this Ordinance, or a summary of this Ordinance, to be published by printing the same in the publication of record. This Ordinance shall become effective after publication at the expiration of 30 days after adoption.

MADE, PASSED, AND ADOPTED BY THE YPSILANTI CITY COUNCIL THIS _____ DAY OF _____, 2019

Andrew Hellenga, City Clerk

Attest

I do hereby confirm that the above Ordinance No. _____ was published in the Washtenaw Legal News on the _____ day of _____, 2019.

Andrew Hellenga, City Clerk

CERTIFICATE OF ADOPTING

I hereby certify that the foregoing is a true copy of the Ordinance passed at the regular meeting of the City Council held on the _____ day of _____, 2019.

Andrew Hellenga, City Clerk

Notice Published: _____
First Reading: _____
Second Reading: _____
Published: _____

#Ordinance No. 1344-Adult USE Marijuana

Effective Date: _____

#Ordinance No. 1344-Adult USE Marijuana



Resolution No. 2019-191
September 10, 2019

RESOLVED BY THE COUNCIL OF THE CITY OF YPSILANTI:

That the public hearing for an ordinance entitled: An ordinance to add a new chapter to the Ypsilanti City Code entitled Chapter 8 -Marihuana, by officially closed.

OFFERED BY: _____

SECONDED BY: _____

YES: NO: ABSENT: VOTE:

This resolution is adopted by the Council of the City of Ypsilanti and approved by the Mayor this 10 day of September 2019

#Resolution No. 2019-191



REQUEST FOR LEGISLATION

TO: Mayor and City Council
FROM: John Barr
DATE: September 10, 2019
SUBJECT: Small Cell Wireless Ordinance

DESCRIPTION:
Small Cell Wireless Ordinance

SUMMARY:

The Michigan State Legislature passed a new law in 2018 that took effect in 2019 providing for the installation of small cell wireless facilities in the state. These facilities are being installed to enable 5G wireless. The statute limits the ability of local government to regulate the facilities.

Attached is an ordinance to regulate the facilities and provide for a permit and application process in accordance with state law. The ordinance follows a model developed by the city of Fenton.

ATTACHMENTS: Proposed Ordinance

RECOMMENDED ACTION: Adoption of the ordinance

CITY MANAGER APPROVAL: _____ COUNCIL AGENDA DATE: _____

CITY MANAGER COMMENTS: _____

FISCAL SERVICES DIRECTOR APPROVAL: _____



Resolution No. 2019-192
September 10, 2019

RESOLVED BY THE COUNCIL OF THE CITY OF YPSILANTI:

IT IS RESOLVED BY THE COUNCIL OF THE CITY OF YPSILANTI that: an ordinance entitled: "Chapter 99 - Small Cell Wireless Facilities" Ordinance be adopted on first reading.

OFFERED BY: _____

SECONDED BY: _____

YES:

NO:

ABSENT:

VOTE:

This resolution is adopted by the Council of the City of Ypsilanti and approved by the Mayor this 10 day of September 2019

#Resolution No. 2019-192



**CITY OF YPSILANTI
NOTICE OF ADOPTED ORDINANCE
ORDINANCE NO. 1345**

An Ordinance Entitled "Small Cell Ord"

THE CITY OF YPSILANTI ORDAINS:

1. **THE CITY OF YPSILANTI HEREBY ORDAINS** That the Ypsilanti City Code is hereby amended by adding Chapter 99 to read as follows:

CHAPTER 99. - SMALL CELL WIRELESS FACILITIES

Sec. 99-1. - Definitions.

Act means the Small Wireless Communications Facilities Deployment Act, Act 365 of 2018.

Authorization means permission from the city to do work in the public rights-of-way, maintain facilities in the public rights-of-way, or deploy a small cell wireless facility in the city, and includes but is not limited to a franchise, a license, a permit, a letter, or construction drawing approval. Multiple authorizations may be required for certain activities.

Colocate means to install, mount, maintain, modify, operate, or replace wireless facilities on or adjacent to a wireless support structure or utility pole. Colocate does not include make-ready work or the installation of a new utility pole or new wireless support structure.

Contractor means and includes any of the following licensed entities performing work on an owner's behalf: contractor; subcontractor; or any employee or agent of a contractor, subcontractor, or owner.

Department means the city department of public service.

Emergency means a condition that poses a clear and immediate danger to life or health, or a significant loss of property, or requires immediate repair to restore service to a group of users of a utility service.

Emergency work means the replacement or repair of damage to active facilities, including main lines and services, where all 811 dig requirements are met.

Excavate means without limitation any cutting, digging, grading, tunneling, boring, or other alteration of the surface or subsurface material or earth in the public way.

Facilities means poles, pipes, culverts, conduits, ducts, cables, wires, fiber, amplifiers, pedestals, antennas, transmission or receiving equipment, other electronic equipment, electrical conductors, manholes, appliances, signs, pavement structures, irrigation systems, landscaping, monument signs, monument mailboxes and any other similar equipment, for public or private use.

Owner means any property owner, company owner, or any entity by which work within the public rights-of-way has been ordered, or any entity on behalf of which any work within the public rights-of-way is caused to be performed, or any agent thereof.

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Person means an individual, association, firm, partnership, limited liability company, joint venture, corporation, government, utility, or other organized entity able to contract for the activities described in this ordinance, whether for profit or not for profit. The term does not include the city.

Public rights-of-way means the area on, below, or above a public roadway, highway, street, alley, easement or waterway. The term "public rights-of-way" does not include a federal, state, or private rights-of-way.

Small cell wireless facility means a wireless facility that meets both of the following requirements:

- (i) Each antenna is located inside an enclosure of not more than six cubic feet in volume or, in the case of an antenna that has exposed elements, the antenna and all of its exposed elements would fit within an imaginary enclosure of not more than six cubic feet.
- (ii) All other wireless equipment associated with the facility is cumulatively not more than 25 cubic feet in volume. The following types of associated ancillary equipment are not included in the calculation of equipment volume: electric meters, concealment elements, telecommunications demarcation boxes, grounding equipment, power transfer switches, cut-off switches, and vertical cable runs for the connection of power and other services.

Utility pole means a pole or similar structure that is or may be used in whole or in part for cable or wireline communications service, electric distribution, lighting, traffic control, signage, or a similar function, or a pole or similar structure that meets the height requirements in section 13(5) of the Act and is designed to support small cell wireless facilities. Utility pole does not include a sign pole less than 15 feet in height above ground.

Wireless facility means equipment at a fixed location that enables the provision of wireless services between user equipment and a communications network, including, but not limited to, radio transceivers, antennas, coaxial or fiber-optic cable, regular and backup power supplies, and comparable equipment, regardless of technological configuration. Wireless facility includes a small cell wireless facility. Wireless facility does not include (i) the structure or improvements on, under, or within which the equipment is colocated, (ii) a wireline backhaul facility, or (iii) coaxial or fiber-optic cable between utility poles or wireless support structures or that otherwise is not immediately adjacent to or directly associated with a particular antenna.

Wireless infrastructure provider : Any person, including a person authorized to provide telecommunications services in this state but not including a wireless services provider, that builds or installs wireless communication transmission equipment, wireless facilities, or small cell wireless support structures and who, when filing an application with the city under the Small Wireless Facilities Deployment Act, Act 365 of 2018, provides written authorization to perform the work on behalf of a wireless services provider.

Wireless provider means a wireless infrastructure provider or a wireless services provider. Wireless provider does not include an investor-owned utility whose rates are regulated by the Michigan Public Service Commission ("MPSC").

Wireless services means any services, provided using licensed or unlicensed spectrum, including the use of Wi-Fi, whether at a fixed location or mobile location.

Wireless services provider means a person that provides wireless services.

Wireless support structure means a freestanding structure designed to support, or capable of supporting, small cell wireless facilities. Wireless support structure does not include a utility pole.

Sec. 99-2. - General requirements.

- (a) No wireless providers shall occupy, wholly or in part, the streets, alleys, or public rights-of-way within the city without first receiving a franchise and consent and permit for that purpose. No wireless provider shall install, collocate, or construct a facility outside the

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streets, alleys or public rights-of-way within the city without receiving a franchise and permit for that purpose.

- (b) No wireless providers shall attach, alter, or modify a city-owned pole or wireless support structure without entering into a license agreement with the city.
- (c) The city may establish appropriate requirements for new franchises, licenses, and ordinance requirements consistent with state and federal law, and may modify the requirements of this article from time to time to reflect changes in the industry. The city further retains the right to make any modifications based on court rules, injunctions, or statutory amendments addressing the federal and state law mandates requiring the city to provide this process under its current regulations. The city further reserves any constitutional or statutory challenges it may have under federal and state law to the process mandated by the Act and federal law, despite its efforts to comply with the law. If any changes to state or federal law allows the city to take a more restrictive approach, the city reserves the right to alter current franchises, consent, permits and licenses.
- (d) Notwithstanding any other provisions of this article to the contrary, a wireless provider shall at all times comply with all laws and regulations of the state and federal government or any administrative agencies thereof. Provided, however, if any such state or federal law or regulation shall require a wireless provider to perform any service, or shall permit a provider to perform any service, or shall prohibit a wireless provider from performing any service, in conflict with the terms of this article or resulting franchise or of any law or regulation of the city, then as soon as possible following knowledge thereof, a wireless provider shall notify the city of the point of conflict believed to exist between such regulation or law and the laws or regulations of the city or any applicable franchise. If after review by the city, or notice of such conflict, the city council may waive the requirements of this article for any individual franchising consent, permit, or license during review and approval of an application for a permit.
- (e) Subject to this article, wireless providers may occupy and use the public rights-of-way to colocate small cell wireless facilities to provide wireless services upon, along, over and under the public rights-of-way in the city such that such collocations do not inhibit other utility installations within the public rights-of-way.
- (f) The city retains its right to impose fees and compensation consistent with federal and state law.
- (g) Wireless providers shall pay taxes for telecommunications services that are subject to taxation.
- (h) Use of the public rights-of-way is allowed only to the extent the City itself possesses such rights.
- (i) Wireless providers shall obtain approvals legally necessary to use the public rights-of-way from owners, other than the city, of property interests in the public rights-of-way or adjacent to the roadway system located within the city. To the extent any wireless provider obtains approval through a statutory authorization, as opposed to review and approval by the city, the wireless provider's placement or location of any small cell wireless facility, wireless facility, and utility pole within the city's public rights-of-way shall comply with the general and specific design and location requirements of this article, or any relevant zoning requirements.
- (j) No wireless provider shall have the exclusive right or privilege to occupy or use the public rights-of-way for delivery of wireless services or any other purpose.
- (k) The city reserves all rights to use the public rights-of-way for any purpose not prohibited by law, including the provision of wireless services, and all rights to grant authorizations to any other person(s), including any wireless provider, to use the public rights-of-way.

- (l) Wireless providers shall have no right, title, or interest in the public rights-of-way, and any franchise, consent, permit, or license provided by the city provides no right, title or interest to occupy any space outside of the public rights-of-way or any private property not owned by the city.
- (m) Wireless providers' use of the public rights-of-way shall not divest the city of any interest in the public rights-of-way.
- (n) The city does not warrant its legal interest in the public rights-of-way.
- (o) Nothing in this section shall be deemed or construed to stop or limit the city from exercising any regulatory, police, governmental, or legislative function pursuant to applicable law, which powers include, but are not limited to, the authority to enact regulations, ordinances, rules, and orders not prohibited by state or federal law that affect the public rights-of-way or a wireless provider's use of the public rights-of-way.
- (p) The terms of this section do not permit the wireless provider to operate a cable system or to provide cable service, as those terms are defined by Section 602 of the Cable Communications Policy Act of 1984, as amended (47 U.S.C. Section 522), or install any wires or facilities that are required to be permitted under the METRO Act, Public Act 48 of 2002, MCL 484.310, without satisfying any additional legal requirements.
- (q) This article only permits the wireless provider, upon obtaining required approvals and permits, to place its small cell wireless facilities in those portions of the public rights-of-way, or in other locations outside the public rights-of-way, approved by the city.
- (r) Under no circumstances shall any wireless provider be permitted to place small cell wireless facilities on any building that is on the National Register of Historic Places, pursuant to 47 C.F.R. § 1.1307(a)(4) without a permit from the Ypsilanti Historic Commission.
- (s) Collocation of small cell wireless facilities shall commence within six months of permit issuance and shall be activated for use no later than one year from the permit issuance date. Failure to commence collocation within six months of permit issuance shall void said permit. A small cell wireless facility located in the public rights-of-way that is not activated within one year of permit issuance shall be considered abandoned and shall be removed from the public rights-of-way at the wireless provider's sole expense.
- (t) A wireless provider shall notify the city in writing of the location and date that any wireless facility located in the city whose use will be discontinued. If the use of the facility is discontinued for 180 days without notice from the owner/operator or the owner of the property or other information indicates that the facility is not in use, the city may declare the facility abandoned. The city will provide notice and provide the wireless provider an opportunity to show cause before the city manager as to why the wireless facility should not be removed. Following determination of the city manager, the city may take the necessary steps to remove the facilities from the city's public rights-of-way.

Sec. 99-3. - Permit required.

- (a) *Permit requirement* . Except as otherwise provided in the Act, a wireless provider seeking to use public rights-of-way in the city for its small cell wireless facilities (including collocation, or installing or replace a utility pole), to colocate small cell wireless facilities outside the public rights-of-way, or to install new wireless support structures or modify existing wireless support structures shall apply for and obtain a permit pursuant to this article.
- (b) *Limitations on facilities in application*. No more than 20 small cell wireless facilities may be included in a single permit application.
- (c) *Application* . A wireless provider shall apply for a permit on an application form made available by the Department of Public Service. A wireless provider shall file four copies of the application with the Director of Public Services, who shall distribute one copy to the city

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manager, one copy to the City Planner, and one copy to the City Attorney. Applications shall be complete and include all required information. An application is not considered complete until all required materials have been submitted and accepted by the city. At a minimum, the applications shall require submission of the following:

- (1) Applicant's contact information, including an address, phone contact, twenty-four-hour emergency contact information, e-mail address (which shall be used to receive application updates from the city), and any applicable license numbers;
- (2) Applicant's contractor and subcontractor information, including the names, addresses, phone contact, e-mail addresses, emergency contact numbers, and name of the supervisor(s) assigned to any facility project of all contractors or subcontractors that will work within the city's public rights-of-way under a permit;
- (3) Number of wireless facilities that will be deployed;
- (4) The scope of the deployment, including whether the deployment is modification of a current facility or utility pole, collocation on an existing utility pole or wireless support structure, or installation of a new or replacement wireless support structure or utility pole;
- (5) GIS maps and coordinates detailing locations for each proposed small cell wireless facility and related facilities associated with each facility;
- (6) Site plan at a scale not smaller than one-inch equals twenty feet with dimensions showing the following:
 - a. Proposed location, including nearest cross street intersection;
 - b. Parcel identification number and property ownership for parcels where the small cell wireless facility is located and parcels located within 75 feet of the proposed facility;
 - c. Height of the proposed facility;
 - d. The distance of the proposed facilities and the nearest property line, roadways, rights-of-way, and utilities within the rights-of-way; and
 - e. Any other proposed improvements that are part of the deployment;
- (7) An application fee as established by the city council;
- (8) Executed franchise, license and consent agreement for access to and use of the city's public rights-of-way, if applicable;
- (9) Specification sheets for all attachments and equipment that will be located within the city, including the dimensional size of the small cell wireless facility and all other wireless equipment;
- (10) Attachment drawings and demonstrations of each type of installation, including photograph simulations showing collocations, new or replacement utility poles, wireless support structures and concealment and design characteristics satisfying this article;
- (11) Pole loading analysis if being colocated on a city utility pole or wireless support structure;
- (12) Attestation that the small cell wireless facilities will be operational for use by a wireless services provider within one year after the permit issuance date;
- (13) Work plan describing the location of the proposed work, the work to be performed, the limits of disturbance to the public rights-of-way and the method and materials to be used;
- (14) Landscape plans for ground-mounted facilities, if applicable;
- (15) Site/structure remediation plans for restoring any public property after removal of the wireless facilities, if applicable;
- (16) Certificate of compliance with FCC radio frequency emission regulations;

- (17) For all new utility poles, replacement utility poles, and wireless support structures, demonstration of compliance with ANSI/TIA 222-G-2 standards;
 - (18) For all new utility poles, replacement utility poles, and wireless support structures, a certification by the wireless provider and a structural analysis sealed by a licensed engineer attesting that the utility poles and wireless support structures will accommodate collocation of additional antennas, including the extent of such collocation space;
 - (19) For all new utility poles, replacement utility poles, and wireless support structures, a statement from a licensed engineer why no current existing utility poles or wireless support structures are adequate to provide the services planned with the wireless facility;
 - (20) An inventory of any existing and approved small cell wireless facilities, utility poles, and wireless support structures that are within the jurisdiction of the city;
 - (21) Copy of all other permits related to the deployment, including any applicable METRO Act application and permit;
 - (22) For deployments in downtown or residential districts, documentation of compliance with design and location requirements;
 - (23) For deployments in the public rights-of-way, documentation showing adequate insurance, including the city named as an additional insured;
 - (24) A performance bond meeting the requirements of this article; and
 - (25) Any additional information requested by the city.
- (d) *Confidential information*. If a wireless provider claims that any portion of the information submitted by it as part of its application contains trade secret, proprietary, or confidential information, which is exempt from the Freedom of Information Act (MCL 15.231 et seq.), the wireless provider shall prominently so indicate on the application.
- (e) *Application fee*. Except as otherwise provided by the Act, the application shall be accompanied by a one-time nonrefundable application fee in the amount as established by city council.
- (f) *Permit approval process*. Permit applications shall comply with the following process.
- (1) *Pre-meeting*. Prior to submission of an application, the city strongly prefers a wireless provider meet with the city to discuss the application process, a wireless provider's intended deployment, and the requirements of this article.
 - (2) *Submission*. After the pre-meeting is conducted, the wireless provider may file the application, including all required documents, fees and information.
 - (3) *Initial review for completeness*. Submitted applications will first be reviewed for completeness to ensure that all required information is included. If an application is deemed incomplete, the city will provide written notice to the wireless provider which clearly delineates all missing documents or information. Any applicable statutory review times will be tolled from the time the wireless provider receives notice from the city that the application is incomplete until the city receives a supplemental submission.
 - (4) *Review by city staff*. Once an application is deemed complete, it will be reviewed by the city manager, the city department of public works, the city building official, the DDA director, the city attorney and any other designees of the city manager.
 - (5) *Post-application meeting*. If review by the city raises any issues or concerns, meetings with the wireless provider and relevant members of the city staff may be requested.
 - (6) *Final approval*. Upon the conclusion of the city's review, the city council will review the application and any recommendations from city staff. If the city council is satisfied

that all the requirements of this article are satisfied, it will approve the application. The wireless provider is requested to attend this meeting.

- (7) *Issuance of permit* . Once an application is approved by the city council, the city department of public works shall issue a permit granting the wireless provider authority to deploy the small cell wireless facility, utility pole, or relocated wireless support structures within the city, including use of the public rights-of-way, if applicable.
- (8) *Notice of completion* . Wireless provider will notify the city within 48 hours after completing the work allowed by the permit.
- (9) *Final inspection* . Within 30 days after receiving notice that the wireless provider has completed the work under the permit, the city will inspect the wireless provider's facilities and make a written report as to the satisfaction of the permit, the City Code, any applicable agreements and state and federal law.
- (g) *Timeline for review* . Applications will be processed consistent with the following timelines:
 - (1) *Collocation requests* . Applications requesting to colocate small cell wireless facilities on utility poles or wireless support structures located within the public rights-of-way will be approved or denied within 60 days after the date the application is submitted, subject to the following:
 - a. The city will determine whether the application is complete within 25 days after the application is submitted. The city will provide written notice to the wireless provider if the application is deemed incomplete and a supplemental response is required.
 - b. If a supplemental response is required, the city's deadline for approving or denying the application will be tolled by however many days it takes for the wireless provider to submit a supplemental response to the city after receiving notice that the wireless provider's application was incomplete. The city will notify the wireless provider whether the application remains incomplete within ten days of receiving a supplemental response. If more than one supplemental response is required, the deadline for approving or denying the application will continue to be tolled by the number of days from when the wireless provider receives notice of incompleteness from the city to when the city receives a supplemental submission from the wireless provider.
 - c. The city may add 15 days to the deadline for approving or denying the application if another wireless provider also submitted an application within seven days of the date of the submission of the application in question.
 - d. The city may extend the deadline for approving or denying the application by an additional 15 days if the city notifies the wireless provider in writing that an extension is needed and the reasons for the extension.
 - e. If the city denies a completed application, it will provide written notice explaining the reason for denial. The wireless provider may cure the identified deficiencies and resubmit its application within 30 days after the denial without paying an additional fee. The city will approve or deny the revised application within 30 days after receiving the revised application.
 - f. The deadline for approving or denying the application may be extended by mutual agreement between the city and the wireless provider.
 - (2) *Requests to install a new or replacement utility pole* : Applications requesting to install a new or replacement utility pole and associated small cell wireless facility within the public right of way will be approved or denied within 90 days after the date the application is submitted. The city will determine whether the application is complete, deny the application, and review and consider a revised application as provided for collocation requests.

- (3) *Requests to install facilities outside the ROW or to modify wireless support structures* . Applications to install or modify small cell wireless facilities outside of the public rights-of-way and applications to modify wireless support structures to be used for small cell wireless facilities will be approved or denied within 90 days after the date the application is submitted, subject to the following:
 - a. The city will determine whether the application is complete within 30 days after the application is submitted. The city will provide written notice to the wireless provider if the application is deemed incomplete and a supplemental response is required.
 - b. If a supplemental response is required, the city's deadline for approving or denying the application will be tolled by however many days it takes for the wireless provider to submit a supplemental response to the city after receiving notice that the wireless provider's application was incomplete. The city will notify the wireless provider whether the application remains incomplete within ten days of receiving a supplemental response. If more than one supplemental response is required, the deadline for approving or denying the application will continue to be tolled by the number of days from when the wireless provider receives notice of incompleteness from the city to when the city receives a supplemental submission from the wireless provider.
 - c. The deadline for approving or denying the application may be extended by mutual agreement between the city and the wireless provider.
- (4) *Requests to install new wireless support structures* . Applications to install or construct new wireless support structures to be used for small cell wireless facilities will be approved or denied within 150 days after the date the application is submitted, subject to the following:
 - a. The city will determine whether the application is complete within 30 days after the application is submitted. The city will provide written notice to the wireless provider if the application is deemed incomplete and a supplemental response is required.
 - b. If a supplemental response is required, the city's deadline for approving or denying the application will be tolled by however many days it takes for the wireless provider to submit a supplemental response to the city after receiving notice that the wireless provider's application was incomplete. The city will notify the wireless provider whether the application remains incomplete within ten days of receiving a supplemental response. If more than one supplemental response is required, the deadline for approving or denying the application will continue to be tolled by the number of days from when the wireless provider receives notice of incompleteness from the city to when the city receives a supplemental submission from the wireless provider.
 - c. The deadline for approving or denying the application may be extended by mutual agreement between the city and the wireless provider.
- (h) *Standards for review for deployments within the public rights-of-way* . The city may grant or deny the location and installation of any small cell wireless facility, utility pole, or wireless support structure to be installed within the public rights-of-way, if installation would:
 - (1) Materially interfere with the safe operation of traffic control equipment.
 - (2) Materially interfere with sight lines or clear zones for transportation or pedestrians.
 - (3) Materially interfere with compliance with the Americans with Disabilities Act of 1990, Public Law 101-336, or similar federal, state, or local standards regarding pedestrian access or movement.
 - (4) Materially interfere with or endanger the use of city bike paths, walkways, parks, or recreational areas used by city residents.

- (5) Materially interfere with maintenance or full unobstructed use of the city's public utility infrastructure.
- (6) Materially interfere with maintenance or full unobstructed use of the city's drainage infrastructure as it was originally designed, or not be located a reasonable distance from the drainage infrastructure to ensure maintenance.
- (7) Fail to comply with spacing requirements as set forth in this article.
- (8) Fail to comply with applicable codes.
- (9) Fail to comply with design and concealment requirements as set forth in this article.
- (i) *Standards of review for collocations outside the public rights-of-way* . The city may grant or deny the collocation of any small cell wireless facility outside the public rights-of-way, if installation would:
 - (1) Be conducted without the consent of the legal owner of the property upon which the small cell wireless facility is to be colocated.
 - (2) Materially interfere with or endanger the use of city bike paths, walkways, parks, or recreational areas used by city residents.
 - (3) Fail to comply with spacing requirements as set forth in this article.
 - (4) Fail to comply with applicable codes.
 - (5) Fail to comply with design and concealment requirements as set forth in this article.
 - (6) Fail to meet zoning requirements.

Sec. 99-4. - General design and location requirements.

Small cell wireless facilities, related equipment and accessories, utility poles and wireless support structures shall comply with the following design and concealment standards:

- (a) *Compatible design* . All small cell wireless facilities and related equipment must use materials, colors, textures, and screening so as to be aesthetically and architecturally compatible with the surrounding environment, including:
 - (1) Be compatible in design to match existing street lights, traffic control devices, utility poles, infrastructure, outside furniture, garbage receptacles, and adjacent buildings.
 - (2) Be aesthetically pleasing based on review and comparison of existing utility poles.
 - (3) Be similar in color to existing architecture and adjacent infrastructure.
- (b) *Lighting*. Facilities, utility poles or wireless support structures shall not be artificially lighted. If lighting is required, the lighting fixtures and installation must cause the least disturbance to surrounding properties and comply with Ypsilanti City Code section 122-609(b).
- (c) *Collocation* . Unless physically or technically infeasible, all wireless facilities shall be constructed to accommodate two or more users. Any wireless provider must openly allow another provider to colocate upon its wireless facility under rates and conditions that are acceptable within the industry to promote collocation. Collocation of small cell wireless facilities is strongly encouraged.
- (d) *Ancillary Facility Equipment* . All other wireless equipment with the facility shall be designed and painted to satisfy this section. The equipment will be required by the city to be located underground in any locations where the equipment will be visible from adjacent roadways and lots and public electrical utility lines are already placed underground. Where underground placement of equipment is not required or would impair service, aboveground placement is permitted upon the city's approval. Ground-mounted equipment shall comply with the following requirements:

- (1) All equipment shall be completely concealed from view within an enclosed cabinet. Cabinets must be compatible in color and design to match existing infrastructure and architecture.
- (2) So as not to impede or impair public safety or the legal use of the public rights-of-way by the traveling public, in no case shall ground-mounted equipment be located closer than two feet from the public rights-of-way, edge line, face of curb, sidewalk, bike lane or shared-use path.
- (3) Ground-mounted equipment shall be located a minimum of 12 feet from any permanent object or existing lawful encroachment in the public rights-of-way to allow for access.
- (4) Ground-mounted equipment must be secured to a concrete foundation or slab with a breakaway design in the event of collisions.
- (5) Ground-mounted equipment must either be screened with plant material that is consistent with the characteristics of the surrounding area, be integrated into the base of an existing utility pole, wireless support structure or other infrastructure, or be otherwise camouflaged so as to be aesthetically and architecturally compatible with surrounding environment, without detracting from the streetscape. The City and the wireless provider shall agree on mutually acceptable design criteria prior to any aboveground deployment.
- (e) *Separation distances* . New utility poles, wireless support structures and ground-mounted equipment shall be installed at least 300 feet from any existing or proposed utility pole, wireless support structures or ground-mounted equipment. Any wireless provider desiring to install utility poles less than 300 feet apart shall demonstrate to the City's satisfaction that the wireless provider could not serve a location without the desired placement.
- (f) *Marking and signage* . No small cell wireless facility, utility pole, wireless support structure or any portion thereof shall have any signage except as expressly permitted by this article or as required by state or federal law. Aerial portions of small cell wireless facilities shall be marked with a marker which shall state wireless provider's name and provide a toll-free number to call for assistance. Underground portions of small cell wireless facilities shall have a stake or other appropriate above ground markers with wireless provider's name and a toll-free number indicating that there is buried equipment below. Any marking required by this section shall not be used for advertising purposes and shall not exceed one square foot in area unless approved by the city.

Sec. 99-5. - Design and location requirements for deployments on existing poles.

Small cell wireless facilities installed on existing utility, street light, traffic signal poles, or wireless support structures located in residential and downtown districts shall comply with the following design and concealment standards:

- (a) The maximum pole height shall be 40 feet.
- (b) They shall be aesthetically pleasing, similar in design to existing infrastructure and architecture, consistent with the local character of the area and shall not detract from the streetscape.
- (c) To the extent practicable, all accessory cables and equipment shall be installed underground.
 - (1) If any equipment cannot be installed underground, then it shall be installed at the base of the pole and concealed with skirting compatible in design and color to the pole.
- (d) Antennae shall be installed within the utility pole and not visible. If any antenna cannot be installed within the utility pole and made not visible, then it shall extend vertically

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from the utility pole or be flush-mounted to the side of the utility pole and shall be designed to be an architecturally compatible extension of the utility pole. The diameter of the antenna shall be consistent with the diameter of the utility pole, not including other appurtenances or extensions from the utility pole, or the base to which the utility pole is mounted. The antenna shall not extend more than ten feet above the top of the utility pole.

Sec. 99-6. - Design and location requirements for deployments requiring new utility poles or wireless support structures.

Small cell wireless facilities requiring the installation of a new utility pole or wireless support structure in residential, historic, and downtown districts shall comply with the following design and concealment standards:

- (a) If possible, utility poles and wireless support structures shall be designed to accommodate small cell wireless facilities for multiple wireless services providers.
- (b) Utility poles shall be located a minimum of 15 feet from any tree, measured to the tree-trunk center. Additionally, 80 percent of the root protection zone shall remain undisturbed. The root protection zone shall either be a six-foot radius around the tree or a one-foot radius for every inch of tree diameter at breast height, whichever is greater. This minimum separation shall not apply for a new utility pole that replaces an existing utility pole, where the new utility pole is installed in the same place as, or immediate vicinity of, the existing utility pole.
- (c) Utility poles shall be designed pursuant to city standards or the applicable utility's standard, and function as street light poles, utility poles, or traffic signal poles in consultation with the city or the applicable utility and shall be incorporated into the applicable utility or signaling system.
- (d) Utility poles or wireless support structures shall comply with the following height regulations:
 - (1) In residential districts, the height shall not exceed 33 feet in height from ground level.
 - (2) In downtown districts, the height shall not exceed ten percent of an adjacent building or exceed 40 feet in height from ground level, whichever is less.
 - (3) In all other districts, the height shall not exceed 40 feet in height from ground level.
- (e) Utility poles shall be designed and installed with materials and appearance consistent with existing utility poles in the adjacent public way, unless materials and appearance are prescribed by other ordinance, law, or city requirements. Utility poles shall be aesthetically pleasing, consistent with the local character of the area and shall not detract from the streetscape.
- (f) Antennae shall be installed within the utility pole and not visible. If any antenna cannot be installed within the utility pole and made not visible, then it shall extend vertically from the utility pole or be flush-mounted to the side of the utility pole and shall be designed to be an architecturally compatible extension of the utility pole. The diameter of the antenna shall be consistent with the diameter of the utility pole, not including other appurtenances or extensions from the utility pole, or the base to which the utility pole is mounted. The antenna shall not extend more than five feet above the top of the utility pole.
- (g) To the extent practicable, all accessory cables and equipment shall be installed within the pole or placed underground as required by this article, unless waived by city council.

Sec. 99-7. - Insurance and bonding requirements for deployments in the public rights-of-way.

#Ordinance No. 1345-Small Cell Ord

- (a) *Insurance* . For deployments in the public rights-of-way, the wireless provider shall furnish proof of insurance in an amount and form satisfactory to the city, naming the city as an additional insured. Such insurance shall cover a period of not less than the term of this permit and shall provide that it cannot be cancelled without 30 days advance written notice to the city.
- (b) *Bonding*. Before any work in the public rights-of-way under a permit issued pursuant to this article may commence, a wireless provider shall furnish to the city a performance bond in the form of an irrevocable bank letter of credit form or surety bond form approved by city, in the amount of \$1,000.00 per small cell wireless facility included in the application for a permit, to provide for the reasonable costs of removal of abandoned or improperly maintained small cell wireless facilities, to repair the ROW or to recoup unpaid rates or fees.

Sec. 99-8. - Assignment; speculation.

- (a) *Assignment; transfer* . No permit may be transferred or assigned by a wireless provider without the city's express written permission until the construction and installation of all permitted small cell wireless facilities is completed. After completion of such construction, a wireless provider must provide notice to the city no later than thirty days after any assignment or transfer, provided that the transferee or assignee:
 - (1) Is qualified to perform under the terms of this article, the permit issued by the city and any applicable agreement with the city, and shall be subject to the obligations set forth in the same;
 - (2) Supplies the city with all relevant information required by this Article, the permit issued by the city and any applicable agreement with the city; and
 - (3) Complies with any updated insurance and bond requirements deemed reasonably necessary by the city.
- (b) *Speculation* . Any permit obtained pursuant to this article shall not be held for speculative purposes.

Sec. 99-9. - Revocation of permit; removal.

- (a) *Revocation of permit* . A permit to install small cell wireless facilities issued pursuant to this article shall be revoked upon the occurrence of any of the following events:
 - (1) The wireless provider does not commence construction of the permitted small cell wireless facilities six months after the date of issuance;
 - (2) The permitted small cell wireless facilities are not operational within one year after the date of issuance;
 - (3) The wireless provider or the permitted small cell wireless facilities violate the terms or conditions of this article, any applicable agreement with the city, any permit issued by the city, applicable codes or any relevant provision of state or federal law, and such violations are not corrected within 30 days after receiving written notice from the city;
 - (4) After the permitted small cell wireless facilities become operational, the wireless provider discontinues the use of the small cell wireless facilities for a period of 180 consecutive days;
 - (5) The wireless provider fails to renew the permit, or the permit otherwise expires by its own terms; or
 - (6) The wireless provider voluntarily requests that a permit be terminated.

These deadlines may be extended only with express written permission from the city. If small cell wireless facilities, utility poles or wireless support structures are installed prior to the revocation of a permit, the wireless provider shall comply with the procedures for removal in the following section.

- (b) *Removal of facilities; restoration* .

#Ordinance No. 1345-Small Cell Ord

- (1) A wireless provider shall remove all small cell wireless facilities, utility poles and wireless support structures, and shall restore the site to its preinstallation condition within forty-five (45) days after receiving written notice from the city that a permit issued pursuant to this article has been revoked.
- (2) If the wireless provider does not complete removal and restoration within 45 days after receiving such notice, the city shall have the right, but not the obligation, to complete the removal and restoration and assess the costs and expenses against the wireless provider, including, without limitation, any administrative costs.
- (3) If the city exercises its right to effectuate removal and restoration, the wireless provider shall pay to the city the costs and expenses incurred by the city in performing any removal work and any storage of the wireless provider's property after removal (including any portion of the small cell wireless facilities) within 15 business days of the date of a written demand for this payment from the city. The city may, in its discretion, obtain reimbursement for the above by making a claim under the wireless provider's performance bond. After the city receives the reimbursement payment from the wireless provider for the removal work performed by the city, the wireless provider may obtain the property belonging to the wireless provider and removed by the city pursuant to this section at no liability to the city within ten business days at the City Hall. If the city does not receive the reimbursement payment from the wireless provider within such 15 business days, or if city does not elect to remove such items at the city's cost after the wireless provider's failure to so remove prior to forty-five (45) days subsequent to the issuance of notice pursuant to this section, any items of the wireless provider's property, including without limitation the small cell wireless facilities, remaining on or about the public rights-of-way or stored by the city after the city's removal thereof may, at the city's option, be deemed abandoned and the city may dispose of such property in any manner allowed by law, and in accordance with any legal rights of persons other than the city who own utility poles located in the public rights-of-way and used by the wireless provider. Alternatively, the city may elect to take title to such abandoned property, regardless of whether the city is provided an instrument satisfactory to the city transferring to the city the ownership of such property.
- (4) The deadline for removal and restoration may be extended only with express written permission from the city.

1. If any clause, sentence, section, paragraph, or part of this ordinance, or the application thereof to any person, firm, corporation, legal entity, or circumstances, shall be for any reason adjudged by a court of competent jurisdiction to be unconstitutional or invalid, such judgment shall not effect, impair, or invalidate the remainder of this Ordinance and the application of such provision to other persons, firms, corporations, legal entities, or circumstances by such judgment shall be confined in its operation to the clause, sentence, section, paragraph, or part of this Ordinance thereof directly involved in the case or controversy in which such judgment shall have been rendered and to the person, firm, corporation, legal entity, or circumstances then and there involved. It is hereby declared to be the legislative intent of this body that the Ordinance would have been adopted had such invalid or unconstitutional provisions not have been included in this Ordinance.

1. All other Ordinances inconsistent with the provisions of this Ordinance are, to the extent of such inconsistencies, hereby repealed.
1. **Savings Clause.** The balance of the Code of Ordinances, City of Ypsilanti, Michigan, except as herein or previously amended, shall remain in full force and effect. The repeal provided herein shall not abrogate or affect any offense or act committed or done, or any penalty or forfeiture incurred, or any pending fee, assessments, litigation, or prosecution of any right established, occurring prior to the effective date hereof.
1. Copies of the Ordinance are available at the office of the city clerk for inspection by, and distribution to, the public during normal office hours. A complete copy of the ordinance is also available for inspection on the City's website, www.cityofypsilanti.com.
1. The City Clerk shall cause this Ordinance, or a summary of this Ordinance, to be published by printing the same in the publication of record. This Ordinance shall become effective after publication at the expiration of 30 days after adoption.

MADE, PASSED, AND ADOPTED BY THE YPSILANTI CITY COUNCIL THIS _____ DAY OF _____, 2019

Andrew Hellenga, City Clerk

Attest

I do hereby confirm that the above Ordinance No. _____ was published in the Washtenaw Legal News on the ____ day of _____, 2019.

Andrew Hellenga, City Clerk

CERTIFICATE OF ADOPTING

I hereby certify that the foregoing is a true copy of the Ordinance passed at the regular meeting of the City Council held on the ____ day of _____, 2019.

Andrew Hellenga, City Clerk

Notice Published: _____
First Reading: _____
Second Reading: _____
Published: _____

#Ordinance No. 1345-Small Cell Ord

Effective Date: _____

#Ordinance No. 1345-Small Cell Ord



Resolution No. 2019-193
September 10, 2019

RESOLVED BY THE COUNCIL OF THE CITY OF YPSILANTI:

That a public hearing for an ordinance entitled: "Chapter 99 - Small Cell Wireless Facilities" be officially closed.

OFFERED BY: _____

SECONDED BY: _____

YES: NO: ABSENT: VOTE:

This resolution is adopted by the Council of the City of Ypsilanti and approved by the Mayor this
10 day of September 2019

#Resolution No. 2019-193

Townships Got Run Over By Wireless Providers: Small Cell Towers Are Coming to Townships

December 2018

During the 2018 lame duck session, many bills were introduced, and some passed, attacking the authority of local government. Senate Bill 637 was one of those bills that did pass and was signed by Governor Snyder. It may have the greatest impact on all townships in 2019 as it opens miles of township rights-of-way with little conditions, and few are prepared for the applications that will ensue. Senate Bill 637, introduced by Senators Hune and Nofs, creates the Small Wireless Communication Facilities Deployment Act ("Small Cell Facilities Deployment Act"). The conditions are far more favorable to the wireless communication providers as the goal of the Small Cell Facilities Deployment Act is to limit restrictions and costs related to wireless infrastructure deployment imposed by local governments. It appears to accomplish this goal. The Act will be effective March 12th, 2019. This E-letter discusses the Small Cell Facilities Deployment Act and its impact on townships.

Higher Cell Phone Usage Requires More Cell Antennas and Towers

The Small Cell Facilities Deployment Act allows for the installation of small cell wireless systems in township public rights-of-way. These systems will be installed within rights-of-way by co-locating antennas on existing poles (i.e., power line poles and traffic control devices) or the installation of new poles and specifically designed support structures. The systems are designed to work with many small antennas mounted close to one another, instead of the tall and large cell towers townships have become accustomed to reviewing and approving. Small cell antennas have a range of less than two miles, requiring a lot of them to ensure adequate and effective coverage.

This system will allow expansive use of emerging “5G networks” or “fifth generation” wireless systems. The 5G networks are designed to offer increased capacity, lower latency times, and faster speeds in a world where more and more data is being consumed through smartphones, tablets and wireless devices. 5G networks employ a frequency bandwidth that limits the distance that the towers can be dispersed. This means that wireless providers will need even more antennas.

The Small Cell Facilities Deployment Act removes local regulation and creates a universal process to streamline deployment for wireless service providers. The removal of local oversight is akin to the limitations placed on townships’ oversight of public rights-of-way through the enactment in 2002 of the Metropolitan Extension Telecommunications Rights-Of-Way Oversight Act (“METRO Act”). Many townships are familiar with METRO Act applications seeking permission to install telecommunication wires in the rights-of-way under a uniform permit process. The application, review process, and permitting process will be similar for small wireless facilities.

The passage of the Small Cell Facilities Deployment Act brings with it a complicated regulatory scheme that largely restricts the typical legislative decision-making process provided to local units of government with respect to access to their rights-of-way and exercise of their zoning authority over cell towers and antennas. While planning for 2019, townships should consider the impacts of this Act and its significant provisions.

“Small cell” is Not so Small

A small cell wireless facility must meet both of the following: (1) each antenna shall not exceed six cubic feet, and (2) all related wireless equipment shall not exceed 25 cubic feet. For purposes of illustration, a small chest freezer at the local home improvement store is typically six to seven cubic feet. The largest model that the home improvement store sells probably does not exceed 20 cubic feet, making permitted wireless equipment 5 cubic feet larger than the largest chest freezer. These items are permitted within township rights-of-way under only the conditions imposed by the Act as of March 12, 2019.

Micro Wireless Facilities are Actually Small

The Act creates a second classification of small wireless facilities called a “micro wireless facility.” A “micro wireless facility” cannot be more than “inches” in length, 15 inches in width, and 12 inches in height, and an exterior antenna no more than 11 inches in length. The Act exempts them from *any* approval, permit, fees or rates. This may even apply to township consent of its own poles, although other Michigan constitutional provisions and state law suggest that must not be a valid interpretation of the Act.

Antennas are Allowed on All-types of Utility Poles

The Act allows expansive use of current public infrastructure for the mounting of small cell facilities. The Act defines “utility” pole to be a “pole or similar structure” that may be or is used

for cable or wireline communication service, electric distribution, lighting, traffic control, signage, or similar structure that meets the height requirements of the Act and is designed to support small cell wireless facilities. Sign poles less than 15 feet in height are excluded. In turn, this should prevent standard traffic control signs (such as a stop sign or yield sign) from becoming wireless cell towers.

Zoning Approvals

Townships are prohibited from requiring zoning review and approval of colocation of small cell facilities on existing poles or to construct a new utility pole so long as the activities occur within the rights-of-way of the townships. The activity must also be on a utility pole not taller than 40 feet (unless a township provides otherwise) or extend more than 5 feet above the utility pole. Even though such activities are not subject to zoning review, these activities are still subject to the township's permit process for use of its rights-of-way. Generally, the installation of small cell facilities *outside* the rights-of-way are subject to zoning regulation.

Overly Complicated Application Approval Timelines

The Act creates two complicated layers for small cell facility approvals:

1. Section 15 of the Act addresses the application process for allowing a small cell facility within the rights-of-way.
2. Section 17 of the Act addresses the application process for zoning review and approval of those small cell facilities that are not exempt from zoning.

In instances where colocation or installation occurs within the rights-of-way, a township must approve an application for collocation of a small cell facility within 60 days and an application for a new pole not exceeding 40 feet within 90 days. If the township does not meet the timelines, the wireless provider could receive automatic approval. Two 15-day extensions are available to a township if an application from another wireless provider was received within one week and if the township gives notice and reason for such extension. The grant or denial of zoning approval must occur within 90 days (not 60 days) for an application to modify a wireless support structure or installation of a small cell facility and 150 days (not 90 days) after an application for a *new* wireless support structure. The parties may mutually agree to extend the time period between the applicant and authority.

Tolling of the Application Approval Timelines

The Act does toll the timelines for incomplete applications. If the application is one to install a facility or utility pole within the rights-of-way, a township must notify the applicant within 25 days after receiving an application whether it is incomplete, identifying the missing document or information. The township's notice would stop the time period running for approval until the applicant made a supplemental submission. Any additional notices of incomplete information

must be provided within 10 days thereafter, and cannot raise new issues from the original notice. Townships must quickly review the application and correctly identify all missing information.

Unlike the 25 days to provide notice of whether an application is complete for installation in a right-of-way, a township must notify the applicant within 30 days after receiving an application for zoning review and approval whether the application is complete. A similar tolling period and notice process applies.

Consolidated Applications

A wireless provider may file a “consolidated application” and receive approval for the issuance of permits allowing collocation of up to 20 small cell facilities within a township’s rights-of-way. The consolidated application process does not appear available for zoning review and approval requests, but there is no reason that a township could not handle zoning review in the same manner. The township’s largest concern will be that the time to review a single application applies to review of a consolidated application. Even so, the wireless provider must ensure the consolidated application covers substantially similar equipment and be placed on similar types of utility poles or wireless support structures. A township may deny one or more antenna locations within a consolidated application, while approving those antennas that satisfy the Act.

Annual Rates

Rates are permitted as a “recurring charge.” A township can charge a wireless provider no more than \$20.00 *annually* for locating a facility within the rights-of-way. Except, if a utility pole or support structure was erected by or on behalf of a wireless provider after March 12, 2019 (the effective date), the township may charge up to \$125.00 *annually*. Every five years, the maximum rates are increased by 10%. Any rates established by a township prior to March 12, 2019 must be modified within 90 days thereafter, except the Act appears to provide an exclusion for agreements or ordinances that address utility poles designed to support small cell facilities or small cell collocations that existed prior to the effective date. For those townships that own poles, the Act allows townships to charge an added rate not to exceed \$30.00 per a year per township-owned pole.

Permit Fees

Fees are a “nonrecurring charge for services.” This refers to applicable permit fees that are authorized under the Act. An application fee for a permit to collocate a small cell facility within a right-of-way is \$200.00. An application fee for small cell facility *and* a new pole is \$300.00. No permit is required to replace a small cell facility with a facility that is not larger or heavier than a permitted facility, routine maintenance of a permitted facility, utility pole, or wireless support structure, or *installation*, operation, or replacement of micro wireless facilities. The Act allows a township to charge higher fees for zoning review and approval. Permit fees for zoning review and

approval shall not exceed \$500.00 for a new small cell wireless facility or modification to a facility, and \$1,000.00 for a new wireless support structure or modification to such a structure.

Design Concealment

A township can adopt written, objective requirements for reasonable, technically feasible, nondiscriminatory, and technologically neutral design or concealment measures in a historic district, downtown district, or residential zoning district. The requirements must be reasonable and feasible to the extent they would not prohibit a wireless provider's technology. The concealment or design measures would not be considered part of the small cell wireless facility for purposes of determining the six cubic feet discussed above. These zoning district specific requirements should be instituted through a proper zoning amendment.

Required Repair of the ROW

A township may require a wireless provider to repair all damage to rights-of-way directly caused by the activities of the provider. If the wireless provider failed to make the repairs required by the township within 60 days after written notice, the township could make the repairs and charge the wireless provider the reasonable, documented cost of repairs.

Indemnification, Insurance, and Bond Requirements

In the morass of complex application timelines, tolling periods, and layered permit fees and rates, the Act generally describes three clear benefits to townships.

1. The Act allows a township to require applicants to defend, indemnify and hold harmless the township against any claims resulting from the applicants' installation and operation of facilities, structures and poles.
2. A township can also require to be named an additional insured on the applicant's insurance policy..
3. The Act further provides that a township can establish bonding requirements so long as the bond serves the purpose of protecting against proliferation of abandoned facilities, repair to the rights-of-way, or to recoup rates that have not been paid in more than 12 months.

These are reasonable conditions to impose given the number of new poles and work that may occur within the rights-of-way in the coming years. Certainly, there may be some user conflict within the rights-of-way, impacts to traffic safety, and damage to the rights-of-way. These requirements will limit township liability.

Limited Reasons for Denial

The Act itself provides a list of reasons that a township could deny an application for a small cell wireless colocation or installation of a utility pole that meets the height requirements within the rights-of-way. Those specified reasons are as follows:

1. Materially interfere with the following:
 - i. Safe operation of traffic control equipment;
 - ii. Sight lines for transportation or pedestrians;
 - iii. Access required by the Americans with Disabilities Act;
 - iv. Maintenance or unobstructed use of public utility infrastructure;
 - v. Maintenance or use of drainage infrastructure.
2. Locate the facility within an unreasonable distance from a drain;
3. Fail to comply with the following:
 - i. Reasonable, nondiscriminatory spacing requirements;
 - ii. Applicable codes;
 - iii. Underground or buried cable and utility facilities requirements;
 - iv. Reasonable stealth or concealment criteria.

If an application is denied, the township must explain the reasons for the denial and cite any specific applicable code provisions that form the basis of the denial.

METRO Act Applicability for Wireline Backhaul Facility

The Act excludes from its scope the installation and placement of “wireline backhaul facilities.” These facilities are the wire or fiber-optic cable necessary to transfer the data sent and received by small wireless facilities. This should require the backhaul network to require approval under the METRO Act.

Michigan’s Automakers Stand to Benefit

Much discussion surrounding the Act’s passage focuses on 5G deployment and cell providers, such as Verizon and AT&T. But, if it is any consolation for the sweeping regulations, the expansive definitions within the Act should allow Michigan’s automakers to deploy wireless facilities that will support smart cars. Expansive rights-of-way exist adjacent to expressways and within urban centers that could easily be deployed for the operation and safety of smart cars. This could advance autonomous cars and also provide implementation of safety technology to limit traffic incidents. Although if automakers are not prepared to start deploying such infrastructure or use similar networks created by current wireless cell providers, future conflicts over rights-of-way space may become problematic. Given Michigan’s long-held relationship with the automobile, there could be significant economic benefit in allowing local automakers regulatory freedom to advance smart car technology. Only time will tell.

- Christopher Patterson

Fahey Schultz Burzych Rhodes PLC, Your Township Attorneys, is a Michigan law firm specializing in the representation of Michigan townships. Our lawyers have more than 150 years of experience in township law and have represented more than 150 townships across the state of Michigan. This publication is intended for our clients and friends. This communication highlights specific areas of law and is not legal advice. The reader should consult an attorney to determine how the information applies to any specific situation.

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"Schultz's easy-going, capable demeanor made him a pleasure to work with."

- John Barker, Union Charter Township



REQUEST FOR LEGISLATION

TO: Mayor and City Council
FROM: John Barr
DATE: September 10, 2019
SUBJECT: Law Enforcement Cooperation

DESCRIPTION:
Law Enforcement Cooperation

SUMMARY:

At the present time this office prosecutes city ordinance violations and traffic violations under the Ypsilanti City Code for Ypsilanti Police Officers and EMU Public Safety Officers. The rationale is that EMU officers can help YPD officers and the City benefits from fines and costs.

YPD also cooperates with the Washtenaw County Sheriff and sheriff cars routinely drive through the city. Authorizing the sheriff deputies to write violations under the City Code will help in law enforcement and make the City a safer place. The proposed ordinance would add sheriff deputies to persons authorized to write violations under the City Code.

ATTACHMENTS: Proposed Ordinance

RECOMMENDED ACTION: Adoption of the ordinance

CITY MANAGER APPROVAL: _____ COUNCIL AGENDA DATE: _____

CITY MANAGER COMMENTS: _____

FISCAL SERVICES DIRECTOR APPROVAL: _____



Resolution No. 2019-195
September 10, 2019

RESOLVED BY THE COUNCIL OF THE CITY OF YPSILANTI:

That the public hearing for AN ORDINANCE TO AMEND CHAPTER 1 "GENERAL PROVISIONS" OF THE YPSILANTI CITY CODE, BY AMENDING SECTION 1-14 "ENFORCEMENT AUTHORITY FOR THE CODE" TO INCLUDE ALL LAW ENFORCEMENT OFFICERS WITH JURISDICTION TO ACT AS LAW ENFORCEMENT OFFICERS WITHIN THE CITY, be officially closed

OFFERED BY: _____

SECONDED BY: _____

YES: NO: ABSENT: VOTE:

This resolution is adopted by the Council of the City of Ypsilanti and approved by the Mayor this 10 day of September 2019

#Resolution No. 2019-195



**CITY OF YPSILANTI
NOTICE OF ADOPTED ORDINANCE
ORDINANCE NO. 1346**

An Ordinance Entitled "Code Enforcement Authority"

THE CITY OF YPSILANTI ORDAINS:

AN ORDINANCE TO AMEND CHAPTER 1 "GENERAL PROVISIONS" OF THE YPSILANTI CITY CODE, BY AMENDING SECTION 1-14 "ENFORCEMENT AUTHORITY FOR THE CODE" TO INCLUDE ALL LAW ENFORCEMENT OFFICERS WITH JURISDICTION TO ACT AS LAW ENFORCEMENT OFFICERS WITHIN THE CITY.

THE CITY OF YPSILANTI HEREBY ORDAINS:

Section 1: Amendments, additions, and deletions to the Code of Ordinances, City of Ypsilanti, Michigan.

That Chapter 1 of the Ypsilanti City Code, entitled "General Provisions", is hereby amended by amending Section 1-14 "Enforcement authority for Code", which Section shall read as follows:

Sec. 1-14. - Enforcement authority for Code.

(a) All law enforcement officers as defined in MCL 28.602, as amended, with jurisdiction to act as law enforcement officers within the City of Ypsilanti, including police officers sworn in by the City of Ypsilanti, Washtenaw County Sheriff Department Deputies, and the following nonpolice personnel are hereby authorized to serve appearance tickets for all ordinance violations and are otherwise authorized to enforce the ordinances of the city:

- (1) City fire chief.
- (2) Fire inspector.
- (3) Fire marshal.
- (4) Chief building inspector.
- (5) Assistant building inspector.
- (6) Ordinance enforcement officer.
- (7) Housing officials.
- (8) Parking meter enforcement personnel.

(b) The law enforcement officers and city officials listed in subsection (a) of this section are hereby given enforcement authority pursuant to Act No. 366 of the Public Acts of Michigan of 1984 (MCL 764.9c, 764.9f).

#Ordinance No. 1346-Code Enforcement Authority

2 Severability. If any clause, sentence, section, paragraph, or part of this ordinance, or the application thereof to any person, firm, corporation, legal entity, or circumstances, shall be for any reason adjudged by a court of competent jurisdiction to be unconstitutional or invalid, such judgment shall not effect, impair, or invalidate the remainder of this Ordinance and the application of such provision to other persons, firms, corporations, legal entities, or circumstances by such judgment shall be confined in its operation to the clause, sentence, section, paragraph, or part of this Ordinance thereof directly involved in the case or controversy in which such judgment shall have been rendered and to the person, firm, corporation, legal entity, or circumstances then and there involved. It is hereby declared to be the legislative intent of this body that the Ordinance would have been adopted had such invalid or unconstitutional provisions not have been included in this Ordinance.

3. Repeal. All other Ordinances inconsistent with the provisions of this Ordinance are, to the extent of such inconsistencies, hereby repealed.

4. Savings Clause. The balance of the Code of Ordinances, City of Ypsilanti, Michigan, except as herein or previously amended, shall remain in full force and effect. The repeal provided herein shall not abrogate or affect any offense or act committed or done, or any penalty or forfeiture incurred, or any pending fee, assessments, litigation, or prosecution of any right established, occurring prior to the effective date hereof.

5. Copies to be Available. Copies of the Ordinance are available at the office of the city clerk for inspection by, and distribution to, the public during normal office hours.

6. Publication and Effective Date. The City Clerk shall cause this Ordinance, or a summary of this Ordinance, to be published according to Section 11.13 of the City Charter. This Ordinance shall become effective after publication at the expiration of 30 days after adoption.

MADE, PASSED, AND ADOPTED BY THE YPSILANTI CITY COUNCIL THIS _____ DAY OF _____, 2019

Andrew Hellenga, City Clerk

Attest

I do hereby confirm that the above Ordinance No. _____ was published in the Washtenaw Legal News on the ____ day of _____, 2019.

Andrew Hellenga, City Clerk

CERTIFICATE OF ADOPTING

#Ordinance No. 1346-Code Enforcement Authority

I hereby certify that the foregoing is a true copy of the Ordinance passed at the regular meeting
of the City Council held on the ____ day of _____, 2019.

Andrew Hellenga, City Clerk

Notice Published: _____

First Reading: _____

Second Reading: _____

Published: _____

Effective Date: _____

#Ordinance No. 1346-Code Enforcement Authority



Resolution No. 2019-194
September 10, 2019

RESOLVED BY THE COUNCIL OF THE CITY OF YPSILANTI:

An Ordinance entitled: AN ORDINANCE TO AMEND CHAPTER 1 "GENERAL PROVISIONS" OF THE YPSILANTI CITY CODE, BY AMENDING SECTION 1-14 "ENFORCEMENT AUTHORITY FOR THE CODE" TO INCLUDE ALL LAW ENFORCEMENT OFFICERS WITH JURISDICTION TO ACT AS LAW ENFORCEMENT OFFICERS WITHIN THE CITY,

Be approved on first reading.

OFFERED BY: _____

SECONDED BY: _____

YES: NO: ABSENT: VOTE:

This resolution is adopted by the Council of the City of Ypsilanti and approved by the Mayor this
10 day of September 2019

#Resolution No. 2019-194



REQUEST FOR LEGISLATION

TO: Mayor and City Council
FROM: Bonnie Wessler
DATE: September 10, 2019
SUBJECT: 2019 Summer Traffic Control Orders

DESCRIPTION:
2019 Summer Traffic Control Orders

SUMMARY:

Per the Uniform Traffic Code (R28.1153) and City Code (§10-32), the City Manager has the authority to regulate traffic via issuance of Traffic Control Orders. Those orders are temporary for a period of 90 days until they are approved by City Council and filed with the Clerk. Residential Permit Parking program TCOs automatically become permanent under §102-101.

Attached are Traffic Control Orders 2019-09 through 2019-13, made effective 7/10, for Council's consideration and approval.

RECOMMENDED ACTION: Approval

ATTACHMENTS: TCO 2019-09, Handicap parking at 211 Woodward
TCO 2019-10, Stop signs at Armstrong/Hilyard Robinson Way
TCO 2019-11, Speed humps on Armstrong
TCO 2019-12, Crosswalk on Armstrong
TCO 2019-13, Speed humps on South Washington

CITY MANAGER APPROVAL: _____ COUNCIL AGENDA DATE: _____

CITY MANAGER COMMENTS: _____

FISCAL SERVICES DIRECTOR APPROVAL: _____



**Resolution No. 2019-196
September 10, 2019**

RESOLVED BY THE COUNCIL OF THE CITY OF YPSILANTI:

WHEREAS, the Traffic Review Committee has reviewed several traffic control requests and made appropriate recommendations based on best practices, City ordinance, and City policy; and

WHEREAS, the City Council reviewed and approved applications made by the public for traffic calming measures on Armstrong and on South Washington; and

WHEREAS, the City Manager has seen fit to issue temporary Traffic Control Orders 2019-09, 2019-10, 2019-11, 2019-12, 2019-13 based on said recommendations; and

WHEREAS, the City Manager recommends City Council provide final approval for the Traffic Control Orders listed above.

NOW THEREFORE BE IT RESOLVED, THAT the City Council hereby approves Traffic Control Orders as listed and an ordinance entitled 2019 Summer Traffic Control Orders by approved on First Reading.

OFFERED BY: _____

SECONDED BY: _____

YES: NO: ABSENT: VOTE:

This resolution is adopted by the Council of the City of Ypsilanti and approved by the Mayor this 10 day of September 2019

#Resolution No. 2019-196



Resolution No. 1347

RESOLVED BY THE COUNCIL OF THE CITY OF YPSILANTI:

An Ordinance Entitled "2019 Summer Traffic Control Orders"

THE CITY OF YPSILANTI ORDAINS:

That the following Traffic Control Orders be made permanent:

TCO 2019-09, Handicap parking at 211 Woodward

TCO 2019-10, Stop signs at Armstrong/Hilyard Robinson Way

TCO 2019-11, Speed humps on Armstrong

TCO 2019-12, Crosswalk on Armstrong

TCO 2019-13, Speed humps on South Washington

OFFERED BY: _____

SECONDED BY: _____

YES:

NO:

ABSENT:

VOTE:

This resolution is adopted by the Council of the City of Ypsilanti and approved by the Mayor this day of

#Resolution No. 1347



Resolution No. 2019-197
September 10, 2019

RESOLVED BY THE COUNCIL OF THE CITY OF YPSILANTI:

That the public hearing for an ordinance titled Traffic Control Orders be officially closed.

OFFERED BY: _____

SECONDED BY: _____

YES: NO: ABSENT: VOTE:

This resolution is adopted by the Council of the City of Ypsilanti and approved by the Mayor this
10 day of September 2019

#Resolution No. 2019-197



**CITY OF YPSILANTI
TRAFFIC CONTROL ORDER**

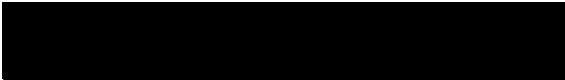
DATE: June 19, 2019
2019-09

ORDER NO: 2019-09

LOCATION: Directly in front of 211 Woodward.

ORDER: Install R7-8 "Reserved Parking - Handicapped" sign and blue strip street and apply handicapped symbol to pavement.

REASON: Resident at 211 Woodward has health issues and a valid Handicapped Placard issued by the State of Michigan.

Approved by: 
Frances McMullan, City Manager

Prepared by: Police Chief A. DeGiusti

Date Completed: _____

By: _____

cc: Frances McMullan, City Manager
Christopher Jacobs, YDDA
Chief Ken Hobbs, YFD

Traffic Review Committee:
Brad Holman, DPS
Bonnie Wessler, Planning
Tony DeGiusti, YPD



**CITY OF YPSILANTI
TRAFFIC CONTROL ORDER**

DATE: June 27, 2019

ORDER NO: 2019-10

LOCATION: Armstrong St at Hilyard Robinson Way.

ORDER: Install R1-1 "Stop" sign and white stop bar at north and south legs of Armstrong Street/Hilyard Robinson Way intersection.

REASON: Council Resolution 2019-135

Approved by

Frances McMullan, City Manager

Prepared by: Bonnie Wessler, City Planner

Date Completed: _____

By: _____

cc: Frances McMullan, City Manager
Christopher Jacobs, YDDA
Chief Ken Hobbs, YFD

Traffic Review Committee:
Brad Holman, DPS
Bonnie Wessler, Planning
Tony DeGiusti, YPD



**CITY OF YPSILANTI
TRAFFIC CONTROL ORDER**

DATE: June 27, 2019

ORDER NO: 2019-11

LOCATION: Armstrong St.

ORDER: Install one speed hump between Hilyard Robinson Way and curve.
Install two speed humps between curve and First Ave.

REASON: Council Resolution 2019-135

Approved by:

Frances McMullan, City Manager

Prepared by: Bonnie Wessler, City Planner

Date Completed: _____

By: _____

cc: Frances McMullan, City Manager

Traffic Review Committee:
Brad Holman, DPS
Bonnie Wessler, Planning
Tony DeGiusti, YPD
Christopher Jacobs, YDDA
Chief Ken Hobbs, YFD



**CITY OF YPSILANTI
TRAFFIC CONTROL ORDER**

DATE: June 27, 2019

ORDER NO: 2019-12

LOCATION: Armstrong St.

ORDER: Paint the crosswalk linking the west side of Armstrong St to the Parkridge Park entrance at the curve in Armstrong.

Install a "pedestrian crossing" W11-2 sign (24"x24") at each vehicular crosswalk approach, with appropriate directional arrow (W16-7P)

REASON: Council Resolution 2019-135

Approved by:

Frances McMullan, City Manager

Prepared by: Bonnie Wessler, City Planner

Date Completed: _____

By: _____

cc: Frances McMullan, City Manager

Traffic Review Committee:

Brad Holman, DPS

Bonnie Wessler, Planning

Tony DeGiusti, YPD

Christopher Jacobs, YDDA

Chief Ken Hobbs, YFD



**CITY OF YPSILANTI
TRAFFIC CONTROL ORDER**

DATE: June 28, 2019

ORDER NO: 2019-13

LOCATION: S Washington St.

ORDER: Place six speed humps and associated signage on South Washington between Ferris and Buffalo, two per block, at the appropriate location approaching each intersection.

REASON: Council Resolution 2019-134

Approved by:

Frances McMullan, City Manager

Prepared by: Bonnie Wessler, City Planner

Date Completed: _____

By: _____

cc: Frances McMullan, City Manager

Traffic Review Committee:
Brad Holman, DPS
Bonnie Wessler, Planning
Tony DeGiusti, YPD
Christopher Jacobs, YDDA
Chief Ken Hobbs, YFD



**CITY OF YPSILANTI
TRAFFIC CONTROL ORDER**

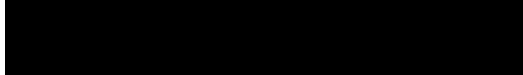
DATE: July 9, 2019

ORDER NO: 2019-14

LOCATION: South Washington: north end of the southern "bay" of parking on the east side in front of 15 S Washington
Ferris: west end of the north side of Ferris, just before the intersection

ORDER: Install R7-8 "Reserved Parking - Handicapped" sign and blue strip street and apply handicapped symbol to pavement at both locations.

REASON: South Washington: ease of access to the business; large clientele with disabilities.
Ferris: no handicap parking had been provided on the north side of the street.

Approved by: 
Frances McMullan, City Manager

Prepared by: Bonnie Wessler, City Planner

Date Completed: _____ By: _____

cc: Frances McMullan, City Manager
Christopher Jacobs, YDDA
Chief Ken Hobbs, YFD

Traffic Review Committee:
Brad Holman, DPS
Bonnie Wessler, Planning
Tony DeGiusti, YPD



Resolution No. 2019-198
September 10, 2019

RESOLVED BY THE COUNCIL OF THE CITY OF YPSILANTI:

That the following items be approved:

1. **Resolution No. 2019-199, approving the minutes of August 27, 2019.**
2. **Resolution No. 2019-200, approving *Ordinance No. 1340* - An Ordinance entitled, "An ordinance to amend Chapter 106, Article V, Section 106-454(a) of the Code of Ordinances to adjust sewage disposal rates. (Second Reading)**
3. **Resolution No. 2019-201, approving *Ordinance No. 1341* - An Ordinance entitled, "An ordinance to amend Chapter 106, Article V, Section 106-454(b) of the Code of Ordinances to adjust water service rates.(Second Reading)**
4. **Resolution No. 2019-202, approving the purchase of two 2020 Ford Police Interceptor SUVs from Gorno Ford.**
5. **Resolution No. 2019-203, appointing City Manager Frances McMullan as an officer delegate to the MERS Conference.**
6. **Resolution No. 2019-204, approving a fireworks display permit for ACE Pyro, LLC, on behalf of Eastern Michigan University.**

OFFERED BY: _____

SECONDED BY: _____

YES: NO: ABSENT: VOTE:

This resolution is adopted by the Council of the City of Ypsilanti and approved by the Mayor this 10 day of September 2019

#Resolution No. 2019-198



**Resolution No. 2019-199
September 10, 2019**

RESOLVED BY THE COUNCIL OF THE CITY OF YPSILANTI:

THAT the minutes of August 27, 2019 be approved.

OFFERED BY: _____

SECONDED BY: _____

YES:

NO:

ABSENT:

VOTE:

This resolution is adopted by the Council of the City of Ypsilanti and approved by the Mayor this
10 day of September 2019

#Resolution No. 2019-199



DRAFT MINUTES REGULAR COUNCIL Meeting

7:00 PM - Tuesday, August 27, 2019
Council Chambers

The REGULAR COUNCIL of the City of Ypsilanti was called to order on Tuesday, August 27, 2019, at 7:00 PM, in the Council Chambers, with the following members present:

PRESENT: Mayor Beth Bashert, Council Member Jennifer Symanns, Council Member Steven Wilcoxon, Council Member Nicole Brown, Mayor Pro-Tem Lois Richardson, Council Member Anthony Morgan, and Council Member Annie Somerville

ABSENT:

I CALL TO ORDER

The meeting was called to order at 7:00 p.m.

II ROLL CALL

III INVOCATION

IV PLEDGE OF ALLEGIANCE

- a) I pledge allegiance to the flag, of the United States of America, and to the Republic for which it stands, one nation, under God, indivisible, with liberty and justice for all.

V AGENDA APPROVAL

The agenda was approved as submitted.

VI INTRODUCTIONS

YCUA Director Jeff Castro, YCUA Board Member Michael Bodary, YCUA Finance Officer Dwayne Harrigan, OHM Vice President of Engineering Kent Early, HR Director Rebecca Craigmile-Heyn, DDA Director Chris Jacobs, DPS Director Ron Akers, Development Director Joe Meyers, City Manager Frances McMullan, City Attorney John Barr, City Clerk Andrew Hellenga

VII PRESENTATIONS

- a) 2019 Park Improvement Update - Christopher Jacobs, Community Development/DDA Director

Community Development Director Christopher Jacobs provided an update about recent park improvements. Council Member Wilcoxon asked if the other sign at Candy Cane park will be updated. Mr. Jacobs responded that another sign may be in the next round of funding. Mr. Morgan thanked Mr. Jacobs for his work. Mayor Bashert added that the parks look great and they are being used more.

VIII PUBLIC COMMENT (3 MINUTES)

1. Beverly Washington James, 968 Monroe, thanked three staff members at the police and fire departments for their assistance with her alarm during the blackout.
2. Chris Jackson, Sticky Ypsi, stated that he wants to be a good neighbor. He has had the privilege of talking to residents and he has heard that there are young people with a lack of resources who are transitioning from high school to college. They are providing 5 students with laptops to begin their college career.
3. Gail Wolkoff, Educate Youth 104 S. Huron, thanked City Council for funding youth programming and for giving money after the shooting over the summer. Funding from the City has covered programming for 16 students, including Friday night movies, swimming at Recreation Park, painting, yoga, and college visits.
4. Kari Burton, 102 Spring, asked about the status of Ordinance 1271 because she still has 60 trucks passing her house at night. The sidewalks are broken in front of her rental properties because of the roadway. She asked Council to allow her to wait to fix the sidewalk until the roadway is fixed.
5. Janelle Sterling, 32 Photo, stated that she lives next to Cultivate Coffee and Tap House. She requested that some do something about the daily excessive noise. The neighbors are also asking for a dead-end sign at Ninde St to stop people from driving on their lawn to turn around. She received a letter from the HDC when she stripped the paint off her door, but the business next door has not been cited for anything.
6. Bryan Foley, 425 Ainsworth Circle, thanked DPS for cleaning out the baseball diamond at Parkridge Park. It was cleaned beyond expectations and they continued to maintain it. The horseshoe pit has been covered for decades, but now people are able to use it. The foreman stayed late to install all the benches on Friday. He thanked DPS, DPS Director Ron Akers, and City Manager Frances McMullan for sending the workers.
7. Anthony Williamson, 591 Armstrong, thanked Council for the speedbumps and stop signs in Parkridge. He asked for more enforcement at the stop signs. Parkridge Park looks beautiful. The office was painted, but they need more facilities improvements. They have had some literacy improvement programming. Mr. Williamson also asked about the process for the festival funding.
8. Cream Inc, 111 S Wallace, stated that they raised \$2,240 through their GoFundMe account. Within the first 30 minutes of the Gun BuyBack event, they ran out of money and bought back 8 guns and 16 rifles. He added that the GoFundMe account will continue as a community endowment and residents can make requests to Council to access it for related community events or needs. There were items stolen from the Parkridge Community Center during the festival. They have set up a GoFundMe to recover some of the items that

were stolen.

9. Kyle Hunter, 430 S Adams, spoke in opposition to the removal of the flags from council chambers.

Mayor Bashert asked City Attorney Barr about the truck ordinance. Mr. Barr responded that he can bring it before Council in an upcoming meeting. Mayor Bashert asked staff to look into the sidewalk issue.

IX ORDINANCES FIRST READING

- a) *Ordinance No. 1340* - An Ordinance entitled, "An ordinance to amend Chapter 106, Article V, Section 106-454(a) of the Code of Ordinances to adjust sewage disposal rates.
 1. Resolution No. 2019-165, determination
 2. Open Public Hearing
 3. Resolution No. 2019-166, close public hearing

YUCA Director Castro gave a brief explanation regarding the sewerage rate increases.

Public Hearing

1. Michael Bodary, 1206 Westmoorland, stated that it is unfortunate that water and sewer rates have risen, but it is due to the increase from the supplier. He thanked Council for appointing him as a member of YCUA Board of Commissioners.

Mayor Pro-Tem Lois Richardson moved, seconded by Council Member Steven Wilcoxon, to approve Resolution No. 2019-166.

RESULT:	CARRIED.
MOVER:	Mayor Pro-Tem Lois Richardson
SECONDER:	Council Member Steven Wilcoxon
AYES:	Jennifer Symanns, Lois Richardson, Beth Bashert, Steven Wilcoxon, Nicole Brown, Anthony Morgan, and Annie Somerville

Mayor Pro-Tem Lois Richardson moved, seconded by Council Member Steven Wilcoxon, to approve Resolution No. 2019-165.

Mayor Pro-Tem Richardson asked if the supplier changed because there was a decrease last year. Mr. Castro replied that the supplier remained the same. Ms. Richardson asked why the rates increased drastically. Mr. Castro responded that it is not a drastic increase compared to the average increase. He added that they use storage to keep rates low.

RESULT:	CARRIED.
MOVER:	Mayor Pro-Tem Lois Richardson
SECONDER:	Council Member Steven Wilcoxon
AYES:	Lois Richardson, Annie Somerville, Beth Bashert, Jennifer Symanns, Steven Wilcoxon, Nicole Brown, and Anthony Morgan

- b) *Ordinance No. 1341* - An Ordinance entitled, "An ordinance to amend Chapter 106,

Article V, Section 106-454(b) of the Code of Ordinances to adjust water service rates.

1. Resolution No. 2019-167, determination
2. Open Public Hearing
3. Resolution No. 2019-168, close public hearing

Mayor Pro-Tem Lois Richardson moved, seconded by Council Member Nicole Brown, to approve Resolution No. 2019-168.

RESULT:	CARRIED.
MOVER:	Mayor Pro-Tem Lois Richardson
SECONDER:	Council Member Nicole Brown
AYES:	Beth Bashert, Jennifer Symanns, Steven Wilcoxon, Nicole Brown, Lois Richardson, Anthony Morgan, and Annie Somerville

Mayor Pro-Tem Lois Richardson moved, seconded by Council Member Nicole Brown, to approve Resolution No. 2019-167.

RESULT:	CARRIED.
MOVER:	Mayor Pro-Tem Lois Richardson
SECONDER:	Council Member Nicole Brown
AYES:	Beth Bashert, Jennifer Symanns, Steven Wilcoxon, Nicole Brown, Lois Richardson, Anthony Morgan, and Annie Somerville

- c) *Ordinance No. 1342* - An Ordinance entitled, "An ordinance to amend City Code adding Chapter 79, Article I Ypsilanti Arts Commission".

1. Resolution No. 2019-169, determination
2. Open Public Hearing
3. Resolution No. 2019-170, close public hearing

Public Hearing

1. Jennifer Goulet, 2136 Collegewood, spoke in favor of the Arts Ordinance. The City has a legacy of arts, culture, and creativity. She prepared a written statement for Council. This is a tremendous opportunity for arts and creative assets in the city. She recommended establishing a plan for the arts and culture.
2. Alice Kepchar, 213 S Hamilton, spoke in favor of the Arts Ordinance as a non-profit theater group.
3. Jessica Tenbusch, owner of Ypsi Alloy Studios, spoke in favor of the Arts Ordinance.

Council Member Annie Somerville moved, seconded by Council Member Jennifer Symanns, to approve Resolution No. 2019-170 to close the public hearing.

RESULT:	CARRIED.
MOVER:	Council Member Annie Somerville
SECONDER:	Council Member Jennifer Symanns
AYES:	Beth Bashert, Jennifer Symanns, Steven Wilcoxon, Nicole Brown, Lois Richardson, Anthony Morgan, and Annie Somerville

Council Member Annie Somerville moved, seconded by Council Member Jennifer Symanns, to table Resolution No. 169.

Mayor Bashert stated that she has received some feedback from Ms. Goulet about some improvements to the ordinance. She entertained a motion to table

the ordinance until September 10th.

RESULT:	CARRIED.
MOVER:	Council Member Annie Somerville
SECONDER:	Council Member Jennifer Symanns
AYES:	Beth Bashert, Jennifer Symanns, Steven Wilcoxon, Nicole Brown, Lois Richardson, Anthony Morgan, and Annie Somerville

X CONSENT AGENDA

- a) Resolution No. 2019-171, approving the Consent Agenda.

Council Member Steven Wilcoxon moved, seconded by Mayor Pro-Tem Lois Richardson, to approve Resolution No. 2019- 171.

RESULT:	CARRIED.
MOVER:	Council Member Steven Wilcoxon
SECONDER:	Mayor Pro-Tem Lois Richardson
AYES:	Steven Wilcoxon, Lois Richardson, Beth Bashert, Jennifer Symanns, Nicole Brown, Anthony Morgan, and Annie Somerville

- b) Resolution No. 2019-172, approving the minutes of July 16, 2019.
- c) Resolution No. 2019-173, approving appointments to boards and commissions
- d) Resolution No. 2019-174, declaring the month of September as, "Turn the Town Teal" in the City of Ypsilanti and approving teal ribbons be placed in observance of the campaign to create awareness of ovarian cancer.
- e) Resolution No. 2019-175, appointing David Blakely from the Department of Public Services as employee delegate, and Lizabeth Schmidt from the Police Department as the alternate to the MERS Annual Meeting.

XI RESOLUTIONS/MOTIONS/DISCUSSIONS

- a) Resolution No. 2019-176, approving a solid waste contract with Stevens Disposal & Recycling Service.

Mayor Bashert asked about on-call pickup. Mr. Barr responded that if someone has a special need they can call in to get that picked up. Ms. Bashert asked about liquidated damages. Mr. Barr responded that when damage is difficult to prove, there is an agreed-upon amount for that damage. Ms. Bashert asked if the non-discrimination ordinance is the same as the City's Non-Discrimination Ordinance.

Council Member Morgan asked what method is used to determine if businesses are linked with Iran economic sanctions. Mr. Barr responded that they are required to file a disclosure statement.

Council Member Nicole Brown moved, seconded by Council Member Anthony Morgan, to approve Resolution No. 2019-176.

RESULT:	CARRIED.
MOVER:	Council Member Nicole Brown
SECONDER:	Council Member Anthony Morgan
AYES:	Beth Bashert, Jennifer Symanns, Steven Wilcoxon, Nicole Brown, Lois Richardson, Anthony Morgan, and Annie Somerville

- b) Resolution No. 2019-177, awarding the brown waste trash contract to GFL.

Council Member Jennifer Symanns moved, seconded by Council Member Nicole Brown, to approve Resolution No. 2019-177.

RESULT:	CARRIED.
MOVER:	Council Member Jennifer Symanns
SECONDER:	Council Member Nicole Brown
AYES:	Beth Bashert, Jennifer Symanns, Steven Wilcoxon, Nicole Brown, Lois Richardson, Anthony Morgan, and Annie Somerville

- c) Resolution No. 2019-178, approving Stormwater, Asset Management, and Wastewater (SAW) Grant for Sewer Video Investigation to Advanced Underground.

Video not present technical difficulties

DPS Director Akers provided a brief explanation about the sewer video investigation.

Council Member Wilcoxon asked if this is just the inspection or if it includes cleaning and repairs. Mr. Akers responded that it only includes inspection. Mr. Wilcoxon asked if the new vactor truck will be able to do the root removal. Mr. Akers responded that it depends on how stuck the roots are. Mayor Bashert asked when they expect the vactor truck to arrive. Mr. Akers responded that it is expected in January or February. Mayor Bashert asked if the cleaning will mitigate the increased flooding that is occurring due to climate change. Mr. Akers replied that the Asset Management Plan will calculate what the system can handle. He added that areas were chosen to include recurring problem areas and areas throughout the city. The data collected will be used as part of the Asset Management Plan.

Council Member Symanns asked if this is a one time project, or if it will occur in other parts of the city. Mr. Akers responded that there may be other grants available for further investigation. Mr. Wilcoxon asked if there was a comprehensive video of the city system. Mr. Akers responded that there is not; this video would be a representative sample of the city. Mr. Morgan asked if the range of bids indicated different levels of service provided. Mr. Akers responded that they were bid for the same work. Council Member Symanns asked about the inspection timeline. Mr. Akers responded that the video will happen in the fall and significant issues can be handled by the vactor truck in the spring.

Council Member Anthony Morgan moved, seconded by Council Member Jennifer Symanns, to approve Resolution No. 2019-178.

RESULT:	CARRIED.
MOVER:	Council Member Anthony Morgan
SECONDER:	Council Member Jennifer Symanns
AYES:	Beth Bashert, Jennifer Symanns, Steven Wilcoxon, Nicole Brown, Lois Richardson, Anthony Morgan, and Annie Somerville

- d) Resolution No. 2019-179, authorizing City Manager Frances McMullan and Director of Public Services Ron Akers as the authorized Representatives of the SAW Grant Agreement.

Video not present technical difficulties

DPS Director Akers explained the purpose of the submitted resolution.

Council Member Wilcoxen asked why there was only one designated signer in the first agreement. Mr. Early responded that there was an interim City Manager at the time. Mayor Bashert asked if it is typical to have the City Manager and the department head as authorized signers. Mr. Barr responded that it is appropriate.

Council Member Nicole Brown moved, seconded by Council Member Anthony Morgan, to approve Resolution No. 2019-179.

RESULT:	CARRIED.
MOVER:	Council Member Nicole Brown
SECONDER:	Council Member Anthony Morgan
AYES:	Nicole Brown, Anthony Morgan, Beth Bashert, Jennifer Symanns, Steven Wilcoxen, Lois Richardson, and Annie Somerville

- e) Resolution No. 2019-180, approving the award of the Community Development Block Grant (CDBG) ADA Ramps Program to Saladino Construction.

DPS Director Akers asked for this item to be tabled until the September 10th meeting to address a minor item.

Council Member Nicole Brown moved, seconded by Council Member Anthony Morgan, to table Resolution No. 2019-180.

RESULT:	CARRIED.
MOVER:	Council Member Nicole Brown
SECONDER:	Council Member Anthony Morgan
AYES:	Lois Richardson, Anthony Morgan, Beth Bashert, Jennifer Symanns, Steven Wilcoxen, Nicole Brown, and Annie Somerville

- f) Resolution No. 2019-181, approving contract with OHM to provide construction engineering for the 2019 Major Road Program not to exceed \$90,700.

DPS Director Akers gave a brief overview of the project. Council Member Wilcoxen asked if the road project will happen simultaneously or if there is a schedule. Mr. Akers responded that they will happen simultaneously; they are meeting with the contractor on Friday to get a better idea of the construction schedule. He added that there is a tentative start date of September 9th. Mayor Bashert asked if this project will address the speeding on N and S Congress. Staff will confirm if this area is included. Mr. Wilcoxen mentioned the petition by residents to put in a speed table at Congress and Oakwood. Mr. Early stated that sections of Congress will be narrowed as part of the project.

Council Member Jennifer Symanns moved, seconded by Council Member Nicole Brown, to approve Resolution No. 2019-181.

RESULT:	CARRIED.
MOVER:	Council Member Jennifer Symanns
SECONDER:	Council Member Nicole Brown
AYES:	Beth Bashert, Jennifer Symanns, Steven Wilcoxen, Nicole Brown, Lois Richardson, Anthony Morgan, and Annie Somerville

- g) Resolution No. 2019-182, approving MDOT Contract #19-5347 for pedestrian

gateway treatment installation work along various routes in the city.

DPS Director Akers provided a brief overview of the project.

Council Member Morgan asked about the timeline of the project. Mr. Akers responded that it will likely start through the fall. Mr. Morgan if there were any foreseeable obstacles. Mr. Akers responded that they will need to communicate with the County Road Commission and AAATA for portions of the project, but it should be done in the fall. Council Member Wilcoxon asked how the sites were chosen. Mr. Akers will follow-up with the City Planner about that process. Council discussed other roads and intersections that need improvement in the city.

Council Member Steven Wilcoxon moved, seconded by Mayor Pro-Tem Lois Richardson, to approve Resolution No. 2019-182.

RESULT:	CARRIED.
MOVER:	Council Member Steven Wilcoxon
SECONDER:	Mayor Pro-Tem Lois Richardson
AYES:	Beth Bashert, Jennifer Symanns, Steven Wilcoxon, Nicole Brown, Lois Richardson, Anthony Morgan, and Annie Somerville

- h) Resolution No. 2019-183, approving Property and Liability Insurance Renewal with Michigan Municipal League (MML) Liability and Property Pool.

Mayor Bashert asked City Manager McMullan how much was budgeted for the insurance renewal. Ms. McMullan stated that the City typically budgets for a 5% increase; this rate increase is due to the increase in full-time staff. Ms. Bashert asked for clarity from the Finance Director about how this increased cost is being handled in the budget. Ms. McMullan responded that it is likely that there will be a request for a budget amendment at a future meeting. Council Member Morgan asked for clarity about the loss ratio. Mr. Barr stated that this is a function of the loss history. Mr. Wilcoxon asked about the dam coverage. Ms. McMullan stated that there is a \$500,000 coverage for the dam on the current liability insurance. Mr. Wilcoxon asked about the increases litigation trends. Mr. Barr responded that litigation varies; there has not been much litigation in the past few years, but there have been a few recent cases.

Council Member Anthony Morgan moved, seconded by Mayor Pro-Tem Lois Richardson, to approve Resolution No. 2019-183.

RESULT:	CARRIED.
MOVER:	Council Member Anthony Morgan
SECONDER:	Mayor Pro-Tem Lois Richardson
AYES:	Lois Richardson, Anthony Morgan, Beth Bashert, Jennifer Symanns, Steven Wilcoxon, Nicole Brown, and Annie Somerville

- i) Resolution No. 2019-184, approving update to voting information provided to tenants upon occupancy as required by Ordinance No. 1320.

Council Member Somerville stated her support for the resolution. Council Member Symanns asked if this is a common practice among municipalities. City Manager McMullan stated that this came out of a suggestion. Council Member Morgan asked about email retention, increased voter turnout, and consequences for not providing this information. Clerk Hellenga responded that failure to provide this information would violate the ordinance. The ordinance does not address

email retention. Mr. Morgan asked about the complaint process. Mr. Hellenga replied that a citizen could file a complaint in the Clerk Department and the City Attorney would investigate.

Council Member Nicole Brown moved, seconded by Council Member Annie Somerville, to approve Resolution No. 2019-184.

RESULT:	CARRIED.
MOVER:	Council Member Nicole Brown
SECONDER:	Council Member Annie Somerville
AYES:	Nicole Brown, Annie Somerville, Beth Bashert, Jennifer Symanns, Steven Wilcoxon, Lois Richardson, and Anthony Morgan

- j) Resolution No. 2019-185, approving Board and Commission funds distribution policy.

Council Member Morgan asked if this is an annual disbursement. Mayor Bashert responded that it is part of the budget and would be considered annually; this is the first year this was included. Council Member Wilcoxon asked how the remaining funds are allocated. Clerk Hellenga replied that it would be first come first serve.

Council Member Annie Somerville moved, seconded by Council Member Anthony Morgan, to approve Resolution No. 2019-185.

RESULT:	CARRIED.
MOVER:	Council Member Annie Somerville
SECONDER:	Council Member Anthony Morgan
AYES:	Beth Bashert, Jennifer Symanns, Steven Wilcoxon, Nicole Brown, Lois Richardson, Anthony Morgan, and Annie Somerville

- k) Resolution No. 2019-186, authorizing and limiting display of city, state and federal flags and symbols in City Hall. (added)

Council Member Morgan stated that it is critical to be inclusive of all members of the community. He does not think that the flags add or take away from the work of Council. He added that he has a clear understanding of who he represents beyond the flags. Council Member Symanns stated that she struggles with this decision because of the meaning of the flags, but understands that it would be difficult to draw the line about which groups to include. She added that Council support is shown through its actions. Council Member Brown stated that she enjoyed having the flags up, but agrees that Council shows its support through actions. She added that she is concerned that there is not a current process to decide what flags are displayed. She stated that if the flags come down, this would be done in an effort to be more inclusive and these communities are still supported by Council.

Council Member Somerville stated that she is in favor of implementing a policy for determining how flags are displayed and thinks that suggesting they may face First Amendment rights issues is a fear tactic. Ms. Somerville added that she would not have an issue if the room was filled with flags and would feel comfortable refusing a request to display the Confederate flag because it represents hate, terrorism, and white supremacy. City Manager McMullan stated that it was brought to her attention as a potential issue. She stated that a few municipalities display the City, State, and US flag and others would be displayed

by resolution on special occasions.

Mayor Bashert suggested that a newly-elected Council could vote on a set of flags that represent the mood of the Council or discuss a time limit for flags to be displayed. She added that it is benign neglect that they are still displaying flags set by a former council and these communities can not be treated with benign neglect. Mayor Pro-Tem Richardson stated that the addition of the other flags was not originally displayed with Council approval. She added that it would be safer to remove the flags to avoid any First Amendment rights concerns.

Ms. Symanns asked Mr. Barr what the City's legal exposure would be to retain the flags. City Attorney Barr stated that it would be difficult to defend against a First Amendment suit once some flags are displayed. The Council continued discussion related to the flags and First Amendment protections.

Council Member Anthony Morgan moved, seconded by Mayor Pro-Tem Lois Richardson, to approve Resolution No. 2019-186.

RESULT:	CARRIED.
MOVER:	Council Member Anthony Morgan
SECONDER:	Mayor Pro-Tem Lois Richardson
AYES:	Jennifer Symanns, Steven Wilcoxon, Nicole Brown, Lois Richardson, and Anthony Morgan
NAYS:	Beth Bashert and Annie Somerville

XII LIAISON REPORTS

1. SEMCOG Update - None
2. Washtenaw Area Transportation Study - None
3. Urban County - None
4. Ypsilanti Downtown Development Authority - RAC negotiations, new parking strategies at next month's meeting, and cigarette butt recycling.
5. Friends of Rutherford Pool - Month delay to get the bid approved.
6. Housing Equity Leadership Team - None

XIII COUNCIL PROPOSED BUSINESS

a) Wilcoxon

1. He attended a town hall from Rep. Dingle about PFAS. It would be good to have primers before town halls. It is interesting that it was held at EMU rather than other elsewhere in the City.
2. The Ward 2 meeting was at the Senior Center. He was a little disappointed with the low turnout of 12 people. He will ask the planning department about a city-wide wrap-up meeting.
3. Staff is working on the preproposal grant to the Department of Natural Resources for the dam removal. He will be meeting with landowners next week.

b) Somerville

1. She hosted a town hall about social equity in recreational marijuana. There was good feedback about local ways to implement social equity. She is looking for a location for further conversations in early September and is working with Mr. Wilcoxon on a potential ordinance.

2. She is working with staff to host a movie (The Great Pumpkin) in the park, tentatively set on October 24th. She may be asking for support from Council.
3. She stated that a resident would like to provide input about the crosswalk to address issues for people who are visually impaired.
4. She would like to see speed reduction from Depot Town to W Cross.
5. She stated that people continue to park on the crosswalks in Depot Town. City Manager mentioned that enforcement in increasing and striping is an option.
6. She added that the City needs to continue to communicate with residents about recycling.

c) Bashert

1. She informed DPS that the sand/ pea gravel in some parks need to be replaced.
2. She asked Mr. Barr for language about the rights of a blocked/closed alley.

d) Brown

1. She is excited about live streaming so that more residents can view City Council meetings.
2. She will be catching up with emails this week after being out of the country.

e) Symanns

1. She asked about the process and rotation schedule for the speed signs. They were in Collegewood for a couple of weeks and were appreciated. She will be in contact with DPS.
2. The striping looks great on Cornell. The intersection at Cornell and Collegewood is a four-way stop but only has striping on the Collegewood side.
3. She asked about the ownership of the broken railing by the Water Tower.

Council Member Steven Wilcoxen moved, seconded by Council Member Nicole Brown, to extend to the City Council meeting until 10:15 p.m.

RESULT:	CARRIED.
MOVER:	Council Member Steven Wilcoxen
SECONDER:	Council Member Nicole Brown
AYES:	Beth Bashert, Jennifer Symanns, Steven Wilcoxen, Nicole Brown, Lois Richardson, Anthony Morgan, and Annie Somerville

f) Morgan

1. He thanked DTMC and Parkridge for their summer youth programs. He also thanked DPS and Director Ron Akers for his leadership.
2. The Ward 3 Visioning Session was exciting to hear from residents. The City Planner was central to facilitating that.
3. He has received a few complaints about leaf and sewer flooding on Norris and on Maple.
4. He attended the meeting with Ypsilanti Township and YMCA about the new recreation center.
5. He has been working with State representatives to shape the language about the social equity program.

6. He hopes Y-Town SWAG will continue to grow.
7. He is excited that weekend festivals were so popular.
8. He thanked City Manager McMullan for her leadership and vision and thanked the Mayor for her consistency.

g) Richardson

1. She thanked Joe for the benches at Parkridge.
2. She asked that Council Members be courteous and inform the ward representatives if they hold a meeting in their ward.
3. She is interested in a budget adjustment from the millage to restore Friday services at the police department.
4. The Summerfest was fantastic. She hopes it will continue to grow. Mayor Bashert asked that waived fees for events be approved by Council.
5. She will work with Council Member Somerville about the marijuana town hall.
6. She will be attending the workmen's compensation fund meeting for MML.

XIV COMMUNICATIONS FROM THE MAYOR

- a) She asked staff if there was a possibility to improve the City website.
- b) EMU, the County, and the City have been working on an event for elected officials to be held at the Freighthouse on October 9th.

Council Member Anthony Morgan moved, seconded by Council Member Steven Wilcoxon, to extend the City Council meeting until 10:30 p.m.

RESULT:	CARRIED.
MOVER:	Council Member Anthony Morgan
SECONDER:	Council Member Steven Wilcoxon
AYES:	Beth Bashert, Jennifer Symanns, Steven Wilcoxon, Nicole Brown, Lois Richardson, Anthony Morgan, and Annie Somerville

- c) She is working with the City Manager, City Attorney, and YCS for a truancy ordinance using restorative justice tactics.

XV COMMUNICATIONS FROM THE CITY MANAGER

- a) The Fire Labor Contract will be on the September 10th meeting.
- b) A presentation about parking strategy implementation will be on September 10th meeting. They have posted a job for the parking manager and will be interviewing people later this week.
- c) The CRISI grant has opened and has an October 18th deadline. They need updated support letters and a second financial source, which they will entertain MDOT or MEDC. They received the check back from OHM about the BUILD grant.

XVI COMMUNICATIONS

- a) Potential dates for Parliamentary Procedure Training
- September 12, 13, 18, 19, or 20th from 1 to 4 pm

Clerk Hellenga will contact MML for alternative dates.

- b) Scheduling a Joint Session of City Council, Planning Commission, and Sustainability Commission for final public hearing and adoption of the Master Plan.

Tuesday, November 26th at 7 p.m.

- c) The Clerk Department will be available during First Fridays from 5 to 6 pm. We will be registering voters and signing up those interested in being on the Permanent Absentee List. Weather permitting we will be located at the Library Plaza, 229 W. Michigan Ave.

Clerk Hellenga added that the Clerk department will be participating in the Risk Limiting Audit Pilot, a new audit system to ensure the outcome of an election.

XVII PUBLIC COMMENT (3 MINUTES)

1. Sylvester Smith, 212 S Hamilton, has had a long history with his neighbors using and damaging his driveway. His neighbor also has trash and overgrown weeds in his yard. There are also issues with speed on Hamilton.

Mayor Bashert asked staff to look into ordinance enforcement and send enforcement tomorrow. Mayor Pro-Tem will follow-up with him about these issues.

XVIII REMARKS FROM THE MAYOR

XIX ADJOURNMENT

- a) Resolution No. 2019-187, adjourning the City Council meeting

The meeting adjourned at 10:26 p.m.

Council Member Jennifer Symanns moved, seconded by Council Member Nicole Brown, to approve Resolution No. 2019-187, adjourning the City Council meeting.

RESULT:	CARRIED.
MOVER:	Council Member Jennifer Symanns
SECONDER:	Council Member Nicole Brown



Resolution No. 2019-200
September 10, 2019

RESOLVED BY THE COUNCIL OF THE CITY OF YPSILANTI:

THAT an Ordinance to amend Chapter 106, Article V, Section 106-454(a) of the Code of Ordinances, City of Ypsilanti, to adjust sewage disposal rates approved on Second and Final Reading.

OFFERED BY: _____

SECONDED BY: _____

YES: NO: ABSENT: VOTE:

This resolution is adopted by the Council of the City of Ypsilanti and approved by the Mayor this 10 day of September 2019

#Resolution No. 2019-200



**CITY OF YPSILANTI
NOTICE OF ADOPTED ORDINANCE
ORDINANCE NO. 1340**

An Ordinance Entitled "Sewage Disposal Rates"

THE CITY OF YPSILANTI ORDAINS:

An ordinance to amend Chapter 106, Article V, Section 106-454(a) of the Code of Ordinances to adjust sewage disposal rates.

BE IT ORDAINED BY THE CITY OF YPSILANTI, that:

Chapter 106, Article V, Section 106-454(a) of the Code of Ordinances shall be amended as follows:

(b) For all billings rendered prior to October 10, 2019, existing sewage disposal rates shall prevail. For all billings rendered on or after October 10, 2019, sewage disposal rates shall be as follows for each bimonthly (two-month) period:

(1) Readiness-to-serve rates based on size of meter:

Meter Size (inch)	Water Rate
5/8-3/4	\$ 16.74
1	\$ 41.84
1-1/2	\$ 83.67
2	\$ 133.88
3	\$ 418.37
4	\$ 836.74
6	\$ 1,673.48
8	\$ 2,928.59
10	\$ 4,602.07
12	\$ 5,438.81

(2) Commodity rate: \$2.99 per 100 cubic feet

#Ordinance No. 1340-Sewage Disposal Rates

MADE, PASSED, AND ADOPTED BY THE YPSILANTI CITY COUNCIL THIS _____ DAY OF _____, 2019

Andrew Hellenga, City Clerk

Attest

I do hereby confirm that the above Ordinance No. _____ was published in the Washtenaw Legal News on the ____ day of _____, 2019.

Andrew Hellenga, City Clerk

CERTIFICATE OF ADOPTING

I hereby certify that the foregoing is a true copy of the Ordinance passed at the regular meeting of the City Council held on the ____ day of _____, 2019.

Andrew Hellenga, City Clerk

Notice Published: _____

First Reading: _____

Second Reading: _____

Published: _____

Effective Date: _____

#Ordinance No. 1340-Sewage Disposal Rates



Resolution No. 2019-201
September 10, 2019

RESOLVED BY THE COUNCIL OF THE CITY OF YPSILANTI:

That an Ordinance to amend Chapter 106, Article V, Section 106-454(b) of the Code of Ordinances to increase water rates within the City of Ypsilanti be approved Second and Final Reading.

OFFERED BY: _____

SECONDED BY: _____

YES:

NO:

ABSENT:

VOTE:

This resolution is adopted by the Council of the City of Ypsilanti and approved by the Mayor this 10 day of September 2019

#Resolution No. 2019-201



**CITY OF YPSILANTI
NOTICE OF ADOPTED ORDINANCE
ORDINANCE NO. 1341**

An Ordinance Entitled "Water Service Rates"

THE CITY OF YPSILANTI ORDAINS:

An ordinance to amend Chapter 106, Article V, Section 106-454(b) of the Code of Ordinances to adjust water service rates.

BE IT ORDAINED BY THE CITY OF YPSILANTI, that:

Chapter 106, Article V, Section 106-454(b) of the Code of Ordinances shall be amended as follows:

(b) For all billings rendered prior to October 10, 2019, existing water service rates shall prevail. For all billings rendered on or after October 10, 2019, water service rates shall be as follows, for each bimonthly (two-month) period:

(1) **Readiness-to-serve rates based on size of meter:**

Meter Size (inch)	Water Rate
5/8-3/4	\$ 19.03
1	\$ 47.59
1-1/2	\$ 95.17
2	\$ 152.27
3	\$ 475.86
4	\$ 951.71
6	\$ 1,903.43
8	\$ 3,330.99
10	\$ 5,234.42
12	\$ 6,186.13

(2) **Commodity rate:** \$5.44 per 100 cubic feet

#Ordinance No. 1341-Water Service Rates

MADE, PASSED, AND ADOPTED BY THE YPSILANTI CITY COUNCIL THIS _____ DAY OF _____, 2019

Andrew Hellenga, City Clerk

Attest

I do hereby confirm that the above Ordinance No. _____ was published in the Washtenaw Legal News on the ____ day of _____, 2019.

Andrew Hellenga, City Clerk

CERTIFICATE OF ADOPTING

I hereby certify that the foregoing is a true copy of the Ordinance passed at the regular meeting of the City Council held on the ____ day of _____, 2019.

Andrew Hellenga, City Clerk

Notice Published: _____

First Reading: _____

Second Reading: _____

Published: _____

Effective Date: _____

#Ordinance No. 1341-Water Service Rates



REQUEST FOR LEGISLATION

TO: Mayor and City Council
FROM: Tony Degiusti
DATE: September 10, 2019
SUBJECT: Replacement of Patrol Vehicles

DESCRIPTION:
Replacement of Patrol Vehicles

SUMMARY:

In the FY 2019-20 budget funds were allocated from the Motor Pool account for the replacement of two patrol vehicles due to excessive wear, mileage and maintenance costs to safely operate the vehicles. The vehicles are scheduled to be replaced by two 2020 Ford Police Interceptor SUVs (one standard and one hybrid). The Ford Police Interceptor SUV is specifically designed to be a patrol vehicle. It is equipped with all wheel drive for superior handling in all types of weather and will accommodate some of the current equipment at the police department. The cost to replace the vehicles is \$33,099 for the standard model and \$36,644.00 for the hybrid model for a total of \$69,743.

The vehicles will be purchased under state bid pricing from Gorno Ford of Woodhaven, MI.

Action Requested:

Approve the purchase of two (2) 2020 Ford Police Interceptor SUVs from Gorno Ford in the amount of \$69,743.00 to be paid for from the Motor Pool account #641-7-9330-987-10.

CITY MANAGER APPROVAL: _____ COUNCIL AGENDA DATE: _____

CITY MANAGER COMMENTS: _____

FISCAL SERVICES DIRECTOR APPROVAL: _____



Resolution No. 2019-202
September 10, 2019

RESOLVED BY THE COUNCIL OF THE CITY OF YPSILANTI:

WHEREAS, the City of Ypsilanti Police Department desires to replace two (2) Patrol Vehicle with 2020 Ford Police Interceptor SUVs, and

WHEREAS, the City of Ypsilanti Police Department has been allocated funds in the FY 2019-20 budget for the purpose of purchasing these vehicles, and

WHEREAS, Gorno Ford of Woodhaven, Michigan has provided State of Michigan bid pricing in the amount of \$69,743.00.

THEREFORE BE IT RESOLVED, that the Chief of Police be authorized to sign all necessary documents needed to execute the vehicle purchase.

OFFERED BY: _____

SECONDED BY: _____

YES: NO: ABSENT: VOTE:

This resolution is adopted by the Council of the City of Ypsilanti and approved by the Mayor this 10 day of September 2019

#Resolution No. 2019-202



REQUEST FOR LEGISLATION

TO: Mayor and City Council
FROM: Rebecca Craigmile
DATE: September 10, 2019
SUBJECT: MERS 73rd Annual Meeting

DESCRIPTION:

MERS 73rd Annual Meeting

SUMMARY:

It is requested that the City Council agenda for September 10, 2019 include consideration of a resolution authorizing the attendance of one officer delegate to attend the Municipal Employees' Retirement System (MERS) Annual Meeting, scheduled for October 3-4, 2019, in Traverse City, MI.

MERS requires a governing body to appoint one officer delegate to attend the conference.

The registration fee is \$250 per person. Because the MERS Annual Meeting is being held in Traverse City, MI and activities will be held at night, lodging will be necessary at the cost of \$194 per night, plus tax. A two night stay is required. Therefore, the total amount of funds required to attend the meeting will be \$388 plus tax and mileage reimbursement (a \$14.95 nightly resort fee will also apply).

RECOMMENDED ACTION:

It is recommended that the City Council approve the appointment of Frances McMullan, City Manager as Officer Delegate to attend the MERS Annual Meeting.

ATTACHMENTS: Proposed Resolution

CITY MANAGER APPROVAL: _____ COUNCIL AGENDA DATE: _____

CITY MANAGER COMMENTS: _____

FISCAL SERVICES DIRECTOR APPROVAL: _____



Resolution No. 2019-203
September 10, 2019

RESOLVED BY THE COUNCIL OF THE CITY OF YPSILANTI:

WHEREAS, the Municipal Employees' Retirement System of Michigan covers all full-time City employees excluding Fire and Police Pension system Members, and

WHEREAS, the Municipal Employees' Retirement System is holding its annual meeting October 3-4, 2019 in Traverse City, MI and

WHEREAS, the Municipal Employees' Retirement System allows one officer delegate to be appointed by a governing body to attend the conference, and

WHEREAS, this governing body has appointed Frances McMullan, City Manager as an officer delegate,

THEREFORE, BE IT RERESOLVED, that this employee be appointed as an officer delegate.

OFFERED BY: _____

SECONDED BY: _____

YES: NO: ABSENT: VOTE:

This resolution is adopted by the Council of the City of Ypsilanti and approved by the Mayor this 10 day of September 2019

#Resolution No. 2019-203



REQUEST FOR LEGISLATION

TO: Mayor and City Council
FROM: Andrew Hellenga
DATE: September 10, 2019
SUBJECT: Additional Fireworks Display Permit Application from Eastern Michigan University

DESCRIPTION:

Additional Fireworks Display Permit Application from Eastern Michigan University

SUMMARY:

On September 18, 2018, a request for a Fireworks Display Permit was received from Andrew Espenshade of ACE Pyro, LLC, on behalf of the Eastern Michigan University Athletic Department. The University would like to have a fireworks display at Rynerson Stadium, 799 N. Hewitt Road, on September 21st, October 12th, October 19th, November 2nd, and November 29th, 2019. Please note this display will be in addition to the previously approved proximate pyrotechnics displays that are employed for the team intro and touchdowns.

Attached is proof of public liability insurance for the proposed display with coverage set at \$10,000,000 and with the City being added as an additional insured.

The City Clerk's office recommends approval of the application subject to inspection and approval of the Ypsilanti Fire Department.

CITY MANAGER APPROVAL: _____ COUNCIL AGENDA DATE: _____

CITY MANAGER COMMENTS: _____

FISCAL SERVICES DIRECTOR APPROVAL: _____



Resolution No. 2019-204
September 10, 2019

RESOLVED BY THE COUNCIL OF THE CITY OF YPSILANTI:

WHEREAS, Andrew Espenshade of ACE Pyro, LLC, on behalf of the Eastern Michigan University Athletic Department has applied for a fireworks permit to allow a fireworks display at Eastern Michigan University's Rynerson Stadium. The fireworks are scheduled on September 21st, October 12th, October 19th, November 2nd, and November 29th, 2019; and

WHEREAS, ACE Pyro, LLC will operate the display and has obtained public liability insurance in the amount of \$10,000,000 and has added the City of Ypsilanti as an additional insured.

NOW THEREFORE BE IT RESOLVED THAT the Ypsilanti City Council approves a Fireworks Display Permit for days; September 21st, October 12th, October 19th, November 2nd, and November 29th, 2019, subject to the inspection and approval of the Ypsilanti Fire Department.

OFFERED BY: _____

SECONDED BY: _____

YES:

NO:

ABSENT:

VOTE:

This resolution is adopted by the Council of the City of Ypsilanti and approved by the Mayor this 10 day of September 2019

#Resolution No. 2019-204



Resolution No. 2019-205
September 10, 2019

RESOLVED BY THE COUNCIL OF THE CITY OF YPSILANTI:

Pursuant to the Small Wireless Communications Facilities Deployment Act 365 of 2018, and Chapter 99 of the Ypsilanti City Code, the following fees at the maximum permitted by state law are determined and set:

1. **Fee for applications:**
 - a. **To deploy small cell wireless facilities within the public right of way,**
 - i. **when such deployment will require a new or replacement utility pole: \$300**
 - ii. **When such deployment will not require a new or replacement utility pole: \$200**
 - b. **For zoning applications to install or modify a wireless support structure: \$1,000**
 - c. **To install or modify a small wireless facility outside the public right of way: \$500**
 - d. **To deploy small cell wireless facilities on non-authority poles, an additional fee of \$100**
2. **Where engineering analysis is required prior to any deployment or make-ready work related to the public right of way: the actual costs incurred by the city in preparing the public right of way for the deployment.**
3. **Annual rent: \$20 per small cell wireless facility per year.**

OFFERED BY: _____

SECONDED BY: _____

YES:

NO:

ABSENT:

VOTE:

This resolution is adopted by the Council of the City of Ypsilanti and approved by the Mayor this 10 day of September 2019

#Resolution No. 2019-205



REQUEST FOR LEGISLATION

TO:**FROM:** Frances McMullan**DATE:** September 10, 2019**SUBJECT:** Youth Serving Mini Grants for FY 19-20 amounting to \$5,000

DESCRIPTION:

Youth Serving Mini Grants for FY 19-20 amounting to \$5,000

SUMMARY:

Through the approval of the FY 2019-2020 Budget City Council approved a sum of 25,000 to be awarded as mini-grants to organizations that serve the youth in the City.

The Cream Incorporated has submitted a grant to assist in funding its gun buyback program and community endowment fund.

Recommended Action:

It is recommended that City Council approve a Youth Serving Mini-Grant for FY 19-20 to The Cream Incorporated, in the amount of \$5,000.

Attachment:

City of Ypsilanti – Youth Programs/Mental Health Mini-Grant application

CITY MANAGER APPROVAL: _____ COUNCIL AGENDA DATE: _____

CITY MANAGER COMMENTS: _____

FISCAL SERVICES DIRECTOR APPROVAL: _____



Resolution No. 2019-206
September 10, 2019

RESOLVED BY THE COUNCIL OF THE CITY OF YPSILANTI:

WHEREAS, In the recently concluded FY 2019-2020, the City Council approved a \$25,000 grant to organizations that serve the youth in the City; and

WHEREAS, The Cream Incorporated is an organization currently serving the youth in the City of Ypsilanti; and

WHEREAS, The Cream has submitted a grant application for expansion of its gun buyback program and community endowment fund; and

NOW THEREFORE BE IT RESOLVED that the Ypsilanti City Council approves a \$5,000 mini grant to The Cream Incorporated.

OFFERED BY: _____

SECONDED BY: _____

YES: NO: ABSENT: VOTE:

This resolution is adopted by the Council of the City of Ypsilanti and approved by the Mayor this 10 day of September 2019

#Resolution No. 2019-206



REQUEST FOR LEGISLATION

TO: Mayor and City Council
FROM: Ron Akers
DATE: September 10, 2019
SUBJECT: DTE Easement for Electrical Service to 116-118 Michigan Avenue

DESCRIPTION:

DTE Easement for Electrical Service to 116-118 Michigan Avenue

SUMMARY:

DTE is requesting an easement over the N. Huron parking lot to provide electrical service to 116-118 W. Michigan Avenue. This electrical service is part of the existing project (Herbal Solutions) and much of the underground work including water/sewer connections has already been completed. The applicant had been issued a right-of-way permit and the applicant will need to restore the surface of the parking lot when the project is completed. The easement has been reviewed by the City Attorney, and he has approved the easement language to form.

RECOMMENDED ACTION:

Staff recommends City Council approves the easement and authorizes the City Clerk to sign the easement on the City's behalf.

ATTACHMENTS: Proposed Easement

CITY MANAGER APPROVAL: _____ COUNCIL AGENDA DATE: _____

CITY MANAGER COMMENTS: _____

FISCAL SERVICES DIRECTOR APPROVAL: _____



Resolution No. 2019-207
September 10, 2019

RESOLVED BY THE COUNCIL OF THE CITY OF YPSILANTI:

WHEREAS, DTE Energy is requesting an easement over city owned property (N. Huron Parking Lot) to provide electrical service to 116-118 W. Michigan Avenue; and,

WHEREAS, City Council has the authority to authorize easements over city owned property; and,

WHEREAS, it is common for utility easements to be located along streets and in parking lots in the City of Ypsilanti;

NOW THEREFORE BE IT RESOLVED THAT that the City of Ypsilanti City Council approves the proposed easement over Tax Identification Number: 11-11-40-0485-026 to provide electrical service to 116-118 W. Michigan Avenue and authorizes the City Clerk to sign the easement on the City's behalf.

OFFERED BY: _____

SECONDED BY: _____

YES: NO: ABSENT: VOTE:

This resolution is adopted by the Council of the City of Ypsilanti and approved by the Mayor this 10 day of September 2019

#Resolution No. 2019-207



July 10, 2019

SW Engineering & Planning
8001 Haggerty Rd.
Belleville MI 48111

City of Ypsilanti
1 South Huron Street,
Ypsilanti, Michigan 48197

Re: W.O. 53899865-53899869

City of Ypsilanti,

DTE Energy has received a request for new service on or adjacent to your property. To process this request, DTE Energy will need permission from you to extend our facilities on, or across your property. A sketch is included, indicating the area of the overhead/underground equipment.

Instructions: Signature(s) of the authorized person(s), witnessed by a Notary, must be in **black ink** (requirement.) Print the name and title of the person signing directly under the signature. At your earliest convenience, please return the executed (**original**) Easement document(s) to:

Bleu Carter
DTE Energy
8001 Haggerty Rd, room 104
Belleville, MI 48111

Please feel free to contact me, if you have any questions or concerns.

Sincerely,

Bleu Carter
Facilitator - Right of Way
bleu.carter@dteenergy.com
Office: 734-397-4032

DTE Electric Company Overhead and Underground Easement (Right of Way) No. 53899865-53899869

On _____, 2019, for the consideration of system betterment, Grantor grants to Grantee a permanent, non-exclusive overhead and underground easement ("Right of Way") in, on, under and across that part of Grantor's Land to be referred to herein as the "Right of Way Area".

"Grantor" is: The City of Ypsilanti, a Michigan Municipal Corporation, whose address is 1 South Huron Street, Ypsilanti, Michigan 48197

"Grantee" is: DTE Electric Company, a Michigan corporation, One Energy Plaza, Detroit, Michigan 48226

"Grantor's Land" is in Section 9 Town 3 South, Range 7 East City of Ypsilanti, County of Washtenaw, and State of Michigan, and is described as follows:

THE LEGAL DESCRIPTION OF THE PARCEL IS MORE PARTICULARLY DESCRIBED ON EXHIBIT "A" ATTACHED HERETO AND MADE A PART HEREOF.

Tax Identification Number(s): 11-11-40-0485-026

More commonly known as: Vacant/W. Michigan Ave, Ypsilanti, MI 48197

The "Right of Way Area" is a twelve (12') foot wide easement on part of Grantor's Land. The centerline of the Right of Way Area shall be established in the as-built location of the centerline of Grantee's facilities, and shall be installed on Grantor's Land in the approximate location described as follows:

EASEMENT DRAWING IS MORE PARTICULARLY DESCRIBED ON EXHIBIT "B" ATTACHED HERETO AND MADE A PART HEREOF.

1. **Purpose:** The purpose of this Right of Way is to construct, reconstruct, modify, add to, repair, replace, inspect, operate and maintain overhead and underground utility facilities which may consist of underground vaults, pipelines, poles, guys, anchors, wires, manholes, conduits, pipes, cables, transformers and accessories.
2. **Access:** Grantee has the right of pedestrian and vehicular ingress and egress to and from the Right of Way Area over and across Grantor's Land.
3. **Buildings or other Permanent Structures:** No buildings or other permanent structures or improvements may be constructed or placed in the Right of Way Area without Grantee's prior, written consent. Grantor agrees, at its own expense, to remove any improvement that interferes with the safe and reliable operation, maintenance and repair of Grantee's facilities upon the written demand of Grantee. If Grantor fails to comply with such demand, Grantor agrees that Grantee may remove any such improvement and bill Grantor for the cost thereof, which cost Grantor shall pay within thirty (30) days after demand therefor.
4. **Excavation:** Pursuant to 2013 Public Act 174, MISS DIG (1-800-482-7171 or 811 in some areas) must be called before any excavation in the Right of Way Area may proceed.
5. **Trees, Bushes, Branches, Roots, Structures and Fences:** Grantee may trim, cut down, remove or otherwise control any trees, bushes, branches and roots growing or that could grow or fall in the Right of Way Area and remove any structures, improvements, fences, buildings or landscaping in the Right of Way Area that Grantee believes could interfere with the safe and reliable construction, operation, maintenance and repair of Grantee's facilities. No landscaping, trees,

plant life, structures, improvements or fences may be planted, grown or installed within 8 feet of the front door, or within 2 feet of the other sides, of transformers or switching cabinet enclosures, and Grantee shall not be responsible for any damage to, or removal of, landscaping, trees, plant life, structures, improvements and/or fences located in such areas.

6. **Restoration:** If Grantee's agents, employees, contractors, subcontractors, vehicles or equipment damage Grantor's Land while entering Grantor's Land for the purposes stated in this Right of Way, then Grantee will restore Grantor's Land as nearly as is reasonably practicable to the condition in which it existed prior to such damage. Restoration with respect to paved surfaces shall consist of asphalt cold patching of the damaged portion of any asphalted surfaces when the weather conditions suggest such use and the cement patching of the damaged portion of any cemented surfaces. Grantee shall have no liability, however, for the restoration or cost of any improvements located within the Right of Way Area, including, but not limited to, parking islands, gutters, fences or landscaping such as trees, bushes, or flowers (but not a simple lawn which, if damaged, will be patched and re-seeded by Grantee) that are damaged by Grantee in the course of constructing, reconstructing, modifying, adding to, repairing, replacing, operating or maintaining its facilities as described in paragraph 1 above.

7. **Successors:** This Right of Way runs with the land and binds and benefits Grantor's and Grantee's successors and assigns.

8. **Exemptions:** This Right of Way is exempt from transfer tax pursuant to MCL 207.505(a) and MCL 207.526(a).

9. **Governing Law:** This Right of Way shall be governed by the laws of the State of Michigan.

Grantor: The City of Ypsilanti

By: _____

Name: _____

Title: _____

Acknowledged before me in _____ County, Michigan, on _____, 2019, by _____, the _____ of the City of Ypsilanti, a Michigan Municipal Corporation.

Notary's
Stamp _____

Notary's
Signature _____

Acting in _____ County, Michigan

Print Name _____

Drafted by and when recorded, return to: Bleu Carter DTE Energy 8001 Haggerty Rd room 104 Belleville MI 48111
PLEASE USE BLACK INK

Exhibit B page 1 of 2

DESCRIPTION PARCEL 11-11-40-488-026

Commencing at the Southeast corner of Lot 116, of the "ORIGINAL PLAT OF THE VILLAGE (NOW CITY) OF YPSILANTI, MICHIGAN" as recorded in Transcripts, Page 162, Washington County Records; thence N00°52'58"E 85.00 feet along the Westerly right-of-way line of Huron Street to the POINT OF BEGINNING; thence N89°04'58"W 42.83 feet; thence N00°52'58"E 6.00 feet; thence N89°04'58"W 34.57 feet; thence S00°52'58"W 5.00 feet; thence N89°04'58"W 4.87 feet; thence N00°52'58"E 5.00 feet; thence N89°04'58"W 33.83 feet; thence S00°52'58"W 5.00 feet; thence N89°04'58"W 166.50 feet; thence N00°53'02"E 5.00 feet; thence N89°04'58"W 49.64 feet to a point on the Easterly right-of-way line of Washington Street that bears N00°53'02"E 91.00 feet from the Southwest corner of Lot 118 of said "ORIGINAL PLAT OF THE VILLAGE (NOW CITY) OF YPSILANTI, MICHIGAN"; thence along said Easterly right-of-way line N00°53'02"E 10.00 feet; thence S89°04'58"E 108.30 feet; thence N00°52'58"E 85.19 feet; thence N89°08'34"W 3.30 feet; thence N00°53'02"E 168.43 feet to a point on the Southerly right-of-way line of Pearl Street, that bears S89°08'29"E 105.00 feet from the Northwest corner of Lot 112 of said "ORIGINAL PLAT OF THE VILLAGE (NOW CITY) OF YPSILANTI, MICHIGAN"; thence along said Southerly right-of-way line S89°08'29"E 10.50 feet; thence S00°53'02"W 115.50 feet; thence S89°08'29"E 42.76 feet; thence S00°52'58"W 18.50 feet; thence S89°08'29"E 26.00 feet; thence N00°52'58"E 19.50 feet; thence S89°08'29"E 23.25 feet; thence S00°52'58"W 2.00 feet; thence S89°08'29"E 18.00 feet; thence S00°52'58"W 21.46 feet; thence S89°21'41"E 105.00 feet to a point on the Westerly right-of-way line of Huron Street; thence along said Westerly right-of-way line S00°52'58"W 141.31 feet to the Point of Beginning. Being a part of Lots 111 through 118, inclusive, "ORIGINAL PLAT OF THE VILLAGE (NOW CITY) OF YPSILANTI, MICHIGAN" as recorded in Transcripts, Page 162, Washington County Records.

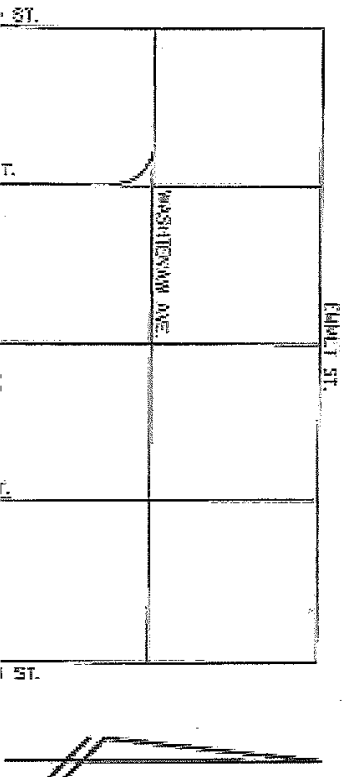
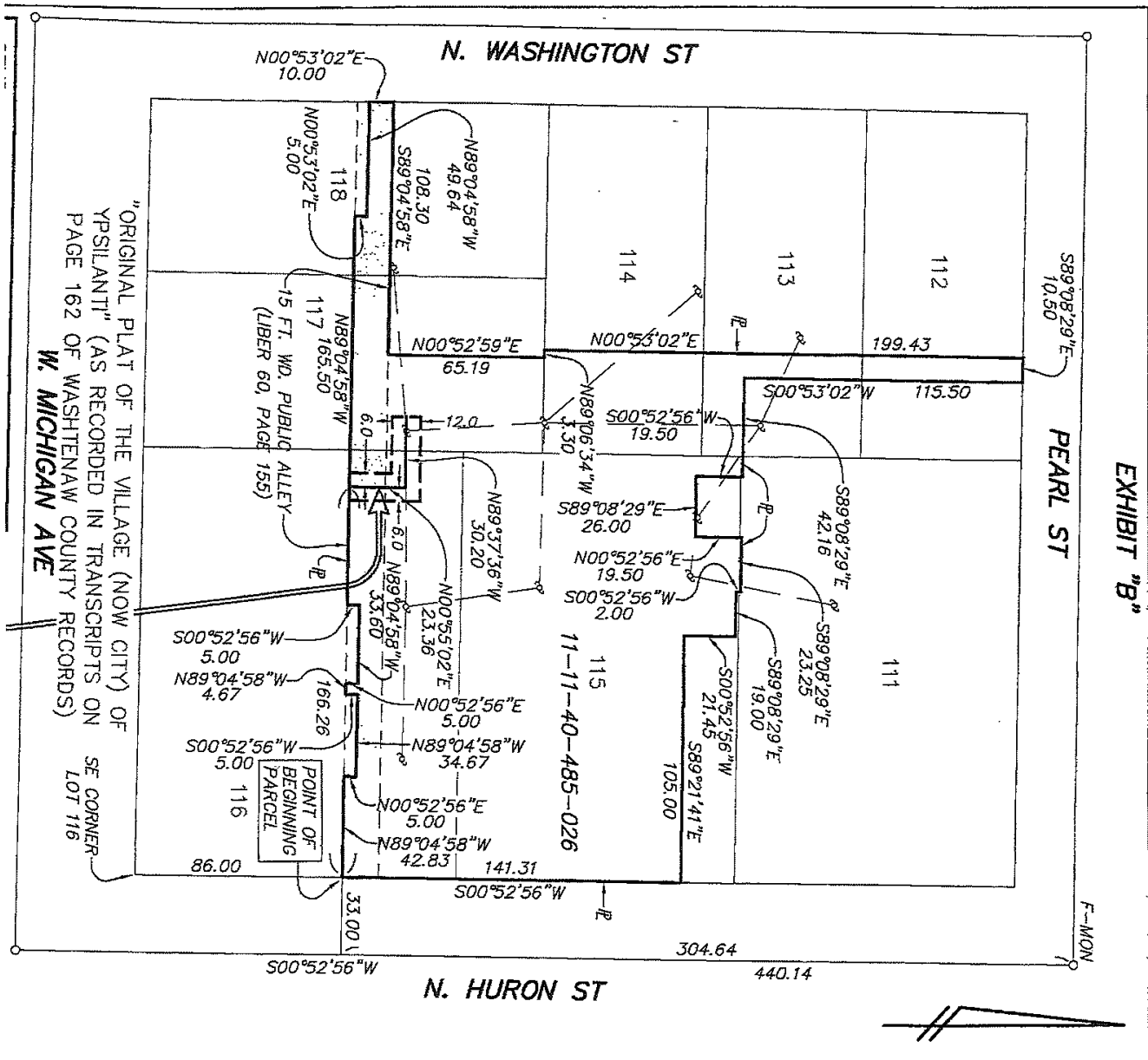


EXHIBIT "B"



"ORIGINAL PLAT OF THE VILLAGE (NOW CITY) OF YPSILANTI" (AS RECORDED IN TRANSCRIPTS ON PAGE 162 OF WASHTENAW COUNTY RECORDS)

Exhibit B page 2 of 2

12 FOOT WIDE UTILITY EASEMENT

A 12 foot wide utility easement having a centerline described as follows: Commencing at the Southeast corner of Lot 116, Original Plat of the Village (now City) of Ypsilanti, Michigan as recorded in Transcripts, Page 162, Washtenaw County Records; thence N00°52'56"E 86.00 feet along the Easterly line of said Lot 116 and the Westerly right-of-way line of North Huron Street; thence N89°04'58"W 166.26 feet along the Southerly line of a 15 foot wide public alley as recorded in Liber 60, Page 155, Washtenaw County Records to the POINT OF BEGINNING; thence N00°55'02"E 23.36 feet; thence N89°37'36"W 32.20 feet to the POINT OF TERMINATION. Being a part of Lot 116, Original Plat of the Village (now City) of Ypsilanti, Michigan, Section 9, T3S, R7E, City of Ypsilanti, Washtenaw County, Michigan as recorded in Transcripts, Page 162, Washtenaw County Records.



REQUEST FOR LEGISLATION

TO: Mayor and City Council
FROM: Ron Akers
DATE: September 10, 2019
SUBJECT: Agreement between Washtenaw County and the City of Ypsilanti for Subaward of Federal Financial Assistance.

DESCRIPTION:

Agreement between Washtenaw County and the City of Ypsilanti for Subaward of Federal Financial Assistance.

SUMMARY:

In order to move forward with the 2019 CDBG Ramps project the City will need to approve the attached subrecipient agreement with Washtenaw County in order to use Community Development Block Grant (CDBG) funds for the project. Washtenaw County participates in HUD's Urban County program in which it receives CDBG funds each year. Washtenaw County allocates some of those funds to the City of Ypsilanti for various projects each year, including \$50,000 per year in ramp improvements. The contract formalizes the responsibilities of the City and the County regarding reporting and following the rules and guidelines set forth by HUD. This contract has been reviewed and approved to form by the City Attorney.

RECOMMENDED ACTION:

Staff recommends City Council approves the agreement between Washtenaw County and the City of Ypsilanti for Subaward of Federal Financial Assistance and authorizes the Mayor to sign the easement on the City's behalf.

ATTACHMENTS: Proposed Subrecipient

CITY MANAGER APPROVAL: _____ COUNCIL AGENDA DATE: _____

CITY MANAGER COMMENTS: _____

FISCAL SERVICES DIRECTOR APPROVAL: _____



Resolution No. 2019-208
September 10, 2019

RESOLVED BY THE COUNCIL OF THE CITY OF YPSILANTI:

WHEREAS, the City of Ypsilanti has been awarded \$50,000 by Washtenaw County to reconstruct sidewalk ramps within the City; and,

WHEREAS, in order to move forward with the project the City of Ypsilanti must enter into an agreement with Washtenaw County for the subaward of Community Development Block Grant Funds (CDBG); and,

WHEREAS, the City of Ypsilanti intends to complete the ramp improvements prior to the end of the calendar year;

NOW THEREFORE BE IT RESOLVED THAT that the City of Ypsilanti City Council approves the agreement between Washtenaw County and the City of Ypsilanti for Subaward of Federal Financial Assistance and authorizes the Mayor to sign the easement on the City's behalf.

OFFERED BY: _____

SECONDED BY: _____

YES: NO: ABSENT: VOTE:

This resolution is adopted by the Council of the City of Ypsilanti and approved by the Mayor this 10 day of September 2019

#Resolution No. 2019-208

Contract # _____

COUNTY OF WASHTENAW, MICHIGAN

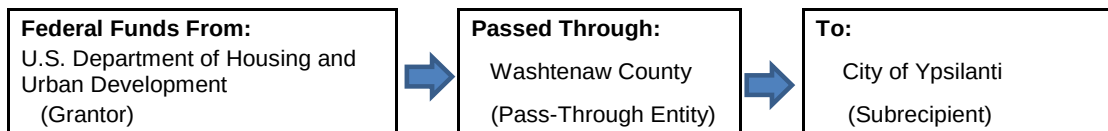
Agreement for Subaward of Federal Financial Assistance

The COUNTY OF WASHTENAW is a recipient of federal financial assistance grant dollars ("GRANTEE"). These funds are received directly from the federal government and indirectly from the State of Michigan and several local entities. The County sometimes passes through a portion of this federal financial assistance to other organizations located within (or in the vicinity of) the geographical boundaries of the County to assist them in carrying out the objectives of the applicable federal grant or program.

AGREEMENT is made this **17th day of July, 2019**, by the COUNTY OF WASHTENAW, a municipal corporation, with offices located in the County Administration Building, 220 North Main Street, Ann Arbor, Michigan, as the pass-through entity (hereinafter referred to as the County) and, **the City of Ypsilanti**, located at **One South Huron Street, Ypsilanti, MI 48197**, (hereinafter often referred to as the Subrecipient).

This agreement is a subaward of federal financial assistance by the County to the Subrecipient intended to assist, stimulate, or support the Subrecipient in carrying out its allowable activities under the **U.S. Department of Housing and Urban Development Community Development Block Grant (CDBG) Program** as requested by the Subrecipient in its application to the County for federal financial assistance.

Flow of Federal Financial Assistance in this Subaward Agreement



ARTICLE I – REQUIRED DATA ELEMENTS

(As detailed in Section 200.331 of the Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards (2 CFR Chapter I, and Chapter II, Parts 200, 215, 220, 225, 230) issued December 26, 2013 by the Executive Office of the President, Office of Management and Budget, hereinafter referred to as the Uniform Guidance.)

Subrecipient Name (must match registered name in DUNS)	City of Ypsilanti
Subrecipient DUNS Number	131336260
Federal Award Identification Number (FAIN)	\$50,000 - B-18-UC-26-006
Federal Award Date (the date when the federal award is signed by the authorized official of the federal awarding agency)	2018 – September 19, 2018
Subaward Period of Performance (start and end date)	7/9/2019-12/31/2019
Amount of Federal Funds Obligated by this Agreement	\$50,000.00
Total Amount of Federal Funds Obligated to the Subrecipient	\$50,000.00

Contract # _____

Total Amount of the Federal Award	2018 – \$2,109,235.00
Federal Award Project Description (as required to be responsive to the Federal Funding Accountability and Transparency Act (FFATA) described in Title 2 Code of Federal Regulations Part 170)	The City of Ypsilanti proposed to reconstruct approximately 46 curb cuts located at 8 specific intersections according to Americans with Disability Act (ADA) and Uniform Federal Accessibility Standards (UFAS).
Name of Federal Awarding Agency	Department of Housing and Urban Development (HUD)
Name of County (Pass-Through Entity)	Washtenaw County
Name and Contact Information for Awarding Official	Gregory Dill 220 N Main PO Box 8645 Ann Arbor, MI 48107 Phone: 734-222-6850
CFDA Number and Name	14 218 – Community Development Block Grant
Is this Subaward for Research and Development? (answer Yes or No)	No
Indirect Cost Rate for the Federal Award (either an approved federally recognized indirect cost rate negotiated between the Subrecipient and the federal government or, if no such rate exists, either a rate negotiated between the County and Subrecipient or a de minimus indirect cost rate of 10% of modified total direct costs may be used). Subrecipient may choose to charge only direct costs to this agreement.	Not applicable

WHEREAS, the Grantee receives funds from the United States Department of Housing and Urban Development (HUD) pursuant to HUD's Community Development Block Grant Entitlement Communities Grants ("CDBG") and the Grantee is authorized to award CDBG funds pursuant to Title 1 of the Housing and Community Development Act of 1974, Public Law 93-383, as amended; 42 U.S.C. 5301, et. seq.; and

WHEREAS, the Grantee has been designated as an entitlement county for the CDBG Program and acts as the lead entity for the Washtenaw Urban County, which consists of the City of Ann Arbor, City of Dexter, City of Saline, City of Ypsilanti, Ann Arbor Township, Augusta Township, Bridgewater Township, Dexter Township, Lima Township, Manchester Township, Northfield Township, Pittsfield Township, Salem Township, Saline Township, Scio Township, Superior Township, Sylvan Township, Webster Township, York Township, and Ypsilanti Township; and

WHEREAS, the Subrecipient has agreed to collaborate with the Office of Community and Economic Development (OCED) to manage this public improvement project; and

In consideration of the mutual covenants and obligations contained in this Agreement, including the Attachments, and subject to the terms and conditions stated, THE PARTIES AGREE AS FOLLOWS:

ARTICLE II - SCOPE OF SERVICES

The Subrecipient will *agree to use Washtenaw Urban County CDBG funds for the eligible costs of re-constructing approximately 46 curb cuts listed and mapped in Attachment A, so that they meet Americans with Disabilities (ADA) and Uniform Federal Accessibility Standards (UFAS). The contract will be paid for with 2018 Urban County CDBG funding in accordance with the budget in Attachment B, **not to exceed Fifty thousand dollars (\$50,000)*** in accordance with the specifications described in this agreement and the budget in Attachment B. The City of Ypsilanti will be responsible for covering any remaining costs in excess of \$50,000.

ARTICLE III - PAYMENT AND CASH MANAGEMENT

If the County is paid in advance by the federal awarding agency under the above named federal assistance award, the Subrecipient may also be paid in advance if it meets the requirements in Section 1 below.

Section 1 - Cash Advances. The Subrecipient may request an advance of funds under this agreement if it maintains or demonstrates the willingness to maintain both:

1. written procedures that minimize the time elapsing between the transfer of funds from the County and the subsequent disbursement of the funds by the Subrecipient,
2. financial management systems that meet the standards for fund control and accountability as defined in Section 200.305 of the Uniform Guidance.

Requests for advance of funds must be limited to the minimum amount needed and must be timed to be in accordance with the actual, immediate cash requirements of the Subrecipient in carrying out the terms of this agreement. The timing and amount of the advance must be as close as is "administratively feasible" to the actual disbursement to be made by the Subrecipient.

Section 2 - Reimbursement. If the Subrecipient does not meet the requirements in Section 1 above, it shall submit periodic reimbursement requests to the County. This may be done on a monthly or quarterly basis. The reimbursement request shall be accompanied by the agreed upon financial and programmatic reports. The County shall pay the Subrecipient within 30 calendar days after the receipt of the reimbursement request and the agreed upon financial/programmatic reports, unless the County reasonably believes the reimbursement request to be improper.

ARTICLE IV - REPORTING OF SUBRECIPIENT

Section 1 - The Subrecipient is to report to Tara Cohen, CDBG Management Analyst, and will cooperate and confer with him/her as necessary to insure satisfactory work progress.

Section 2 - The Subrecipient shall submit financial reports **as requested to Deb Truhn, Senior Fiscal Assistant**. The Subrecipient shall submit programmatic reports **as requested to Tara Cohen**.

Section 3 - All reports, estimates, memoranda and documents submitted by the Subrecipient must be dated and bear the Subrecipient's name. Financial reports shall be submitted in a timely manner to the County and shall be in agreement with the amounts shown in the Subrecipient's financial system and shall be supported by appropriate documentation (payroll records, invoices, etc.). Final financial and programmatic reports shall be submitted by the Subrecipient within 30 days of the end of this agreement unless an extension of time is granted in writing by the County.

Section 4 - The Subrecipient agrees to only incur costs under this agreement which are eligible under the Cost Principles detailed in Section 200.400-475 of the Uniform Guidance.

Contract # _____

Section 5 - The Subrecipient shall retain all reports, records and supporting documentation pertaining to this agreement for a period of three years from the date of submission of the final expenditure report and shall make them available to the County and the federal awarding agency upon request.

Section 6 - All reports made in connection with these services are subject to review and final approval by the County Administrator.

Section 7 - The County may review and inspect the Subrecipient's activities during the term of this agreement.

Section 8 - When applicable, the Subrecipient will submit a final, written report to the County Administrator.

Section 9 - After reasonable notice to the Subrecipient, the County may review any of the Subrecipient's internal records, reports, or insurance policies.

Section 10 - The Subrecipient and/or subcontractors shall disclose in writing to the County any potential conflict of interest it has related to the County or this agreement subject to the provisions 2 CFR 200.318.

Section 11 - The Subrecipient shall disclose in writing to the County in a timely manner all violations of Federal criminal law involving fraud, bribery, or gratuity violations potentially affecting this agreement.

Section 12 - The Subrecipient shall report to the County in a timely manner if any adverse or problematic situations arise between reporting deadlines describing the nature of the problem and what is being done to address it.

ARTICLE V - TERM

This agreement begins on **July 9, 2019** and ends on **December 31, 2019, with an option to extend an additional 6 months**. No costs eligible under this agreement shall be incurred by the Subrecipient before or after these dates, except with prior written approval of the County.

ARTICLE VI- RESPONSIBILITIES OF THE SUBRECIPIENT

Section 1 - The Subrecipient agrees to comply with all applicable federal, State, and local regulations including the Uniform Guidance. The Subrecipient agrees to comply with the management systems standards (financial management (Sections 200.302-304), procurement (Sections 200.317-326), and property management (Sections 200.310-316)) of the Uniform Guidance.

Section 2 - The Subrecipient agrees to have performed a Single Audit of its federal expenditures if it reaches the Single Audit dollar threshold in federal expenditures during its fiscal year as detailed in Section 200.501 of the Uniform Guidance. The County reserves the right to perform or cause to be performed additional audits if it deems such to be necessary to insure compliance with the terms of this agreement or to determine the eligibility of the reported expenditures for reimbursement.

Section 3 - The Subrecipient agrees to comply with the provisions of the Byrd Amendment (Public Law 101-121, Section 319 - 31 U.S. Code Section 1352) which prohibits the use of federal funds

Contract # _____

by the recipient or subrecipient of a Federal contract, grant, loan, or cooperative agreement to pay any person to influence or attempt to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the federal funds awarded under this agreement.

Section 4 – The Subrecipient agrees to comply with the provisions of the Stevens Amendment (Section 8136 of the Department of Defense Appropriations Act – Public Law 100-463) which stipulates that when issuing statements, press releases, requests for proposals, bid solicitations, and other documents describing projects or programs funded in whole or in part with federal money, all grantees receiving federal funds, including but not limited to state and local governments, shall clearly state (1) the percentage of the total cost of the program or project which will be financed with federal money, (2) the dollar amount of federal funds for the project or program, and (3) the percentage and dollar amount of the total costs of the project or program that will be funded by non-governmental sources.

Section 5 - In addition to this agreement, the Subrecipient shall complete, sign, and submit to the County the following documents which are attached as part of this agreement:

1. Standard Assurances
2. Certifications Regarding Lobbying; Debarment, Suspension and Other Responsibility Matters; and Drug-Free Workplace Requirements
3. Audit Certification

ARTICLE VII – SUSPENSION OF FUNDING

The County may suspend funding to the Subrecipient, in whole or in part, or other measures may be imposed for any of the following reasons:

1. Failure to expend funds in a timely manner consistent with the agreement milestones, guidance, and assurances.
2. Failure to comply with the requirements or statutory objectives of federal or state law.
3. Failure to follow agreement requirements or special conditions.
4. Proposal or implementation of substantial plan changes to the extent that, if originally submitted, the application would not have been approved for funding.
5. Failure to submit required reports.
6. Filing of a false certification on the application or other report or document.
7. Failure to adequately manage, monitor or direct the activities of its subrecipients that are funded under this agreement.

Before taking action, the County will provide the Subrecipient reasonable notice of intent to impose corrective measures and will make every effort to resolve the problem informally.

The County reserves the right to recommend to the federal government that the Subrecipient be suspended or debarred in the case of sustained significant noncompliance by the Subrecipient with the award provisions.

Contract # _____

ARTICLE VIII- PERSONNEL

Section 1 - The Subrecipient will provide the required services and will not subaward or assign the services without the County's written approval.

Section 2 - The Subrecipient will not hire any County employee for any of the required services without the County's written approval.

Section 3 - The parties agree that all work done under this agreement shall be completed in the United States and that none of the work will be partially or fully completed by either an offshore entity or offshore business interest either owned or affiliated with the Subrecipient. For purposes of this agreement, the term, "offshore" refers to any area outside the contiguous United States, Alaska or Hawaii.

ARTICLE IX-INDEPENDENT CONTRACTOR

Contractor and the County shall, at all times, be deemed to be independent contractors and nothing herein shall be construed to create or imply that there exists between the parties a partnership, joint venture or other business organization. Contractor shall hold no authority, express or implied, to commit, obligate or make representations on behalf of the County and shall make no representation to others to the contrary.

Nothing herein is intended nor shall be construed for any purpose as creating the relationship of employer and employee or agent and principal between the parties. Except as otherwise specified in this contract, Contractor retains the sole right and obligation to direct, control or supervise the details and means by which the services under this contract are provided.

Contractor shall not be eligible for, or participate in, any insurance, pension, workers' compensation insurance, profit sharing or other plans established for the benefit of the County's employees. Contractor shall be solely responsible for payment of all taxes arising out of the Contractor's activities in connection with this Agreement, including, without limitation, federal and state income taxes, social security taxes, unemployment insurance taxes and any other tax or business license fees as required. The County shall not be responsible for withholding any income or employment taxes whatsoever on behalf of the Contractor.

ARTICLE X - INDEMNIFICATION AGREEMENT

The Subrecipient will protect, defend and indemnify the County, its officers, agents, servants, volunteers and employees from any and all liabilities, claims, liens, fines, demands and costs, including legal fees, of whatsoever kind and nature which may result in injury or death to any persons, including the Subrecipient's own employees, and for loss or damage to any property, including property owned or in the care, custody or control of the County in connection with or in any way incident to or arising out of the occupancy, use, service, operations, performance or non-performance of work in connection with this agreement resulting in whole or in part from negligent acts or omissions of Subrecipient, any subcontractor of the Subrecipient, or any employee, agent or representative of the Subrecipient or any subcontractor of the Subrecipient.

Contract # _____

ARTICLE XI- INSURANCE REQUIREMENTS

The Subrecipient will maintain at its own expense during the term of this Agreement, the following insurance:

1. Workers' Compensation Insurance with Michigan statutory limits and Employers Liability Insurance with a minimum limit of \$100,000 each accident for any employee.
2. Commercial General Liability Insurance with a combined single limit of \$1,000,000 each occurrence for bodily injury and property damage. The County shall be added as "additional insured" on general liability policy with respect to the services provided under this agreement.
3. Automobile Liability Insurance covering all owned, hired and non-owned vehicles with Personal Protection Insurance and Property Protection Insurance to comply with the provisions of the Michigan No Fault Insurance Law, including residual liability insurance with a minimum combined single limit of \$1,000,000 each accident for bodily injury and property damage. For transportation services contracts, the County shall be added as additional insured on automobile liability policy with respect to the services provided under this contract.

Insurance companies, named insureds and policy forms may be subject to the approval of the County Administrator, if requested by the County Administrator. Such approval shall not be unreasonably withheld. Insurance policies shall not contain endorsements or policy conditions which reduce coverage provided to The County. Subrecipient shall be responsible to the County or insurance companies insuring the County for all costs resulting from both financially unsound insurance companies selected by Subrecipient and their inadequate insurance coverage. Subrecipient shall furnish the County Administrator with satisfactory certificates of insurance or a certified copy of the policy, if requested by the County Administrator.

No payments will be made to the Subrecipient until the current certificates of insurance have been received and approved by the Administrator. If the insurance as evidenced by the certificates furnished by the Subrecipient expires or is canceled during the term of the agreement, services and related payments will be suspended. Subrecipient shall furnish certification of insurance evidencing such coverage and endorsements at least ten (10) working days prior to commencement of services under this agreement. Certificates shall be addressed to the County c/o: **Office of Community and Economic Development, 415 West Michigan Ave, Suite 2200, Ypsilanti, MI 48197, Contract # _____**, and shall provide for written notice to the Certificate holder of cancellation of coverage.

ARTICLE XII - COMPLIANCE WITH LAWS AND REGULATIONS

The Subrecipient will comply with all federal, state and local regulations, including but not limited to all applicable OSHA/MIOSHA requirements and the Americans with Disabilities Act.

The Subrecipient agrees to maintain the proper organizational status (such as 501 (c)(3) if needed) to be eligible to receive federal financial assistance under this grant, including proper licensure, registration, etc. Subrecipient agrees to keep itself in the same legal position/mode of organization as when it entered into this agreement.

Contract # _____

ARTICLE XIII - INTEREST OF SUBRECIPIENT AND COUNTY

The Subrecipient promises that it has no interest which would conflict with the performance of services required by this agreement. The Subrecipient also promises that, in the performance of this agreement, no officer, agent, employee of the County, or member of its governing bodies, may participate in any decision relating to this agreement which affects his/her personal interest or the interest of any corporation, partnership or association in which he/she is directly or indirectly interested or has any personal or pecuniary interest. However, this paragraph does not apply if there has been compliance with the provisions of Section 3 of Act No. 317 of the Public Acts of 1968 and/or Section 30 of Act No. 156 of Public Acts of 1851, as amended by Act No. 51 of the Public Acts of 1978, whichever is applicable.

ARTICLE XIV - CONTINGENT FEES

The Subrecipient promises that it has not employed or retained any company or person, other than bona fide employees working solely for the Subrecipient, to solicit or secure this agreement, and that it has not paid or agreed to pay any company or person, other than bona fide employees working solely for the Subrecipient, any fee, commission, percentage, brokerage fee, gifts or any other consideration contingent upon or resulting from the award or making of this agreement. For breach of this promise, the County may cancel this agreement without liability or, at its discretion, deduct the full amount of the fee, commission, percentage, brokerage fee, gift or contingent fee from the compensation due the Subrecipient.

ARTICLE XV - EQUAL EMPLOYMENT OPPORTUNITY

The Subrecipient will not discriminate against any employee or applicant for employment because of race, creed, color, sex, sexual orientation, national origin, physical handicap, age, height, weight, marital status, veteran status, religion and political belief (except as it relates to a bona fide occupational qualification reasonably necessary to the normal operation of the business).

The Subrecipient will take affirmative action to eliminate discrimination based on sex, race, or a handicap in the hiring of applicant and the treatment of employees. Affirmative action will include, but not be limited to: Employment; upgrading, demotion or transfer; recruitment advertisement; layoff or termination; rates of pay or other forms of compensation; selection for training, including apprenticeship.

The Subrecipient agrees to post notices containing this policy against discrimination in conspicuous places available to applicants for employment and employees. All solicitations or advertisements for employees, placed by or on the behalf of the Subrecipient, will state that all qualified applicants will receive consideration for employment without regard to race, creed, color, sex, sexual orientation, national origin, physical handicap, age, height, weight, marital status, veteran status, religion and political belief.

ARTICLE XVI - LIVING WAGE

The parties understand that the County has enacted a Living Wage Ordinance that requires covered vendors who execute a service or professional service agreement with the County to pay their employees under that agreement, a minimum of either \$13.22 per hour with benefits or \$14.75 per hour without benefits. Agreementor agrees to comply with this Ordinance in paying its employees. The Subrecipient understands and agrees that an adjustment of the living wage amounts, based upon the Health and Human Services poverty guidelines, will be made on or before April 30, 2019 and annually thereafter which amount shall be automatically incorporated into this agreement. County

Contract # _____

agrees to give the Subrecipient thirty (30) days written notice of such change. The Subrecipient agrees to post a notice containing the County's Living Wage requirements at a location at its place of business accessed by its employees.

ARTICLE XVII - ASSIGNS AND SUCCESSORS

This agreement is binding on the County and the Subrecipient, their successors and assigns. Neither the County nor the Subrecipient will assign or transfer its interest in this agreement without the written consent of the other.

ARTICLE XVIII - TERMINATION OF AGREEMENT

Termination without cause. Either party may terminate the agreement by giving thirty (30) days written notice to the other party. Upon any such termination, the Subrecipient agrees to return to the County any funds not authorized for use, and the County shall have no further obligation to reimburse the Subrecipient. Upon termination of the agreement, the Subrecipient shall submit documentation, in a format specified by the County, to formally end its participation in the agreement.

ARTICLE XIX - EQUAL ACCESS

The Subrecipient shall provide the services set forth in the Scope of Service section of this agreement without discrimination on the basis of race, color, religion, national origin, sex, sexual orientation, marital status, physical handicap, or age.

ARTICLE XX - OWNERSHIP OF DOCUMENTS AND PUBLICATION

All documents developed as a result of this agreement will be freely available to the public. None may be copyrighted by the Subrecipient. During the performance of the services, the Subrecipient will be responsible for any loss of or damage to the documents while they are in its possession and must restore the loss or damage at its expense. Any use of the information and results of this agreement by the Subrecipient must reference the project sponsorship by the County. Any publication of the information or results must be co-authored by the County.

ARTICLE XXI - PAYROLL TAXES

The Subrecipient is responsible for all applicable state and federal social security benefits and unemployment taxes for its employees and agrees to indemnify and protect the County against such liability.

ARTICLE XXII - PRACTICE AND ETHICS

The parties will conform to the code of ethics of their respective national professional associations.

Contract # _____

ARTICLE XXIII - CHANGES IN SCOPE OR SCHEDULE OR SERVICES

Changes mutually agreed upon by the County and the Subrecipient, will be incorporated into this agreement by written amendments signed by both parties.

Unilateral modification of the agreement may take place by the County if the underlying programmatic legislation or regulations are changed by the federal government. If this unilateral modification is objectionable to the Subrecipient, it may withdraw from receiving further federal financial assistance under this agreement by giving (thirty) 30 days written notice to the County.

The Subrecipient agrees to inform the County in writing concerning any proposed changes of dates, budget, or services indicated in this agreement, as well as changes of address or personnel affecting this agreement. Changes in dates, budget, or services are subject to prior written approval of the County.

ARTICLE XXIV - CHOICE OF LAW AND FORUM

This agreement is to be interpreted by the laws of the State of Michigan. The parties agree that the proper forum for any disputes or litigation arising out of this agreement is in Washtenaw County, Michigan.

The County and the Subrecipient agree that each must seek its own legal representative and bear its own costs, including judgments, in any litigation that may arise from performance of this contract. It is specifically understood and agreed that neither party will indemnify the other party in such litigation. This is not to be construed as a waiver of governmental immunity for either party.

ARTICLE XXV - EXTENT OF AGREEMENT

This written agreement, including any attachments thereto, represents the entire agreement between the parties and supersedes all prior representations, negotiations or agreements whether written or oral.

ARTICLE XXVI – PRIVACY / THIRD PARTIES

This agreement is solely between the County and Subrecipient. No other parties are part of this agreement. This agreement is not intended to make any person or entity, not a party to this agreement, a third party beneficiary hereof or to confer on a third party any rights or obligations enforceable in their favor.

ARTICLE XXVII - SEVERABILITY

The invalidity or unenforceability of any provisions of this agreement shall not affect the validity or enforceability of any other provision of this agreement, which shall remain in full force and effect.

Contract # _____

ARTICLE XXVIII - NOTICES

Communication notices for this agreement may be delivered via electronic mail, U.S. mail, hand delivery, or fax.

The individual or officer signing this agreement certifies by his or her signature that he or she is authorized to sign this agreement on behalf of the organization he or she represents. By signing this agreement, the County and the Subrecipient agree to comply with all of the requirements specified in this agreement.

ATTESTED TO:

WASHTENAW COUNTY (Pass-Through Entity)

By: _____
Lawrence Kestenbaum (DATE)
County Clerk/Register

By: _____
Gregory Dill (DATE)
County Administrator

APPROVED AS TO CONTENT:

CITY OF YPSILANTI (Subrecipient)

By: _____
Teresa Gillotti (DATE)
Director

BY: _____
Beth Bashert (DATE)
Mayor

APPROVED AS TO FORM:

By: _____
Curtis N. Hedger (DATE)
Office of Corporation Counsel

Contract # _____

OMB Approval No. 0348-0042

STANDARD ASSURANCES - CONSTRUCTION PROGRAMS

NOTE: Certain of these assurances may not be applicable to your project or program. If you have questions, please contact the Awarding Agency. Further, certain Federal assistance awarding agencies may require applicants to certify to additional assurances. If such is the case, you will be notified.

As the duly authorized representative of the applicant, I certify that the applicant:

1. Has the legal authority to apply for Federal assistance, and the institutional, managerial and financial capability (including funds sufficient to pay the non-Federal share of project costs) to ensure proper planning, management and completion of the project described in this application.
2. Will give the awarding agency, the Comptroller General of the United States and, if appropriate, the State, through any authorized representative, access to and the right to examine all records, books, papers, or documents related to the assistance; and will establish a proper accounting system in accordance with generally accepted accounting standards or agency directives.
3. Will not dispose of, modify the use of, or change the terms of the real property title, or other interest in the site and facilities without permission and instructions from the awarding agency. Will record the Federal interest in the title of real property in accordance with awarding agency directives and will include a covenant in the title of real property acquired in whole or in part with Federal assistance funds to assure non-discrimination during the useful life of the project.
4. Will comply with the requirements of the assistance awarding agency with regard to the drafting, review and approval of construction plans and specifications.
5. Will provide and maintain competent and adequate engineering supervision at the construction site to ensure that the complete work conforms with the approved plans and specifications and will furnish progress reports and such other information as may be required by the assistance awarding agency or State.
6. Will initiate and complete the work within the applicable time frame after receipt of approval of the awarding agency.
7. Will establish safeguards to prohibit employees from using their positions for a purpose that constitutes or presents the appearance of personal or organizational conflict of interest, or personal gain.
8. Will comply with the Intergovernmental Personnel Act of 1970 (42 U.S.C. §§4728-4763) relating to prescribed standards for merit systems for programs funded under one of the 19 statutes or regulations specified in Appendix A of OPM's Standards for a Merit System of Personnel Administration (5 C.F.R. 900, Subpart F).
9. Will comply with the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. §§4801 et seq.) which prohibits the use of lead-based paint in construction or rehabilitation of residence structures.
10. Will comply with all Federal statutes relating to non-discrimination. These include but are not limited to: (a) Title VI of the Civil Rights Act of 1964 (P.L. 88-352) which prohibits discrimination on the basis of race, color or national origin; (b) Title IX of the Education Amendments of 1972, as amended (20 U.S.C. §§1681-1683, and 1685-1686), which prohibits discrimination on the basis of sex; (c) Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. §794), which prohibits discrimination on the basis of handicaps; (d) the Age Discrimination Act of 1975, as amended (42 U.S.C. §§6101-6107), which prohibits discrimination on the basis of age; (e) the Drug Abuse Office and Treatment Act of 1972 (P.L. 92-255), as amended, relating to nondiscrimination on the basis of drug abuse; (f) the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970 (P.L. 91-616), as amended, relating to nondiscrimination on the basis of alcohol abuse or alcoholism; (g) §§523 and 527 of the Public Health Service Act of 1912 (42 U.S.C. §§290 dd-3 and 290 ee-3), as amended, relating to confidentiality of alcohol and drug abuse patient records; (h) Title VIII of the Civil Rights Act of 1968 (42 U.S.C. §§3601 et seq.), as amended, relating to nondiscrimination in the sale, rental or financing of housing; (i) any other nondiscrimination provisions in the specific statute(s) under which application for Federal assistance is being made; and, (j) the requirements of any other nondiscrimination statute(s) which may apply to the application.

Contract # _____

11. Will comply, or has already complied, with the requirements of Titles II and III of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (P.L. 91-646) which provide for fair and equitable treatment of persons displaced or whose property is acquired as a result of Federal and federally-assisted programs. These requirements apply to all interests in real property acquired for project purposes regardless of Federal participation in purchases.
12. Will comply with the provisions of the Hatch Act (5 U.S.C. §§1501-1508 and 7324-7328) which limit the political activities of employees whose principal employment activities are funded in whole or in part with Federal funds.
13. Will comply, as applicable, with the provisions of the Davis-Bacon Act (40 U.S.C. §§276a to 276a-7), the Copeland Act (40 U.S.C. §276c and 18 U.S.C. §874), and the Contract Work Hours and Safety Standards Act (40 U.S.C. §§327-333) regarding labor standards for federally-assisted construction subagreements.
14. Will comply with flood insurance purchase requirements of Section 102(a) of the Flood Disaster Protection Act of 1973 (P.L. 93-234) which requires recipients in a special flood hazard area to participate in the program and to purchase flood insurance if the total cost of insurable construction and acquisition is \$10,000 or more.
15. Will comply with environmental standards which may be prescribed pursuant to the following: (a) institution of environmental quality control measures under the National Environmental Policy Act of 1969 (P.L. 91-190) and Executive Order (EO) 11514; (b) notification of violating facilities pursuant to EO 11738; (c) protection of wetlands pursuant to EO 11990; (d) evaluation of flood hazards in floodplains in accordance with EO 11988; (e) assurance of project consistency with the approved State management program developed under the Coastal Zone Management Act of 1972 (16 U.S.C. §§1451 et seq.); (f) conformity of Federal actions to State (Clean Air) Implementation Plans under Section 176(c) of the Clean Air Act of 1955, as amended (42 U.S.C. §§7401 et seq.); (g) protection of underground sources of drinking water under the Safe Drinking Water Act of 1974, as amended (P.L. 93-523); and, (h) protection of endangered species under the Endangered Species Act of 1973, as amended (P.L. 93-205).
16. Will comply with the Wild and Scenic Rivers Act of 1968 (16 U.S.C. §§1271 et seq.) related to protecting components or potential components of the national wild and scenic rivers system.
17. Will assist the awarding agency in assuring compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. §470), EO 11593 (identification and protection of historic properties), and the Archaeological and Historic Preservation Act of 1974 (16 U.S.C. §§469a-1 et seq.).
18. Will cause to be performed the required financial and compliance audits in accordance with the Single Audit Act Amendments of 1996 and OMB Circular No. A-133, "Audits of States, Local Governments, and Non-Profit Organizations."
19. Will comply with all applicable requirements of all other Federal laws, executive orders, regulations, and policies governing this program.

Signature of Subrecipient's Authorized Representative

Title of Subrecipient's Authorized Representative

Name of Subrecipient Organization

Date Submitted

CERTIFICATIONS REGARDING LOBBYING; DEBARMENT, SUSPENSION AND OTHER RESPONSIBILITY MATTERS; AND DRUG-FREE WORKPLACE REQUIREMENTS

Applicants should refer to the regulations cited below to determine the certification to which they are required to attest. Applicants should also review the instructions for certification included in the regulations before completing this form. Signature of this form provides for compliance with certification requirements under 34 CFR Part 82, "New Restrictions on Lobbying," and 34 CFR Part 85, "Government-wide Debarment and Suspension (Non-procurement) and Government-wide Requirements for Drug-Free Workplace (Grants)." The certifications shall be treated as a material representation of fact upon which reliance will be placed when Washtenaw County determines to award the covered transaction, grant, or cooperative agreement.

1. LOBBYING

As required by Section 1352, Title 31 of the U.S. Code, and implemented at 34 CFR Part 82, for persons entering into a grant or cooperative agreement over \$100,000, as defined at 34 CFR Part 82, Sections 82.105 and 82.110, the applicant certifies that:

(a) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the making of any Federal grant, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal grant or cooperative agreement;

(b) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal grant or cooperative agreement, the undersigned shall complete and submit Standard Form - LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions;

(c) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subgrants, contracts under grants and cooperative agreements, and subcontracts) and that all subrecipients shall certify and disclose accordingly.

2. DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS

As required by Executive Order 12549, Debarment and Suspension, and implemented at 34 CFR Part 85, for prospective participants in primary covered transactions, as defined at 34 CFR Part 85, Sections 85.105 and 85.110—

A. The applicant certifies that it and its principals:

(a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily

excluded from covered transactions by any Federal department or agency;

(b) Have not within a three-year period preceding this application been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(c) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State, or local) with commission of any of the offenses enumerated in paragraph (2)(b) of this certification; and

(d) Have not within a three-year period preceding this application had one or more public transaction (Federal, State, or local) terminated for cause or default; and

B. Where the applicant is unable to certify to any of the statements in this certification, he or she shall attach an explanation to this application.

3. DRUG-FREE WORKPLACE (GRANTEES OTHER THAN INDIVIDUALS)

As required by the Drug-Free Workplace Act of 1988, and implemented at 34 CFR Part 85, Subpart F, for grantees, as defined at 34 CFR Part 85, Sections 85.605 and 85.610 –

A. The applicant certifies that it will or will continue to provide a drug-free workplace by:

(a) Publishing a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the grantee's workplace and specifying the actions that will be taken against employees for violation of such prohibition;

(b) Establishing an on-going drug-free awareness program to inform employees about:

(1) The dangers of drug abuse in the workplace;

Contract # _____

(2) The grantee's policy of maintaining a drug-free workplace;

(3) Any available drug counseling, rehabilitation, and employee assistance programs; and

(4) The penalties that may be imposed upon employees for drug abuse violations occurring in the workplace;

(c) Making it a requirement that each employee to be engaged in the performance of the grant be given a copy of the statement required by paragraph (a);

(d) Notifying the employee in the statement required by paragraph (a) that, as a condition of employment under the grant, the employee will:

(1) Abide by the terms of the statement; and

(2) Notify the employer in writing of his or her conviction for a violation of a criminal drug statute occurring in the workplace no later than five calendar days after such conviction; (e) Notifying the agency, in writing, within 10 calendar days after receiving notice under subparagraph (d)(2) from an employee or otherwise receiving actual notice of such conviction. Employers of convicted employees must provide notice, including position title, to: Washtenaw County Administrator's Office, 220 N. Main, P.O. Box 8645, Ann Arbor, MI 48107-8645. Notice shall include the identification number(s) of each affected grant;

(f) Taking one of the following actions, within 30 calendar days of receiving notice under subparagraph (d)(2), with respect to any employee who is so convicted:

(1) Taking appropriate personnel action against such an employee, up to and including termination, consistent with the requirements of the Rehabilitation Act of 1973, as amended; or (2) Requiring such employee to participate satisfactorily in a drug abuse assistance or rehabilitation program approved for such purposes by a Federal, State, or local health, law enforcement, or other appropriate agency;

(g) Making a good faith effort to continue to maintain a drug-free workplace through implementation of paragraphs (a), (b), (c), (d), (e), and (f).

B. The grantee may insert in the space provided below the site(s) for the performance of work done in connection with the specific grant:

Place of Performance (Street address, city, county, state, zip code)

Check ☐ if there are workplaces on file that are not identified here.

**DRUG-FREE WORKPLACE
(GRANTEES WHO ARE INDIVIDUALS)**

As required by the Drug-Free Workplace Act of 1988, and implemented at 34 CFR Part 85, Subpart F, for grantees, as defined at 34 CFR Part 85, Sections 85.605 and 85.610-

A. As a condition of the grant, I certify that I will not engage in the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance in conducting any activity with the grant; and

B. If convicted of a criminal drug offense resulting from a violation occurring during the conduct of any grant activity, I will report the conviction, in writing, within 10 calendar days of the conviction, to: Washtenaw County Administrator's Office, 220 N. Main, P.O. Box 8645, Ann Arbor, MI 48107-8645. Notice shall include the identification number(s) of each affected grant.

As the duly authorized representative of the applicant, I hereby certify that the applicant will comply with the above certifications.

Name of Subrecipient Organization

Printed Name and Title of Subrecipient's Authorized Representative

Signature of Subrecipient's Authorized Representative

Date

Contract # _____

Subrecipient Audit Certification

Federal Audit Requirements - Fiscal Years Beginning After December 26, 2014

Non-federal organizations which expend \$750,000 or more in federal funds during their fiscal year are required to have a Single Audit performed in accordance with the Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards (2 CFR Chapter I, and Chapter II, Parts 200, 215, 220, 225, 230) issued December 26, 2013 by the Executive Office of the President, Office of Management and Budget. Subrecipients must submit their audit report to the Federal Audit Clearinghouse within the earlier of 30 days after receipt of the auditor's report, or within 9 months after the end of the audit period for each year the Subrecipient meets the \$750,000 federal expenditure threshold.

Program: _____ CFDA Number: _____

Subrecipient Information:

Organization Name: _____

Street Address: _____

City, State, Zip Code: _____

Independent Audit Firm: _____

Certification for Fiscal Year Ending (mm/dd/yyyy): _____

(Check appropriate box):

- ☐ I certify that the Subrecipient shown above **does not expect** to expend \$750,000 or more in federal funds during at least one fiscal year that funds are received for the above listed program and thus it will not be required to have a Single Audit performed under the Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards (2 CFR Chapter I, and Chapter II, Parts 200, 215, 220, 225, 230) issued December 26, 2013 by the Executive Office of the President, Office of Management and Budget, for the above listed program.
- ☐ I certify that the Subrecipient shown above **expects it will** expend \$750,000 or more in federal funds during at least one fiscal year that funds are received for the above listed program and thus it will be required to have a Single Audit performed under the Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards (2 CFR Chapter I, and Chapter II, Parts 200, 215, 220, 225, 230) issued December 26, 2013 by the Executive Office of the President, Office of Management and Budget.

Signature of Subrecipient's Authorized Representative

Date

For Washtenaw County Use Only

Reviewed By: _____

Date: _____

Contract # _____

ATTACHMENT A- SCOPE AND LOCATION OF SERVICES & PROJECT TIMELINE

NARRATIVE DESCRIPTION/ SCOPE OF WORK:

WASHTENAW COUNTY will contract with the **CITY** for the eligible costs of re-constructing **Curb Cuts**, as described in the Scope of Services, to meet the Americans with Disabilities Act (ADA) and Uniform Federal Accessibility Standards (UFAS). The improvement project will be paid for with 2018 CDBG funding in accordance with the budget in Attachment B.

Primary Locations

N. Adams St @ Olive - 2 Ramps
N. Adams St @ Jarvis – 8 Ramps
Jenness @ Jarvis - 8 Ramps
Lowell @ Jarvis – 4 Ramps
Jenness @ Saint Johns – 8 Ramps
Lowell @ Saint Johns – 8 Ramps
Ballard St @ Olive St - 6 Ramps
Ballard St @ Florence Street - 6 Ramps

PROJECT TIMELINE:

Activity	Deadline
CITY OF YPSILANTI will award contract to most responsible and responsive bidder.	8/6/2019
Contractor will begin curb cut work.	8/12/2019
Office of Community Development will perform Davis-Bacon Interviews.	8/19/19 – 8/30/19
Contractor will achieve substantial completion of curb cuts project.	9/6/2019
Contractor will complete construction and OCED and/or CITY OF YPSILANTI will perform a final inspection.	9/6/2019
CITY OF YPSILANTI will submit request for reimbursement from Washtenaw County OCED, along with accompanying proof of payment and original Davis-Bacon payroll forms.	9/30/2019
Project Completion Date: 9/30/2019	

Contract # _____

ATTACHMENT B- PROJECT BUDGET

SUMMARY OF TERMS:

The COUNTY agrees to pay to or on behalf of the **CITY OF YPSILANTI** an amount not to exceed **Fifty Thousand Dollars and Zero Cents (\$50,000.00)** in **2018-2019 CDBG Funds** according to the budget below:

PROJECT BUDGET:

2019 Curb Cut Project Budget	
REVENUE SOURCE(S):	TOTAL
Grant Amounts	
CDBG (2018) - allocation	\$50,000.00
Other Support (In-Kind)	
Status of Funds	
Total Revenues	\$50,000.00
PROGRAM EXPENSES	TOTAL
Personnel, Taxes & Fringe Benefits	
Construction	\$50,000.00
Total Expenditures	\$50,000.00



REQUEST FOR LEGISLATION

TO: Mayor and City Council
FROM: Ron Akers
DATE: September 10, 2019
SUBJECT: 2019 CDBG Ramps

DESCRIPTION:
2019 CDBG Ramps

PURPOSE:

As part of a Consent Decree entered into by the City of Ypsilanti in 2005, the City is required to spend \$100,000 each year retrofitting existing sidewalk ramps to ADA standards until all of the sidewalk ramps in the City have been retrofitted. This is accomplished by utilizing Community Development Block Grant (CDBG) funds and METRO Act funds that we receive from the State of Michigan. The Department of Public Services administers these as two (2) separate contracts and this proposal before council is the CDBG contract for sidewalk ramp improvements. The proposed locations of the sidewalk ramps to be retrofitted are as follows:

Jarvis St. @ N. Adams St. – Northeast Corner – 1 Ramps
Jarvis St. @ N. Adams St. – Northwest Corner – 1 Ramps
Jarvis St. @ N. Adams St. – Southeast Corner – 2 Ramps
Jarvis St. @ N. Adams St. – Southwest Corner – 2 Ramps

Jarvis St @ Jenness St – Northeast Corner – 2 Ramps
Jarvis St @ Jenness St – Northwest Corner – 2 Ramps
Jarvis St @ Jenness St – Southeast Corner – 1 Ramps
Jarvis St @ Jenness St – Southwest Corner – 1 Ramps

Lowell St @ Jarvis St. – Northeast Corner – 2 Ramps
Lowell St @ Jarvis St. – Southeast Corner – 2 Ramps

Jenness St. @ Saint Johns St. – Southeast Corner – 1 Ramps
Jenness St @ Saint Johns St. – Southwest Corner – 1 Ramps

A sealed bid for the project was received at 10:30 am on August 13, 2019 in the City of Ypsilanti Council Chambers. The lowest and only bid was received from Saladino Construction Company Inc. in an amount of \$49,360. The proposed contract was reviewed and approved by the City Attorney on August 19, 2019.

RECOMMENDED ACTION:

Based on the recommendation from the Township Engineer, and the review and approval of the City Attorney, Staff recommends City Council award the 2019 CDBG Ramps contract to Saladino Construction Company, Inc. for the bid amount of \$49,360.

ATTACHMENTS:

Engineer Recommendation Letter; Bid Tabulation; Proposed Construction Contract/Documents;

CITY MANAGER APPROVAL: _____ COUNCIL AGENDA DATE: _____

CITY MANAGER COMMENTS: _____

FISCAL SERVICES DIRECTOR APPROVAL: _____



Resolution No. 2019-180
September 10, 2019

RESOLVED BY THE COUNCIL OF THE CITY OF YPSILANTI:

WHEREAS, funding has been programmed in the Washtenaw County Community Development Block Grant Program for the retrofitting of existing sidewalk ramps in the City of Ypsilanti; and,

WHEREAS, the City of Ypsilanti has solicited sealed bids for the project and conducted a bid opening at 10:30 am on Tuesday, August 13, 2019; and,

WHEREAS, One (1) bid was received for the project from Saladino Construction Company Inc., in an amount of \$49,360; and,

WHEREAS, Saladino Construction Company has met the qualifications to perform the above mentioned work;

NOW THEREFORE BE IT RESOLVED THAT that the City of Ypsilanti awards the 2019 CDBG Ramps contract be awarded to Saladino Construction Company, Inc. for the bid amount of \$49,360.

THAT the Mayor and City Clerk are authorized to sign this contract and any change orders, subject to approval by the City Attorney, to facilitate the completion of this work.

OFFERED BY: _____

SECONDED BY: _____

YES: NO: ABSENT: VOTE:

This resolution is adopted by the Council of the City of Ypsilanti and approved by the Mayor this 10 day of September 2019

#Resolution No. 2019-180



ARCHITECTS. ENGINEERS. PLANNERS.

August 20, 2019

City of Ypsilanti
One Huron Street
Ypsilanti MI 48197

Attention: Ron Akers, AICP
Director of Public Services
City of Ypsilanti

Regarding: Recommendation of Award
2019 CDBG Ramps

Dear Mr. Akers:

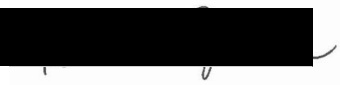
A sealed bid for the 2019 CDBG Ramps was received and publicly read aloud at 10:30 am on Tuesday, August 13, 2019 in the City of Ypsilanti Council Chambers. One proposal was received from Saladino Construction Company, Inc. with a bid of \$49,360. The detailed bid tabulation is attached.

Saladino Construction Company, Inc is on the Washtenaw County Office of Economic Development (OCED) Approved Section 3 Contractors list and is the lowest responsive bidder on the project. All required information, including bond surety, statement of qualifications, and subcontractors listing, has been provided.

It appears Saladino Construction Company, Inc. is capable of performing the work based on past experiences, referenced projects, and information provided with the statement of qualifications in the bid package. Furthermore, Saladino Construction Company, Inc. was awarded the CDBG Ramps contract by the City of Ypsilanti in 2018. Based on the submitted information, it is recommended that the City of Ypsilanti, 2019 CDBG Ramps contract be awarded to Saladino Construction Company, Inc. for the bid amount of \$49,360.

Should there be any questions, please contact this office at (734) 522-6711.

Sincerely,
OHM Advisors



Rachel Jackson, P.E.

CC: Frances McMullan, City Manager

P:\0000_0100\0094190030_2019_CDBG_Ramps\PM\Correspondence\2019 CDBG Bid Award Recommendation Letter.docx\

Attachment: Bid Tab

OHM Advisors
34000 PLYMOUTH ROAD
LIVONIA, MICHIGAN 48150

T 734.522.6711
F 734.522.6427

OHM-Advisors.com



Tabulation for Bids Received on 8/13/19
 2019 CDBG Ramps
 City of Ypsilanti, Washtenaw County, State of Michigan
 OHM Job No.: 0094-19-0031

Saladino Construction Company, Inc.
 3303 North Territorial Road W.
 Ann Arbor, MI 48105
 Phone: (734) 665-5913

Item No.	Description	Estimated Quantity	Unit Price	Amount
1)	Mobilization, Max 5%	1 LS	\$2,350.00	\$2,350.00
2)	Traffic Control and Maintenance	1 LS	\$1,500.00	\$1,500.00
3)	Curb and Gutter, Rem	250 Ft	\$10.00	\$2,500.00
4)	Pavt, Rem	55 Syd	\$16.00	\$880.00
5)	Sidewalk, Rem	120 Syd	\$14.00	\$1,680.00
6)	HMA, 13A, Repair	20 Ton	\$200.00	\$4,000.00
7)	Curb and Gutter, Conc, Det F3	250 Ft	\$44.00	\$11,000.00
8)	Detectable Warning Surface	150 Ft	\$50.00	\$7,500.00
9)	Sidewalk Ramp, Conc, 6 inch	850 Sft	\$11.00	\$9,350.00
10)	Sidewalk, Conc, 4 inch	700 Sft	\$10.00	\$7,000.00
11)	Pavt Mrkg, Polyurea, 6 inch, Crosswalk	850 Ft	\$1.00	\$850.00
12)	Surface Restoration	250 Syd	\$3.00	\$750.00
TOTAL BID AMOUNT				<u>\$49,360.00</u>

**CONTRACT DOCUMENTS
FOR
2019 CDBG RAMPS**

**CITY OF YPSILANTI
YPSILANTI, MI 48197**

OHM Advisors
34000 Plymouth Road
Livonia, Michigan 48150

0094-19-0031
July 29, 2019

2019 CDBG Ramps
City of Ypsilanti
0094-19-0031
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ADVERTISEMENT FOR BID

2019 CDBG Ramps
City of Ypsilanti
July 29, 2019

Sealed Bids for 2019 CDBG Ramps will be received at the office of the City of Ypsilanti until 10:30 am local time, on August 13, 2019, by the office of the City Clerk located at 1 South Huron Street, Ypsilanti, MI 48197. The approximate quantities of major items of work involved are as follows:

Construct ADA-compliant curb ramps at several locations within the City of Ypsilanti.

Bidding Documents may be obtained after July 29, 2019 at 2:00 pm on BidNet Direct website (formerly MITN). Neither Owner nor ENGINEER will be responsible for full or partial sets of Bidding Documents, including Addenda if any, obtained from sources other than BidNet Direct website. Bidders should direct correspondence to the ENGINEER at rachel.jackson@ohm-advisors.com.

Bid Security in the form of a Bid Bond for a sum no less than five percent (5%) of the amount of the Bid will be required with each Bid.

The OWNER reserves the right to accept any Bid, reject any Bid, or waive irregularities in Bids.

No Bid may be withdrawn for a period of sixty (60) calendar days after the scheduled closing time for receipt of the Bids.

No pre-bid meetings are scheduled for this project.

Andrew Hellenga, City Clerk
City of Ypsilanti

INSTRUCTIONS TO BIDDERS

1. BIDS

- A. Sealed Bids will be received as per Advertisement for Bids.
- B. Bid Forms shall be submitted only on forms provided by the ENGINEER and shall be of the type specified in the Bid Form.
- C. Bid Forms must be completed legibly in ink or by typewriter. In case of a discrepancy between the unit price and the extended amount, the unit price shown shall govern. Illegibility of any figure or word in the Bid Form may be sufficient cause for rejection of the Bid by the OWNER.
- D. Bid Forms shall be enclosed in sealed envelopes marked with the name of the project and Bidder and shall be delivered to the OWNER at the place specified in the Advertisement for Bids on or before the time specified in the Advertisement for Bids.
- E. Bid Forms shall be made in full conformity with all the conditions set forth in the drawings and in these specifications

2. NAME AND STATUS OF BIDDER

- A. The name and legal status of Bidder, that is, as a corporation, partnership or individual, shall be stated in the Bid Form.
- B. Anyone signing a Bid Form as an agent of another or others must submit with the Bid Form legal evidence of his authority to do so.
- C. The place of residence of each Bidder, or the office address in the case of a firm or company, with county and state, must

be given after his signature. Phone and fax numbers are also required.

3. BID SECURITY

Each Bid must be in the form requested in the Advertisement for Bid. The CONTRACTOR shall complete and sign the Bid Guarantee form (page BG-1). If a Bid Bond is requested, it must be from a Treasury Listed surety company licensed to do business in the state of Michigan in the amount as stated in the Advertisement for Bid, payable to the OWNER as a guarantee on the part of the Bidder that he will, if called upon, enter into the attached Agreement.

4. BONDS

- A. CONTRACTOR will be required to furnish performance and payment bonds each equal to one-hundred percent (100%) of the Contract Sum. The bonds shall be the OWNER's guarantee of the faithful performance and payment of all the CONTRACTOR's obligations under the Agreement. These bonds shall remain in effect for the period as stated in each bond's provisions.
- B. Maintenance and Guarantee Bonds shall be required.

5. INSPECTION OF SITE

- A. Before submitting a Bid Form, each Bidder shall personally inspect the site of the proposed work to arrive at a clear understanding of the conditions under which the work is to be done.
- B. Each Bidder shall be held to have compared the premises with the Bid documents and to have satisfied himself as to conditions of the premises, existing construction and any other conditions

affecting the carrying out of the work before delivery of his Bid Form.

- C. No allowance or extra consideration on behalf of the CONTRACTOR will subsequently be allowed by reason of error or oversight on the part of the CONTRACTOR or on account of interference by the OWNER's or other CONTRACTOR's activities.

6. TIME OF COMPLETION

Time of completion will be as stated in the Agreement.

7. EXPLANATION TO BIDDERS BY ADDENDA

- A. Neither the OWNER nor the ENGINEER will give verbal answers to inquiries regarding the meaning or intent of the Contract Documents prior to award of the Contract. Any verbal statements regarding same by any person prior to the award shall be without legal effect.
- B. Explanations desired by Bidders shall be requested of the ENGINEER in writing and, if explanations are necessary, a reply will be made in the form of an addendum, a copy of which will be forwarded to each Bidder of Record whose work is affected.
- C. Addenda issued to Bidders prior to date of receipt of Bid Forms shall become a part of the Contract Documents, and all Bid Forms shall include the work described in the Addenda.
- D. No inquiry received within four (4) business days of the date fixed for opening of the Bids will be given consideration.
- E. Failure of the ENGINEER to send, or the Bidder to receive, any such interpretations shall not relieve the

Bidder from obligation under his Bid as submitted.

- F. Bidder of Record is defined as an individual, partnership or corporation having purchased a set of Bid Documents from the ENGINEER.

8. EXPERIENCE AND FINANCIAL STATEMENT

- A. It is the intention of the OWNER to award the Contract to a contractor fully capable, both financially and as regards to experience to perform and complete the work in a satisfactory manner. Each Bidder must complete the Statement of Qualifications, which follows the Bid Form. If required by the OWNER, each Bidder under consideration may be required to submit additional evidence of qualifications.
- B. Each Bidder under consideration must be able to demonstrate that the Bidder has successfully completed projects of a similar nature and scope within the last two years.

9. SUBCONTRACTORS

Bidder shall submit to OWNER a list of all subcontractors and other persons and organizations (including those who are to furnish the principal items of material and equipment) proposed for those portions of work as to which such identification is so required. If requested by the OWNER, the apparent successful Bidder and any other Bidder so requested, will, within ten (10) days after the day of Bid opening, submit a Statement of Qualifications with pertinent information as to similar projects and other evidence of qualification for each such subcontractor, person and organization if requested by the OWNER. If the OWNER or ENGINEER, after due investigation, has reasonable objection to any proposed subcontractor, other person or organization, OWNER may request the apparent successful Bidder to submit an acceptable

substitute without an increase in Bid price. If the apparent successful Bidder declines to make any such substitutions, the Contract shall not be awarded to such Bidder, but his declining to make any such substitution will not constitute grounds for sacrificing his Bid Security. Any subcontractor, other person or organization so listed and to whom the OWNER or ENGINEER does not make written objection prior to signing of the Agreement will be deemed acceptable to the OWNER and ENGINEER.

10. AWARD OF CONTRACT

The OWNER reserves the right to accept any Bid, to reject any or all Bids, and to waive defects or irregularities in any Bid for any reason or no reason at all. The OWNER also reserves the right to award some, none, or all of the Contract.

11. LIQUIDATED DAMAGES/INCENTIVES

- A. If the CONTRACTOR fails to complete all the work within the time stipulated, he will be assessed liquidated damages as set forth in the Agreement.
- B. If set forth in the Agreement, incentives will be paid by OWNER to CONTRACTOR at the rate specified in the Agreement, when the work is completed prior to the time specified in the Agreement.

12. TAXES

The Bidder shall include in the base Bid and shall pay all applicable federal, state and local taxes of whatever character and description.

End of Section

SUPPLEMENTAL INSTRUCTIONS TO BIDDERS

These Supplemental Instructions to Bidders (SIB) amend or supplement the Instructions to Bidders. All provisions that are not so amended or supplemented remain in full force and effect.

A. Time of Completion & Construction Schedule

Prior to the execution of the Contract, the CONTRACTOR shall submit an outline of his proposed order of work and indicate dates for completing the major items of work. Major items shall be considered to be removal of existing curb and sidewalk, pavement repairs, construction of ADA compliant sidewalk ramps, and surface restoration. This schedule, when approved by the OWNER, shall become part of the Contract.

A pre-construction meeting shall be arranged prior to the start of work. The CONTRACTOR shall bring a tentative schedule to the pre-construction meeting. At this time, all Contract requirements shall be reviewed.

It is anticipated that construction will begin on September 9, 2019. The CONTRACTOR shall complete the proposed work, including final tests thereof, in order to have the sidewalk, all pavement and curb repairs and pavement markings finished as of the substantial completion date. Final cleanup and restoration shall be finished by the project completion date, unless otherwise directed in writing by the OWNER or its ENGINEER.

Summary of anticipated dates:

Contract Award	August 27, 2019
Construction Start Date	September 9, 2019
Substantial Completion	October 18, 2019
Project Completion.....	October 25, 2019

All requests for extensions of time shall be submitted in writing in accordance with Section 15 of the General Conditions. Such requests shall:

1. Detail the reason for the request.
2. Provide a realistic revised completion date.
3. Indicate any other areas that may be impacted by such an extension.

The CONTRACTOR shall request a deadline extension as soon as it has become apparent the completion date is unreasonable. In no case will a request be considered if it is submitted after the originally required completion date has passed.

The OWNER and the CONTRACTOR may, upon mutual agreement, extend the contract to complete additional ramp replacements.

B. Project Financial Information

MINIMUM WAGE FOR EMPLOYEES OF CONTRACTORS
PERFORMING WORK OR SERVICES FOR THE CITY OF YPSILANTI

All CONTRACTORS, including subcontractors, performing work or services for the City shall be required to pay not less than the prevailing wages and fringe benefits to all employee "construction mechanics", as determined by the Davis-Bacon Division of the United States Dept. of Labor for the Washtenaw County area.

"Construction Mechanic" is defined as a skilled or unskilled mechanic, laborer, worker, helper, assistant or apprentice working on a City project, but shall not include executive, administrative, professional, office or custodial employees.

Record Keeping and Verification:

Every CONTRACTOR shall keep an accurate record showing the name, social security number, occupation, and actual wages and benefits paid to each construction mechanic employed by him in connection with this contract. The CONTRACTOR shall submit a copy of this record for the work period covered by each construction pay estimate period. The copy of the wages and benefits record shall be submitted by the CONTRACTOR with each request for payment.

Payment of less than prevailing wages, termination of contract, liability for excess costs: The Authority, by written notice to the CONTRACTOR and sureties of the CONTRACTOR known to the City, may terminate the CONTRACTOR'S right to proceed with that part of the contract for which less than prevailing rates of wages and benefits have been paid, and may proceed to complete the contract by separate agreement with another CONTRACTOR or otherwise and the original CONTRACTOR and his sureties shall be liable to the contracting agent for any excess costs occasioned thereby.

MINIMUM WAGE FOR EMPLOYEES OF CONTRACTORS
PERFORMING SERVICES FOR THIS CONTRACT

a. This section is ordained for the purpose of establishing a procedure to insure that CONTRACTORS performing services on City buildings, parks or water and sewer lines shall pay employees in accordance with the prevailing wage rates.

b. No contract, agreement, understanding or other arrangement, whether oral or written, for the construction or substantial remodeling of any building or part thereof, for or on behalf of or owned by the City, involving craftsmen, mechanics and laborers employed directly upon the site of work, shall be entered into, approved or executed, unless such contract, agreement, understanding or arrangement shall provide and require that all craftsmen, mechanics and laborers so employed shall receive at least the prevailing wages and fringe benefits of the building trades department for corresponding classes of craftsmen, mechanics and laborers, as determined and published by the Davis-Bacon Division of the United States Department of Labor for the Washtenaw County area.

c. Such contract, agreement, understanding or arrangement shall provide that all subcontracts entered into by the CONTRACTOR shall contain the provisions set forth above with respect to the contractor and all such contracts, agreements, arrangements or understandings shall provide that all contractors and subcontractors engaged in performance of service or work for the City to which this section applies shall, at the request of the City, furnish proof satisfactory to the City that the foregoing provisions of such contract or

subcontract are being complied with. It shall be the responsibility of the City, on demand, to post at an appropriate place in the City Clerk's office, prevailing wages and fringe benefits that may be in effect in accordance with the foregoing, and the City is directed to see that the requirements of this section are contained in and complied with in all contracts, agreements, understandings or arrangements for work or services to be performed for the City.

LIVING WAGE

- A. (1) Living wages be paid according to the Ypsilanti Living Wage Ordinance No. 892 (The Ordinance), and
 - (2) Suitable notices be posted in the work place; and
 - (3) Evidence of compliance including payroll records be provided to the Ypsilanti Personnel Department within 10 days of written request from the Ypsilanti Personnel Department.
 - B. In the event of violation of the provision of The Ordinance or this Contract this Contract may be modified or terminated to comply with the provisions of The Ordinance, including withholding of moneys in amount equal to Living Wages not paid in accordance with The Ordinance and the City may also take action to recover the amount of the Contract provided to any person found to have violated The Ordinance.
 - C. Any employee shall have a separate cause of action to enforce the provisions of this Contract and The Ordinance and any rights conferred under The Ordinance, in law and or equity, and any court of competent jurisdiction upon proper proof and the prevailing of the employee in such action, shall award actual damages, wage restitution, interest and actual attorney fees.
 - D. The City shall have the right to enforce this Contract and The Ordinance in law or equity by court process including specific performance.
 - E. The CONTRACTOR has knowledge of and agrees to comply with the provisions of the Ypsilanti City Ordinance 892, Living Wage. The documents are included in the Appendix. They must be completed and returned for the bid to be considered complete.
- C. Equal Opportunity
- The CONTRACTOR has knowledge of and agrees to comply with the provisions of the Ypsilanti City Ordinance 538, Affirmative Action. The documents are included in the Appendix. They must be completed and returned with each bid.

D. Permits

The following permits will be required for project construction. The CONTRACTOR is required to comply with all terms and conditions of the permit as incidental to the unit prices bid and no extra compensation will be allowed.

a. Permitting Agency: Ypsilanti City Right of Way Permit

Contact at Agency: Ron Akers

Phone number: 734-483-1421

Permit Fee: Waived

Bond Amount (if applicable): None

Date of Application: _____

Person Responsible for Acquiring the Permit: Contractor

Date Permit issued if already in hand: _____

Application has been made by the Engineer for the permits identified above. Unless otherwise indicated, the CONTRACTOR must secure the permits prior to the start of construction and shall be responsible for all associated fees, deposits, bonds, proof of insurance, etc. The Contractor shall also be responsible for arranging for inspection by the governing agencies.

Work cannot proceed until all permits are obtained.

E. Pre-bid Meeting

No pre-bid meeting is scheduled for this project.

F. Contractor Qualifications

Pages SQ-1-3 must be filled out by the bidder. If all of these pages are not complete the bid will be treated as incomplete and will not be considered.

INSURANCE SPECIFICATIONS

1. LIABILITY OF CONTRACTOR

The Contractor shall take all responsibility for the work and shall provide barricades, watchmen and lights, and take all precautions for preventing injuries to persons and property on or about the work; shall bear all losses resulting to him on account of the amount or character of the work or because the nature of the ground in which the work is done is different from what was estimated or expected, or on account of weather, floods, elements or other cause; and shall assume defense of, indemnify and save harmless the party of the first part and its individual officers and agents from all claims relating to labor, equipment and materials furnished for the work, inventions, patents and patent rights used in doing the work, also to injuries to any person or property received or sustained by or from the CONTRACTOR, his agents or employees.

The mention of any specific duty or liability of the CONTRACTOR in any part of the specifications shall not be construed as a limitation or restriction upon any general liability or duty imposed upon the CONTRACTOR by the specifications.

INDEMNIFICATION - HOLD HARMLESS AGREEMENT

The CONTRACTOR agrees to indemnify, defend, and save harmless the OWNER and ENGINEER, their consultants, agents, and employees, from and against all loss or expense (including costs and attorney's fees) by reason of liability imposed by law upon the OWNER and ENGINEER, their consultants, agents, and employees for damages to property and for damages because of bodily injury, including death at any time resulting therefrom, arising out of or in consequence of the performance of this work, whether such injuries to persons or damage to property is due, or claimed to be due, to the negligence of the CONTRACTOR, his subcontractors, the OWNER, the ENGINEER, and their consultants, agents, and employees, except only such injury or damage as shall have been occasioned by the sole negligence of the

OWNER, the ENGINEER, and their agents and/or consultants.

COMPOSITION OF THE CONTRACTOR

If the CONTRACTOR hereunder is comprised of more than one legal entity, each such entity shall be jointly and severally liable hereunder.

2. INSURANCE

2.1. Insurance Required of the CONTRACTOR:

Prior to commencement of work, the CONTRACTOR shall purchase and maintain during the term of the project such insurance as will protect him, the OWNER(s), and Orchard, Hiltz & McCliment, Inc., Consulting Engineers, from claims arising out of the work described in this Contract and performed by the CONTRACTOR, subcontractor(s) or sub-subcontractor(s) consisting of:

2.1.1. Workers' Compensation Insurance including Employer's Liability to cover employee injuries or disease compensable under the Workers' Compensation Statutes of the states in which work is conducted under this Contract; disability benefit laws, if any; or Federal compensation acts such as U.S. Longshoremen or Harbor Workers', Maritime Employment, or Railroad Compensation Act(s), if applicable. Self-insurance plans approved by the regulatory authorities in the state in which work on this project is performed are acceptable.

2.1.2. A Comprehensive General Liability policy to cover bodily injury to persons other than employees and for damage to tangible property including loss of use thereof, including the following exposures:

- A. All premises and operations.
- B. Explosion, collapse and underground damage.

- C. Contractor's Protective coverage for independent contractors or subcontractors employed by him.
 - D. Contractual Liability for the obligation assumed in the Indemnification or Hold Harmless agreement found under Part I of this Section.
 - E. The usual Personal Injury Liability endorsement with no exclusions pertaining to employment.
 - F. Products and Completed Operations coverage. This coverage shall extend through the contract guarantee period.
- 2.1.3. A Comprehensive Automobile Liability policy to cover bodily injury and property damage arising out of the ownership, maintenance or use of any motor vehicle, including owned, non-owned and hired vehicles. In light of the standard policy provisions concerning (a) loading and unloading, and b) definitions pertaining to motor vehicles licensed for road use vs. unlicensed or self-propelled construction equipment, it is strongly recommended that Comprehensive General Liability and Comprehensive Auto Liability be written by the same insurance carrier, though not necessarily in one policy.
- 2.1.4. CONTRACTOR will purchase for the OWNER an Owner's Protective Liability policy to protect the OWNER; the ENGINEER (Orchard, Hiltz & McClimment, Inc.); their consultants, agents, employees and such public corporations in whose jurisdiction the work is located for their contingent liability for work performed by the CONTRACTOR, the subcontractor(s) or the sub-subcontractor(s) under this Contract.
- 2.1.5. CONTRACTOR shall purchase a Builder's Risk-Installation Floater in a form acceptable to the OWNER covering property of the project for the full cost of replacement as of the time of any loss which shall include, as named insureds, (a) the CONTRACTOR, (b)

all subcontractors, (c) all sub-subcontractors, (d) the OWNER, and Orchard, Hiltz & McClimment, Inc., Consulting Engineers, as their respective interests may prove to be at the time of loss, covering insurable property which is the subject of this Contract, whether in place, stored at the job site, stored elsewhere, or in transit at the risk of the insured(s). Coverage shall be effected on an "All Risk" form, including but not limited to the perils of fire, wind, collapse, vandalism, theft and earthquake, with exclusions normal to the cover. The CONTRACTOR may arrange for such deductibles as he deems to be within his ability to self-assume, but he will be held solely responsible for the amount of such deductible and for any co-insurance penalties. Any insured loss shall be adjusted with the OWNER and CONTRACTOR and paid to the OWNER and CONTRACTOR as Trustee for the other insureds.

2.1.6. Umbrella or Excess Liability

The OWNER or its representative may, for certain projects, require limits higher than those stated in paragraph. 2.2 that follows. CONTRACTOR is granted the option of arranging coverage under a single policy for the full limit required or by a combination of underlying policies with the balance provided by an Excess or Umbrella Liability policy equal to the total limit(s) requested. Umbrella or Excess policy wording shall be at least as broad as the primary or underlying policy(ies) and shall apply both to the CONTRACTOR's general liability and to his automobile liability insurance.

2.1.7. Railroad Protective Liability

Where such an exposure exists, the CONTRACTOR will provide coverage in the use of each railroad company having jurisdiction over rights-of-way across which work under the Contract is to be performed. The form of policy and limits

of liability shall be determined by the railroad company(ies) involved.

2.2. Limits of Liability

The required limits of liability for insurance coverages requested in Section 2.1 shall be not less than the following:

2.2.1. Worker's Compensation

Coverage A	
Compensation	Statutory
Coverage B	
Employer's Liability	\$100,000

2.2.2. Comprehensive General Liability

Bodily Injury -	
Each Occurrence	\$500,000
Bodily Injury -	
Aggregate (Completed Operations)	\$500,000
Property Damage -	
Each Occurrence	\$100,000
Property Damage -	
Aggregate	\$500,000
or combined single limit	\$1,000,000

2.2.3. Comprehensive Automobile Liability

Bodily Injury	\$500,000
Property Damage	\$200,000
or combined single limit	\$1,000,000

2.2.4. Owner's Protective

Bodily Injury-	
Each Occurrence	\$1,000,000
Property Damage-	
Each Occurrence	\$250,000
Property Damage-	
Aggregate	\$500,000
or combined single limit	\$1,500,000

2.2.5. Builder's Risk-Installation Floater

Cost to replace at time of loss

2.2.6. Umbrella or Excess Liability

\$2,000,000

2.3. Insurance - Other Requirements

2.3.1. Notice of Cancellation or Intent Not to Renew

Policies will be endorsed to provide that at least thirty (30) days written notice shall be given to the OWNER and the ENGINEER of cancellation or of intent not to renew.

2.3.2. Evidence of Coverage

Prior to the commencement of work, the CONTRACTOR shall furnish to the OWNER, Certificates of Insurance in force on the Owner's Form of Certificate provided. Other forms of certificate are acceptable only if (1) they include all items prescribed in the Owner's Form of Certificate, including agreement to cancellation provisions outlined in Paragraph 2.3.1 above, and (2) they have the written approval of the OWNER and ENGINEER. The OWNER reserves the right to request complete copies of the policies if deemed necessary to ascertain details of coverage not provided by the certificates. Such policy copies shall be "Originally Signed Copies," and so designated.

A. Insurance Required for the
CONTRACTOR

- i. Workers' Compensation and Employers' Liability Comprehensive General Liability, including:
 - a. All premises and operations.
 - b. Explosion, collapse, and underground damage.
 - c. Contractors' Protective.
 - d. Contractual Liability for obligations assumed in the Indemnification-Hold Harmless agreement of this contract.
 - e. Personal Injury Liability.
 - f. Products and Completed Operations.
- ii. Comprehensive Automobile Liability, including owned, non-owned, and hired vehicles.
- iii. Umbrella or Excess Liability.

B. Insurance Required for the OWNER

Owners' Protective Liability which names as insured(s) the OWNER; the ENGINEER, Orchard, Hiltz & McCliment, Inc.; their consultants, agents, employees and such public corporations in whose jurisdiction the work is located.

C. Insurance Required for the
CONTRACTOR and the OWNER

Builders Risk-Installation Floater which names as insured(s) the OWNER; the ENGINEER, Orchard, Hiltz & McCliment, Inc.; their consultants, agents and employees; the CONTRACTOR and all subcontractors.

2.3.3. Qualification of Insurers

In order to determine the financial strength and reputation of insurance carriers, all companies providing coverages required shall be licensed or approved by the Office of Financial and Insurance Services of the State of Michigan. The company shall also have a financial rating not lower than X and a policyholder's service rating no lower than A as listed in A.M. Best's Key Rating Guide, current edition. Companies with ratings lower than A:X will be acceptable only upon the written consent of the OWNER

End of Section

BID FORM

2019 CDBG Ramps
City of Ypsilanti

THIS BID IS SUBMITTED TO:

City of Ypsilanti
1 South Huron Street
Ypsilanti, MI 48197

The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with OWNER in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

Bidder accepts all of the terms and conditions of the Advertisement to Bid, Instructions to Bidders and Supplemental Instructions to Bidders.

In submitting this Bid, Bidder represents, as set forth in the Agreement, that:

- A. Bidder has examined and carefully studied the Bidding Documents, the other related data identified in the Bidding Documents, and the following Addenda, receipt of all which is hereby acknowledged.

Addendum No.	Addendum Date	Signature
--------------	---------------	-----------

_____	_____	_____
_____	_____	_____
_____	_____	_____

- B. Bidder has visited the site and become familiar with and is satisfied as to the general, local and Site conditions that may affect cost, progress, and performance of the Work.
- C. Bidder is familiar with and is satisfied as to all federal, state and local Laws and Regulations that may affect cost, progress and performance of the Work.
- D. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the site (except underground facilities) that have been identified in the Supplemental Instructions to Bidders, and (2) reports and drawings of a hazardous environmental condition, if any, that has been identified in the Supplemental Instructions to Bidders.
- E. Bidder has obtained and carefully studied (or assumes responsibility for having done so) all additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and underground facilities) at or contiguous to the site that may affect cost, progress, or performance of the Work or that relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed

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by Bidder, including applying the specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents to be employed by Bidder, and safety precautions and programs incident thereto.

- F. Bidder does not consider that any further examinations, investigations, exploration, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price(s) bid and within the times and in accordance with the other terms and conditions of the Bidding Documents.
- G. Bidder is aware of the general nature of work to be performed by OWNER and others at the Site that relates to the Work as indicated in the Bidding Documents.
- H. Bidder has correlated the information known to Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents.
- I. Bidder has given ENGINEER written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by ENGINEER is acceptable to Bidder.
- J. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Bid is submitted.

Bidder further represents that this Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; Bidder has not solicited or induced any individual or entity to refrain from bidding; and Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over OWNER.

Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

**BID FORM for
2019 CDBG Ramps
City of Ypsilanti, Washtenaw County, State of Michigan
OHM Advisors Job Number 0094-19-0031**

Item	Description	Estimated Quantity		Unit Price	Amount
1	Mobilization, Max 5%	1	LS	\$ _____	\$ _____
2	Traffic Control and Maintenance	1	LS	\$ _____	\$ _____
3	Curb and Gutter, Rem	250	Ft	\$ _____	\$ _____
4	Pavt, Rem	55	Syd	\$ _____	\$ _____
5	Sidewalk, Rem	120	Syd	\$ _____	\$ _____
6	HMA, 13A, Repair	20	Ton	\$ _____	\$ _____
7	Curb and Gutter, Conc, Det F3	250	Ft	\$ _____	\$ _____
8	Detectable Warning Surface	150	Ft	\$ _____	\$ _____
9	Sidewalk Ramp, Conc, 6 inch	850	Sft	\$ _____	\$ _____
10	Sidewalk, Conc, 4 inch	700	Sft	\$ _____	\$ _____
11	Pavt Mrkg, Polyurea, 6 inch, Crosswalk	850	Ft	\$ _____	\$ _____
12	Surface Restoration	250	Syd	\$ _____	\$ _____

Total Bid Amount (ITEM 1-12 incl.):

\$ _____

BF-3

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Bidder acknowledges that estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all unit price bid items will be based on actual quantities constructed in accordance with the Contract Documents.

Bidder agrees that the Work will be Substantially Complete on or before October 18, 2019, and completed and ready for final payment in accordance with the General Conditions on or before October 25, 2019.

Bidder accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the Work within the times specified above, which shall be stated in the Agreement.

The following documents are attached to and made a condition of this Bid:

- Bid Guarantee (circle one): Bid Bond
- Statement of Qualifications
- Subcontractor Listing
- Legal Status of Bidder

SUBMITTED on _____, 20 _____

State Contractor License No. _____ . (If applicable)

If Bidder is:

An Individual

Name (typed or
printed): _____

By: _____ (SEAL)
(Individual's signature)

Doing business
as: _____

Business address: _____

Phone No.: _____ FAX No.: _____

Partnership

Partnership Name: _____ (SEAL)

By: _____
(Signature of general partner – attach evidence of authority to sign)

Name (typed or printed): _____

Business address: _____

Phone No.: _____ FAX No.: _____

A Corporation

Corporation Name: _____ (SEAL)

State of Incorporation: _____

Type (General Business, Professional, Service, Limited Liability): _____

By: _____
(Signature – attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

Attest: _____ (CORPORATE SEAL)
(Signature of Corporate Secretary)

Business address: _____

Phone No.: _____ FAX No.: _____

Date of Qualification to do business is: _____

A Joint Venture

Joint Venture Name: _____ (SEAL)

By: _____
(Signature of joint venture partner – attach evidence of authority to sign)

Name (typed or printed): _____

Title:

Business address: _____

Phone No.: _____ FAX No.: _____

Joint Venture Name: _____ (SEAL)

By: _____
(Signature of joint venture partner – attach evidence of authority to sign)

Name (typed or printed): _____

Title:

Business address: _____

Phone No.: _____ FAX No.: _____

Phone and FAX Number, and Address for receipt of official communications.

(Each joint venturer must sign. The manner of signing for each individual, partnership, and corporation that is a party to the joint venture should be in the manner indicated above).

BID GUARANTEE

The undersigned attaches bid security in the form of a BID BOND / CERTIFIED CHECK / CASHIER'S CHECK (Circle one) in the amount of _____

Dollars (\$_____).

The undersigned agrees, if awarded the Contract, to deliver the executed Agreement and bonds and furnish evidence of insurance within fourteen (14) business days after the date of the Notice of Award. And to complete the proposed work within the time specified in the Bid Form.

If the Bid is accepted by the OWNER, and the undersigned shall fail to enter into the Agreement as aforesaid and to furnish the required surety bonds within fourteen (14) business days after Notice of Award, the Bid Bond in the amount of \$_____ accompanying this Bid shall be considered due and payable to the OWNER.

If the undersigned enters into the Agreement in accordance with this Bid or if his Bid is rejected, then the accompanying Bid Guarantee shall be voided.

In submitting this Bid, it is understood that the right is reserved by the OWNER to reject any or all bids, to waive irregularities and/or formalities and, in general, to make award in any manner deemed by it, in its sole discretion, to be in the best interest of the OWNER.

SIGNED AND SEALED THIS _____ DAY OF _____, 20 _____

Authorized Signature of Bidder:

(TITLE) _____

(SEAL)

BID BOND

BIDDER (Name and Address):

SURETY (Name and Address of Principal Place of Business):

OWNER (Name and Address):

City of Ypsilanti

1 South Huron Street

Ypsilanti, MI 48197

BID

BID DUE DATE: August 27, 2019

PROJECT:

Construct ADA-compliant curb ramps at several locations within the City of Ypsilanti.

BOND

BOND NUMBER: _____

DATE (Not later than Bid due date): _____

PENAL SUM: _____
(Words) (Figures)

IN WITNESS WHEREOF, Surety and Bidder, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Bid Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

BIDDER

SURETY

(Seal)

(Seal)

Bidder's Name and Corporate Seal

Surety's Name and Corporate Seal

By: _____
Signature and Title

By: _____
Signature and Title

(Attach Power of Attorney)

Attest: _____
Signature and Title

Attest: _____
Signature and Title

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to pay to OWNER upon default of Bidder the penal sum set forth on the face of this Bond.
2. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by OWNER) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Document.
3. This obligation shall be null and void if:
 - 3.1. OWNER accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by OWNER) the executed Agreement required by the Bidding Documents and any performance and payment Bonds required by the Bidding Documents, or
 - 3.2. All Bids are rejected by OWNER, or
 - 3.3. OWNER fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by paragraph 5 hereof).
4. Payment under this Bond will be due and payable upon default by Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from OWNER, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.
5. Surety waives notice of and any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by OWNER and Bidder, provided that the total time of issuing Notice of Award including extensions shall not in the aggregate exceed 120 days from Bid due date without Surety's written consent.
6. No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default required in paragraph 4 above is received by Bidder and Surety and in no case later than one year after Bid due date.
7. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
8. Notices required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.
9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent or representative who executed this Bond on behalf of Surety to execute, seal and deliver such Bond and bind the Surety thereby.
10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.
11. The term "Bid" as used herein includes a Bid, offer or proposal as applicable.

End of Section

STATEMENT OF QUALIFICATIONS

Bidder must answer all questions. If more space is needed to complete a question, attach a separate sheet. Bidder may submit any additional information.

Name: _____

Address: _____ Phone: _____

Number of years operating under your present name: _____

Bonding Capacity: _____

Bonding Company: _____ Phone: _____

Prequalified by MDOT to bid on projects of this magnitude and type of work

(circle one) YES NO Prequalification Number: _____

General nature of work performed by your company: _____

Background and experience of the principal members of your organization including officers:

Major equipment available for this contract: _____

CURRENT PROJECTS:

	Project	Project	Project
Name:			
Owner:			
Contact Person:			
Phone:			
Contract Amount:			
Completion Date:			
% Complete:			

COMPLETED PROJECTS:

	Project	Project	Project
Name:			
Owner:			
Contact Person:			
Phone:			
Contract Amount:			
Date Completed:			

Additional information that may be pertinent to demonstrate your ability to complete this project.

Has your company defaulted on a contract? _____

If yes, where and
why? _____

I hereby certify that the above answers are correct and true.

By: _____
Name

Signature

Title

Number of additional sheets attached: _____

IRAN LINKED BUSINESS CERTIFICATION

Pursuant to Michigan Public Act 517 of 2012, any Bidder that submits a bid on a request for proposal with the City of Ypsilanti shall certify that Bidder is not an Iran linked business. An Iran linked business is not eligible to submit a bid on a request for proposal with the City. See attached definitions regarding this certification.

The undersigned Bidder does hereby certify, pursuant to Michigan Public Act 517 of 2012, that:

Bidder is not a person engaging in investment activities in the energy sector of Iran, including a person that provides oil or liquefied natural gas tankers, or products used to construct or maintain pipelines used to transport oil or liquefied natural gas, for the energy sector of Iran, or

Bidder is not a financial institution that extends credit to another person if that person will use the credit to engage in investment activities in the energy sector of Iran.

Date: _____

By: _____

Its: _____

Subscribed and sworn to before me, a Notary Public on this ____ day of _____, _____.

Notary Public _____

_____ County, Michigan

My Commission Expires: _____

DEFINITIONS

- (A) “Energy sector of Iran” means activities to develop petroleum or natural gas resources or nuclear power in Iran.
- (B) “Investment” means 1 or more of the following:
 - i. A commitment or contribution of funds or property.
 - ii. A loan or other extension of credit.
 - iii. The entry into or renewal of a contract for goods or services.
- (C) “Investment activity” means 1 or more of the following:
 - i. A person who has an investment of \$20,000,000.00 or more in the energy sector of Iran.
 - ii. A financial institution that exceeds \$20,000,000.00 or more in credit to another person, for 45 days or more, if that person will use the credit for investment in the energy sector of Iran.
- (D) “Iran” means any agency or instrumentality of Iran.
- (E) “Iran linked business” means either of the following:
 - i. A person engaging in investment activities in the energy sector of Iran, including a person that provides oil or liquefied natural gas tankers or products used to construct or maintain pipelines used to transport oil or liquefied natural gas for the energy sector of Iran.
 - ii. A financial institution that extends credit to another person, if that person will use the credit to engage in investment activities in the energy sector of Iran.
- (F) “Person” means any of the following:
 - i. An individual, corporation, company, limited liability company, business association, partnership, society, trust, or any other nongovernmental entity, organization, or group.
 - ii. Any governmental entity or instrumentality of a government, including a multilateral development institution, as defined in section 1701(c) (3) of the international financial institutional act, 22 USC 262r(c) (3).
 - iii. Any successor, subunit, parent company, or subsidiary of, or company under common ownership or control with, any entity described in subparagraph (i) or (ii).
- (G) “Public entity” means this state or an agency or authority of this state, school district, community college district, intermediate school district, city, village, township, county, public authority, or public airport authority.

SUBCONTRACTOR LISTING

Bidder submits to use the following subcontractors for performance of the work in accordance with Article 9 of the Instructions to Bidders.

Note to Bidder: List all work you propose to sublet on this Contract. Include each subcontractors name, address, phone, fax and e-mail address. Also include a description of work to be performed by subcontractor. For example: restoration, landscaping, lighting, signage, bore and jack, etc. List approximate dollar value of the subcontract.

NAME, ADDRESS & PHONE NO. OF SUBCONTRACTOR	DESCRIPTION OF WORK	APPROXIMATE DOLLAR VALUE OF SUBCONTRACT
---	------------------------	---

		\$
--	--	----

Phone:

FAX:

E-mail

		\$
--	--	----

Phone:

FAX:

E-mail

_____ \$ _____

Phone: _____

FAX: _____

E-mail _____

_____ \$ _____

Phone: _____

FAX: _____

E-mail _____

_____ \$ _____

Phone: _____

FAX: _____

E-mail _____

AGREEMENT

This AGREEMENT is by and between City of Ypsilanti (hereinafter called OWNER) and

(hereinafter called CONTRACTOR).

ARTICLE 1 WORK

1.01 CONTRACTOR shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows:

Construct ADA-compliant curb ramps at several locations within the City of Ypsilanti.

ARTICLE 2 THE PROJECT

2.01 The Project for which the Work under the Contract Documents may be the whole or only a part is generally described as follows:

2019 CDBG Ramps

ARTICLE 3 ENGINEER

3.01 The Project has been designed by Orchard Hiltz & McCliment, Inc. who is hereinafter called ENGINEER and who is to act as OWNER's representative, assume all duties and responsibilities, and have the rights and authority assigned to ENGINEER in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

ARTICLE 4 CONTRACT TIMES

4.01 Time is of the Essence

A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.

4.02 Dates for Substantial Completion and Final Payment

A. The Work will be substantially completed on or before October 18, 2019, and completed and ready for final payment on or before October 25, 2019.

Days to Achieve Substantial Completion and Final Payment

4.03 Liquidated Damages

A. CONTRACTOR and OWNER recognize that time is of the essence of this Agreement and that OWNER will suffer financial loss if the Work is not completed within the times specified in paragraph 4.02 above, plus any extensions thereof allowed in accordance with Article 15 of the General Conditions. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by OWNER if the Work is not completed on time. Accordingly, instead of requiring any such proof, OWNER and CONTRACTOR agree that as liquidated damages for delay (but not as a penalty), CONTRACTOR shall pay OWNER \$500.00/day for each day that expires after the time specified in paragraph 4.02 for Substantial Completion until the Work is substantially complete. After Substantial Completion, if CONTRACTOR shall neglect, refuse, or fail to complete the remaining Work within the Contract Time or any proper extension thereof granted by OWNER, CONTRACTOR shall pay OWNER \$500.00/day for each day that

expires after the time specified in paragraph 4.02 for completion and readiness for final payment until the Work is completed and ready for final payment.

ARTICLE 5 CONTRACT PRICE

5.01 OWNER shall pay CONTRACTOR for completion of the Work in accordance with the Contract Documents an amount in current funds equal to the sum of the amounts determined pursuant to paragraph 5.01.A below:

- A. For all Unit Price Work, an amount equal to the sum of the established unit price for each separately identified item of Unit Price Work multiplied by the measured quantity of that item as indicated in the Bid Form (Bid Form to be inserted here at the time the Agreement is to be signed.):

Item No.	Description	Estimated Quantity	Unit Price	Amount
1	Mobilization, Max 5%	1 LS	\$	\$
2	Traffic Control and Maintenance	1 LS	\$	\$
3	Curb and Gutter, Rem	250 Ft	\$	\$
4	Pavt, Rem	55 Syd	\$	\$
5	Sidewalk, Rem	120 Syd	\$	\$
6	HMA, 13A, Repair	20 Ton	\$	\$
7	Curb and Gutter, Conc, Det F3	250 Ft	\$	\$
8	Detectable Warning Surface	150 Ft	\$	\$
9	Sidewalk Ramp, Conc, 6 inch	850 Sft	\$	\$
10	Sidewalk, Conc, 4 inch	700 Sft	\$	\$
11	Pavt Mrkg, Polyurea, 6 inch, Crosswalk	850 Ft	\$	\$
12	Surface Restoration	250 Syd	\$	\$
Total Bid Amount				\$

As provided in Article 13 of the General Conditions, estimated quantities are not guaranteed, and determinations of actual quantities and classifications are to be made by ENGINEER as provided in Article 23 of the General Conditions.

ARTICLE 6 PAYMENT PROCEDURES

6.01 Submittal and Processing of Payments

CONTRACTOR shall be paid in accordance with Article 14 of the General Conditions.

ARTICLE 7 CONTRACTOR'S REPRESENTATIONS

7.01 In order to induce OWNER to enter into this Agreement CONTRACTOR makes the following representations:

CONTRACTOR has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents.

CONTRACTOR has visited the site and become familiar with and is satisfied as to the general, local and site conditions that may affect cost, progress, and performance of the Work.

CONTRACTOR is familiar with and is satisfied as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work.

CONTRACTOR has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the site (except underground facilities) which have been identified in the Supplemental Instructions to Bidders and (2) reports and drawings of a hazardous environmental condition, if any, at the site which has been identified in the Supplemental Instructions to Bidders.

CONTRACTOR has obtained and carefully studied (or assumes responsibility for having done so) all additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and underground facilities) at or contiguous to the site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences and procedures of construction to be employed by CONTRACTOR, including applying the specific means, methods, techniques, sequences, and procedures of construction, if any, expressly required by the Contract Documents to be employed by CONTRACTOR, and safety precautions and programs incident thereto.

CONTRACTOR does not consider that any further examinations, investigations, exploration, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract Documents.

CONTRACTOR is aware of the general nature of work to be performed by OWNER and others at the Site that relates to the Work as indicated in the Contract Documents.

CONTRACTOR has correlated the information known to CONTRACTOR, information and observations obtained from visits to the site, reports and drawings identified in the Contract Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Contract Documents.

CONTRACTOR has given ENGINEER written notice of all conflicts, errors, ambiguities, or discrepancies that CONTRACTOR has discovered in the Contract Documents, and the written resolution thereof by ENGINEER is acceptable to CONTRACTOR.

The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

ARTICLE 8 CONTRACT DOCUMENTS

8.01 Contents

A. The Contract Documents consist of the following:

1. This Agreement;
2. Performance Bond;
3. Payment Bond;
4. Maintenance and Guarantee Bond;
5. General Conditions;
6. General Specifications;
7. Technical Specifications as listed in the table of contents of the Project Manual;
8. Appendices (excluding geotechnical reports);
9. Addenda (numbers ____ to ____, inclusive);
10. Exhibits to the Agreement (enumerated as follows):
 - a. Documentation submitted by CONTRACTOR prior to Notice of Award (pages ____ to ____, inclusive);
 - b. _____
11. The following which may be delivered or issued on or after the Effective Date of the Agreement and are not attached hereto:
 - a. Written Amendments;
 - b. Work Orders;
 - c. Change Order(s).

The documents listed in paragraph 8.01.A are attached to this Agreement (except as expressly noted otherwise above).

There are no Contract Documents other than those listed above in this Article 8.

ARTICLE 9 MISCELLANEOUS

9.01 Terms

Terms used in this Agreement will have the meanings indicated in the General Conditions.

9.02 Assignment of Agreement

No assignment by a party hereto of any rights under or interests in the Agreement will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an

assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

9.03 Successors and Assigns

OWNER and CONTRACTOR each binds itself, its partners, successors, assigns, and legal representatives to the other party hereto, its partners, successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

9.04 Severability

Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon OWNER and CONTRACTOR, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

IN WITNESS WHEREOF, OWNER and CONTRACTOR have signed this Agreement in duplicate. One counterpart each has been delivered to OWNER and CONTRACTOR. All portions of the Contract Documents have been signed or identified by OWNER and CONTRACTOR or on their behalf.

This Agreement will be effective on _____ , _____
(which is the Effective Date of the Agreement)

OWNER:

CONTRACTOR:

City of Ypsilanti

By: _____
(CORPORATE SEAL)

By: _____
(CORPORATE SEAL)

Attest _____

Attest _____

Address for giving notices: _____

Address for giving notices: _____

1 South Huron Street

Ypsilanti, MI 48197

License No. _____

(If OWNER is a corporation, attach evidence of authority to sign. If OWNER is a public body, attach evidence of authority to sign and resolution or other documents authorizing execution of OWNER – CONTRACTOR Agreement)

(Where applicable)

Agent for service of process: _____

(If CONTRACTOR is a corporation or a partnership, attach evidence of authority to sign.)

Designated Representative:

Designated Representative:

Name: _____

Name: _____

Title: _____

Title: _____

Address: _____

Address: _____

Phone: _____

Phone: _____

FAX: _____

FAX: _____

PERFORMANCE BOND

Any singular reference to CONTRACTOR, Surety, OWNER or other party shall be considered plural where applicable.

CONTRACTOR (Name and Address):

SURETY (Name and Address of Principal
Place of Business): _____

OWNER:

City of Ypsilanti
1 South Huron Street
Ypsilanti, MI 48197

CONTRACT

Date:

Amount:

Description: 2019 CDBG Ramps
City of Ypsilanti

BOND

Date (Not earlier than Contract Date):

Amount:

Modifications to this Bond Form:

Surety and CONTRACTOR, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Performance Bond to be duly executed on its behalf by its authorized officer, agent or representative.

CONTRACTOR AS PRINCIPAL

SURETY

Company: _____ (Corp. Seal) Company: _____ (Corp. Seal)

Signature: _____ Signature: _____

Name & Title: _____ Name & Title: _____
(Attach Power of Attorney)

(Space is provided below for signatures of additional parties, if required).

CONTRACTOR AS PRINCIPAL

SURETY

Company: _____ (Corp. Seal) Company: _____ (Corp. Seal)

Signature: _____ Signature: _____

Name & Title: _____ Name & Title: _____
(Attach Power of Attorney)

1. The CONTRACTOR and the Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the OWNER for the performance of the Contract, which is incorporated herein by reference.
2. If the CONTRACTOR performs the Contract, the Surety and the CONTRACTOR have no obligation under this Bond, except to participate in conferences as provided in paragraph 3.1
3. If there is no OWNER Default, the Surety's obligation under this Bond shall arise after:
 - 3.1. The OWNER has notified the CONTRACTOR and the Surety at the addresses described in paragraph 10 below, that the OWNER is considering declaring a CONTRACTOR Default and has requested and attempted to arrange a conference with the CONTRACTOR and the Surety to be held not later than fifteen days after receipt of such notice to discuss methods of performing the Contract. If the OWNER, the CONTRACTOR and the Surety agree, the CONTRACTOR shall be allowed a reasonable time to perform the Contract, but such an agreement shall not waive the OWNER's right, if any, subsequently to declare a CONTRACTOR Default; and
 - 3.2. The OWNER has declared a CONTRACTOR Default and formally terminated the CONTRACTOR's right to complete the Contract. Such CONTRACTOR Default shall not be declared earlier than twenty days after the CONTRACTOR and the Surety have received notice as provided in paragraph 3.1; and
 - 3.3. The OWNER has agreed to pay the Balance of the Contract Price to:
 - 3.3.1. The Surety in accordance with the terms of the Contract;
 - 3.3.2. Another contractor selected pursuant to paragraph 4.3 to perform the Contract.
4. When the OWNER has satisfied the conditions of paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:
 - 4.1. Arrange for the CONTRACTOR, with consent of the OWNER, to perform and complete the Contract; or
 - 4.2. Undertake to perform and complete the Contract itself, through its agents or through independent contractors; or
 - 4.3. Obtain bids or negotiated proposals from qualified contractors acceptable to the OWNER for a contract for performance and completion of the Contract, arrange for a contract to be prepared for execution by the OWNER and the contractor selected with the OWNER's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the Bonds issued on the Contract, and pay to the OWNER the amount of damages as described in paragraph 6 in excess of the Balance of the Contract Price incurred by the OWNER resulting from the CONTRACTOR Default; or
 - 4.4. Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances;
 - 4.4.1. After investigation, determine the amount for which it may be liable to the OWNER and, as soon as practicable after the amount is determined, tender payment therefore to the OWNER; or

4.4.2. Deny liability in whole or in part and notify the OWNER citing reasons therefore.

5. If the Surety does not proceed as provided in paragraph 4 with reasonable promptness, the Surety shall be deemed to be in default on the Bond fifteen days after receipt of an additional written notice from the OWNER to the Surety demanding that the Surety perform its obligations under this Bond, and the OWNER shall be entitled to enforce any remedy available to the OWNER. If the Surety proceeds as provided in paragraph 4.4, and the OWNER refuses the payment tendered or the Surety has denied liability, in whole or in part, without further notice the OWNER shall be entitled to enforce any remedy available to the OWNER.
6. After the OWNER has terminated the CONTRACTOR's right to complete the Contract, and if the Surety elects to act under paragraph 4.1, 4.2, or 4.3 above, then the responsibilities of the Surety to the OWNER shall not be greater than those of the CONTRACTOR under the Contract, and the responsibilities of the OWNER to the Surety shall not be greater than those of the OWNER under the Contract. To a limit of the amount of this Bond, but subject to commitment by the OWNER of the Balance of the Contract Price to mitigation of costs and damages on the Contract, the Surety is obligated without duplication for:
 - 6.1. The responsibilities of the CONTRACTOR for correction of defective Work and completion of the Contract;
 - 6.2. Additional legal, design professional and delay costs resulting from the CONTRACTOR's Default, and resulting from the actions or failure to act of the Surety under paragraph 4; and
 - 6.3. Liquidated damages, or if no liquidated damages are specified in

the Contract, actual damages caused by delayed performance or non-performance of the CONTRACTOR.

7. The Surety shall not be liable to the OWNER or others for obligations of the CONTRACTOR that are unrelated to the Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on the bond to any person or entity other than the OWNER or its heirs, executors, administrators, or successors.
8. The Surety hereby waives notice of any change, including changes of time, to the Contract or to related subcontracts, purchase orders and other obligations.
9. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the Work or part of the Work is located and shall be instituted within two years after CONTRACTOR Default or within two years after the CONTRACTOR ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.
10. Notice to the Surety, the OWNER or the CONTRACTOR shall be mailed or delivered to the address shown on the signature page.
11. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the Contract was being performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted here from and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a

statutory bond and not as a common law bond.

12. Definitions.

12.1. Balance of the Contract Price:

The total amount payable by the OWNER to the CONTRACTOR under the Contract after all proper adjustments have been made, including allowance to the CONTRACTOR or any amounts received or to be received by the OWNER in settlement of insurance or other Claims for damages to which the CONTRACTOR is entitled, reduced by all valid and proper payments made to or on behalf of the CONTRACTOR under the Contract.

12.2. Contract: the agreement between the OWNER and the CONTRACTOR identified on the signature page, including all Contract Documents and changes thereto.

12.3. CONTRACTOR Default: Failure of the CONTRACTOR, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Contract.

12.4. OWNER Default: Failure of the OWNER, which has neither been remedied nor waived, to pay the CONTRACTOR as required by the contract or to perform and complete or comply with the other terms thereof.

End of Section

PAYMENT BOND

Any singular reference to CONTRACTOR, Surety, OWNER or other party shall be considered plural where applicable.

CONTRACTOR (Name and Address):

SURETY (Name and Address of Principal Place of Business): _____

OWNER:

City of Ypsilanti
1 South Huron Street
Ypsilanti, MI 48197

CONTRACT

Date:

Amount:

Description: 2019 CDBG Ramps
City of Ypsilanti

BOND

Date (Not earlier than Contract Date):

Amount:

Modifications to this Bond Form:

Surety and CONTRACTOR, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Payment bond to be duly executed on its behalf by its authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

SURETY

Company: _____ (Corp. Seal) Company: _____ (Corp. Seal)

Signature: _____ Signature: _____

Name and Title: _____ Name and Title: _____
(Attach Power of Attorney)

(Space is provided below for signatures of additional parties, if required).

CONTRACTOR AS PRINCIPAL

SURETY

Company: _____ (Corp. Seal) Company: _____ (Corp. Seal)

Signature: _____ Signature: _____

Name & Title: _____ Name & Title: _____
(Attach Power of Attorney)

PYB - 1

0094-19-0031

1. The CONTRACTOR and the Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the OWNER to pay for labor, materials and equipment furnished for use in the performance of the Contract, which is incorporated herein by reference.
2. With respect to the OWNER, this obligation shall be null and void if the CONTRACTOR:
 - 2.1. Promptly makes payment, directly or indirectly, for all sums due Claimants, and
 - 2.2. Defends, indemnifies and holds harmless the OWNER from all claims, demands, liens or suits by any person or entity who furnished labor, materials or equipment for use in the performance of the Contract, provided the OWNER has promptly notified the CONTRACTOR and the Surety (at the addresses described in paragraph 12) of any claims, demands, liens or suits and tendered defense of such claims, demands, liens or suits to the CONTRACTOR and the Surety, and provided there is no OWNER Default.
3. With respect to Claimants, this obligation shall be null and void if the CONTRACTOR promptly makes payment, directly or indirectly, for all sums due.
4. The Surety shall have no obligation to Claimants under this Bond until:
 - 4.1. Claimants who are employed by or have a direct contract with the CONTRACTOR have given notice to the surety (at the addresses described in paragraph 12) and sent a copy, or notice thereof, to the OWNER, stating that a claim is being made under this Bond and, with substantial accuracy, the amount of the claim.
 - 4.2. Claimants who do not have a direct contract with the CONTRACTOR:
 - 4.2.1. Have furnished written notice to the CONTRACTOR and sent a copy, or notice thereof, to the OWNER, within 90 days after having last performed labor or last furnished materials or equipment included in the claim stating, with substantial accuracy, the amount of the claim and the name of the party to whom the materials were furnished or supplied or for whom the labor was done or performed; and
 - 4.2.2. Have either received a rejection in whole or in part from the CONTRACTOR, or not received within 30 days of furnishing the above notice any communication from the CONTRACTOR by which the CONTRACTOR had indicated the claim will be paid directly or indirectly; and
 - 4.2.3. Not having been paid within the above 30 days, have sent a written notice to the Surety and sent a copy, or notice thereof, to the OWNER, stating that a claim is being made under this Bond and enclosing a copy of the previous written notice furnished to the CONTRACTOR.
5. If a notice required by paragraph 4 is given by the OWNER to the CONTRACTOR or to the Surety, that is sufficient compliance.
6. When the Claimant has satisfied the conditions of paragraph 4, the Surety shall promptly and at the Surety's expense take the following actions:
 - 6.1. Send an answer to the Claimant, with a copy to the OWNER, within 45 days after receipt of the claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed.
 - 6.2. Pay or arrange for payment of any undisputed amounts.
7. The Surety's total obligation shall not exceed the amount of this Bond, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.
8. Amounts owed by the OWNER to the CONTRACTOR under the Contract shall be used for the performance of the Contract and to satisfy claims, if any, under any Performance Bond. By the CONTRACTOR

furnishing and the OWNER accepting this Bond, they agree that all funds earned by the CONTRACTOR in the performance of the Contract are dedicated to satisfy obligations of the CONTRACTOR and the Surety under this Bond, subject to the OWNER's priority to use the funds for the completion of the Work.

9. The Surety shall not be liable to the OWNER, Claimants or others for obligations of the CONTRACTOR that are unrelated to the Contract. The OWNER shall not be liable for payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligations to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.
10. The Surety hereby waives notice of any change, including changes of time, to the Contract or to related subcontracts, purchase orders and other obligations.
11. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the location in which the Work or part of the Work is located or after the expiration of one year from the date (1) on which the Claimant gave the notice required by paragraph 4.1 or paragraph 4.2.3, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.
12. Notice to the Surety, the OWNER or the CONTRACTOR shall be mailed or delivered to the addressee shown on the signature page. Actual receipt of notice by Surety, the OWNER or the CONTRACTOR, however accomplished, shall be sufficient compliance as of the date received at the address shown on the signature page.
13. When this Bond has been furnished to comply with a statutory or other legal requirement in

the location where the Contract was to be performed, any provision in the Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. The intent is, that this Bond shall be construed as a statutory Bond and not as a common law bond.

14. Upon request of any person or entity appearing to be a potential beneficiary of this Bond, the CONTRACTOR shall promptly furnish a copy of the Bond or shall permit a copy to be made.

15. DEFINITIONS

- 15.1. Claimant: an individual or entity having a direct contract with the CONTRACTOR or with a Subcontractor of the CONTRACTOR to furnish labor, material or equipment for use in the performance of the Contract. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental equipment used in the Contract, architectural and engineering services required for performance of the Work of the CONTRACTOR and the CONTRACTOR's Subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials or equipment were furnished.
- 15.2. Contract: The agreement between the OWNER and the CONTRACTOR identified on the signature page, including all Contract Documents and changes thereto.
- 15.3. OWNER Default: Failure of the OWNER, which has neither been remedied nor waived, to pay the CONTRACTOR as required by the Contract or to perform and complete or comply with the other terms thereof.

End of Section

PYB - 3

0094-19-0031

MAINTENANCE AND GUARANTEE BOND

KNOW ALL MEN BY THESE PRESENTS, That we _____ (contractor name), as Principal, and _____, as Surety, are held and firmly bound unto the City of Ypsilanti, 1 South Huron Street, Ypsilanti, MI 48197, as Owner, in the sum of _____ DOLLARS and _____ CENTS (\$ _____) good and lawful money of the United States of America, to be paid to said City of Ypsilanti, its legal representatives and assigns for which payment well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, and each and every one of them jointly and severally, firmly by these presents.

Sealed with our seals and dated this _____ day of _____ A.D. 20 _____.

WHEREAS, the above named Principal has entered into a certain written Contract with City of Ypsilanti dated this _____ day of _____ A.D. 20 _____, wherein the said Principal covenanted and agreed to follows, to-wit: TO CONSTRUCT THE WORK IN ACCORDANCE WITH THE SPECIFICATIONS, CONTRACT DOCUMENTS AND DRAWINGS TITLED: 2019 CDBG Ramps, OHM JOB NO. 0094-19-0031.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that by and under said Contract, the above named Principal has agreed with the City of Ypsilanti that for a period of TWO year(s) from date of payment of Final Estimate, to keep in good order and repair any defect in all work done under said Contract either by the Principal or his Subcontractors, or his material suppliers, that may develop during said period due to improper materials, defective equipment, workmanship or arrangements, and any other work affected in making good such imperfections, shall also be made good all without expense to the OWNER, excepting only such parts or part of said work as may have been disturbed without consent or approval of the Principal after final acceptance of the work, and that whenever directed to do so by the OWNER by notice served in writing, either personally or by mail, on the Principal at _____ (contractor's city, state, and zip code),

_____ legal representatives, or successors, or on the Surety at _____ WILL PROCEED at once to make such repairs as directed by said OWNER; and in case of failure so to do within one week from the date of service of such notice, or within reasonable time not less than one week, as shall be fixed in said notice, then the said OWNER shall have the right to purchase such materials and employ such labor and equipment as may be necessary for the purpose, and to undertake, do and make such repairs and charge the expense thereof to, and receive same from, said Principal or Surety. If any repair is necessary to be made at once to protect life and property, then and in that case, the said OWNER may take immediate steps to repair or barricade such defects without notice to the CONTRACTOR. In such accounting the said OWNER shall not be held to obtain the lowest figures for the doing of the work, or any part thereof, but all sums actually paid therefore shall be charged to the Principal or Surety. In this connection the judgment of the OWNER is final and conclusive. If the said Principal for a period of TWO year(s) from the date of payment of Final Estimate, shall keep said work so constructed under said Contract in good order and repair, excepting only such part or parts of said work which may have been disturbed without the consent or approval of said Principal after final acceptance of same, and shall whenever notice is given as hereinbefore specified, at once proceed to make repair as in said notice directed, or shall reimburse said OWNER for any expense incurred by making such repairs, should the Principal or Surety fail to do as hereinbefore specified, and shall fully indemnify, defend and save harmless the said Owner and Orchard, Hiltz & McCliment, Inc. from all suits and actions for damages of every name and description brought or claimed against it for, or on account of, any injury or damage to person or property received or sustained by any party or parties, by or from any of the acts or omissions or through the negligence of said

Principal, servants, agents or employees, in the prosecution of the work included in said Contract, and from any and all claims arising under the Workman's Compensation Act, so-called, of the State of Michigan, then the above obligation shall be void, otherwise to remain in full force and effect.

IN WITNESS WHEREOF, the parties hereto have caused this instrument to be executed by their respective authorized officers this _____ day of _____ A.D., 20 _____.

Signed, Sealed and Delivered
In the Presence of:

Signature

Signature

Name

Name

Principal

Signature

Signature

Name

Name

Surety

CONTRACTOR'S AFFIDAVIT

STATE OF MICHIGAN)
)SS.
COUNTY OF _____)

The undersigned, _____, CONTRACTOR, hereby represents that on _____, 20____ he (it) was awarded a Contract by City of Ypsilanti hereinafter called the OWNER, to construct 2019 CDBG Ramps in accordance with the terms and conditions of Contract No. _____; and the undersigned further represents that the subject work has now been accomplished and the said Contract has now been completed.

The undersigned hereby warrants and certifies that all of his (its) indebtedness arising by reason of said Contract has been fully or satisfactorily secured, and that all claims from subcontractors and others for labor and material used in accomplishing the said project, as well as all other claims arising from performance of said Contract, have been fully paid or satisfactorily secured. The undersigned further agrees that if any such claim should hereafter arise, he (it) shall assume responsibility for same immediately upon request to do so by the OWNER.

The undersigned, for a valuable consideration, receipt of which is hereby acknowledged, does further hereby waive, release and relinquish any and all claims or right of lien which the undersigned now has or may hereafter acquire upon the subject premises for labor and material used in accomplishing said project owned by the OWNER.

This affidavit is freely and voluntarily given with full knowledge of the facts on this ____ day of _____, 20_____.

Contractor

By: _____

Title _____

Subscribed and sworn to before me, a Notary Public in and for _____ County, Michigan, on this _____ day of _____, 20_____.

Notary Public: _____

My Commission expires: _____

CONTRACTOR'S DECLARATION

I HEREBY DECLARE THAT I HAVE NOT, during the period

_____ to
_____ A.D., 20 _____ performed any work, furnished any material,
sustained any loss, damage or delay for any reason, including soil conditions encountered or created, or
otherwise done anything for which I shall ask, demand, sue for or claim compensation from City of
Ypsilanti or his agents, in addition to the regular items set forth in the Contract numbered _____
and dated _____ A.D., 20 _____ for the Agreement executed between myself and
the OWNER, and in the Change Orders for work issued by the OWNER in writing as provided
thereunder, except as I hereby make claim for additional compensation and/or extension of time, as set
forth on the itemized statement attached hereto.

There (is) (is not) an itemized statement attached.

Date: _____

By: _____

Title: _____

GENERAL CONDITIONS

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General

1. DEFINITIONS

The following terms as used in the Contract Documents are respectively defined as follows:

“Agreement”: The written document between the OWNER and the CONTRACTOR concerning the work to be performed.

“Change Order” - A document recommended by ENGINEER, which is signed by CONTRACTOR and OWNER and authorizes an addition, deletion or revision in the Work, or an adjustment in the Contract Price or the Contract Time, issued on or after the Effective Date of the Agreement.

“Contract” – The entire and integrated written agreement between the OWNER and CONTRACTOR concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

“CONTRACTOR”: The person, firm or corporation to whom the Contract is awarded by the OWNER and who is subject to the terms thereof and party of the second part of the Agreement.

“ENGINEER”: Orchard, Hiltz & McCliment, Inc., Livonia, Michigan

“Construction Observer”: The authorized representative of ENGINEER who is assigned to the site or any part thereof.

“OWNER”: The public body or authority, corporation, association, firm or person with whom CONTRACTOR has entered into the Agreement: and for whom the work is to be provided; and the party of the first part of the Contract.

“Project Manual” – The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.

“Specifications” - Those portions of the Contract Documents consisting of written technical descriptions of materials, equipment, construction systems, standards and workmanship as applied to the Work and certain administrative details applicable thereto.

“Subcontractor”: A person, firm or corporation having a direct contract with CONTRACTOR or with any other subcontractor for the performance of a part of the Work at the site.

“Supplier”: A manufacturer, fabricator, supplier, distributor, material man or vendor.

“Supplemental Conditions”: The part of the Contract Documents that amends or supplements the General Conditions and/or the Insurance Specifications and the Bond Requirements.

“Work” - The entire completed construction or the various separately identifiable parts thereof required to be furnished under the Contract Documents. Work is the result of performing services, furnishing labor and furnishing and incorporating materials and equipment into the construction, all as required by the Contract Documents.

“Written Notice”: Shall be deemed to have been “duly served” when such notice shall have been given or mailed to the CONTRACTOR or his superintendent at the site of the Work or when such notice shall have been given or mailed to the OWNER.

2. CONTRACT DOCUMENTS

The original and three counterparts of the Contract shall be signed by the OWNER and the CONTRACTOR.

The Work under this Contract shall consist of the items listed in the Bid Form, including all incidentals necessary to fully complete the project in accordance with the Contract Documents. The Contract Documents shall consist of the Advertisement, Instructions to Bidders, Supplemental Instructions to Bidders, Supplemental Specifications, Bid Form, Project Plans and Drawings, Standard Plans and Details, Technical Specifications,

General Conditions, General Specifications, Method of Payment, Insurance, Bonds and Agreement.

The Contract Documents comprise the entire agreement between OWNER and CONTRACTOR. The Contract Documents are complimentary, and what is called for by any one shall be as binding as if called for by all. The intent of the Contract Documents is to include in the Contract Price the cost of all labor and material, water, fuel, tools, plant, equipment, light, transportation and all other expenses that may be necessary for the proper execution and completion of the Work.

3. BONDS

The CONTRACTOR shall furnish a surety bond (form included) in an amount at least equal to 100 percent of the Contract Price as security for faithful performance of this Contract. CONTRACTOR shall also furnish a separate surety bond (form included) in an amount at least equal to 100 percent of the Contract Price as security for the payment of all persons performing labor on the project under this Contract, and furnishing materials in connection with this Contract. The Surety on each such bond shall be a duly authorized surety company satisfactory to the OWNER.

The CONTRACTOR shall furnish a Maintenance and Guarantee Bond (form included) covering all Work under this Contract. The guarantee is to cover fifty percent (50%) of the contract amount for a period of two (2) years subsequent to the date of final payment unless otherwise specified.

Should any Surety upon any bond furnished in connection with this Contract become unacceptable to the OWNER, or if any such Surety shall fail to furnish reports as to his financial condition from time to time as requested by the ENGINEER, the CONTRACTOR must promptly furnish such additional security as may be required from time to time by the ENGINEER to protect the interests of the OWNER or persons supplying labor or materials in the

prosecution of the Work contemplated by the Contract.

4. CONTRACT DRAWINGS & SPECIFICATIONS

The original drawings prepared by the ENGINEER and included in the Contract Documents may be supplemented by other drawings furnished by the CONTRACTOR and approved by the ENGINEER or supplied to the CONTRACTOR by the ENGINEER during progress of the Work as he may deem to be necessary or expedient. All such supplementary Contract Drawings or instructions are intended to be consistent with the Contract Documents, true developments thereof, and reasonably inferable therefrom. Therefore, no extra charge will be allowed on a claim that particular supplemental contract drawings or instructions differed from the Contract Documents, incurring extra work, unless CONTRACTOR has first brought the matter, in writing, to the ENGINEER's attention for proper adjustment before starting on the work covered by such, and has received from the ENGINEER an order, in writing, to so proceed.

These original and supplemental drawings constitute the drawings according to which the Work is to be done. The CONTRACTOR shall keep at the site of the Work an approved or confirmed copy of all drawings and specifications, and shall at all times give the ENGINEER and OWNER access thereto.

5. COORDINATION OF CONTRACT DOCUMENTS

In case of discrepancy, figured dimensions shall govern over scaled dimensions and the parts of the Contract will prevail over all other parts of the following order:

Supplemental Specifications

Supplemental Instructions to Bidders

Instructions to Bidders

Bid Form

Project Plans and Drawings

Standard Plans & Details

Method of Payment

Technical Specifications

General Conditions

General Specifications

Insurance Specifications and Bond Forms

The CONTRACTOR shall not take advantage of any apparent error or omission in the Contract Documents, and if any inconsistency, omission, or conflict is discovered in the Contract Documents, or if in any place the meaning of the Contract Documents is obscure, uncertain, or in dispute, the ENGINEER will decide as to the true intent.

Information regarding site of the Work given in drawings and specifications has been obtained by the ENGINEER and is believed to be reasonably correct, but the OWNER does not warrant either the completeness or accuracy of such information, and it is the CONTRACTOR's responsibility to verify all such information.

6. PRECONSTRUCTION MEETING

A preconstruction meeting will be held prior to the beginning of any work. The ENGINEER will schedule the meeting as soon as possible after acceptable executed Contract Documents are received from the CONTRACTOR.

Notice of the meeting will be made to the OWNER, the CONTRACTOR, and to the following applicable entities, contingent upon their interest in the project:

Utility Companies

County Road Commission

Michigan Department of Transportation (MDOT)

Michigan Department of Labor-Safety Division

Railroad Companies

Other State, Local and County Agencies

The purpose of the preconstruction meeting is to discuss particular procedures and potential problem areas. The CONTRACTOR is given updates on the conditions of the proposed construction and what is expected as to proper notification in the event of damage to existing utilities.

The CONTRACTOR shall submit in writing at the preconstruction meeting the following information:

Schedule of construction

Sources of materials

Final list of subcontractors

The designated safety officer on the job

Superintendent for the project

Foreman in charge on the job site

Emergency and after hours phone numbers for CONTRACTOR, including Safety Officer, Superintendent and Foreman.

Approval by ENGINEER and OWNER of any construction schedule indicating completion of the work in less time than allotted by the Contract shall not be construed as an acknowledgment, either express or implied, that the work can be completed within the time shown on this schedule, and shall not under any circumstances give rise to a cause of action for damages by the CONTRACTOR.

7. REUSE OF DOCUMENTS

Neither CONTRACTOR nor any subcontractor or supplier or other person or organization performing or furnishing any of the Work under a direct or indirect contract with OWNER shall have or acquire any title to or ownership rights in any of the drawings, specifications or other documents (or copies of any thereof) prepared by or bearing the seal of ENGINEER; and they shall not reuse any of them on extensions of the project or any other project without written consent of OWNER and ENGINEER and specific written verification or adaptation by ENGINEER.

8. AVAILABILITY OF LANDS

OWNER shall furnish, as indicated in the Contract Documents, the lands upon which the work is to be performed, rights-of-way for access thereto, and such other lands which are designated for the use of CONTRACTOR. CONTRACTOR shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

Permission to use private property shall be obtained prior to any such use by the CONTRACTOR. Written evidence of such permission shall be given to the ENGINEER prior to any such use.

9. PHYSICAL CONDITIONS

Reference is made to the Supplemental Instructions to Bidders for identification of those reports of investigations and tests of subsurface and latent physical conditions at the site or otherwise affecting cost, progress or performance of the Work which have been relied upon by the ENGINEER in preparation of the drawings and specifications. Such reports are not guaranteed as to accuracy or completeness and are not part of the Contract Documents.

10. GENERAL REQUIREMENTS OF MATERIALS & WORKMANSHIP

In the specifications where a particular material or piece of equipment is specified by reference to some particular make or type, or equal, it is not the intent to limit competition but to set up by such reference a standard of quality most easily understood and defined. If materials or equipment of other make or type other than that specified by name are offered by CONTRACTOR they will be given full consideration by the ENGINEER, and the ENGINEER's decision will be final as to whether the materials or equipment offered are equal to those specified.

Unless otherwise stipulated in the specifications, all equipment, materials and articles incorporated in the Work covered by this Contract are to be new and of the best grade of their respective kinds for the

purpose. The CONTRACTOR shall, if required, furnish such evidence as to kind and quality of materials as the ENGINEER may require.

The CONTRACTOR shall furnish suitable tools and building appliances and employ competent labor to perform the work to be done, and any labor, tools or appliances that shall not, in the judgment of the ENGINEER, be suitable or competent to produce this result may be ordered from the Work by him, and such labor, tools or appliances shall be substituted therefore by the CONTRACTOR as will meet with the approval of the ENGINEER.

If not otherwise provided, material or work called for in this Contract shall be furnished and performed in accordance with well-known established practice and standards recognized by architects, engineers and the trade.

11. SHOP DRAWINGS & SPECIAL DRAWINGS

Where called for in the specifications, CONTRACTOR shall submit to the ENGINEER for approval in not less than five copies, details, specifications, cuts and drawings of such equipment and structural work as may be required. CONTRACTOR shall make any changes or alterations required by the ENGINEER and resubmit same without delay. Approval of the ENGINEER shall not relieve the CONTRACTOR of responsibility for errors in the drawings, as the ENGINEER's checking is intended to cover compliance with the drawings and specifications and not to enter into every detail of the shop work. No work shall be undertaken until the ENGINEER has approved the shop drawings.

When the work of the CONTRACTOR is of a nature originating with it, full general and detail drawings shall be furnished to the ENGINEER on 24" x 36" size sheets of polyester film base which shall, upon approval, become the property of the OWNER.

It is understood that approval by the ENGINEER of CONTRACTOR's drawings, whether general or detailed, is a general approval relating only to their sufficiency and compliance with waiver of errors, discrepancies or omissions.

12. CHANGES IN QUANTITIES OR PLANS

The OWNER reserves the right to make, by written order, at any time during the Work, such changes in quantities and such alterations in the work as are necessary to satisfactorily complete the project. Such changes in quantities and alterations shall not invalidate the Contract nor release the Surety, and by signing a work order or authorization, the CONTRACTOR agrees to perform the Work as altered and agrees to accept, as payment in full for such Work, the monetary amounts set forth in such written order as balanced by OWNER. In addition, by signing a written order, the CONTRACTOR releases the OWNER from any and all claims for compensation with regard to the items of work specified in the written order; including, but not limited to, any and all claims for delay and overhead, unless the OWNER is notified in writing at the time of signing the authorization that the CONTRACTOR refuses to release the OWNER from such claims. All increases in quantities of work which appear in the Contract as pay items shall be paid for at the Contract Unit Prices. Decreases in quantities included in the Contract shall be deducted from the Contract at the Contract Unit Prices.

13. ESTIMATED QUANTITIES

The quantities of various classes of work to be done and materials to be furnished under this Contract, which have been estimated as stated elsewhere herein, are approximate and only for the purpose of comparing, on a uniform basis, the bids offered for work under this Contract; and neither the OWNER nor the ENGINEER is to be held responsible should any of the said estimated quantities be found incorrect during the construction of the work; and the

CONTRACTOR shall make no claim for anticipated profit, nor for loss of profit, because of a difference between the quantities of the various classes of work actually done or materials actually delivered, and the estimated quantities as herein stated.

14. PAYMENTS

Payments for work completed, as recommended by the ENGINEER, will be made as specified herein.

Partial Payments

CONTRACTOR shall submit to OWNER an application for each payment and shall submit a Contractor's Declaration declaring that he has not performed any work, furnished any material, sustained any loss, damage or delay for any reasons, including soil conditions encountered or created, or otherwise done anything for which he will ask, demand, sue for, or claim compensation from the OWNER other than as indicated on the Contractor's Declaration and shall, if required, submit receipts or other vouchers showing his payments for materials and labor, including payments to subcontractors.

Payments, based on progress estimates, will be made on a monthly basis on work completed during the preceding month, less retainage held in accordance with Public Act No. 524 of 1980.

The retainage shall be as follows:

Not more than ten percent (10%) of the dollar value of all work in place until work is fifty percent (50%) in place.

After the work is fifty percent (50%) in place, additional retainage shall not be withheld unless the OWNER determines that the CONTRACTOR is not making satisfactory progress, or for other specific cause relating to the CONTRACTOR's performance under the Contract. If the OWNER so determines, then the retainage amount shall not be more than ten percent (10%) of the dollar value of work more than fifty percent (50%) in place.

Retainage shall be released to CONTRACTOR together with the final progress payment.

The OWNER may withhold payment of any estimate or portion of estimate until the CONTRACTOR shall have furnished satisfactory evidence that he has paid all claims of every nature. The CONTRACTOR shall submit to the OWNER with each application for payment a "Sworn Statement" attesting to all payments made and balances due to all subcontractors and to all suppliers of materials, fuel, and equipment for the project work completed. He shall also attest to all payments made for labor furnished for the work completed. The "Sworn Statement" shall be in a form acceptable to the OWNER and all suppliers and subcontractors shall be listed along with payments made and balances owed to each.

No partial payment shall be considered as acceptance of the work or any portion thereof prior to final completion of the work, and payment of final estimate.

Final Payment

The CONTRACTOR's request for final payment shall be accompanied by the following documents:

Contractor's Declaration

Contractor's Affidavit

Unconditional waivers, as required, from major suppliers and subcontractors

Release of Surety

Release from other public agencies for which permits have been obtained under this Agreement.

Within thirty (30) days after completion of the work under this Agreement to the satisfaction of the OWNER and ENGINEER, in accordance with all and singular terms and stipulations herein contained, the OWNER shall make final payment, from a final estimate made by the ENGINEER. Before final payment is made, the CONTRACTOR shall, as directed by the OWNER, make a Contractor's Affidavit that he has paid all claims of every nature, or

secured a release from the Surety or Sureties approving payment of the final estimate by the OWNER. Final payment, when made, shall be considered as final approval and acceptance of the completed work herein specified.

The acceptance by the CONTRACTOR of final payment aforesaid shall operate as, and shall be, a release to the OWNER and his agents, from all claim and liability to the CONTRACTOR for anything done or furnished for, relating to, or affecting the work.

Incorrect/Improper Payments

OWNER shall not, nor shall any officer thereof, be precluded or stopped by any return or certificate made or given by the ENGINEER, or other officer, agent or appointee, under the provision of this Agreement, at any time (either before or after final completion and acceptance of the work and payment made therefore pursuant to any such return or certificates showing the true and correct amount of money due therefore, notwithstanding any such return or certificate, or any payment made in accordance therewith) from demanding and receiving from the CONTRACTOR or his sureties, separately or collectively, such sums as may have been improperly paid said CONTRACTOR by reason of any such return or certificate which has been untruly or incorrectly compiled.

15. EXTENSION OF TIME

All days in which work is suspended by order of the ENGINEER, or in accordance with these specifications, shall automatically extend the time for completion an equal number of days.

In the event work is suspended because the CONTRACTOR does not perform, no extension will be allowed for this period of time.

All requests from CONTRACTOR for extensions of time shall be submitted in writing. Such requests shall detail the reason for the request, provide a realistic revised completion date, and indicate any other

areas which may be impacted by such an extension. Such requests must be submitted to the field ENGINEER within ten (10) days after the occurrence of the incident or situation that brought about a reason for extending the time of completion. The final decision of whether or not to grant an extension of time will be made by the field ENGINEER. In no case will a request be considered if it is submitted after the ten (10) day period has passed.

16. AUTHORITY

No officer, agent or employee of the OWNER shall have power to revoke, alter, enlarge, or relax the stipulations or requirements of the Contract Documents, except insofar as such authority may be specifically conferred by the Contract Documents themselves, without formal authorization to do so, conferred by the Agreement, or by ordinance, resolution or other usual official action by the OWNER.

17. PROGRESS OF WORK

The work shall be prosecuted regularly and uninterruptedly, unless the OWNER shall otherwise specifically direct, with such force and at such points as to insure its full completion within the time stated herein.

If, in the opinion of the ENGINEER, it is necessary or advisable that certain portions of the work be done immediately, the CONTRACTOR, upon written order shall proceed with such work without delay. Should he fail to so proceed, the OWNER may do or cause to be done, such work, and the cost of same will be deducted from any money due or to become due the CONTRACTOR under this Agreement.

18. TIME IS ESSENCE OF CONTRACT

It is distinctly understood and agreed to by the parties hereto that the time specified for completion of the Work is the essence of this Agreement, and CONTRACTOR shall not be entitled to claim performance of this Agreement unless the work is satisfactorily completed, in every respect, within the time herein specified.

19. COMMENCEMENT OF CONTRACT TIME

The Contract Times will commence to run on the thirtieth day after the Effective Date of the Agreement or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within thirty (30) days after the Effective Date of the Agreement. In no event will the Contract Times commence to run later than the sixtieth (60) day after the day of Bid Opening or the thirtieth (30) day after the Effective Date of the Agreement, whichever date is earlier.

Owner Responsibilities

20. EXTRA & FORCE ACCOUNT WORK

When extra work is required, it shall be performed and payment for such work will be on the unit price or lump sum basis agreed to in a written order. When such agreement cannot be reached, the OWNER may order such work, including any required offsite work, to be done by force account. The compensation as herein provided shall be accepted by the CONTRACTOR as payment in full for extra work done by force account, and the said percentages shall cover profit, superintendence, general expense, overhead, miscellaneous unforeseen costs, and the use of small tools and equipment. For approved subcontract work, the CONTRACTOR will be paid an amount equal to six percent (6%) of the total cost of the subcontract work, as reimbursement for administrative costs incurred in connection with the subcontract work.

When it is necessary for the CONTRACTOR to hire a firm to perform a specialized type of work or service for which the CONTRACTOR or subcontractors are not qualified to do, payment will be made at the invoice cost. The CONTRACTOR will be paid an amount equal to six percent (6%) of the invoice cost, as reimbursement for administrative costs. Prior approval by the OWNER is required.

REPORTS:

The CONTRACTOR shall furnish to the OWNER, itemized reports of the costs of all force account work. The reports shall be furnished each week and shall include a certified copy of the weekly payroll and copies of bills for the materials used and the freight charges paid on same. Discount for prompt payment or penalty for late payment will not be considered in determining the net amount of the bill. The net amount of the bill shall be charged to the force account work. Where materials used are not specifically purchased for use on extra work but are taken from the CONTRACTOR's stock, the CONTRACTOR shall submit a certification of the quantity, price, and freight on such materials in lieu of original bills and invoices.

The CONTRACTOR shall prepare itemized statements containing the following detailed information:

Labor: Name, classification, dates, number of hours worked each day, total hours computed to nearest half hour, total hours, rate, and extension for each employee engaged.

Equipment: Designation, number of hours used each day (computed to nearest half hour), total hours, rental rate, and extension for each unit of equipment engaged.

Materials: Quantities of materials, with prices per unit and extensions and freight costs when applicable.

The CONTRACTOR and the OWNER shall compare records of force account work and bring them into agreement at the end of each day.

LABOR:

For all labor and for all craft foreman directly engaged in the specific work, the CONTRACTOR will be paid the actual rate of wages and the number of hours paid said labor and foremen in accordance with approved labor agreements, computed to nearest half hour, to which sum twenty-six (26) percent will be added (this sum includes a one (1) percent allowance for the

Single Business Tax). Project foremen will be classified as Superintendents and their compensation will not be included in the payment provided herein.

Bond Premium: Workmen's Compensation Insurance; Personal Injury Public Liability and Property Damage Public Liability Insurance; Unemployment Compensation; Federal Social Security; and payments required to be made to Employer and Employee Trusteships, the proceeds from which accrue exclusively to the benefit of the employee; will be paid for at actual cost, to which sum twenty (20) percent will be added except that twenty-six (26) percent will be added to the taxable fringe benefits. The CONTRACTOR shall furnish satisfactory evidence of the amounts paid for each of these required costs as related to force account work.

MATERIALS:

For materials, the CONTRACTOR will receive the actual cost delivered to the project site, including freight charges, as shown by copies of bills, to which sum fifteen (15) percent will be added.

If a charge in the amount or type of force account work results in a surplus of the material ordered and delivered to the project site, the OWNER will reimburse the CONTRACTOR for the costs incurred in returning the surplus material to the supplier.

SMALL HAND & POWER TOOLS:

No payment will be allowed for small hand and power tools which are not listed in the Rental Rate Blue Book for Construction Equipment as published by the Equipment Guide Book Company. All small hand and power tools listed in the Rental Rate Blue Book at a rate of less than one (1) dollar per hour will be considered part of overhead and will not be paid for separately.

EQUIPMENT:

For any machinery and equipment, including the foreman's transportation unit, which the OWNER approves for use on extra work

done by force account, the CONTRACTOR will be paid as follows:

The time paid for shall be the period that the equipment is required at the site of the extra work and, in addition, shall include traveling time to the location of the extra work when the equipment is moved under its own power. When transportation from one site to another is by other than its own power, the actual operating time during periods of loading and unloading will be paid for at the regular rental rate and transportation costs will be allowed.

When the periods of work are not consecutive and the interval between the termination of a period of work and the commencement of the subsequent period does not exceed thirty (30) days, the rates allowed will be the same as if the periods of work were consecutive.

The rental rate established for each piece of CONTRACTOR owned equipment, including appurtenances and attachments to equipment used will be determined by use of the Rental Rate Blue Book for Construction Equipment Volume 1, 2, or 3, as applicable. The edition which is current at the time the force account work was started will apply.

The established rental rate will be equal to the "Monthly" rate divided by 176; modified by the rate adjustment factor and the applicable map adjustment factor, plus the "Estimated Operating Costs per Hour", to which sum ten (10) percent will be added.

For equipment not listed in the Rental Rate Blue Book, Volume 1, 2, or 3, the rental rate will be determined by using the rate listed for a similar piece of equipment or by proportioning a rate listed so that the capacity, size, horsepower, and age are properly considered.

For equipment for which there are no comparable in the Rental Rate Blue Book, Volume 1, 2, or 3, the monthly rate shall be reasonable, but not more than five (5) percent of the current list price, or invoice, of the equipment. The base hourly rate shall then be determined by dividing the monthly rate by 176 to which sum twenty percent

(20%) will be added. The twenty percent (20%) includes adjustments and operating costs.

The rates used for CONTRACTOR owned trucks used to haul material will be those published by MDOT. These rates shall include all adjustments and operating costs. Separate payment for the driver will be allowed. The rates will be reviewed and adjusted periodically.

The rental rate for the foreman's transportation unit will be seven dollars (\$7.00) per hour, to which sum twenty percent (20%) will be added.

When leased or rented equipment is used on force account work, the hourly rate used in computation of payment will be the leased or rented rate, except that if the leased or rented rate exceeds the rental rate established by the Rental Blue Book, the established rate determined from the Blue Book will apply. In either case, the Estimated Operating Cost per Hour will be added to the appropriate hourly rate to which sum ten percent (10%) will be added.

In all cases the "Estimated Operating Cost per Hour" includes all fuel, oil, lubrications, tires, parts, and other operating expendables such as truck and labor assigned to the truck for servicing the equipment.

The rental rates allowed herein include the cost of insurance covering the usual insurable risks, including fire and theft. The OWNER will not be liable for losses which can be covered by insurance.

In the event that machinery or equipment is idled, payment may be allowed on a rental basis for the idled equipment as specified herein. Only machinery or equipment actually on the project site at the time of the delay, as required for that phase of construction work in question, will be considered eligible for rental reimbursement. Specialized equipment for machinery directly related to the work, whether on or off the site, may be considered eligible for payment if actually idled and if such idleness can be certified by the CONTRACTOR and verified by the

OWNER. Payment for idled equipment and/or machinery will not be allowed during periods of seasonal suspension of the work.

The rental rate for idled leased or rented equipment will be the leased or rented rate, or the equipment shall be returned and taken off rental as directed by the OWNER.

The rental rate for idled CONTRACTOR owned equipment will be the "Monthly" rate divided by 176; modified by the rate adjustment factor and the applicable map adjustment factor, and then multiplied by fifty percent (50%). No payment will be allowed for operating costs.

Payment will be limited to the difference between the hours worked and eight (8) hours in any one day and to the difference between the hours worked and forty (40) hours in any one week. No provisions of these specifications shall entitle the CONTRACTOR to rental compensation for idled equipment. No additional compensation for overhead will be allowed.

In the event that labor is idled, payment may be allowed provided there is no other location within the project that the labor can be gainfully employed. Payment will be limited to a maximum of eight (8) hours per occurrence and in no case will exceed the amount of the CONTRACTOR's obligation as provided by the CONTRACTOR's current labor agreement. No additional compensation for overhead will be allowed.

21. PAYMENTS WITHHELD

The OWNER may withhold or, on account of subsequently discovered evidence, nullify the whole or a part of any certificate for progress payment to such extent as may be necessary to protect itself from loss on account of:

Defective work not remedied;

Claims filed or reasonable evidence indicating probable filing of claims;

Failure of the CONTRACTOR to make payments properly to subcontractors or for material or labor;

A reasonable doubt that the Agreement can be completed for the balance then unpaid;

Damage to another CONTRACTOR.

When the above grounds are removed, payment shall be made for amounts withheld because of them.

22. USE OF COMPLETE PORTIONS OF THE WORK

The OWNER may, at any time during progress of the work, after written notice to CONTRACTOR, take over and place in service any completed portions of the work which are ready for service, although the entire work of the Agreement is not fully completed, and notwithstanding the time for completion of the entire work or such portions may not have expired. In such event, the CONTRACTOR will be relieved of further work on, or maintenance of, said portion except as covered by his guarantee of same.

Engineer Responsibilities

23. ENGINEER DURING CONSTRUCTION

The Work shall be subject to the approval of the ENGINEER, who shall determine the amount, quality, acceptability, and fitness of the items of work and materials to be furnished hereunder, and who shall decide all questions which may arise as to measurements of quantities and fulfillment of the requirements of the Contract Documents.

24. AUTHORITY & DUTIES OF CONSTRUCTION OBSERVER

Construction Observers may be appointed by the ENGINEER and directed to check or review materials used and completed work. The observation may extend to any parts of the Work and to the preparation or manufacture of the materials for use in the Work. Construction Observers will not be authorized to revoke, alter, enlarge, or relax any of the provisions of the Contract Documents. The Construction Observer will call to the attention of the CONTRACTOR any failure to follow the plans and

specifications that he may observe. In case of any dispute arising between the CONTRACTOR and Construction Observer as to materials furnished or the manner of performing the work, the Construction Observer shall have the authority to reject materials or completed items of work until the question at issue can be referred to and be decided by the ENGINEER. In no instance shall any action or omission on the part of the Construction Observer relieve the CONTRACTOR of the responsibility of completing the Work in accordance with the Contract Documents.

25. LIMITATIONS ON ENGINEER'S RESPONSIBILITIES

Neither ENGINEER's authority or responsibility under this Article or under any other provision of the Contract Documents nor any decision made by ENGINEER in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise or performance of any authority or responsibility by ENGINEER shall create, impose or give rise to any duty owed by ENGINEER to CONTRACTOR, any subcontractor, any supplier, any other person or organization, or to any surety for or employee or agent of any of them.

ENGINEER will not supervise, direct, control or have authority over or be responsible for CONTRACTOR's means, methods, techniques, sequences or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of CONTRACTOR to comply with laws and regulations applicable to the furnishing or performance of the Work. ENGINEER will not be responsible for CONTRACTOR's failure to perform or furnish the Work in accordance with the Contract Documents.

ENGINEER will not be responsible for the acts or omissions of CONTRACTOR or of any subcontractor, any supplier, or of any other person or organization performing or furnishing any of the Work.

ENGINEER's review of the final application for payment and accompanying

documentation and all maintenance and operating instructions, schedules guarantees, bonds and manufacturer's certificates of inspection, tests, and approvals and other documentation required in Article 14b will only be to determine generally that their content complies with the requirements of, and in the case of manufacturer's certificates of inspections, tests and approvals that the results certified indicate compliance with the Contract Documents.

The limitations upon authority and responsibility set forth in this Section shall also apply to ENGINEER's consultants, authorized representative and assistants.

26. LINES & GRADES

Principal reference lines or points and bench marks may be given by the ENGINEER at such time as he may deem necessary; or, if the CONTRACTOR shall be in need of such reference lines or bench marks, he shall notify the ENGINEER three (3) working days in advance.

The ENGINEER may set suitable stakes and marks showing locations and elevations of the various parts of the work, and will furnish the CONTRACTOR with required data referring to the reference points. No work shall be undertaken until such stakes and marks shall have been set by the ENGINEER. CONTRACTOR shall take due and proper precautions for the preservation of these stakes and marks, shall see that the work at all times proceeds in accordance therewith, and shall provide all labor and material to set the required line and grade control and locate the work accurately with reference to the above points. In case such stakes are destroyed due to the CONTRACTOR's carelessness, they will be replaced at the ENGINEER's earliest convenience and the CONTRACTOR may be back charged for the crew time incurred.

27. TESTING & SAMPLING

Where called for in the specifications, samples of materials in the quantity named shall be submitted to the ENGINEER for approval. Where tests are required, they

shall be made at the expense of the OWNER, except as otherwise called for in the specifications. For materials covered by ASTM or Federal Specifications, or with the specifications of well known or recognized technical and/or trade organizations, unless otherwise stipulated, required tests are to be made by the manufacturer, and his certificate therefore submitted to the ENGINEER.

The ENGINEER and/or OWNER shall determine which materials are required by the specifications to be factory certified or to have chemical or physical analysis or other examination or test. The CONTRACTOR shall furnish to the ENGINEER and/or OWNER two copies of orders for all materials requiring such examination or test as soon as placed. Such orders shall contain complete information, including that as to the quantity, quality, dimensions, sizes, capacities and types, shall contain proper reference to the applicable specifications by title, number and paragraph, and shall show the name and address of the producing factory but need not contain prices or contractual terms.

All materials and workmanship (if not otherwise designated by the specifications) shall be subject to examination and test by the ENGINEER and/or OWNER at any time during manufacture or construction, and at any place where such manufacture or construction is carried on. The ENGINEER and/or OWNER shall have the right to reject defective material and workmanship or require its correction. Rejected workmanship shall be satisfactorily corrected, and rejected material shall be satisfactorily replaced with proper material without charge therefore, and the CONTRACTOR shall promptly segregate and remove rejected material from the premises. If the CONTRACTOR fails to proceed at once with replacement of rejected material and correction of defective workmanship, the OWNER may, by Agreement or otherwise, replace such material and correct such workmanship and charge the cost thereof to the

CONTRACTOR, or may immediately terminate the Agreement.

CONTRACTOR shall furnish promptly, without additional charge, all reasonable facilities, labor and materials necessary for the safe and convenient conduct of all construction observations and tests that may be required by the ENGINEER. All construction observations and tests by the ENGINEER and/or OWNER shall be performed in such a manner as not to delay the work unnecessarily. Special, full size, and performance tests shall be as described in the specifications. CONTRACTOR shall be charged with any additional cost of construction observations when material or workmanship is not ready at the time checking is requested by the CONTRACTOR.

Should it be considered necessary or advisable by the ENGINEER and/or OWNER any time before final acceptance of the entire work to make an examination of work already completed, by removing or tearing out same, the CONTRACTOR shall on request promptly furnish all necessary facilities, labor and material. If such work is found to be defective or nonconforming in any material respect, due to the fault of the CONTRACTOR or his subcontractor, CONTRACTOR shall defray all the expenses of such examination and of satisfactory reconstruction, and be responsible for any resulting delay. If, however, such work is found to meet the requirements of the Agreement, the actual cost involved in the examination and replacement shall be allowed the CONTRACTOR and he shall in addition, if completion of the work has been delayed thereby, be granted a suitable extension of time on account of the additional work involved.

Examination of material and finished articles to be incorporated in the work at the site shall be made at place of production, manufacture or shipment stated in the specifications; and such examinations and acceptance, unless otherwise stated in the specifications, shall be final, except as

regards latent defects, departures from specific requirements of the Agreement and the specifications and drawings made a part thereof, damage or loss in transit, fraud or such gross mistakes as amount to fraud. Subject to requirements contained in the preceding sentence, examinations of material and workmanship for final acceptance as a whole or in part shall be made at the site.

Contractor Responsibilities

28. UNFORSEEN PHYSICAL CONDITIONS

CONTRACTOR shall promptly notify the OWNER and ENGINEER in writing of any subsurface or latent physical conditions at the site or in an existing structure differing materially from those indicated or referred to in the Contract Documents. The ENGINEER will promptly review those conditions and advise the OWNER in writing if further investigation or tests are necessary. Promptly thereafter, the OWNER shall obtain the necessary additional investigations and tests and furnish copies to the ENGINEER and the CONTRACTOR. If the ENGINEER finds that the results of such investigations or tests indicate that there are subsurface or latent physical conditions which differ materially from those intended in the Contract Documents, and which could not reasonably have been anticipated by the CONTRACTOR, a Change Order may be issued incorporating the necessary revisions.

29. COMPOSITION OF THE CONTRACTOR

If the CONTRACTOR hereunder is comprised of more than one legal entity, each such entity shall be jointly and severally liable hereunder.

30. ASSIGNMENT OF CONTRACT

The CONTRACTOR shall not sublet, assign or transfer this Agreement or any portion thereof or any payments due him thereunder, without the written consent of the OWNER.

Assignment or subletting the whole or any portion of this Agreement shall not operate

to release the CONTRACTOR or his bondsmen hereunder from any of the contract obligations.

The CONTRACTOR agrees that he is fully responsible to the OWNER for the acts and omissions of his subcontractors and of persons either directly or indirectly employed by him. Nothing contained in the Contract Documents shall create any contractual relation between any subcontractors and the OWNER.

Neither the ENGINEER nor any officer, agent or employee of the OWNER shall have any power or authority whatsoever to bind the OWNER or to incur obligation in his behalf to any subcontractors, material supplier or other persons in any manner whatsoever.

31. AGENTS

Work shall be carried on under personal supervision of the CONTRACTOR or his properly authorized representative, who shall be on the grounds at all times during the construction, and who shall have full and responsible charge of the Work with power to receive orders and carry out instructions.

32. SAFETY & PROTECTION

A. People and Property

CONTRACTOR shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. CONTRACTOR shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

All persons on the site or who may be affected by the Work;

All the Work and materials and equipment to be incorporated therein, whether in storage on or off the site; and

Other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.

B. Site Safety

CONTRACTOR shall comply with all applicable laws and regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. CONTRACTOR shall notify owners of adjacent property and of underground facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property. All damage, injury, or loss to any property referred to in this section caused, directly or indirectly, in whole or in part, by CONTRACTOR or any subcontractor, supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by CONTRACTOR. CONTRACTOR's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and ENGINEER has issued a notice to OWNER and CONTRACTOR that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

C. Safety Representative

CONTRACTOR shall designate a qualified and experienced safety representative at the site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

D. Hazard Communication Program

CONTRACTOR shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the site in accordance with laws or regulations.

E. Compliance with MIOSHA

All of the CONTRACTOR and subcontractors operations and construction equipment shall comply with requirements of the Michigan Occupational Safety and Health Act (MIOSHA) insofar as they apply to the work to be performed under this Contract.

33. CONTRACTOR'S SUPERVISION & ORIGINATION

The Work under this Agreement shall be under the direct supervision and direction of the CONTRACTOR. The CONTRACTOR shall give sufficient supervision to the Work, using his best skill and attention. The CONTRACTOR shall, at all times, keep on the site of the Work during its progress a competent superintendent and any and all necessary foremen and assistants. The superintendent shall represent and have full authority to act for the CONTRACTOR in the latter's absence, and all directions given to him shall be as binding as if given to the CONTRACTOR. On written request in each case, all such directions will be confirmed in writing to the CONTRACTOR.

The CONTRACTOR shall employ only competent, efficient workmen and shall not use on the Work any unfit person or one not skilled in the work assigned to him, and he shall at all times enforce strict discipline and good order among his employees. Whenever the ENGINEER shall notify the CONTRACTOR, in writing, that any man on the Work is, in the opinion of the ENGINEER, careless, incompetent, disorderly, or otherwise unsatisfactory, such man shall be discharged from the work and shall not again be employed on it except with the written consent of the ENGINEER.

The CONTRACTOR shall establish and maintain an office on the site of the work, or at some convenient point adjacent thereto, during the continuance of this Agreement and shall have at all times during working hours, a representative authorized to receive and execute any and all orders, when given by the ENGINEER; and such order, when given out and received by said representative shall be deemed to have been

given to and received by the CONTRACTOR. Copies of the drawings and specifications shall at all times be kept on file by the CONTRACTOR at readily accessible points near the work.

34. CONTRACTOR'S RIGHT TO STOP WORK

If the work should be stopped under an order of any court, or other public authority for a period of three months, through no act or fault of the CONTRACTOR or of anyone employed by him, or if the OWNER should fail to pay to the CONTRACTOR within sixty (60) days of its maturity and presentation any sum certified by the ENGINEER, provided no appeal is taken, the CONTRACTOR may, upon seven (7) days' written notice to the OWNER and the ENGINEER, stop work or terminate this Agreement, and shall receive from the OWNER payment in full for all work executed, as determined from the prices contained in the approved detailed estimate as computed by the ENGINEER, but no claim for extra compensation or damages shall be made or allowed because of such termination of the Agreement.

35. STORAGE OF MATERIALS

Materials and equipment distributed, stored and placed upon or near the site of the Work shall at all times be so disposed as not to interfere with work being prosecuted by other contractors in the employ of the OWNER, or with street drainage, or with fire hydrants or with access thereto, and not to hinder any more than may be necessary the ordinary traffic (either vehicular or pedestrian) of the street.

36. CLEANING UP

The CONTRACTOR shall, as directed by the ENGINEER, remove at his own expense from the OWNER's property and from all public and private property all temporary structures, rubbish and waste materials resulting from his operations. This requirement shall not apply to property used for permanent disposal of rubbish or waste materials in accordance with permission of

such disposal granted to the CONTRACTOR by the OWNER thereof.

37. SUNDAY & NIGHT WORK

The CONTRACTOR is required to prosecute work done under this Agreement during the hours of daylight, and no work will be permitted at night or on Sundays, except to save property or life, or as specifically authorized or directed by the ENGINEER.

No work shall be permitted on holidays.

38. SANITARY REGULATIONS

Sanitary conveniences for the use of project personnel properly secluded from public observation shall be constructed and maintained in sanitary condition by the CONTRACTOR. Its use shall be strictly enforced.

39. PERMITS & REGULATIONS

The CONTRACTOR shall secure, at no cost to the OWNER, all permits and licenses necessary for the prosecution of the Work. He shall pay for same at his own expense as well as for any inspection fees required in connection with such permits, and shall conduct his operations in accordance with the provisions of such permits, including tunneling of pavements where required. He shall also furnish any required bonds and pay the cost of same.

The CONTRACTOR shall keep himself fully informed of all laws, ordinances, and regulations in any manner affecting those engaged or employed in the Work or materials used in the Work, or in any way affecting the conduct of the Work, and of all orders and decrees of bodies or tribunals having any jurisdiction or authority over the same.

He shall at all times observe and comply with, and shall cause all his agents and employees to observe and comply with all existing and future laws, ordinances, regulations, orders and decrees; provided, that if the drawings and specifications are at variance therewith, the CONTRACTOR shall promptly notify the ENGINEER in

writing and any necessary changes shall be adjusted as provided in the Contract Documents.

All work shall be executed and checked in accordance with all local and state rules and regulations and all established codes applicable thereto and shall conform in all respects to the requirements of all competent authorities having jurisdiction there over.

Should any change in plans and specifications be required to comply with local regulations, CONTRACTOR shall notify the OWNER at the time of submitting his bid. After entering into Agreement, CONTRACTOR will be held to complete the work necessary to meet local requirements without extra expense to the OWNER.

Where the work required by the drawings and specifications is above the standard required, it shall be done as shown or specified.

40. GUARANTEE

The CONTRACTOR, as a condition precedent to final payment, shall execute a guarantee to the OWNER warranting for a period of two (2) years from date of final payment to keep in good order and repair any defect in all the work done under the Agreement, either by the CONTRACTOR, his subcontractors, or material suppliers, that may develop during said period due to improper materials, defective equipment, improper materials workmanship, or arrangements, and any other work affected in making good such imperfections shall also be made good, all without expense to the OWNER, and CONTRACTOR shall execute, in favor of the OWNER the attached Maintenance and Guarantee Bond.

41. PATENTS

CONTRACTOR shall pay all royalties and license fees and shall hold and save the OWNER and his agents harmless from all liability of any nature or kind, including cost and expenses for, or on account of, any patented or unpatented invention, process, article or appliance manufactured or used in

performance of the Agreement, including its use by the OWNER, unless otherwise specifically stipulated in the Contract Documents. In this respect the CONTRACTOR shall defend all suits or claims for infringement of any patent or license right.

In the event that any claim, suit or action at law or inequity of any kind whatsoever is brought against the OWNER, involving any such patents or license rights, then the OWNER shall have the right to, and may retain, from any money due or to become due to the CONTRACTOR, such sufficient sum as is considered necessary to protect said OWNER against loss, and such sum may be retained by the OWNER until such claim or suit shall have been settled and satisfactory evidence to that effect shall have been furnished the OWNER.

42. INFORMATION BY THE CONTRACTOR

The CONTRACTOR shall submit to the ENGINEER full information as to the materials, equipment and arrangements that the CONTRACTOR proposes to furnish. This information shall be complete to the extent that the ENGINEER may intelligently judge if the proposed materials, equipment and arrangements will meet with the requirements of the Contract Documents.

Prior to approval of the materials, equipment and arrangements by the ENGINEER, based on the information submitted by the CONTRACTOR, any work done by the CONTRACTOR shall be at his own risk.

Approval of information covering materials, equipment and arrangements by the ENGINEER shall in no way release CONTRACTOR from his responsibility for the proper design, installation and performance of any material, equipment or arrangement, or from his liability to replace same should it prove defective.

43. FORFEITURE OF CONTRACT

If work to be done under the Contract Documents shall be abandoned by CONTRACTOR or if, at any time in the

judgment of the OWNER, CONTRACTOR shall fail to prosecute the Work at a reasonable rate of progress, or to comply with all or any of the terms and requirements herein set forth, then the OWNER shall have the right to take possession of the Work, including CONTRACTOR's plant, supplies and materials, at any time after having notified the CONTRACTOR, in writing, to discontinue work under this Agreement for said cause or causes, and such action shall not affect the right of the OWNER to recover damages resulting from such failure. Upon receiving such notice the CONTRACTOR shall and will, upon demand, immediately give the OWNER safe and peaceable possession of the Work, including the plant, and shall then cease to have control over any portion thereof or the men employed thereon.

The OWNER may then proceed to complete the Work herein specified, by Agreement or otherwise; and the entire cost of same shall be charged to the CONTRACTOR and deducted from any sum or sums due or to become due under the Agreement; the excess cost, if any, to be paid by CONTRACTOR or his sureties to said OWNER.

44. RELATION TO OTHER CONTRACTORS

CONTRACTOR shall so conduct his operations as not to interfere with or injure the work of other contractor's or workmen employed on adjoining or related work, and he shall promptly make good any injury or damage which may be done to such work by him or his employees or agents. Should a contract for adjoining work be awarded to another contractor, and should the work of one of these contracts interfere with that of the other, the OWNER shall decide which contractor shall cease work for the time being and which shall continue, or whether work in both contracts shall continue at the same time and in what manner.

45. "OR EQUAL" CLAUSE

Whenever, in any of the Contract Documents an article, material or equipment

is defined by describing a proprietary product or by using the name of a manufacturer or vendor, the term "or equal", if not inserted, shall be implied. The specific article, material or equipment mentioned shall be understood as indicating the type, function, minimum standard of design, efficiency and quality desired, and shall not be construed in such a manner as to exclude manufacturers' products of comparable quality, design and efficiency. If the CONTRACTOR proposes any "or equal" substitutes, these substitutes shall be subject to the review and approval of the OWNER before they can be incorporated into the work.

Legal

46. INDEMNIFICATION

To the fullest extent permitted by Laws and Regulations, CONTRACTOR shall indemnify and hold harmless OWNER and ENGINEER and their consultants, agents and employees from and against all claims, damages, losses and expenses, direct, indirect or consequential (including but not limited to fees and charges of engineers, architects, attorneys and other professionals and court and arbitration costs) arising out of or resulting from the performance of the Work, provided that any such claim, damage, loss or expense (a) is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself) including the loss of use resulting therefrom and (b) is caused in whole or in part by any negligent act or omission of CONTRACTOR, any subcontractors, any person or organization directly or indirectly employed by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by a party indemnified hereunder or arises by or is imposed by Law and Regulations regardless of the negligence of any such party.

In any and all claims against OWNER or ENGINEER or any of their consultants,

agents or employees by any employee of CONTRACTOR, any subcontractors, any person or organization directly or indirectly employed by any of them to perform or furnish any of the Work or anyone for whose acts of them may be liable, the indemnification obligation under the preceding paragraph shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for CONTRACTOR or any such subcontractors or other person or organization under worker's or workmen's compensation acts, disability benefit acts or other employee benefit acts.

The obligations of the CONTRACTOR under this article shall not extend to the liability of ENGINEER, ENGINEER's consultants, agents or employees arising out of the preparation or approval of drawings, opinions, reports, surveys, change orders, designs or specifications.

47. CONTROLLING LAW

In the case of a legal dispute between the OWNER and the CONTRACTOR the law of the state of Michigan shall govern. The venue for resolving any legal dispute between the two parties will be within the County of the OWNER's legal address.

48. NO WAIVER OF CONTRACT

Neither acceptance of the whole or any part of the Work by the OWNER or his ENGINEER, or any of its agents, nor any order, measurements or certificate by the ENGINEER, nor any order by OWNER for payment of money, nor any payment for the whole or any part of the Work by OWNER, nor any extension of time, nor any possession taken by the OWNER or its agents, shall operate as a waiver for any portion of the Contract Documents or any power therein provided; nor shall any waiver

of any breach of contract be held to be a waiver of any other or subsequent breach.

49. DISPUTE RESOLUTION

Dispute resolution methods and procedures, if any, shall be as set forth in the Supplemental Specifications. If no method and procedure has been set forth, OWNER and CONTRACTOR may exercise such rights or remedies as either may otherwise have under the Contract Documents or by Laws or Regulations in respect of any dispute.

50. GIVING NOTICE

Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or if delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

51. CUMULATIVE REMEDIES

The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provision of the Contract Documents, and the provisions of this paragraph will be as effective as if repeated specifically in the contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

End of Section

GENERAL SPECIFICATIONS

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1. EXISTING UNDERGROUND STRUCTURES & UTILITIES

The location of public or private utilities shown on the plans is in accordance with the best information available. No guarantee is given that the locations are absolutely accurate or that utilities other than those shown are not present.

For protection of underground utilities, the CONTRACTOR shall contact "MISS DIG" at 1-800-482-7171 a minimum of three (3)

working days prior to excavating. This does not relieve the CONTRACTOR of the responsibility of notifying utility OWNERS who may not be part of the "MISS DIG" alert system.

2. SOIL CONDITIONS

If soil borings have been taken for this project, then they are included in an appendix.

Where the OWNER has caused soil borings to be made to aid the ENGINEER in design of the work, these boring logs are provided herein for the prospective bidder to examine. This information is given to bidders as an aid in determining the character of the soil and groundwater conditions. The OWNER does not guarantee that the ground encountered during construction will conform to the borings. Bidders should secure such other information as they consider necessary to check and supplement the above data.

The CONTRACTOR shall complete the work in whatever materials, and under whatever conditions he may encounter or create.

3. SOIL EROSION AND SEDIMENTATION CONTROL

The CONTRACTOR shall comply with the requirements of the Soil Erosion and Sedimentation Control Act of the State of Michigan, Part 91 of ACT 451 of PA of 1994 and with all the requirements, rules and standards of the official enforcing agent for the project location.

If a soil erosion control permit is required on this project, the CONTRACTOR shall adhere to the specific conditions of the project permit. Where the permit is issued in the name of the CONTRACTOR and requires that a bond be posted, the

CONTRACTOR shall include in his bid the permit fee and bond expense.

The ENGINEER shall have full authority to require compliance with the soil erosion control requirements and may order suspension of the work if measures are not adequate or a problem develops requiring additional soil erosion control measures. Any ordered suspension of the work shall not be grounds for CONTRACTOR's claims for "down time" or "lost time".

4. PRESERVATION, PROTECTION & USE OF SURVEY CONTROLS, MONUMENT POINTS & GRADE STAKES

During the progress of the work, the CONTRACTOR may encounter section line, fractional section line, and property controlling corner monuments. Insofar as is known, such public land survey corners and property monuments have been indicated on the plans.

The CONTRACTOR shall be responsible for complying with the requirements of Michigan Public Act 34. Specifically, he shall be responsible for notifying the county surveyor before removing a public land survey corner monument for construction activities. In addition, if construction time constraints will result in the public land survey corner monument being removed for more than one year, then the CONTRACTOR shall arrange to have a temporary corner monument set until the permanent one can be re-established. The costs of removing and replacing public land survey corner monuments as well as setting temporary corner monuments shall be the responsibility of the CONTRACTOR unless pay items are provided in the bid form for these tasks. The CONTRACTOR shall not remove any such monument until the ENGINEER has witness points as reference for resetting of such monuments. After referencing has been done and suitable permanent sketches prepared, the ENGINEER will give permission to the

CONTRACTOR for removal of the monument. Monuments and monument boxes shall be reset only after all backfilling has fully settled.

The CONTRACTOR shall protect and preserve all monument points, property corners, grade stakes, line and reference points. Where stakes and markers are disturbed or removed due to operations under this Contract, the CONTRACTOR shall be charged at invoice cost by the ENGINEER for replacing the points. Care shall be exercised by the CONTRACTOR when operating near the markers, as any carelessness in operations will also cause a time delay to the schedule due to additional stakeout time required to replace reference points, lines, etc.

The CONTRACTOR shall accurately locate the work from reference points established by the ENGINEER along the surface of the ground and line of work.

5. PROTECTION OF PUBLIC & PRIVATE UTILITIES

Where any utility, water, sewer, gas, telephone or any other public or private utilities are encountered, the CONTRACTOR must provide adequate protection for them, and he will be held responsible for any damages to such utilities arising from his operations.

When it is apparent that construction operations may endanger the foundation of any utility, conduit, or support of any structure, the CONTRACTOR shall notify the utility OWNER of this possibility, and he shall take such steps as may be required to provide temporary bracing or support of conduits or structures.

In all cases where permits or inspection fees are required by utilities in connection with changes to or temporary support of their conduits, the CONTRACTOR shall secure permits and pay all inspection fees.

When it is necessary in order to carry out the work that a pole, telephone or electric, be moved to a new location or moved and replaced after construction, the CONTRACTOR shall arrange for moving such pole or poles and the lines thereof, and shall pay any charges.

Where it is the policy of any utility owner to make his own repairs to damaged conduit or other structures, the CONTRACTOR shall cooperate to the fullest extent with the utility OWNER and shall see that his operations interfere as little as possible with the utility OWNER's operations.

6. MISCELLANEOUS DAMAGES

The CONTRACTOR shall be responsible for repairing all damages to existing lawns, sidewalk, parking lots, streets or other areas outside the limits of the Contract. Private utilities, private ornamental gas or electric lights, sprinkler systems, fences, shrubs, trees, existing sidewalk, or any other surface or subsurface items of value damaged by the CONTRACTOR shall be repaired, replaced or removed and replaced to at least equal condition at the CONTRACTOR's expense unless otherwise specified on the plans.

7. SUMP PUMP DISCHARGE PIPE & LOCAL SERVICES

Any discharge pipe from sump pumps or yard drains encountered on this project, whether or not shown on the plans, which discharges to existing ditches and/or storm sewers or cross public or private easements, shall be maintained, replaced, or reconnected as necessary. Bulkheads shall be placed only as approved by the Engineer. Sump pump connections shall be made to the storm drain pipe by a coring method as approved by the ENGINEER. The CONTRACTOR shall use adequate measures to prevent soil erosion, sedimentation, and/or ponding when connecting discharge pipes to existing or proposed ditches. This work shall be

considered as incidental to the cost of the project.

8. EXISTING SEWER FACILITIES

Existing sewers or drains may be encountered along the line of work. In all such cases, the CONTRACTOR shall perform his operation in such a manner that sewer service will not be interrupted. He shall, at his own expense, make all temporary provisions to maintain sewer service.

Unless otherwise indicated on the plans, the CONTRACTOR shall replace, at his own expense, any disturbed sewer or drain, or relay same at a new grade to be established by the ENGINEER such that sufficient clearance for the sewer will be provided.

9. EXISTING WATER FACILITIES

Where existing water mains and/or water services are encountered in the work, they shall be maintained in operation. They shall be relayed if necessary using the class of pipe and fittings standard to the OWNER of the main.

10. EXISTING GAS FACILITIES

Where existing gas mains are encountered, the CONTRACTOR shall immediately notify the ENGINEER and the gas company. The CONTRACTOR shall then arrange with the gas company for any necessary relocation. The CONTRACTOR will receive no extra compensation on account of delays incurred in conjunction with such relocations.

11. EXISTING ELECTRIC, CABLE, AND TELECOMMUNICATIONS

Where existing electric, cable, or telecommunications facilities are encountered, the CONTRACTOR shall immediately notify the ENGINEER and the affected utility company(ies). The CONTRACTOR shall then arrange with the

utility company for any necessary relocation. The CONTRACTOR will receive no extra compensation on account of delays incurred in conjunction with such relocations.

12. PRESERVATION OF TREES & SHRUBBERY

No trees or shrubbery of any kind shall be removed or destroyed by the CONTRACTOR without written permission of the ENGINEER. The CONTRACTOR will be held fully responsible for any damages caused by his work to adjoining trees and shrubs. Ample precautions shall be taken by the CONTRACTOR to protect such trees and shrubs that are to remain in place by surrounding them with fences or other protection before construction begins. Shrubbery that must be removed shall be preserved and replaced in a manner acceptable to the OWNER.

The CONTRACTOR shall protect and/or replace all shrubbery damaged or destroyed by operations under this Contract. The CONTRACTOR shall receive no extra compensation for preservation of trees and shrubbery.

13. TRIMMING TREES & SHRUBS

Where necessary in the field, the CONTRACTOR shall trim trees and shrubs by a method approved by the ENGINEER. All cut surfaces over one inch in diameter shall be painted with grafting wax. All branches which have been damaged by construction shall be pruned correctly to branch collars, to help promote the health of the tree. Also, any abrasions or gouges afflicted on the tree trunks during construction should be bark traced and lightly coated with tree paint. This work shall be incidental to the project.

14. MAINTENANCE OF SERVICE

Drainage through existing sewers, ditches and drains shall be maintained at all times

during construction, and all nearby gutters shall be kept open for drainage. Where existing sewers are encountered in the line of work that interfere with construction, the flow in the sewers, including both dry weather flow and storm flow, shall be maintained.

During the progress of the work, the CONTRACTOR shall accommodate both vehicular and foot traffic and shall provide free access to fire hydrants, water and gas valves. Except as otherwise specified herein or as noted on the plans, street intersections may be blocked but one-half at a time, and Contractor shall lay and maintain temporary driveways, bridges and crossings such as are necessary, in the opinion of the ENGINEER, to reasonably accommodate the public.

In the event detours, traffic control devices or safety equipment are needed, they shall be placed and maintained in accordance with the Michigan Manual of Uniform Traffic Control Devices (MMUTCD).

Maintenance of service as described above shall be considered as incidental to the project cost unless pay items have been included in the proposal for this work.

15. CLEANLINESS OF THE WORK SITE & STREETS

The CONTRACTOR shall keep the work site and all property occupied by him in a neat and orderly condition at all times. Waste material, rubbish and debris shall not be allowed to accumulate. The CONTRACTOR's equipment, temporary buildings and excess materials shall be promptly removed from the work site when no longer needed. At completion of the work, the premises shall be left clean.

The CONTRACTOR shall keep the streets clean. Trucks hauling excavated material, cement, sand, stone or other loose materials from or to the site shall be tight so that no spillage will occur on adjacent streets. Before trucks start away from the site, their

loads shall be trimmed and covered. If, in the judgment of the OWNER, adequate cleanup efforts are not being expended, including but not limited to, roadway, driveway and drainage maintenance, and removal of surplus materials, further construction shall be halted and work forces directed to the cleanup activity until proper order is restored. Should the CONTRACTOR continue to be negligent of his duties in maintaining proper street cleanliness, the OWNER will take necessary steps to perform such cleaning and shall charge the CONTRACTOR for all the costs.

16. DUST CONTROL

All haul roads, detour roads, temporary access roads, other public or private roads, driveways and parking lots used by the CONTRACTOR must be maintained in a dust free condition for the duration of the Contract. The control of the dust shall be accomplished by application of dust control materials and methods of application as approved and as directed by the ENGINEER. Such dust control materials shall be applied as often as is necessary to control dust. Neglect of dust control will not be tolerated.

Should the CONTRACTOR be negligent of his duties in providing dust control, the OWNER may, with or without notice cause the same to be done and deduct the cost of such work from any monies due or to become due the CONTRACTOR under the Contract. Cost of providing dust control shall be considered incidental to the project.

17. WORKING SPACE & USE OF STREETS OR PRIVATE PROPERTY

The CONTRACTOR's operations in public streets or alleys shall be confined to as small a space as practicable, so as not to cause undue inconvenience to the public or abutting properties, and shall be subject to the approval of the ENGINEER.

Where the CONTRACTOR wishes to work on or stockpile materials on nearby properties, it will be his responsibility to contact the property owner for permission. Upon request, the CONTRACTOR shall provide a copy of written permission from any affected property owner. The OWNER will not become involved with any such agreements and will not be held responsible for any damages that the CONTRACTOR may cause to private property. The CONTRACTOR shall not be compensated for restoration of private properties and stockpile areas unless said areas were within the original project limits.

18. EASEMENTS

Prior to the start of construction, the CONTRACTOR shall verify with the OWNER that any required easements have been obtained.

The CONTRACTOR shall keep his work operations within these easements and shall be responsible for complying with any easement conditions that are shown on the plans or stated in the Contract documents.

19. POWER & LIGHT

The CONTRACTOR shall furnish, at his own expense, all the electric power and lighting necessary during the life of this Contract or until such time as the OWNER takes over the work. The CONTRACTOR shall be responsible for complying with any applicable ordinances or regulations concerning power and light.

20. WATER

Unless otherwise allowed by the OWNER, the CONTRACTOR shall furnish, at his own expense, all the water necessary during the life of this Contract or until such time as the OWNER takes over the work.

The CONTRACTOR shall not make a connection to any public water main or fire

hydrant without first obtaining the necessary permit and/or meter from the OWNER.

Existing public water systems shall be operated and controlled by the OWNER. All valves shall be operated exclusively by the OWNER's personnel.

The CONTRACTOR shall not make any connection to or obtain water from a private water source without obtaining written permission from the owner of the water source. The CONTRACTOR shall provide a copy of the written permission to the OWNER upon request.

21. WEATHER PROTECTION & HEATING

The CONTRACTOR shall provide and maintain weather protection and heating at his own expense to properly protect the work under construction from damage if weather conditions require. This work shall include all windbreaks, insulating cover, and other necessary measures required to provide protection from freezing.

The CONTRACTOR shall continue to provide weather protection and heating as necessary until such time as the OWNER takes over the work.

22. RAILROAD CROSSING

Where the work crosses a railroad right-of way, the CONTRACTOR shall secure Railroad Company approval of his methods and schedule of operation. The CONTRACTOR shall carry out his work in strict accordance with the standards of the Railroad Company. The CONTRACTOR shall pay any inspection, signal or flagman costs.

23. OWNERSHIP OF SALVAGED MATERIALS

All salvageable materials such as castings, hydrants, valves, culverts and similar items removed during construction shall remain

the property of the OWNER. The CONTRACTOR shall deliver these salvaged materials to the OWNER's public works facility. If the OWNER indicates that he does not want the salvaged items, then the CONTRACTOR shall be responsible for disposal of the items.

End of Section

EARTHWORK

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GENERAL

1. SCOPE OF WORK

This work shall be subject to the General Conditions and the General Specifications. The work shall include furnishing of labor,

materials, tools, equipment, accessories and services necessary for completing the excavation and backfilling for the items as shown on the contract drawings and/or as herein required. This also includes trenching, trench or subgrade undercutting, roadway earthwork, complete and continual drainage of excavation, sheet piling, bracing and shoring of sides of the excavation, backfilling around structures and over pipelines, and the disposal of excess excavated material.

2. MDOT

References to Michigan Department of Transportation (MDOT) Specifications shall pertain to the 2012 Standard Specifications for Construction.

MATERIALS

3. BEDDING

- A. Sand shall be a sharp, clean sand free of lumps of clay or debris with 100 percent passing a 3/8-inch sieve and less than 10 percent loss by wash.
- B. Granular material shall meet the requirements of Section 902.07 of the MDOT Standard Specifications for Construction for Granular Material Class II and Class III.
- C. Pea gravel shall be unwashed and shall be from 1/4-inch to 5/8-inch in size.
- D. Bedding material shall be provided from offsite unless the trench passes through a well-defined strata of sand or gravel. Bedding material shall be subject to the approval of the ENGINEER.
- E. Stone material shall meet the requirements of Section 902.03 of the MDOT Standard Specifications for

Construction for 6A crushed Coarse Aggregate or approved equal.

4. BACKFILL

A. Job Excavated Backfill

Job excavated backfill shall be defined as material excavated from the site that is free from frozen earth, boulders, rocks, stones larger than 3-inch in size, debris, blue and gray clay, and organic material.

B. Granular Backfill

Granular backfill shall be defined as sharp sand, gravel, or crushed stone that is free from lumps of clay and soft or flaky material and shall conform to the latest MDOT Specification for Granular Material Class II or III. Granular backfill shall be used for fill work located under or within the influence of roadway surfaces. The Owner's standard details shall dictate which type of granular material (class II or III) is required for the project.

Material excavated from the trench may be used as granular backfill when, in the opinion of the ENGINEER, it meets the granular backfill grading requirements.

5. STONE REFILL

Stone refill shall consist of natural gravel, slag, or crushed gravel that is equivalent in gradation to MDOT 6A unless otherwise called for in the plan details.

6. EMBANKMENT

Embankment material shall consist of sound earth as described in Section 205.03H of the MDOT Standard Specifications for Construction.

CONSTRUCTION

7. CLEARING

Prior to the start of construction, the CONTRACTOR shall verify the limits of trees and other items that are to be saved. The CONTRACTOR shall then clear the site or trench excavation area of all remaining trees, brush, and other miscellaneous items that are not to be saved.

8. TREE REMOVAL

Where called for on the plans, the CONTRACTOR shall remove trees, including stump and main roots, and dispose of all associated foliage and debris offsite. Trees less than six (6) inch diameter shall be removed where required by the Work as incidental to the Contract. The CONTRACTOR shall abide by any easement agreements regarding the tree removal work and wood ownership.

9. STUMP REMOVAL

Where called for on the plans, the CONTRACTOR shall remove existing stumps, including main roots (two (2) inch diameter and larger), dispose of all associated debris offsite, and backfill the void with suitable material.

10. PAVEMENT CUTS

Where a trench must be cut through pavement, driveway, or sidewalk, particular care shall be taken to avoid unnecessary damage to adjoining areas of the pavement, driveway or sidewalk. All cuts through existing surfaces shall be made full-depth with a concrete saw. Cuts in concrete pavement shall be made parallel with longitudinal and transverse construction or contraction joints.

Saw cuts in concrete pavement shall not be nearer than five feet (5'-0") to a transverse joint, to the centerline of pavement, or to the edge of pavement or curb, i.e., no existing or replacement pavement shall be less than five feet (5'-0") in width. If the damaged pavement or surfacing is nearer than five feet (5'-0") to a joint or centerline of

pavement, or to edge of pavement, surfacing or curb, removal and replacement shall be extended to said joint, centerline, edge of pavement, surfacing, or curb. These same requirements shall apply to the saw cutting and replacement of concrete driveways.

If a square or block of sidewalk is cut, broken, or cracked, the entire square or block shall be removed and replaced.

11. CLASSIFICATION OF EXCAVATION

Earth, as a name for excavated material, shall include all glacial deposits whether cemented or not, except solid boulders one-half cubic yard or more in volume. It shall also include all alluvial deposits and material of every kind that can be excavated with equal facility by the equipment and means typically used for earth excavation.

Peat, as a name for excavated material, shall include all unstable organic soils such as peat, muck, marl, and underlying very soft clay.

Rock, as a name for excavated material, shall include pre-glacial solid ledge rock that can be removed most practically by blasting, barring or wedging, or by some other standard method of quarrying solid rock. It shall also include solid boulders of one-half cubic yard or more in volume as well as existing concrete, masonry with mortar joints, or other existing structural work that can be excavated practically only by methods of quarrying solid rock. It shall not include fragile, friable, or disintegrated materials of any kind that can be excavated by equipment and means used for earth excavation.

12. ROADWAY EARTHWORK

Roadway earthwork shall be performed in accordance with the construction methods that are described in Section 205 of the MDOT Standard Specifications for Construction unless otherwise called for in

the plan notes, details, or supplemental specifications.

13. METHODS OF EXCAVATION IN EARTH

All excavation shall be by open cut from the surface, except in special cases where boring/jacking under pavement or structures may be required, or where boring/jacking under the root system will be required for tree root protection. All excavation shall be made in such a manner and to such depth, length, and width as will give ample room for building the structures, bracing, sheeting and supporting the sides of the excavation, pumping and drainage of ground water and sewage which may be encountered, and removal of all materials excavated. Special care shall be taken so that the soil below the bottom of structures to be built shall be left undisturbed so that a firm bed will be provided for construction. Any voids shall be backfilled with suitable granular material and shall be properly compacted.

14. TRENCH EXCAVATION

A. General

Excavation shall be of sufficient width and depth to provide adequate room for construction and installation of the work to the lines, grades and dimensions called for on the plans. Unless otherwise called for on the OWNER's standard details, the width of a trench from the invert to a height twelve (12) inches above the top of the pipe barrel shall be indicated as follows:

Pipe Size	Maximum Trench Width
4" through 12"	30"
Larger than 12"	O.D. + 24"

If the maximum trench width as specified above is exceeded, unless otherwise shown on the drawings, the CONTRACTOR shall install, at his own expense, such concrete

cradling or other bedding as is approved by the ENGINEER, to support the added load of the backfill.

Where trench excavation is in granular material, the last six (6) inches of trench depth shall be carefully excavated and trimmed by hand to the exact elevation and contour of pipe. Where trench excavation is in rock or clay soil, the trench bottom shall be undercut a minimum of four (4) inches below the final elevation of pipe. The bedding material as hereinafter specified shall be placed and compacted to the underside of the pipe.

Excavation for structures shall be made to the outside lines and surfaces of such structures wherever it is practicable to build directly against the sides and bottoms of excavations. In such cases, care shall be taken not to disturb the original foundation or backing. Final trimming shall be done by hand just before construction of the structure. If excess excavation is made, or the material becomes disturbed so as to require removal beyond the prescribed limits, the resulting space shall be refilled with bedding, as specified hereinafter, and solidly machine tamped into place to 95 percent of maximum unit weight before the construction work proceeds.

Excavation for structures shall be extended sufficiently beyond the limits of the structure to provide ample room for form construction and other construction methods to be followed, wherever necessary.

B. Bedding

Where the subgrade below the bottom of the pipe is disturbed during the construction, the space shall be refilled with sand or pea gravel bedding material solidly tamped to form a firm foundation for the pipe. Sand or pea gravel bedding material shall be extended to one (1) foot above the pipe, except that the bedding shall be exclusively pea gravel to the springline for pipe 36-inch and greater in diameter.

C. Amount of Trench Opening

Not more than 50 feet of trench shall be open at one time in advance of the pipe unless permitted by the ENGINEER. The length of street that may be occupied by the construction work at any one time shall be subject to the direction of the ENGINEER and will be based on requirements of the use of the street by the public. No more than 600 consecutive feet of street length shall be occupied at one time, and vehicle traffic through the street shall not be entirely stopped without permission of the ENGINEER.

After placement of the utility line, the Contractor shall backfill the trench promptly in order to minimize the length of open trench and avoid any unsafe conditions.

15. TRANSPORT OF NATIVE MATERIALS OFFSITE

If the Contractor encounters good materials (sand, gravel, topsoil, etc.) during the course of construction, he shall not be allowed to transport these materials offsite without the written approval of the Engineer. Wherever possible, suitable native sands and gravels shall be used as backfill rather than transporting them offsite and replacing them with non-native materials of a lesser quality.

16. STONE REFILL FOR TRENCH UNDERCUT

In locations where soil at the bottom of trench is unstable, the CONTRACTOR shall excavate (undercut) below the trench bottom and place stone refill as called for in the Materials Section of this specification.

17. EXCAVATION & TRENCH DEWATERING

The CONTRACTOR shall maintain any excavation or trench free of water during construction of any structures and/or pipelines. Water accumulated due to rainfall or runoff and minor groundwater inflow that

can be controlled through the use of portable trash, submersible or positive displacement pumps shall be considered normally expected and anticipated conditions associated with underground construction. This effort will be considered incidental to the cost of construction and will not be reimbursable at the unit price bid for dewatering in the proposal.

The required use of deep wells and/or well points to lower and maintain a reduction in the groundwater elevation below the trench bottom shall be subject to approval of the ENGINEER and shall constitute a reimbursable expense for trench or excavation dewatering. If a pay item for dewatering is included in the Bid Form, then the CONTRACTOR would receive payment for this work based upon the unit bid price. If there are no provisions in the contract for payment for dewatering (i.e. bid item or incidental to other pay items), then the CONTRACTOR shall submit a detailed estimate of the additional cost. Upon acceptance of the CONTRACTOR's estimate, the ENGINEER shall issue a change order. The CONTRACTOR must demonstrate that a continuous effort is required to control hydrostatic pressure in the construction area in order to claim compensation for dewatering.

The CONTRACTOR shall take adequate precautions to control the discharge of dewatering pumps so as to prevent soil erosion or sedimentation of drainage ditches, structures, storm sewers, culverts, natural drainage courses, ponds, lakes or wetlands.

The CONTRACTOR shall insure that discharge from any dewatering operations has a suitable outlet and that it will not cause any damage to adjacent dwellings or property. Water and discharge hoses shall be placed and/or controlled so as to prevent a hazard to pedestrians or motor vehicles passing in the vicinity of the construction site.

Electric pumps shall have suitable power supply appurtenances meeting NEC requirements and properly fused and grounded to prevent electrical shock hazards to on-site personnel.

Internal combustion engine driven pumps, if operated 24 hours per day, shall have adequate exhaust silencers in good repair to muffle engine noise to an acceptable level for the area where located.

18. DIVERTING EXISTING SEWERS

Where existing sewers or drains are encountered in the Work, adequate provision shall be made for diverting flow in the existing sewers so that the excavation will be kept dry during the progress of the construction work. Upon completion of the construction work, the existing sewers shall be restored or otherwise provided with an adequate outlet as directed by the ENGINEER.

19. SHEETING, BRACING & SHORING

Where required to properly support the surfaces of excavations to protect the construction work, adjacent work or workers, sheeting, bracing and shoring shall be provided. If the ENGINEER is of the opinion that at any point sufficient or proper supports have not been provided, he may order such additional supports at the expense of the CONTRACTOR, but neither the placing of such additional supports by the order of the ENGINEER nor failure of the ENGINEER to order such additional supports placed shall release the CONTRACTOR from his responsibility for the sufficiency of such supports and the integrity of the Work. In removing the sheeting and bracing after the construction has been completed, special care shall be taken to prevent any caving of the sides of the excavation and injury to the completed work or to the adjacent property.

20. SHEETING LEFT IN PLACE

Sheeting, bracing and shoring shall not be left in place after completion of the work except as required by the ENGINEER. Where sheeting, bracing, and shoring must be left in place in order to protect the work, adjacent structures, or property, it shall be cut off or left not less than two (2) feet below the established surface grade. If sheeting, shoring or bracing must be left in place, then it shall be paid for at the contract unit bid price that is shown on the Bid Form. If a pay item was not included on the Bid Form, then a work order shall be negotiated.

21. CROSSING EXISTING STRUCTURES/PIPES

During construction, it may be necessary to cross under certain sewers, drains, culverts, water lines, gas lines, electric conduits and other underground structures. Every effort shall be made to prevent damage to such structures. Wherever such structures are disturbed or broken, they shall be restored to good condition. Specified granular backfill shall be placed as described in Section 23, Backfilling. MDOT Grade S3 concrete shall be utilized where directed by the ENGINEER at no additional cost to the project. Either granular backfill or concrete shall be brought to the spring line of the higher utility.

22. TUNNELING TREES

Trees eight (8) inches in diameter or less will require a minimum tunnel length of eight (8) feet. Trees over eight (8) inches in diameter, measured four (4) feet above the ground surface, will require a minimum tunnel length equal to one foot for each inch of tree diameter.

Trees shall be tunneled whenever any portion of an excavation approaches within a distance equal to one-half the required tunnel length except as otherwise noted on the plans.

Tunneling under trees may be accomplished by one of the following methods:

- a. Boring and jacking casing pipe along with placement of a carrier pipe.
- b. Boring and jacking sewer pipe or water main without a casing pipe.
- c. Jacking sewer pipe or water main without boring and without a casing pipe.

Plan notes or existing field conditions shall indicate which method may be used for the tree tunneling work.

23. BACKFILLING

A. General

Backfilling shall include all work required as hereinafter specified. The placement of various pipe, including bedding and building of structures, shall be completed prior to backfilling.

Where called for on the plans, the CONTRACTOR shall backfill trenches and/or other excavations with suitable excavated material (not including gray or blue clay) replaced into the trench or excavation and compacted to not less than 95 percent of maximum unit weight as determined at existing moisture content during backfilling. Compaction shall be provided by means of suitable mechanical compaction equipment.

If the moisture content of cohesive backfill material exceeds the optimum moisture content for maximum density by more than three percent (3%), the CONTRACTOR shall dry the material to meet the foregoing moisture content limitation or provide, at his own expense, MDOT Granular Material Class III. No sloppy or wet backfill will be allowed.

Maximum unit weight will be determined by current methods of Test for Compaction and Density of Soil, AASHTO Designation T-180 or by the Cone Density Method

developed by MDOT, as the material may require.

The ENGINEER shall make compaction tests at all locations requiring granular backfill.

Any depression resulting from settlement of any backfill prior to the date of final payment for all work under this contract shall be brought to the proper grade and surface and made to match the adjacent surface.

B. Materials

Bedding, excavated backfill, and granular backfill shall conform to the requirements that were previously described in Parts 3 and 4 of this specification.

C. Compaction

Backfill material shall be placed in layers not to exceed 12 inches in thickness unless the contractor can demonstrate to the satisfaction of the Engineer that he can consistently attain the specified density on thicker lifts.

Specified compaction shall be obtained with the use of a bulldozer, sheepsfoot roller, mechanical tamper or other similar and effective equipment. Specified compaction means not less than 95 percent (not average 95 percent) of maximum unit weight when tested in accordance with current MDOT Specifications.

If excavated material is not suitable to obtain 95 percent minimum compaction, the CONTRACTOR shall, at his expense, remove unsuitable materials or add granular materials, or both, to obtain ninety-five percent (95%) minimum compaction as specified.

Compaction tests will be made by a representative of the OWNER and paid for by the OWNER, unless otherwise specified in the Contract Documents.

D. Backfilling Trenches

Bedding

The type of bedding required is shown on the detail drawings.

Bedding shall be worked under the haunches of the pipe to provide firm continuous support.

Bedding placed on the sides of and above the pipe shall be compacted by machine tamping to not less than ninety-five percent (95%) of maximum unit weight in layers not exceeding 12 inches in depth.

Trench or Excavated Area

All trenches in paved streets, shoulders, traveled roadways, parking areas and driveways shall be backfilled with suitable excavated backfill or granular backfill, as shown on the drawings from one (1) foot above top of pipe up to the required subgrade elevation which will allow for placement of the required gravel base and/or pavement surface. The approved excavated backfill or granular backfill shall be placed and thoroughly and uniformly compacted by machine tamping to the specified compaction. With the approval of the ENGINEER, water jetting may be accepted in lieu of tamping for granular backfill only.

Specified compaction shall be required of the entire trench when the edge of trench is within three (3) feet of edge of pavement. On road crossings, specified compaction shall extend ten (10) feet beyond the edge of pavement for paved roadways with gravel shoulders or shall extend three (3) feet beyond the back of curb for roadways with curb.

Trenches under concrete sidewalks and bike paths shall be backfilled from one foot above top of pipe to a level four (4) inches below finished grade of the sidewalk with approved suitable excavated backfill or

granular backfill and compacted to ninety-five percent (95%) maximum density.

Trenches not in paved streets, shoulders, traveled roadways, parking areas, driveways or under sidewalks, shall be backfilled from one (1) foot above the top of the pipe up to the ground surface (except as noted under the Restoration Specification) with suitable excavated backfill and shall require compaction equal to adjacent undisturbed earth.

Wherever gas mains, water mains, sewers, or other utilities are located in the trench area, granular backfill shall be used for backfill from bottom of the trench up to the springline of the pipes. Granular backfill shall be placed across the full trench width and extend far enough either side of the existing pipe to allow specified compaction so as to thoroughly support the pipe within the trench area.

E. Backfilling Around Structures

As soon as practicable after concrete structures have set, forms and debris shall be removed and the surface of the concrete pointed. After the structure has been checked and approved, the excavated area around the structure shall be backfilled up to specified subgrade with granular material or suitable excavated material as called for on the drawings for the adjacent trench. The fill shall be thoroughly compacted by machine tamping. No large boulders or masonry shall be placed in backfill. No backfill will be placed against manhole walls within 48 hours after the plaster coat has been applied to the outside of the walls nor shall backfill be placed about concrete structures until concrete has attained at least 75 percent of its design strength and approval of the ENGINEER has been obtained.

24. PLACING AND COMPACTING EMBANKMENT

Embankment material for fill work shall be placed and compacted in accordance with

Section 2.05.03H of the MDOT Standard Specification for Construction.

25. DISPOSAL OF EXCAVATED MATERIAL

After all suitable excavated material has been used on site, the CONTRACTOR shall be responsible for properly removing and disposing of the excess.

The CONTRACTOR shall also be responsible for disposing of all other excavated materials that are unsuitable for use as fill or backfill. Unsuitable materials may include, but are not limited to, broken concrete, asphalt, rock, stone, and other related debris. The CONTRACTOR shall be required to obtain his own disposal areas and permits and shall receive no additional compensation for this disposal work.

Surplus or unsuitable material shall not be disposed of either temporarily or permanently beyond the plan grading limit line or across any wetland or flood plain unless the plans provide for such placement.

Any agreements that the CONTRACTOR makes with local residents concerning the placement of fill on private property shall be the sole responsibility of the CONTRACTOR. The OWNER will not become involved with any such agreements and will not be liable for damages that the CONTRACTOR may cause to private property.

Placement of fill on private property may require that the resident or CONTRACTOR obtain a grading permit or fill permit from the OWNER.

26. FINAL CLEANUP & GRADING

Upon completion of the construction, and before final payment is made, the CONTRACTOR shall restore his working area to as clean a condition as existed before his operations were started. He shall go over the entire line and refill any place that may

have settled. He shall then re-grade and put in shape all backfilled trenches, all fills he may have made from excess excavated materials, and all other areas that may have been disturbed through all operations.

27. CONTRACTOR SAFETY REQUIREMENTS

The excavation and trenching operations shall be conducted by the CONTRACTOR in a manner that will provide safe working conditions for all persons on the site who may be affected by the Work. The CONTRACTOR shall also conduct his operations in a manner that will protect adjacent property from damage.

Trench sides shall be either cut back to the slope as necessitated by soil and ground water conditions which will provide stable sides, or supporting systems shall be installed that are capable of restraining the earth sides from movement. A qualified employee of the CONTRACTOR shall design the trench supporting systems.

The CONTRACTOR shall employ, at all times at the site of the work, a qualified person who will be responsible for the safety of both the work and workmen, and who will make all the decisions relevant to the stability of trenches, the adequacy of any and all protective devices, proper operation of equipment, and all other matters related to safety.

The CONTRACTOR shall not store, along and adjacent to the trench, excavated material, heavy equipment, backfill materials, sewer pipe, or other construction materials which may impose too great a load on the earth and cause displacement or caving of the earth. The CONTRACTOR shall, at all times, provide a safe means of emergency exit from all trench excavations.

End of Section

DIGITAL RECORDED VIDEO SURVEY

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GENERAL

1. SCOPE

Prior to commencing work, the CONTRACTOR shall have a continuous color audio-video digital recording taken along the designated length of the project to serve as a record of existing conditions. All written records and flash drives containing digital records shall become the property of the OWNER.

2. FIRM BACKGROUND

The CONTRACTOR shall engage the services of a professional digital recording firm that is actively engaged in color audio-video recordings for various municipalities. The firm shall have a minimum of two years experience in audio-video digital recording of construction projects.

The OWNER may make such investigation as he deems necessary to determine the ability of the digital recording firm to perform the work. The CONTRACTOR shall furnish the OWNER all such information and data for this purpose as the OWNER may request. The OWNER

reserves the right to reject any digital recording firm if the investigation fails to satisfy the OWNER that such firm is properly qualified to carry out the work specified herein. Upon rejection of a digital recording firm, the CONTRACTOR shall engage the services of another firm that shall undergo the review and approval process as previously discussed.

3. SCHEDULE

All digital recording shall be done during times of good visibility. No recording shall be done during periods of visible precipitation or when more than ten (10) percent of the ground is covered with snow or standing water unless otherwise authorized by the ENGINEER.

Digital recording shall be done prior to placement of materials or equipment in the construction area. Flash drives containing digital records shall be furnished to the OWNER at least one week prior to the preconstruction meeting.

No construction shall begin prior to review and approval of the digital video by the OWNER.

The OWNER shall have authority to reject all or any portion of the digital recording that does not conform to the specifications. Any coverage that is not acceptable to the OWNER shall be rerecorded at no additional charge. The CONTRACTOR shall reschedule unacceptable coverage within five (5) days after being notified.

MATERIALS

4. EQUIPMENT

All equipment, accessories, and materials necessary to perform this service shall be furnished by the CONTRACTOR and the digital recording firm, except for the plans of the proposed area to be digitally recorded

which are to be furnished by the OWNER. The CONTRACTOR shall be responsible for providing any temporary warning signs or barricades if required during the digital recording operations. Digital recordings shall be on high-quality flash drives for lossless picture quality, suitable for uploading and viewing on standard computer systems.

In some instances, digitally recorded coverage may not be suitable for recording necessary details. In such instances, the ENGINEER may specify digital still photographs to provide coverage. Digital photography must be used and the firm shall provide a flash drive containing digital records of all images. A suitable labeling system and description of the location of the photograph shall accompany the photographs in PDF form on the flash drive with the digital photographs.

5. DIGITAL RECORDING

Each digital recording shall begin with the current date, project name, and municipality as well as the general location or station, name of the street, viewing side, and direction of progress. Houses and buildings shall be identified by address.

When conventional wheeled vehicles are used, the distance from camera lens to the ground shall not be less than ten (10) feet to insure proper perspective.

In some instances, digitally recorded coverage will be required in areas that are not accessible by conventional wheeled vehicles. Such coverage shall be obtained by walking or special conveyance approved by the ENGINEER.

The engineering stationing numbers shall be continuous and accurate and shall correspond to the project stationing within the field of view. Standard engineering symbols (for example, 14 + 84) shall appear in the upper left of the viewing screen.

Beneath the engineering stationing, periodic transparent alphanumeric information consisting of the project name, location, direction of travel, viewing side, etc., shall appear.

Global Positioning System Satellites may be used in place of or in addition to engineering stationing numbers where available. The global positioning system shall provide updates at one (1) per second and have an accuracy of five (5) meters or less spherical accuracy. The GPS coordinate display will be at one (1) meter longitude and 1 meter latitude. (example: 3000N423 9456W294)

To preclude the possibility of tampering or editing in any manner, all digital recordings shall, by electronic means, display continuously and simultaneously generated transparent digital information to include the date and time of recording, as well as corresponding GPS coordinates and/or engineering stationing numbers. The date information will contain the month, day and year (for example, 10/5/06) and be placed directly below the time information. The time information shall consist of hours, minutes and seconds separated by colons (for example 10:35:18). This transparent information shall appear on the extreme upper left-hand of the screen.

Each digital recording must be taken at 4K resolution (3840 pixels × 2160 lines), 16:9 aspect ratio, and 60 FPS. File types can include .MP4 and .MOV. Prohibited file types include .MEPG, .FLV, .WMV, and .SWF.

6. DIGITAL VIDEO TRACKS

Digital recordings shall consist of one (1) video and two (2) audio tracks, all of which must be recorded simultaneously. All tracks shall consist of original live recordings and thus shall not be copies of other audio or digital video recordings. Audio track one (1) shall contain the narrative commentary of the camera technician and shall be recorded

simultaneously with his fixed elevation video record of the area of construction. Audio track two (2) shall contain the narrative commentary and evaluations of the ground level remote technician whose function shall be to provide a complete circumspection of any features that are not adequately visible to the camera technician. In order to maintain viewer orientation, transition from a fixed camera overview to a remote camera picture shall be accomplished by means of an electronic dissolve.

7. LIGHTING REQUIREMENTS

In order to produce proper detail and perspective, adequate lighting will be required to fill in the shadow areas caused by trees, utility poles, road signs and other such objects.

For interior and exterior surfaces of existing buildings, a 500 LED light source with 30W of power consumption and a color range between 3200K-5600K is required to enable all objects to be distinctive and clearly video taped with correct detail in order to obtain proper perspective. The CONTRACTOR shall provide all power required for lighting.

8. DIGITAL VIDEO COVERAGE

a. Construction Zone

Digital video coverage shall include all surface features located within the zone of influence of construction and shall be supported by appropriate audio description. Such coverage shall include, but not be limited to, public right-of-way, easement areas, adjacent private property, all existing driveways, sidewalks, curbs, ditches, roadways, landscaping, trees, shrubs, fences, culverts, headwalls, retaining walls, and buildings located within such zone of influence. Of particular concern shall be the existence of any faults, fractures, or defects.

Houses and buildings shall be identified visually by house number when visible.

Manholes or other utility structures shall also be identified.

The rate of travel used during digital recording shall not exceed forty-eight (48) feet per minute. Panning rates and zoom-in/zoom-out rates shall be controlled sufficiently such that stop action during playback will produce clarity of the object viewed.

The ENGINEER shall have the authority to designate areas for which coverage may be added or omitted.

b. Interior and Exterior Surfaces

Building exterior coverage shall include, but not be limited to, all the masonry features of the building such as walls, foundations, chimneys or porches. Building interiors shall include, but not be limited to, all outside basement walls and flooring.

All property being digitally recorded for interior record must have a permanent exterior front view recorded on video displayed in upper right-hand corner of the viewing screen for positive identification of property. This view will be no larger than twenty percent (20%) of the picture area and must begin by showing the address. The camera technician shall pan and zoom in and out as necessary to control the clarity of objects being viewed.

All digital recording shall be done during regular business hours unless otherwise authorized by the OWNER or agreed to by an affected property owner.

9. DIGITAL RECORDING FIRM RESPONSIBILITIES

The digital recording firm may televise and record areas within public rights-of-way, along municipal-owned easements, through municipal-owned parks, and municipal buildings. When digital recording is to be done on private property, the digital recording firm shall give the OWNER

sufficient prior notice so that the property owners may be contacted and their permission obtained for the work.

Three (3) attempts must be logged by the camera technician to complete the video project at each location, and a log sheet describing the day, time, and disposition of the contact must be kept.

At no time will the digital recording firm be allowed to use any electrical circuits located inside or outside buildings on private property. The digital recording firm must enter and leave property in a professional and orderly manner.

10. VIDEO IDENTIFICATION AND SUBMITTAL

All flash drives containing digital records shall be properly identified by number, location, project name, and municipality in a manner that is acceptable to the OWNER.

A record of the contents of each flash drive shall be supplied by a log sheet that identifies each segment in the digital recording by location, roll number, street or road viewing, viewing side, starting point, traveling direction, and ending point.

A minimum of three flash drives containing digital records shall be provided upon final approval and acceptance of the videos by the OWNER and ENGINEER (one set each for the OWNER, ENGINEER, and CONTRACTOR). Additional sets shall be furnished if requested by the OWNER.

End of Section

RESTORATION

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GENERAL

1. SCOPE OF WORK

This work shall be subject to conditions of the General Conditions, General Specifications and include the furnishing of labor, materials, tools, accessories, equipment and services necessary for restoration of the surfaces shown on the Contract drawings and/or as herein required.

This work shall include replacement of all permanent type roadway surfaces, concrete sidewalks, curb and gutters, driveways, trees, culverts, fences, ditches, and miscellaneous items damaged or removed due to construction. Disposal of excess or unsuitable materials shall be considered as part of the restoration work. All such work shall be in accordance with the best modern practice, the OWNER's standards, and as specified herein.

Prior to performing work under this section, the CONTRACTOR shall submit to the ENGINEER for approval his construction methods and design mixes, sieve analysis and/or certification of compliance with the 2012 Michigan Department of Transportation (MDOT) Standard Specifications for Construction except where otherwise noted. No permanent surface restoration shall be performed until all underground work has been approved.

In the event that these specifications conflict with those of the OWNER or the controlling agency, the more stringent requirements shall govern.

2. SHOP DRAWINGS

When required by the ENGINEER, shop drawings shall be furnished as prescribed under the General Conditions.

Before the CONTRACTOR orders any restoration materials that he is proposing to use as substitutes for specified items, he shall submit details of the substitutes to the ENGINEER for consideration and approval.

3. MDOT STANDARDS

References to the Michigan Department of Transportation (MDOT) Specifications shall pertain to the 2012 Standard Specifications for Construction.

MATERIALS

4. AGGREGATE

a. Gravel Approaches and Roads

Natural aggregate shall be used for gravel approach (driveways) and road restoration and shall meet the requirements of MDOT 21AA or 22A as shown in Table 902-1 of the MDOT Standard Specifications for Construction.

b. Shoulders

Natural aggregate shall be used for shoulders and shall meet the requirements of MDOT 21AA, 22A, or 23A as shown in Table 902-1 of the MDOT Standard Specifications for Construction.

c. Base Course

Natural aggregate shall be used for base course construction and shall meet the requirements of MDOT 21A, 21AA, or 22A as shown in Tables 902-1 and 902-2 of the MDOT Standard Specifications for Construction.

5. HOT MIX ASPHALT SURFACE, LEVELING, & BASE COURSES

Hot mix asphalt materials used for pavement construction shall meet the requirements of section 501.02 of the MDOT Standard Specifications for Construction or the requirements of the controlling agency as called for on the construction plans.

6. CONCRETE PAVEMENT, SIDEWALKS, CURB & GUTTER

Concrete used for pavement, sidewalk, and curb and gutter construction shall meet the requirements of MDOT grade P1 concrete or the requirements of the controlling agency as called for on the construction plans. MDOT grade P-NC may also be used where circumstances require the use of a

high-early strength concrete. Refer to Table 601-2 of the MDOT Standard Specifications for Construction.

7. TOPSOIL

Topsoil shall be screened and shall consist of loose black-colored soil that is suitable for the growth of grass seed or sod. The topsoil shall be obtained from the upper layer of an existing fertile soil and be free of limbs, twigs, rocks, stones, muck, roots and debris, etc. and containing organic matter rich in nutrients with negligible clay content.

Topsoil shall meet the following requirements:

- a. The pH range shall be from 6.0 to 7.5. Topsoil outside of this range shall be amended by the addition of pH adjusters as approved by the Engineer.
- b. The organic matter content shall range between 2% and 6% (by dry sample weight).
- c. The soil texture shall be a sandy loam, silt loam, or loam where the sand, silt, and clay contents (by dry sample weight) fall within the following ranges:

Sand.....	40% to 65%
Silt	25% to 60%
Clay	5% to 15%

- d. The gradation shall be as follows:

Sieve Designation	% Passing
1 inch screen	100
0.25 inch screen	97 - 100
No. 10 U.S.S. mesh sieve	95 - 100
No. 140 U.S.S. mesh sieve	15 - 35

- e. The soil salinity as measured by the electrical conductivity of a saturated soil

sample shall not exceed 2dS/m (decisiemens/meter).

- f. Topsoil samples may be taken from stockpiles by the ENGINEER for submission to a testing laboratory. Topsoil that does not meet the required specifications shall be removed from the project site by the CONTRACTOR and shall be replaced with suitable topsoil that meets the testing requirements.

8. SEED & FERTILIZER

Seed and fertilizer shall meet the following requirements:

Table R-1

Location	Seeding* Requirement	Fertilizer Requirement
Maintained Lawn Areas	MDOT Type THM Mix (20% Perennial Rye, 30% Kentucky Blue, 50% Red Fescue) applied at 220 lbs./acre	MDOT Class A, 228 lbs./acre
Fields, Slopes & Ditch Banks, Etc.	MDOT Type THV Mix (30% Perennial Rye, 15% Kentucky Blue, 45% Red Fescue, 10% Fults Salt) applied at 220 lbs./acre	MDOT Class B, 120 lbs./acre

* percent mixture proportions by weight

All grass seeding shall meet the requirements for purity and germination as called for in the MDOT Standard Specifications for Construction Table 917-1 for Seed Mixtures. Seed shall be delivered in durable containers which show the

manufacturer's name, lot number, weight, contents, purity, and germination. Although Table R-1 lists only two typical seeding mixtures, other seeding mixtures shown in MDOT Tables 816-1 and 917-1 may be used where approved by the Engineer.

9. MULCH & MULCH BLANKETS

Mulch and mulch blankets shall meet the following requirements:

- a. Loose Mulch. Mulching material shall consist of any straw or marsh hay in an air-dry condition. Hay in an air-dried condition will be permitted only when straw mulch or marsh hay is unavailable. Mulch materials shall be undamaged, rot free, clean, substantially free of weed seed and other objectionable foreign matter.
- b. Mulch Blankets (for moderate runoff condition). Mulch Blankets shall be one of the following or an approved equal:
 - S1 Erosion Control Blanket – BonTerra America
 - Contech ERO-MAT - Contech Construction Products
 - Erosion Control Blanket DS-75 – North American Green
- c. High Velocity Mulch Blankets (for medium to heavy runoff condition). High velocity mulch blankets shall be one of the following or an approved equal:
 - S2 Erosion Control Blanket – BonTerra America
 - Contech High Velocity ERO-MAT – Contech Construction Products
 - ECS High Impact Excelsior Blanket – Erosion Control Systems, Inc.

ECS High Velocity Straw Mat –
Erosion Control Systems, Inc.

Erosion Control Blanket DS-150 –
North American Green

10. SOD

Sod shall meet the requirements of Section 917.13 of MDOT Standard Specifications for Construction. The Contractor shall keep the sod watered until a vigorous growth is established.

Sod must be an upland mineral soil sod. Sod must be grown on loam soils. Sod grown on peat is not acceptable for use.

11. FENCING

Chain link and woven wire fence materials shall meet the requirements of Section 907 of MDOT Standard Specifications for Construction. Chain link fabric shall be as called for on the construction drawings (aluminum-coated, zinc-coated, or vinyl-coated). Fences made of other materials (wood board, split rail, iron, etc.) shall be replaced in kind or as called for on the construction drawings. In this case, fence materials and construction methods shall meet the applicable standards of ASTM.

12. TREES & SHRUBS

Trees and shrubs shall be quality, nursery-grown stock with adequate root growth (balled and burlapped). Nursery stock shall meet the standards of the current edition of the American Standard for Nursery Stock as published by the American Association of Nurserymen, as well as the standards of Section 917 of the MDOT Standard Specifications for Construction.

13. TIMBER POSTS

Timber used for fence, guide, guard and mailbox posts shall meet the requirements of Section 912.08 of the MDOT Standard Specifications for Construction.

14. TRAFFIC SIGNS & POSTS

Traffic and street signs that are removed or damaged shall be replaced in kind. The materials used for such sign and post replacements shall meet the applicable standards of Section 919 of the MDOT Standard Specifications for Construction.

15. PAVEMENT STRIPING

Pavement striping materials shall meet the requirements shown in Section 920 of the MDOT Standard Specifications for Construction.

CONSTRUCTION

16. PAVEMENT RESTORATION

The aggregate and pavement thicknesses shown in the following sections are intended to be a guideline for minimum thicknesses. Thicker sections may be required depending upon the requirements of the OWNER or the controlling agency. All pavements shall be restored to the elevation and section that existed prior to construction.

a. Gravel Shoulders and Approaches

Gravel shoulders and approaches shall be constructed as described in Section 307.03 of the MDOT Standard Specifications for Construction.

Gravel shoulder restoration shall consist of placement and compaction of MDOT 21AA limestone or MDOT 22A gravel on a suitable subgrade to form a minimum six (6) inch thick section. The 21AA limestone or 22A gravel shall be compacted to a minimum density of ninety-eight (98) percent of the maximum unit weight. The restored shoulder width shall match the existing width.

Restoration of gravel approaches shall consist of placement and compaction of MDOT 21AA limestone or MDOT 22A gravel on a suitable subgrade as called for

on the plans to form a minimum six (6) inch thick section. The 21AA limestone or 22A gravel shall be compacted to a minimum density of ninety-eight (98) percent unit of the maximum unit weight. The restored approach width shall match the existing width.

b. Gravel Roads

Restoration of gravel roads shall consist of placement and compaction of MDOT 21AA limestone, MDOT 22A gravel, or MDOT 23A gravel as called for in the plan details to form a minimum eight (8) inch thick section. The restored road width shall match the existing road width. Gravel roads shall be constructed as described in Section 306.03 of the MDOT Standard Specifications for Construction.

c. Aggregate Base Courses

Aggregate base courses shall be placed and compacted to the thickness and width as called for on the plan details and as described in Section 302.03 of the MDOT Standard Specifications for Construction. Unless otherwise indicated in the Supplemental Specifications, aggregate base courses shall be compacted to a minimum density of ninety-eight (98) percent of the maximum unit weight.

d. Sawcutting

All pavement, curb and gutter, and sidewalk removals shall be accomplished by sawcutting with a power-driven concrete saw. Sawcutting shall be full depth for all pavements (concrete, bituminous, concrete with bituminous overlay).

In bituminous pavement, sawcut lines shall be parallel with or perpendicular to the direction of vehicle travel.

In concrete pavement, sawcut lines shall be cut parallel with pavement joints. Sawcuts shall not be nearer than five (5) feet to a transverse joint, to the center of pavement,

or to the edge of pavement such that no existing or replacement pavement section shall be less than five (5) feet in width. If the proposed sawcut is nearer than five (5) feet to a joint or centerline of a pavement, then removal and replacement shall be extended to said joint or centerline.

If an integral concrete curb is to be removed, then the minimum removal width shall be eighteen (18) inches.

e. Hot Mix Asphalt (HMA) Pavement

Hot mix asphalt pavements shall be constructed in accordance with the plan details and Section 501 of the MDOT Standard Specifications for Construction. Where new asphalt pavement is to adjoin existing asphalt pavement, a two (2) foot wide butt joint shall be constructed. A bond coat shall be applied to the existing pavement surface. Unless otherwise called for in the plan details, the following sections shall apply as a minimum:

Bike paths: 3" HMA over 4" 21AA aggregate base (with soil sterilant application)

Residential driveways: 3" HMA over 6" 21AA aggregate base

Commercial driveways: 4" HMA over 8" 21AA aggregate base; or 8" asphalt

Residential streets: 4" HMA over 8" 21AA aggregate base; or 8" asphalt

Collector road: 9" HMA over 6" 21AA aggregate base

The laboratory density of HMA pavement shall be determined by the Marshall Procedure ASTM D-1559 using 50 blows on each of the specimens as the compactive effort. One set of three (3) specimens shall be made on the first day of placement and on subsequent days as determined by the Engineer.

The measurement of field-compacted density shall be done with a nuclear gage. The percent of compaction obtained shall be determined by dividing the field-compacted density by the laboratory density and multiplying the result by 100. Unless otherwise indicated in the plan details or Supplemental Specifications, all HMA pavements shall be compacted to a minimum calculated density of 97%.

Density tests shall be taken on the completed pavement at a frequency of one test every 500 linear feet of paving lane, except for the last unit which will be 500 linear feet, plus any fractional unit less than 250 feet in length, or will be a fractional unit of 250 feet or more in length. Miscellaneous areas such as intersections, crossovers and widening lanes less than 250 feet long will be tested as directed by the Engineer.

f. Concrete Pavement

Concrete pavements shall be constructed in accordance with the plan details as well as Sections 602 and 801 of the MDOT Standard Specifications for Construction. Where new concrete pavement is to be anchored to old pavement, dowel bars and lane ties shall be installed in accordance with MDOT Standard Plans. Joints shall be installed in the new concrete pavement to match existing joint types and locations. Reinforcing steel shall be similar to that in the existing pavement and shall provide the same cross sectional area of reinforcement per foot as the existing pavement. Unless otherwise called for in the plan details, the following sections shall apply as a minimum:

Residential driveways:	6" non-reinforced concrete over 4" sand base
Commercial driveways:	8" non-reinforced concrete over 4" sand base
Residential	8" non-reinforced concrete

streets: over 6" sand base

Collector road: 9" non-reinforced concrete over 6" sand base

g. Concrete Sidewalk and Ramps

Concrete sidewalks and ramps shall be constructed in accordance with the plan details and Section 803 of the MDOT Standard Specifications for Construction. Unless otherwise called for in the plan details, the following sections shall apply as a minimum:

Sidewalks:	4" concrete over 4" sand base
Sidewalks (at residential drive crossing):	6" concrete over 4" sand base
Sidewalks (at commercial drive crossing):	8" concrete over 4" sand base
Sidewalk ramps:	4" concrete over 4" sand base

h. Concrete Curb and Gutter

Concrete curb and gutter shall be constructed in accordance with plan details and Section 802 of the MDOT Standard Specifications for Construction.

17. TURF ESTABLISHMENT

The CONTRACTOR shall furnish and place topsoil, seed, or sod, and fertilizer for all areas that were disturbed during construction. Seed and sod shall be installed in accordance with the seasonal limitations that are described in section 816.03 of the MDOT Standard Specifications for Construction unless directed otherwise by the Engineer.

a. Topsoil

Unless otherwise called for on the plans, a minimum of three (3) inches of topsoil shall be placed for areas that are to be restored with seeding or sodding. Topsoil shall be placed on a prepared earth bed in accordance with Section 816.03A of the MDOT Standard Specifications for Construction.

The existing earth bed shall be graded such that the placement of topsoil and sod will meet the final plan grades.

b. Seed

Seeding shall be sown in accordance with Section 816.03C of the MDOT Standard Specifications for Construction. The application rate for the seeding shall be as shown in the table in part 8 of the Materials Section.

c. Mulch and Mulch Blankets

Mulch and mulch blankets shall be placed over seeded areas as called for in Section 816.03E through H of the MDOT Standard Specifications for Construction. If mulch blankets must be secured to a slope, then biodegradable netting and biodegradable earth staples shall be used.

Mulch anchoring shall be considered as incidental to mulch placement unless a pay item for mulch anchoring has been included in the Bid Form.

d. Sod

Sod shall be placed in accordance with Section 816.03D of the MDOT Standard Specifications for Construction.

A sod cutter shall be used to establish a smooth vertical edge when new sod is to abut existing sod.

e. Fertilizer

Fertilizer shall be placed in accordance with Section 816.03B of the MDOT Standard Specifications for Construction. The

application rate for the fertilizer shall be as shown in table in Part 8 of the Materials Section.

f. Watering and Maintenance

It is the responsibility of the CONTRACTOR to regularly water new seed and sod in order to establish a dense lawn of permanent grasses that is free from mounds and depressions. Any portion of a sodded area that "browns-out" or does not firmly knit to the soil base, or any portion of a seeded area that fails to show a uniform germination, shall be resodded or reseeded. Such resodding or reseeding shall be at the CONTRACTOR's expense and shall continue until a dense lawn is established.

Watering seed and sod shall be considered as incidental to the turf establishment work unless a pay item for water has been included in the Bid Form.

18. FENCING

Prior to the start of any fence restoration work, the CONTRACTOR shall verify that the line and grade are correct.

a. Removing and Replacing Existing Fences

Fences shall be removed and replaced or shall be removed as indicated on the Plans or as directed by the ENGINEER. If any of the existing material is damaged or destroyed, the CONTRACTOR shall replace the material at his expense. Replacement fence material shall be of a condition comparable to that which existed prior to construction.

After the fence removal or relocation operations are complete, all surplus material shall be removed and disposed of by the CONTRACTOR at his expense unless otherwise called for on the Contract Documents.

Any holes or voids resulting from the fence post removal operation shall be backfilled

with a suitable material, as approved by the ENGINEER.

b. Placing New Fence

Woven wire and chain link fencing shall be installed in accordance with Sections 808.03A and D of the MDOT Standard Specifications for Construction. If called for on the plans, a top rail shall be used in place of tension wire for the chain link fence construction. Other fence types (timber, boulders, decorative rock, etc.) shall be constructed in accordance with plan details.

19. GUARDRAIL

Guardrail shall be placed in accordance with Section 807 of the MDOT Standard Specifications for Construction. Guardrail design shall be approved by the ENGINEER and shall conform to the current applicable standards of the agency that has jurisdiction of the right-of-way.

Any holes or voids resulting from the guardrail post removal operation shall be backfilled with a suitable material, approved by the ENGINEER.

20. TREE & SHRUB PLANTING

Trees and shrubs shall be planted in accordance with Section 815 of the MDOT Standard Specifications for Construction. Nursery stock shall conform to the standards shown in the American Standard for Nursery Stock (ANSI Z60.1-1996).

Watering and cultivating trees and shrubs during the establishment period shall be considered as incidental to the tree and shrub planting work unless a pay item for watering and cultivating has been included in the Bid Form.

21. MAILBOXES

Where mailbox post replacement is called for on the plans, new mailbox posts shall be

furnished and installed in accordance with Section 807 of the MDOT Standard Specifications for Construction and the plan details.

22. TRAFFIC SIGNS & POSTS

Placement of traffic signs and posts shall be done in accordance with the applicable Sections in 810 of the MDOT Standard Specification for Construction, the current edition of the Michigan Manual of Uniform Traffic Control Devices, and the plan details.

23. PERMANENT PAVEMENT STRIPING

Permanent pavement striping shall be placed in accordance with the plan details and Section 811 of the MDOT Standard Specifications for Construction.

24. DRAINAGE STRUCTURES,
CULVERTS, & DITCHES

As part of restoration, the CONTRACTOR shall be responsible for cleaning out all drainage structures, culverts, and ditches that are located within the area of construction. All ditches shall be restored such that drainage will flow freely. The cost of this work shall be considered as incidental to the project.

25. PROGRESS OF FINAL
RESTORATION

If in the judgement of the OWNER, adequate site restoration efforts are not being expended, including but not limited to, roadway, driveway and drainage maintenance, removal of surplus materials, restoration of all signs, mail boxes and like items, then the OWNER will take the necessary steps to perform such restoration and shall charge the CONTRACTOR for all of the costs until proper order is restored.

End of Section

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GENERAL

A. PRICES AND MEASUREMENT:

Payment for work under this contract will be based on a unit price or lump sum for work actually completed. Final measurements of the work will be taken by the Engineer to determine the amount of work done and thereby determine the total cost. The method of applying the unit prices to measured quantities will be as herein specified. Payment will include the cost of all labor, tools, materials, and equipment necessary to do the work.

Several items may have been included in the bid form but may not be called for on the plans. These items have been included in order to establish a unit price in the event that the item of work is necessary. The Contractor should be aware that these items may increase, decrease, or be zero based on field conditions, or Owner direction.

B. INCIDENTAL ITEMS:

Any items of work indicated as incidental or included shall be considered as part of the project work and shall be completed at no additional expense to the Owner. Incidental or included items shall include labor, materials, and equipment that may not be specifically listed in the Bid Form or in the drawings or specifications, but which are necessary to complete the work.

C. PERMITS:

Any permit fees, bonds, and/or permit agency inspection costs will be the responsibility of the Contractor and shall not result in additional cost to the Owner. A list of permits required for this project is shown in the Supplemental Instructions to Bidders section.

MOBILIZATION

(Bid Item 1)

The completed work as measured for MOBILIZATION will be paid for at the contract unit price for the following contract item (pay item):

<u>Pay Item</u>	<u>Pay Unit</u>
Mobilization, Max. 5%	lump sum

The lump sum price shall be payment in full for all preparatory work and operations which may include, but is not limited to, the following items:

1. The movement of personnel, equipment, supplies, and incidentals to the project site.
2. The establishment of the Contractor's offices, buildings, and other facilities to work on the project.
3. Other work and operations that must be performed.
4. Expenses incurred, prior to beginning work on the various contract items on the project site.
5. Pre-construction costs, exclusive of bidding costs, which are necessary direct costs to the project rather than directly attributable to other pay items under the contract.
6. Permits, bonds, etc.

The pay item will state the maximum amount that can be bid. When the percentage of the original contract amount earned is less than 5 percent, the costs of project specific bonding, insurances, and permits will be reimbursed when a paid invoice is received by the Engineer. The costs of these will then be made in accordance with the Partial Payment Schedule shown below. The original contract amount is the total value of all contract items including the mobilization item. The percentage earned is exclusive of the mobilization item. The total sum of all payments for this item shall not exceed the original contract amount bid for mobilization, regardless of the fact that the Contractor may have, for any reason, shut down his work on the project, moved equipment away from the project and then back again, or for additional quantities or items of work added to the contract.

Partial Payment Schedule	
Percentage of Original Contract Amount Earned	Percentage of Bid Price for Mobilization Allowed
5	50
10	75
25	100

When a pay item for mobilization is not included in the proposal, payment for any such work is considered to have been included in payments made for other items of work.

TRAFFIC MAINTENANCE AND CONTROL

(Bid Item 2)

The completed work as measured for TRAFFIC MAINTENANCE AND CONTROL will be paid for at the contract unit price for the following contract item (pay item):

<u>Pay Item</u>	<u>Pay Unit</u>
Traffic Maintenance and Control	lump sum

The contract lump sum price shall be payment in full for all labor, materials, and equipment necessary to furnish, install, and maintain all signs, cones, barricades, flagging, etc. as required by the Michigan Manual of Uniform Traffic Control Devices and the Supplemental Specifications. Removal of any temporary signs or other traffic control equipment upon completion of the project shall be considered as incidental to the traffic maintenance and control work.

REMOVE CONCRETE CURB AND GUTTER

(Bid Item 3)

The completed work as measured for REMOVE CONCRETE CURB AND GUTTER will be paid for at the contract unit price for the following contract item (pay item):

<u>Pay Item</u>	<u>Pay Unit</u>
Curb and Gutter, Rem	linear foot

Curb and Gutter, Rem shall be measured along the gutter line by linear foot.

The contract unit price shall be payment in full for all labor, materials and equipment required to sawcut, remove, and properly dispose of the concrete curb and gutter offsite.

REMOVE PAVEMENT

(Bid Item 4)

The completed work as measured for REMOVE PAVEMENT will be paid for at the contract unit price for the following contract item (pay item):

<u>Pay Item</u>	<u>Pay Unit</u>
Pavt, Rem	square yard

Pavt, Rem shall be measured in place by area in square yards. The removal area shall be based upon the average length and width measurements as determined in the field by the Engineer.

The contract unit price shall be payment in full for all labor, material and equipment required to sawcut, remove, and properly dispose of the pavement off site. The contract unit price shall apply to pavement of any thickness (both bituminous and concrete).

REMOVE SIDEWALK

(Bid Item 5)

The completed work as measured for REMOVE SIDEWALK will be paid for at the contract unit price for the following contract item (pay item):

<u>Pay Item</u>	<u>Pay Unit</u>
Sidewalk, Rem	square yard

Sidewalk, Rem shall be measured in place by area in square yards. The removal area shall be based upon the average length and width measurements as determined in the field by the Engineer.

The contract unit price shall be payment in full for all labor, material and equipment required to sawcut, remove, and properly dispose of the sidewalk and ramps off site. The contract unit price shall apply to sidewalk of any thickness.

HOT MIX ASPHALT (HMA) PAVEMENT

(Bid Item 6)

The completed work as measured for HOT MIX ASPHALT (HMA) PAVEMENT will be paid for at the contract unit price for the following contract item (pay item):

<u>Pay Item</u>	<u>Pay Unit</u>
HMA, 13A, Repair	tons

HMA pavement for road paving shall be measured in tons based upon certified weight delivery tickets.

The contract unit price shall be payment in full for all labor, materials, and equipment necessary to construct the HMA pavement in accordance with the plan details. Furnishing and applying bond coats, pavement compaction, and protection of the work shall all be considered as incidental to HMA pavement construction. For bike or safety path paving, the contract unit price shall also include the application of a suitable soil sterilant (Pramitol 25E, Pramitol 5PS or approved equal) on the Subgrade prior to paving. The application method and coverage rate shall be in accordance with the manufacturer's recommendations.

CONCRETE CURB & GUTTER

(Bid Item 7)

The completed work as measured for CONCRETE CURB & GUTTER will be paid for at the contract unit price for the following contract item (pay item):

<u>Pay Item</u>	<u>Pay Unit</u>
Curb and Gutter, Conc, Det F3	linear foot

Curb and gutter shall be measured in place by linear foot. The length shall be measured along the gutter line from end of curb to end of curb. Curb endings and curb drops shall all be measured and paid for as the same Detail as the main line curb.

The contract price shall be payment in full for all labor, materials, and equipment necessary to construct the concrete curb and gutter in accordance with the plan details. Any excavation, subgrade compaction, backfilling behind the curb, disposal of excess materials, joints, curing compound, and placement of curb drops shall be considered as incidental to the curb and gutter construction.

DETECTABLE WARNING

(Bid Item 8)

The completed work as measured for DETECTABLE WARNING will be paid for at the contract unit price for the following contract item (pay item):

<u>Pay Item</u>	<u>Pay Unit</u>
Detectable Warning Surface	foot

Detectable Warning Surface shall be paid in place by the linear foot. The length shall be measured along the center of the warning surface across the width of the sidewalk.

The contract unit price shall include all labor, material, and equipment necessary to install a two-foot wide detectable warning strip across the full width of the concrete ramp or as directed by the engineer. The detectable warning strips shall be Armor-Tile or approved equal and shall be Brick Red (Federal Color No. 22144) in color. No painted/stamped concrete detectable warning strips shall be allowed. Ramps shall be constructed to full compliance of the ADA STANDARDS FOR ACCESSIBLE DESIGN as published in the Title III regulations (28 CFR Part 36, revised July 1, 1994) issued by the Department of Justice. The ADA Standards for Accessible Design are in Appendix A of the Title III Regulations.

CONCRETE SIDEWALK RAMP

(Bid Item 9)

The completed work as measured for CONCRETE SIDEWALK RAMP will be paid for at the contract unit price for the following contract item (pay item):

<u>Pay Item</u>	<u>Pay Unit</u>
Sidewalk Ramp, Conc, 6 inch	square foot

Concrete sidewalk ramps shall be measured in place and shall be paid for based upon the length and width measurements of the sidewalk ramp area as determined by the Engineer. The calculation will include the area to receive the detectable warning insert. The insert will be paid for separately as defined under Detectable Warning Surface Bid Item 8. The level landing will be paid for under Concrete Sidewalk, 4", and will not be considered for payment under this item.

The contract unit price shall be payment in full for all labor, materials, and equipment necessary to construct sidewalk ramp of the required thickness in accordance with the plan details. Furnishing, placing, and compacting a 4-inch thick sand base shall be considered as incidental to the sidewalk placement. Any necessary excavation, backfill, and disposal of excess materials shall also be considered as incidental to the sidewalk ramp construction.

CONCRETE SIDEWALK

(Bid Item 10)

The completed work as measured for CONCRETE SIDEWALK will be paid for at the contract unit prices for the following contract item (pay item):

<u>Pay Item</u>	<u>Pay Unit</u>
Sidewalk, Conc, 4 inch	square foot

Concrete sidewalk shall be measured in place and shall be paid for based upon the length and width measurements of the sidewalk area as determined by the Engineer.

The contract unit price shall be payment in full for all labor, materials, and equipment necessary to construct sidewalk of the required thickness in accordance with the plan details. Furnishing, placing, and compacting a 4-inch thick sand base shall be considered as incidental to the sidewalk placement. Any necessary excavation, backfill, and disposal of excess materials shall also be considered as incidental to the sidewalk construction.

Ramps shall be constructed to full compliance of the Michigan Department of Transportation (MDOT) Sidewalk Ramp and Detectable Warning Details, R-28-J.

PAVEMENT MARKINGS

(Bid Item 11)

The completed work as measured for PAVEMENT MARKINGS will be paid for at the contract unit prices for the following contract item (pay item):

<u>Pay Item</u>	<u>Pay Unit</u>
Pavt Mrkg, Polyurea, 6 inch, Crosswalk	foot

Pavement striping shall be measured in place horizontally by linear foot. The length shall be measured along the painted segment from end to end of paint marks. Pavement marking symbols and legends shall be counted and paid for by each.

The contract unit price shall be payment in full for all labor, materials, and equipment necessary to furnish and install the pavement markings in accordance with the plan details and the manufacturer's instructions. All sweeping and preparatory work as well as traffic control and temporary protection of newly placed markings shall be considered as incidental to the pavement marking work. Removal of any temporary pavement markings shall also be considered as incidental unless the Bid Form already includes pay items for removing temporary markings.

SURFACE RESTORATION

(Bid Item 12)

The completed work as measured for SURFACE RESTORATION will be paid for at the contract unit price for the following contract item (pay item):

<u>Pay Item</u>	<u>Pay Unit</u>
Surface Restoration	square yard

Surface Restoration shall be measured in place by square yard and shall be based upon the average length and width measurements of the restored area as determined by the Engineer. Areas disturbed during construction shall be replaced in kind. The Contractor should be aware that this item may increase, or decrease, or be zero depending upon field conditions.

The contract unit price shall be payment in full for all labor, materials, and equipment necessary to furnish and place 2" of topsoil, seed, and mulch as called for on the plans and specifications. Application of mulch anchoring shall be considered as included in the placement of the surface restoration. Watering until vigorous turf growth is established shall be considered included.

MISCELLANEOUS RESTORATION ITEMS

Restoration of miscellaneous items such as, but not limited to, street signs, traffic signs, shrubbery and other ornamental landscape items which are damaged, removed, or destroyed by the Contractor in the course of the work shall be repaired or replaced by the Contractor with new materials of equal quality as existed prior to the start of work. All such items for which specific bid items are not listed in the proposal shall be considered as incidental work and shall be replaced or repaired at the expense of the Contractor.

FINAL CLEAN UP

Final clean up of the job shall be considered as incidental. Items in this category include removal of debris and litter from the site, removal of surplus materials, sweeping, repair of any damages, and clean out of drainage structures located within the work area.

Surface Restoration shall commence immediately upon completion of final grading or as MDOT seasonal limitations dictate.

EASEMENT CONDITIONS

The Contractor shall be required to review and comply with easement conditions that are shown on the plans or contract documents. Compliance with easement conditions shall be considered as incidental to the overall project cost.

RELOCATE OR BRACE UTILITY POLES AND GUY WIRES

The cost of relocating or bracing utility poles and guy wires, including all labor, materials, machinery and equipment, shall be considered incidental to the project and no extra payment shall be made for such work.

WATER VALVE BOX ADJUSTMENT

Adjustment of water valve boxes, if required, shall be considered as incidental to the project cost. The Contractor shall furnish all labor, materials, tools and equipment required to adjust boxes from the existing elevation to the finished elevations.

PRIVATE UTILITY ADJUSTMENT

Adjustment and/or relocation of private utility structures such as gas valves, structure covers, riser boxes, etc. shall be considered as incidental to the project. The Contractor shall furnish all labor, materials, tools, and equipment required to adjust private utility structures to the finished elevations. If private utility structures are to be adjusted and/or relocated by their respective owners, then the Contractor shall be responsible for coordinating this work with the private utility owner as incidental to the project.

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1. GENERAL

These Supplemental Specifications are supplements to the General Conditions and General Specifications. Where conflicts exist between the aforementioned Contract Documents, the conditions in the Supplemental Specifications shall govern.

2. LOCATION OF PROJECT

The project site is located in the City of Ypsilanti, Michigan. Preliminary locations are identified in Appendix D. The final target project areas will be supplied to the contractor prior to contract execution. Work may be required outside of the target area each year.

3. SCOPE OF PROJECT

The work to be done under this Contract includes the furnishing of all materials, equipment, and labor necessary to construct the proposed sidewalk as well as all necessary earthwork, cleaning and restoration in accordance with the plans and specifications.

4. CONSTRUCTION STANDARDS

It is the intention of these specifications to construct all work in accordance with applicable requirements of the City, Washtenaw County, the Michigan Department of Environmental Quality, the Michigan Department of Transportation, and the ADA STANDARDS FOR ACCESSIBLE DESIGN as published in the Title III regulations (28 CFR Part 36, revised July 1, 1994) issued by the Department of Justice, and the plans referenced herein. Where there is a conflict between any of the aforementioned specifications and the permit requirements of the agency controlling the respective utility or rights-of-way, the more restrictive shall govern.

5. PROGRESS MEETINGS

During the life of the project progress meetings may be held to discuss the project status, potential construction problems, the schedule, and other items that may impact the progress of the work. This meeting shall be attended by the CONTRACTOR, any subcontractors whose work is in progress or will be started in the two weeks following the progress meeting, the ENGINEER and the OWNER. The date, place, and time of the first progress meeting will be set at the preconstruction meeting.

6. INCIDENTAL CONTRACT ITEMS

All items of work noted on the plans or in the specifications that are not specifically noted in the Bid Form as a pay item shall be considered incidental to the construction of the project and shall be constructed at no extra cost to the OWNER.

7. PROJECT COORDINATION WITH OWNER & OTHER CONTRACTORS

The OWNER, utility companies, and commercial or private owners may have construction projects occurring within or adjacent to the project limits during the life of this Contract.

The CONTRACTOR shall coordinate his construction with all such projects that may be ongoing in the vicinity.

Also, where the CONTRACTOR's work affects the operation of the OWNER's utilities, the CONTRACTOR shall be responsible for coordinating his work with the OWNER. The CONTRACTOR shall give at least 72 hour notice to the OWNER in order to schedule activities such as valve operation, hydrant operation, sewer and structure cleanout, etc. No claim for extra compensation or adjustments in Contract Unit Prices will be allowed on account of delay or failure of others to complete work scheduled.

8. MINIMUM WAGE REQUIREMENTS

The OWNER has specific minimum wage requirements that can be found on page SIB-1.

9. FEDERAL REQUIREMENTS

This project is being funded in part by the Federal Government. Therefore, it is mandatory that the CONTRACTOR be in compliance with the following Federal Requirements:

- A. Davis-Bacon Act, July 2, 1964 (Title 40, USC, 276A)
- B. Anti-Kickback Act (Title 18, USC 874)
- C. U.S. Department of Labor Regulations and Standards (Title 29, 1, 3 and 5)
- D. Equal Employment Opportunity Act, September 18, 1965 (Executive Order No. 11246)
- E. Federal Occupational Safety and Health Act of 1970
- F. Housing and Urban Development Act of 1968, Section 3, as amended, 12 USC, 1701u

10. FAIR EMPLOYMENT PRACTICES ACT

The CONTRACTOR agrees that neither he nor his subcontractors will discriminate against any employee or applicant for employment. The CONTRACTOR shall not discriminate with respect to his hire, tenure, terms, conditions or privileges of employment, or any matter directly or indirectly related to employment, because of race, color, religion, national origin or ancestry, nor shall age or sex be a condition of employment except where based upon an occupational qualification. Breach of these covenants may be regarded as a material breach of this Contract.

11. OBSERVATION OF CONSTRUCTION

All construction operations will require full time observation by the OWNER's representative. The CONTRACTOR must notify the ENGINEER at least three (3) working days (72 hours) prior to construction and no work shall be performed without the ENGINEER's presence or awareness. Contact the Construction Staffing Coordinator at (734) 522-6711 to schedule observation.

12. HOURS OF WORK

Work may be performed during the hours of 7 a.m. to 7 p.m., Monday through Friday only. Work at other times may be performed only by written permission of the OWNER.

13. TESTING & SAMPLING

The CONTRACTOR shall furnish all samples of materials necessary for tests as determined by the ENGINEER or the Construction Observer. All samples taken for analysis and tests shall be taken in such a manner as to be truly representative of the entire lot under test. The CONTRACTOR shall furnish such assistance and facilities as the ENGINEER may require for collecting, storing or curing samples. Where materials tests are to be performed by the manufacturer, the certificates of approval shall be submitted to the ENGINEER. The cost of all such testing by manufacturers shall be incidental to the project. Additional required tests on materials in place shall be made at the expense of the OWNER, unless otherwise stipulated.

The OWNER's Agent shall arrange for and furnish testing services as provided by an acceptable independent laboratory as part of this Contract. These services shall be as follows, in addition to the testing requirements noted in the General Conditions:

All concrete shall be slump and air tested, with cylinders taken (as noted above) in compliance with the current MDOT Standard Specifications for Construction.

There may be areas with uncompacted fill material or organic materials; as a result, all areas within the influence of proposed pavement shall be proof rolled as a minimum, to the satisfaction of the ENGINEER. Some testing may be required.

All aggregate base and pavement shall be tested for compaction. A reputable firm, approved by the ENGINEER shall extensively test all such areas with a nuclear densimeter. In addition, all utility crossings and the areas immediately adjacent to any structures in the pavement shall be specifically tested. Areas which fail shall be compacted further and retested. Failure to pass a second test shall be reason to undercut and refill the area, as directed by the ENGINEER, with careful attention to compaction.

14. STAKING

When necessary, the ENGINEER will provide construction staking. The staking shall consist of horizontal and/or vertical control staking for the sidewalk construction. The CONTRACTOR is responsible for providing a written request for staking to the ENGINEER at least seventy-two (72) hours in advance of starting work. Staking requests should be faxed to the attention of the OHM Survey Department at (734) 522-6427. The CONTRACTOR shall carefully preserve all stakes set by the ENGINEER. In the case of willful or careless destruction, the ENGINEER shall provide the restaking and the CONTRACTOR shall be charged with the resulting expense and shall be responsible for delays and errors caused by unnecessary loss or disturbance of the stakes. The expense for restaking will be entered as a deduction on pay estimates and the resulting amount retained by the OWNER for payment of restaking.

15. TRAFFIC MAINTENANCE & CONTROL

A. General

During the course of construction, provisions must be made to maintain access for emergency vehicles at all times. Where possible and when directed by the ENGINEER, all streets must be left open to traffic at the end of each working day. Traffic maintenance and control as defined in this section shall be considered as included in the unit bid prices or lump sum bid prices that are given in the Bid Form.

All work for maintaining traffic and control shall be in accordance with Section 812 of the 2012 MDOT Standard Specifications for Construction and the current edition of the Michigan Manual of Uniform Traffic Control Devices, (MMUTCD). The Contractor shall also comply with work zone sign requirements as described in Public Act 315 of 2003.

The CONTRACTOR shall conduct his operations and use of equipment in such a manner that traffic will be maintained throughout the entire length of the project. When conditions are

such as to warrant variations from this requirement, the procedure to be followed shall be approved by the ENGINEER prior to such procedure being put into effect.

The CONTRACTOR shall furnish, erect and maintain all barricades, signs and lights as required according to the current edition of the MMUTCD. Flagmen shall also be provided by the CONTRACTOR as necessary to protect the vehicular and pedestrian traffic and the work within the work zone areas. CONTRACTOR shall be responsible for notifying concerned parties such as Police, Fire, and school officials if a road closure and/or detour will be in effect. The CONTRACTOR shall notify the same parties when the road has been reopened.

Once work on a particular utility is begun, the CONTRACTOR must continue his work to completion. The OWNER will not permit random movements of work operations among the project area that tend to confuse traffic patterns.

B. Provision for Local Traffic

During the progress of the work, the CONTRACTOR shall accommodate both local vehicular and pedestrian traffic along the roads.

Access to all residences and businesses shall be maintained except as noted on the plans or as directed by the ENGINEER.

The CONTRACTOR's truck and equipment operations on public streets shall be governed by all local traffic ordinances and regulations of the Fire and Police Departments, the OWNER, the Ypsilanti Community Utilities Authority, the Ypsilanti Housing Commission, Washtenaw County, and Michigan Department of Transportation.

C. Existing Warning and Regulatory Signs

Wherever possible, all existing signs on this project are to be preserved and maintained as incidental to the project.

Where it is not possible to preserve existing traffic control signs and street name signs, they shall be removed, temporarily reset and maintained by the CONTRACTOR. Upon completion of the project, the CONTRACTOR will reset traffic control signs and street name signs in the proper position.

In cases where new signs are called for, they shall be placed in accordance with the requirements outlined elsewhere in the Contract Documents.

Any new or existing signs damaged by the CONTRACTOR shall be replaced in kind by him at no additional cost to the OWNER.

D. Lane Closures and Detours

Any lane closures or detours shall be approved by the OWNER and the appropriate governing agency, and shall meet their specifications and standards as well as those of the MMUTCD.

Where there are conflicts, the more restrictive requirement shall apply. If any type of closure is to occur during twilight or darkness, proper lighting will be required.

E. Construction Signs and Barricades

Warning signs and barricade configurations shall meet the requirements of the City of Ypsilanti, Ypsilanti Community Utilities Authority, and the Michigan Department of Transportation.

The CONTRACTOR shall not begin any operation on the project until all required signs and barricades have been set.

All signs to be used during twilight or darkness shall be reflectorized, in good condition, with two continuous flashing lights.

The construction site shall at all times be maintained and left in a clean, neat, and safe condition, including any construction signing.

After working hours, signs that are not appropriate shall be covered and/or removed so that motorists will not be confused. The CONTRACTOR shall also remove and replace or cover (where practical) existing traffic signs that may conflict with the proposed construction.

16. LOAD RESTRICTIONS ON LOCAL STREETS

The CONTRACTOR shall not operate heavy trucks or equipment on any side street within the project area without permission from ENGINEER, the OWNER or appropriate governing agency.

17. UTILITIES

For protection of underground utilities, the CONTRACTOR shall contact "Miss Dig" at 1800-482-7171 a minimum of three (3) working days prior to excavating. This does not relieve the CONTRACTOR of the responsibility of notifying utility owners who may not be part of the "Miss Dig" alert system.

Utility relocation work is not expected to be necessary for this project.

Work stoppages by employees of utility companies or any occurrence which results in a delay in utility relocations on this project may be considered as a basis for a claim for an extension of the time of completion, but will not be considered as a basis for a claim for extra compensation or an adjustment in Contract Unit Prices. The amount of any such time extension will be based upon the amount of delay actually experienced as a result of the utility relocation delay.

18. EMERGENCY REPAIR

When the CONTRACTOR is not actively performing work on a particular construction site, situations of an emergency nature may arise as a result of uncompleted work. Such situations may affect, directly or indirectly, public and/or private property, and may ultimately affect the

health, safety, and welfare of individuals or the general public. The intent of this article is to provide a procedure to eliminate these problems as they occur. While these problem situations can and do readily develop as emergencies, the ENGINEER shall direct field related operations and require immediate efforts by the CONTRACTOR to remedy the deficiency in a method of his choosing because of his expertise in the field, time being of the essence. The correction of the “emergency” which may arise when no activity exists on the construction site shall be handled in the following manner:

- A. The ENGINEER shall observe the site, take any necessary photographs and/or prepare any necessary sketches of conditions at the site to determine that the situation constitutes an emergency.
- B. The ENGINEER then has three alternative sources of manpower and equipment to be selected to remedy the emergency situation in the following order:
 - 1. The CONTRACTOR under Contract with the OWNER to perform all work on the site location in question;
 - 2. The OWNER’s Department of Public Works or YCUA
 - 3. An independent CONTRACTOR designated by the OWNER.

Since the nature and extent of most unfinished work on a particular construction site is well known by both the ENGINEER’s authorized agent and the CONTRACTOR at the time of declaring such an “emergency situation” as set forth herein before; the CONTRACTOR under Contract to the OWNER for the particular project would be the first party notified and would be expected to respond immediately with necessary manpower and equipment to remedy the problem.

If a reasonable time to respond to the emergency notification is not evident, in the best judgment of the ENGINEER, then the CONTRACTOR shall be judged to have waived his rights to physically correct the problem, but not his obligations to pay for such a physical correction or damages resulting there from. The ENGINEER shall then contact the OWNER’s DPW or YCUA for their assistance in correcting the “emergency situation”. Where existing commitments by the DPW or YCUA prohibit their immediate response to the request by the ENGINEER, the ENGINEER shall finally direct that corrective measures be performed by the independent contractor previously contacted by the OWNER to perform such emergency work when so directed.

Since the cost for all remedial work undertaken by the CONTRACTOR on this project shall be borne by the CONTRACTOR and it is necessary to engage the services of the DPW or YCUA or an independent contractor, then all costs incurred would be deducted from monies due and payable to the CONTRACTOR on the particular project as set forth on any ensuing regular job estimates.

Typical costs which will be deducted from Contract monies due would be:

- A. Payroll wages

- B. Material bills
- C. Equipment rental (Ann Arbor area rates) and moving costs
- D. 15% profit and overhead for independent contractor
- E. 10% administrative costs
- F. Observation costs

19. USE OF WATER

CONTRACTOR shall not make a connection to any fire hydrant without first obtaining the necessary permit (meter) from Ypsilanti Community Utilities Authority. The CONTRACTOR shall be charged for all water used. Contact Scott Westover at YCUA for more information at 734-484-4600.

20. ASPHALT AND PAVEMENT CONSTRUCTION

Asphalt and concrete pavements shall be constructed in accordance with the 2012 MDOT Standard Specifications for Construction unless otherwise indicated in the Supplemental Specifications, Appendix, plan notes, or plan details.

21. MAIL/NEWSPAPER BOXES

The CONTRACTOR shall remove mailboxes that may conflict with the new construction and replace to their original location in accordance with requirements of the U.S. Post Office. Any mailbox or post not indicated on the plans for removal or replacement that is damaged by the CONTRACTOR's operations shall be replaced in kind by the CONTRACTOR at no additional charge to the OWNER. If temporary street closures or construction activities occur which prohibit delivery of mail by the postal department, then alternate provisions for mail delivery shall be provided by the CONTRACTOR and approved by the OWNER, also at no additional charge to the OWNER.

22. ACCOMODATIONS FOR ACCESS DURING CONSTRUCTION

The CONTRACTOR shall provide for accessible access during construction to the extent possible. Concrete removed shall be replaced the same day unless prior authorization is received from the ENGINEER. Asphalt replacement, where required, shall be completed within 24 hours of the placement of the concrete curb and gutter.

23. INSURANCE SPECIFICATION MODIFICATIONS

Insurance Specifications, Items 2.3.2, Paragraph B:

In addition to the City of Ypsilanti (OWNER) and Orchard, Hiltz & McCliment, Inc. (ENGINEER), the following shall be covered under the OWNER's Protective Liability Policy:

1. Ypsilanti Community Utilities Authority (YCUA)

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0094-19-0031

2. YCUA Board of Commissioners, jointly and individually
3. All of YCUA Employees, Agents and Consultants, individually
4. City of Ypsilanti
5. Ypsilanti City Council, jointly and individually
6. City of Ypsilanti Housing Commission

24. GENERAL SPECIFICATION MODIFICATIONS

Page GS-1, item 3, Soil Erosion and Sedimentation Control, should read as follows:

The CONTRACTOR shall comply with the requirements of the Soil Erosion and Sedimentation Control Act of the State of Michigan, Part 91 of Act 451 of the Public Acts of 1994 and with all the requirements, rules and standards of the official enforcing agent for the project location.

Page GS-4, item 15, Cleanliness of the Work Site and Streets, add the following paragraph to the end of the section:

“The CONTRACTOR shall perform all roadway and driveway maintenance operations, including but not necessarily limited to aggregate placement and grading throughout during the duration of the Contract and at times as directed by the ENGINEER.” The CONTRACTOR shall specifically perform these operations before noon on Fridays in preparation for the weekend and before noon on Mondays.

Page GS-4, item 16, Dust Control, add the following after the third sentence of the first paragraph:

“At a minimum, dust control materials shall be applied by no later than noon on Mondays and Fridays during the duration of the Contract and at other times as directed by the ENGINEER.”

Page GS-6, item 20, Water, the third paragraph should read: Existing public water systems shall be operated by the CONTRACTOR. All valves shall be operated exclusively by the CONTRACTOR’s personnel.

Operation of valves by CONTRACTOR only in presence and direction of OHM and/or YCUA. 48 hours notice shall be given to OHM of all intended shut downs.

25. TECHNICAL SPECIFICATION MODIFICATIONS

Modify EARTHWORK as follows:

Page EA-2, item 4, part b, BACKFILL, Granular Backfill, delete the reference to “MDOT Specification for Granular Material Class II or III” and replace it with “MDOT Specification for Granular Material Class II.” Delete the second paragraph in its entirety.

Page EA-2, item 4, part b, BACKFILL, Granular Backfill, delete “in the opinion of the ENGINEER”

Page EA-6, item 23, part a, BACKFILLING, General, delete the reference to “MDOT Specification for Granular Material Class III” and replace it with “MDOT Specification for Granular Material Class II.”

Modify RESTORATION as follows:

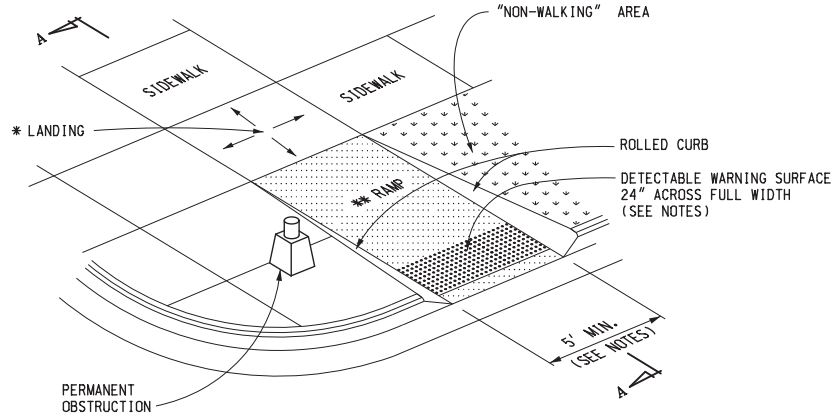
Page R-2, Item 7, TOPSOIL, delete the existing paragraph and replace with

Topsoil shall be fertile, friable, without admixture of subsoil. Topsoil is to be free of glass, stones greater than one inch in any dimension, roots, sticks, weeds, undesirable grasses and other extraneous materials. Topsoil is to consist of 40% minimum silt, 6% minimum organics, and 10% maximum clay content. Topsoil is to be final screened thru a 5/8 inch maximum mesh screen prior to delivery to site. The ENGINEER shall review source and final screen results prior to release of the topsoil. The CONTRACTOR shall submit a certified analysis of the topsoil from each source to the ENGINEER for approval prior to delivery.

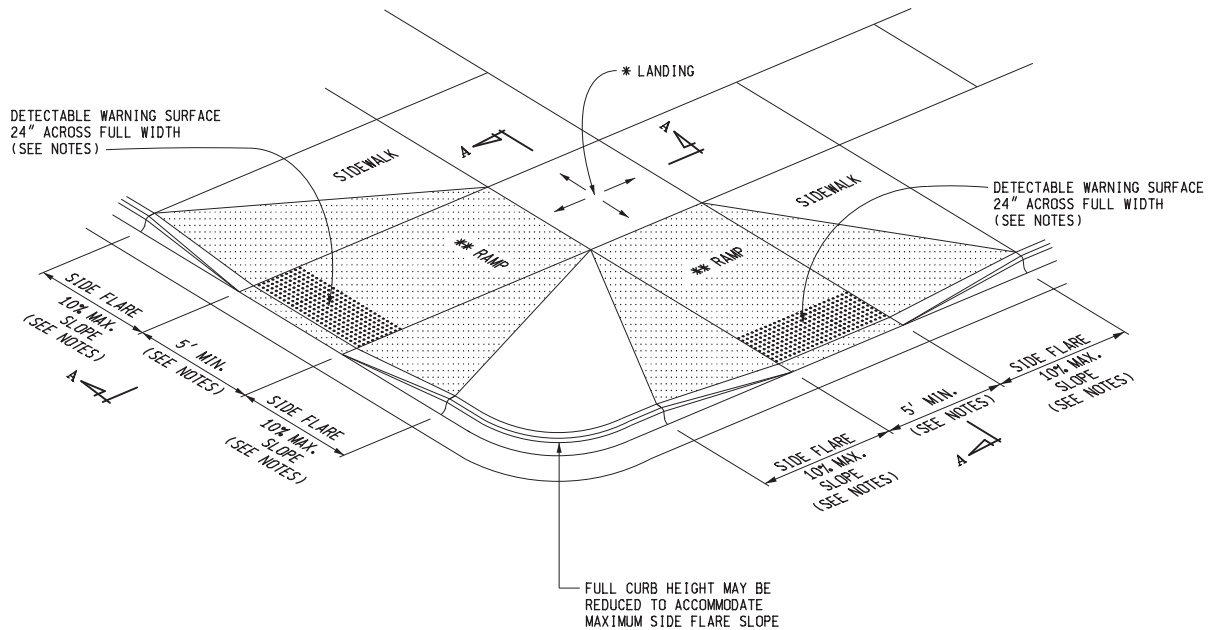
Appendix A:
MDOT Standard Plan R-28-J

* MAXIMUM LANDING SLOPE IS 2.0% IN EACH DIRECTION OF TRAVEL. MINIMUM DIMENSIONS 5' x 5'. SEE NOTES.

** MAXIMUM RAMP CROSS SLOPE IS 2.0%, RUNNING SLOPE 5% - 7% (8.3% MAXIMUM). SEE NOTES.



SIDEWALK RAMP TYPE R
(ROLLED SIDES)



SIDEWALK RAMP TYPE F
(FLARED SIDES, TWO RAMPS SHOWN)



PREPARED
BY
DESIGN DIVISION
DRAWN BY: B.L.T.
CHECKED BY: W.K.P.

DEPARTMENT DIRECTOR
Kirk T. Steudle

APPROVED BY: _____
DIRECTOR, BUREAU OF FIELD SERVICES

APPROVED BY: _____
DIRECTOR, BUREAU OF DEVELOPMENT

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN FOR

**SIDEWALK RAMP AND
DETECTABLE WARNING DETAILS**

F.H.W.A. APPROVAL

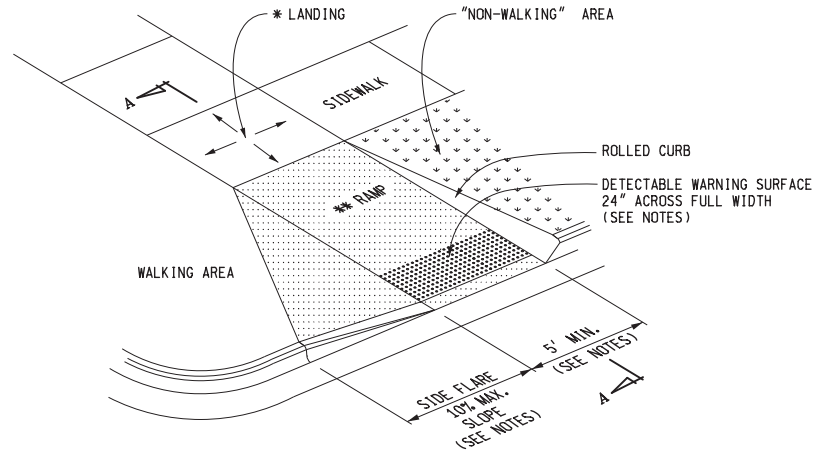
3-15-2016
PLAN DATE

R-28-J

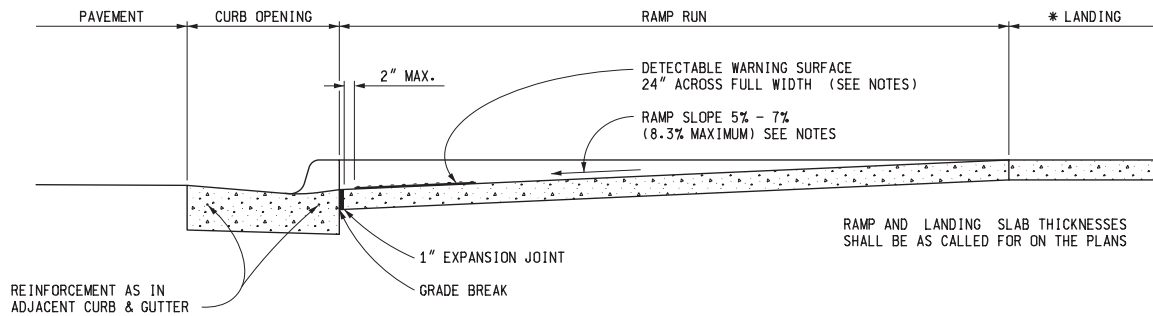
SHEET
1 OF 7

* MAXIMUM LANDING SLOPE IS 2.0% IN EACH DIRECTION OF TRAVEL. MINIMUM DIMENSIONS 5' x 5'. SEE NOTES.

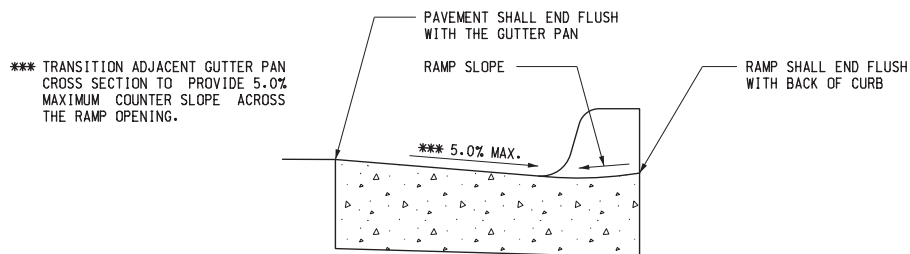
** MAXIMUM RAMP CROSS SLOPE IS 2.0%, RUNNING SLOPE 5% - 7% (8.3% MAXIMUM). SEE NOTES.



SIDEWALK RAMP TYPE RF
(ROLLED / FLARED SIDES)



SECTION A-A



SECTION THROUGH CURB OPENING
(TYPICAL ALL RAMP TYPES)

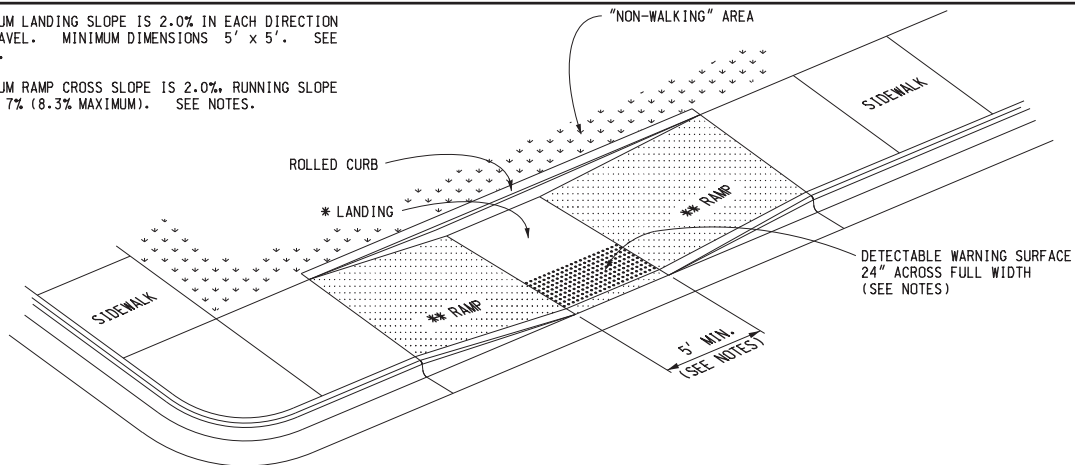
MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN FOR

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DETECTABLE WARNING DETAILS**

F.H.W.A. APPROVAL	3-15-2016 PLAN DATE	R-28-J	SHEET 2 OF 7
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* MAXIMUM LANDING SLOPE IS 2.0% IN EACH DIRECTION OF TRAVEL. MINIMUM DIMENSIONS 5' x 5'. SEE NOTES.

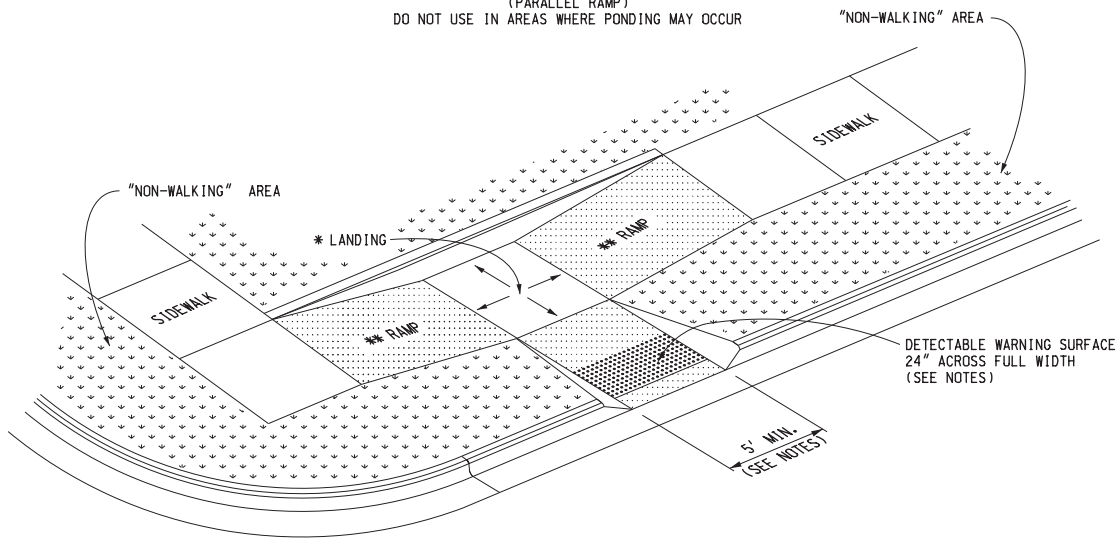
** MAXIMUM RAMP CROSS SLOPE IS 2.0%, RUNNING SLOPE 5% - 7% (8.3% MAXIMUM). SEE NOTES.



SIDEWALK RAMP TYPE P

(PARALLEL RAMP)

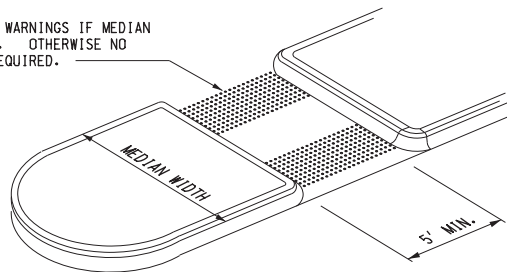
DO NOT USE IN AREAS WHERE PONDING MAY OCCUR



SIDEWALK RAMP TYPE C

(COMBINATION RAMP)

USE 24" DEEP DETECTABLE WARNINGS IF MEDIAN WIDTH IS AT LEAST 6'-0". OTHERWISE NO DETECTABLE WARNING IS REQUIRED.



SIDEWALK RAMP TYPE M

(MEDIAN ISLAND)

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F.H.W.A. APPROVAL

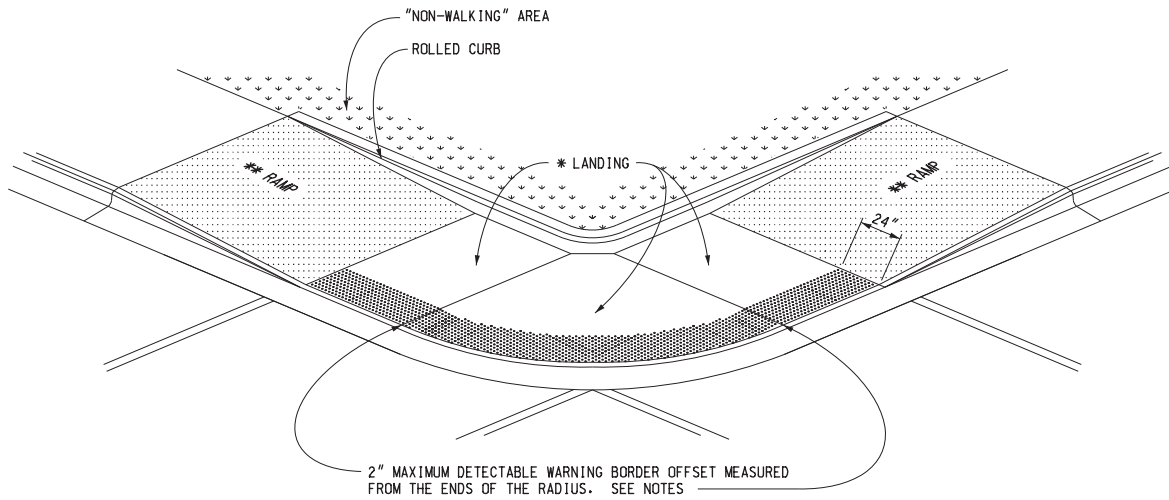
3-15-2016
PLAN DATE

R-28-J

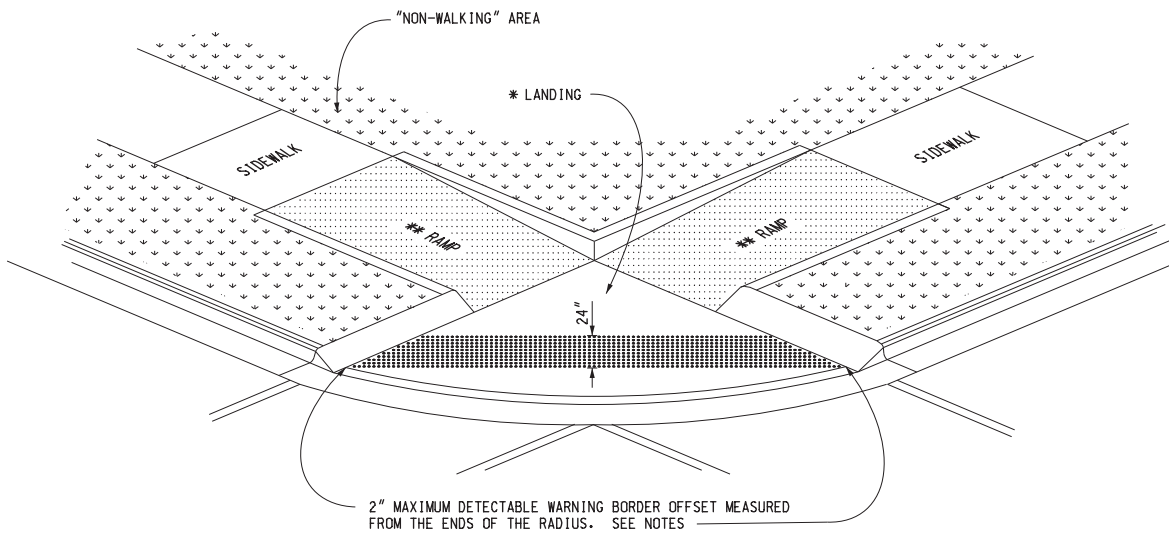
SHEET
3 OF 7

* MAXIMUM LANDING SLOPE IS 2.0% IN EACH DIRECTION OF TRAVEL. MINIMUM DIMENSIONS 5' x 5'. SEE NOTES.

** MAXIMUM RAMP CROSS SLOPE IS 2.0%, RUNNING SLOPE 5% - 7% (8.3% MAXIMUM). SEE NOTES.



(RADIAL DETECTABLE WARNING SHOWN)



(TANGENT DETECTABLE WARNING SHOWN)

SIDEWALK RAMP TYPE D

(DEPRESSED CORNER)

USE ONLY WHEN INDEPENDENT DIRECTIONAL RAMPS CAN NOT BE CONSTRUCTED FOR EACH CROSSING DIRECTION

MICHIGAN DEPARTMENT OF TRANSPORTATION
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SIDEWALK RAMP AND DETECTABLE WARNING DETAILS

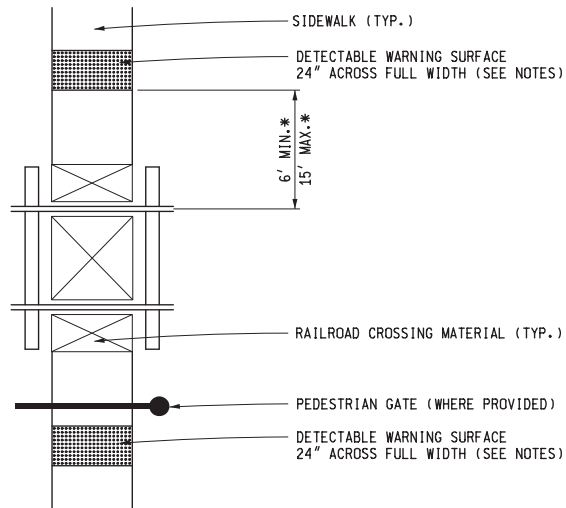
F.H.W.A. APPROVAL

3-15-2016
PLAN DATE

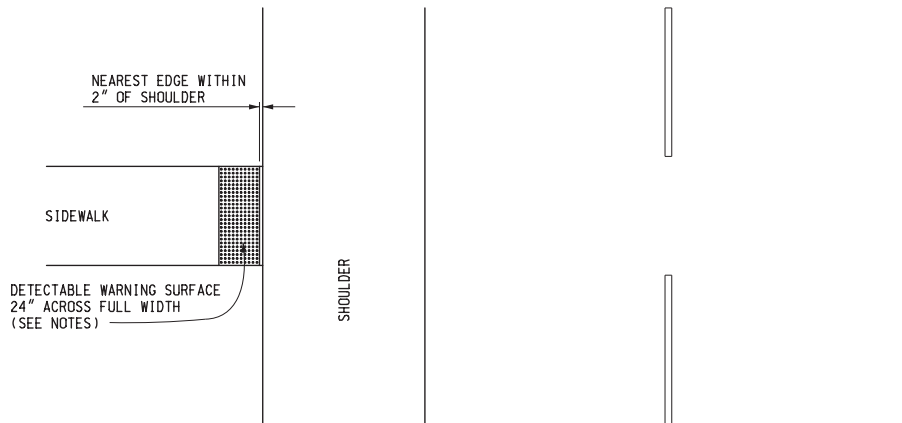
R-28-J

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* THE DETECTABLE WARNING SURFACE SHALL BE LOCATED SO THAT THE EDGE NEAREST THE RAIL CROSSING IS 6' MINIMUM AND 15' MAXIMUM FROM THE CENTERLINE OF THE NEAREST RAIL. DO NOT PLACE DETECTABLE WARNING ON RAILROAD CROSSING MATERIAL.

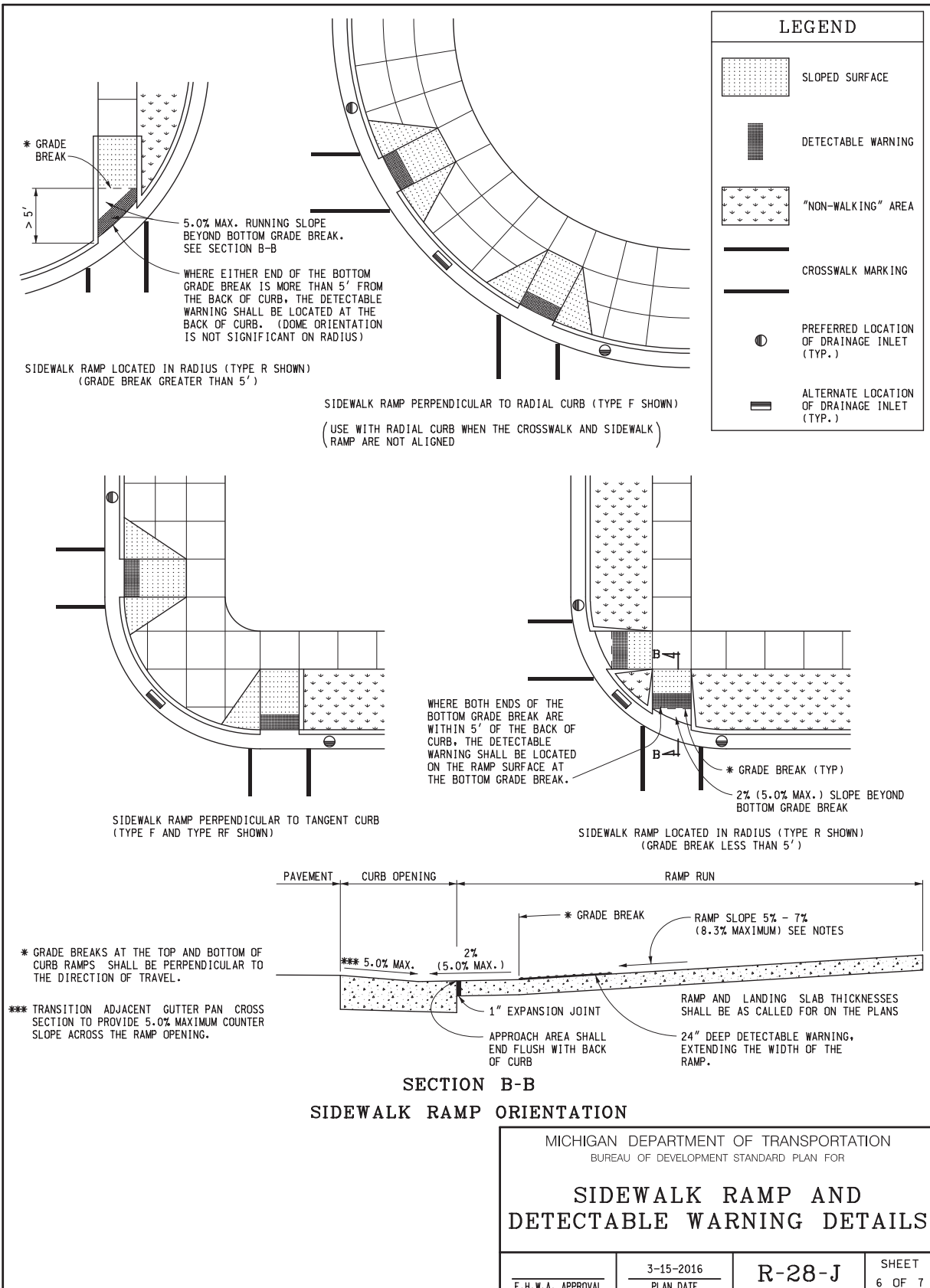


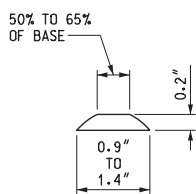
DETECTABLE WARNING AT RAILROAD CROSSING



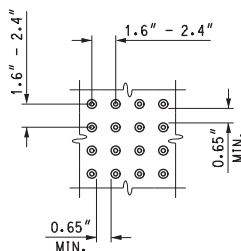
DETECTABLE WARNING AT FLUSH SHOULDER OR ROADWAY

MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF DEVELOPMENT STANDARD PLAN FOR			
SIDEWALK RAMP AND DETECTABLE WARNING DETAILS			
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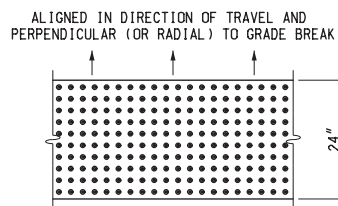




DOME SECTION



DOME SPACING



DOME ALIGNMENT

DETECTABLE WARNING DETAILS

NOTES:

DETAILS SPECIFIED ON THIS PLAN APPLY TO ALL CONSTRUCTION, RECONSTRUCTION, OR ALTERATION OF STREETS, CURBS, OR SIDEWALKS IN THE PUBLIC RIGHT OF WAY.

SIDEWALK RAMPS ARE TO BE LOCATED AS SPECIFIED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

RAMPS SHALL BE PROVIDED AT ALL CORNERS OF AN INTERSECTION WHERE THERE IS EXISTING OR PROPOSED SIDEWALK AND CURB. RAMPS SHALL ALSO BE PROVIDED AT MARKED AND/OR SIGNALIZED MID-BLOCK CROSSINGS.

SURFACE TEXTURE OF THE RAMP SHALL BE THAT OBTAINED BY A COARSE BROOMING, TRANSVERSE TO THE RUNNING SLOPE.

SIDEWALK SHALL BE RAMPED WHERE THE DRIVEWAY CURB IS EXTENDED ACROSS THE WALK.

CARE SHALL BE TAKEN TO ASSURE A UNIFORM GRADE ON THE RAMP. WHERE CONDITIONS PERMIT, IT IS DESIRABLE THAT THE SLOPE OF THE RAMP BE IN ONLY ONE DIRECTION, PARALLEL TO THE DIRECTION OF TRAVEL.

RAMP WIDTH SHALL BE INCREASED, IF NECESSARY, TO ACCOMMODATE SIDEWALK SNOW REMOVAL EQUIPMENT NORMALLY USED BY THE MUNICIPALITY.

WHEN 5' MINIMUM WIDTHS ARE NOT FEASIBLE, RAMP WIDTH MAY BE REDUCED TO NOT LESS THAN 4' AND LANDINGS TO NOT LESS THAN 4' x 4'.

DETECTABLE WARNING SURFACE COVERAGE IS 24" MINIMUM IN THE DIRECTION OF RAMP/PATH TRAVEL AND THE FULL WIDTH OF THE RAMP/PATH OPENING EXCLUDING CURBED OR FLARED CURB TRANSITION AREAS. A BORDER OFFSET NOT GREATER THAN 2" MEASURED ALONG THE EDGES OF THE DETECTABLE WARNING IS ALLOWABLE. FOR RADIAL CURB THE OFFSET IS MEASURED FROM THE ENDS OF THE RADIUS.

FOR NEW ROADWAY CONSTRUCTION, THE RAMP CROSS SLOPE MAY NOT EXCEED 2.0%. FOR ALTERATIONS TO EXISTING ROADWAYS, THE CROSS SLOPE MAY BE TRANSITIONED TO MEET AN EXISTING ROADWAY GRADE. THE CROSS SLOPE TRANSITION SHALL BE APPLIED UNIFORMLY OVER THE FULL LENGTH OF THE RAMP.

THE MAXIMUM RUNNING SLOPE OF 8.3% IS RELATIVE TO A FLAT (0%) REFERENCE. HOWEVER, IT SHALL NOT REQUIRE ANY RAMP OR SERIES OF RAMPS TO EXCEED 15 FEET IN LENGTH.

DRAINAGE STRUCTURES SHOULD NOT BE PLACED IN LINE WITH RAMPS. THE LOCATION OF THE RAMP SHOULD TAKE PRECEDENCE OVER THE LOCATION OF THE DRAINAGE STRUCTURE. WHERE EXISTING DRAINAGE STRUCTURES ARE LOCATED IN THE RAMP PATH OF TRAVEL, USE A MANUFACTURER'S ADA COMPLIANT GRATE. OPENINGS SHALL NOT BE GREATER THAN 1/2". ELONGATED OPENINGS SHALL BE PLACED SO THAT THE LONG DIMENSION IS PERPENDICULAR TO THE DOMINANT DIRECTION OF TRAVEL.

TRANSITION THE GUTTER PAN CROSS SECTION SUCH THAT THE COUNTER SLOPE IN THE DIRECTION OF RAMP TRAVEL IS NOT GREATER THAN 5.0%. MAINTAIN THE NORMAL GUTTER PAN CROSS SECTION ACROSS DRAINAGE STRUCTURES.

THE TOP OF THE JOINT FILLER FOR ALL RAMP TYPES SHALL BE FLUSH WITH THE ADJACENT CONCRETE.

CROSSWALK AND STOP LINE MARKINGS, IF USED, SHALL BE SO LOCATED AS TO STOP TRAFFIC SHORT OF RAMP CROSSINGS. SPECIFIC DETAILS FOR MARKING APPLICATIONS ARE GIVEN IN THE "MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES".

FLARED SIDES WITH A SLOPE OF 10% MAXIMUM, MEASURED ALONG THE ROADSIDE CURB LINE, SHALL BE PROVIDED WHERE AN UNOBSTRUCTED CIRCULATION PATH LATERALLY CROSSES THE SIDEWALK RAMP. FLARED SIDES ARE NOT REQUIRED WHERE THE RAMP IS BORDERED BY LANDSCAPING, UNPAVED SURFACE OR PERMANENT FIXED OBJECTS. WHERE THEY ARE NOT REQUIRED, FLARED SIDES CAN BE CONSIDERED IN ORDER TO AVOID SHARP CURB RETURNS AT RAMP OPENINGS.

DETECTABLE WARNING PLATES MUST BE INSTALLED USING FABRICATED OR FIELD CUT UNITS CAST AND/OR ANCHORED IN THE PAVEMENT TO RESIST SHIFTING OR HEAVING.

MICHIGAN DEPARTMENT OF TRANSPORTATION
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SIDEWALK RAMP AND DETECTABLE WARNING DETAILS

F.H.W.A. APPROVAL	3-15-2016 PLAN DATE	R-28-J	SHEET 7 OF 7
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Appendix B:
Federal Requirements and Wage Decisions

Required Bid and Contract Documents
Washtenaw County Community Development Block Grant (CDBG) Program
Public Infrastructure and Facilities Improvement Projects

This is a Federally funded project. The contractor and subcontractors must comply with HUD procurement provisions in CFR 24 Part 85.36, Equal Employment Opportunity requirements, the Copeland "Anti-Kickback" Act, the Davis-Bacon Act, Contract Work Hours and Safety Standards Act, Section 3 of the Housing and Urban Development Act and other requirements as set forth in the bid documents. Minority and Women Owned Business Enterprises and Section 3 Business Concerns seeking bid opportunities under this project are encouraged to respond.

Enclosed is a set of documents related to compliance with Federal and local requirements concerning public infrastructure and facilities improvement projects under Washtenaw County's Community Development Block Grant (CDBG) program:

1. Federal Contract Provisions
2. Federal Labor Standards Provisions
3. Equal Opportunity
 - a. Equal Opportunity Clause
 - b. Standard Federal Equal Employment Opportunity Construction Contract Specifications
 - c. Notice of Requirement for Affirmative Action to Ensure Equal Employment Opportunity
4. Section 3
 - a. Section 3 Clause
 - b. Washtenaw County Section 3 Contractor List
 - c. Section 3 Definitions
 - d. Washtenaw County Section 3 Fact Sheet, Business Certification & Reporting Instructions
5. Required Contractor Documents
 - a. Section 3 Plan Information Sheet
 - b. Sub-Contractor Information Sheet
 - c. Wage Requirement Data Sheet
 - d. Equal Employment Opportunity Poster
 - e. Employee Rights Under the Davis-Bacon Act Poster
 - f. Certified Payroll
 - g. Payroll Deduction Authorization for "Other Deductions" on Certified Payroll
 - h. Waiver of Lien
 - i. Full Unconditional Waiver
 - j. Sworn Statement
 - k. Section 3 Summary Report
6. Project Wage Decision

Federal Contract Provisions

Federal Contract Provisions

1. Contracts other than small purchases shall contain administrative, contractual or legal remedies in instances where contractors violate or breach contract terms, and provide for such sanctions and penalties as may be appropriate.
2. All contracts in excess of \$10,000 shall contain suitable provision for termination for cause and for convenience by the grantee, including the manner by which it will be effected and the basis for settlement.
3. All contracts awarded in excess of \$10,000 by grantees and their contractors or subgrantees shall contain a provision requiring compliance with Executive Order 11246, entitled "Equal Employment Opportunity," as amended by Executive Order 11375, and as supplemented in Department of Labor regulations (41 CFR Part 60).
4. All contracts and subgrants for construction or repair shall include a provision for compliance with the Copeland "Anti-Kickback" Act (18 USC 874) as supplemented in Department of Labor regulations (29 CFR, Part 3).
5. All construction contracts in excess of \$2,000 must include a provision for compliance with the Davis-Bacon Act (40 USC 276a to a-7) as supplemented by Department of Labor regulations (29 CFR, Part 5).
6. Where applicable, all contracts awarded by grantees and subgrantees in excess of \$2,000 for construction contracts and in excess of \$2,500 for other contracts which involve the employment of mechanics or laborers shall include a provision for compliance with Section 103 and 107 of the Contract Work Hours and Safety Standards Act (40 USC 327-330) as supplemented by the Department of Labor regulations (29 CFR, Part 5).
7. The contract shall include notice of requirements and regulations pertaining to reporting and patent rights respect to any discovery or invention which arises or is developed in the course of or under such contract, and of grantor agency requirements and regulations pertaining to copyrights and rights in data.
8. All negotiated contracts awarded by grantees shall include a provision to the effect the grantee, the Comptroller General of the United States, or any of their duly authorized representatives, shall have access to any books, documents, papers, and records of the contractor which are directly pertinent to that specific contract, for the purpose of making audit, examination, excerpts, and transcriptions.

9. Grantees shall require contractors to maintain all required records for three years after grantees make final payments and all other pending matters are closed.
10. Contracts, subcontracts, and subgrants of amounts in excess of \$100,000 shall contain a provision which requires compliance with all applicable standards, orders, or requirements issued under Section 306 of the Clean Air Act (42 USC 1857(h)), Section 508 of the Clean Water Act (33 USC 1368), Executive Order 11738, and Environmental Protection Agency regulations (40 CFR, Part 15), which prohibit the use of non-exempt Federal contracts, grants, or loans of facilities included on the EPA List of Violating Facilities. The provision shall require reporting of violations to the grant agency and to the USEPA Assistance Administrator for Enforcement (EN-329).
11. Contracts shall recognize mandatory standards and policies relating to energy efficiency which are contained in the State energy conservation plan issued in compliance with the Energy Policy and Conservation Act (P.L. 94-163).

Federal Labor Standards Provisions

Federal Labor Standards Provisions

U.S. Department of Housing and Urban Development Office of Labor Relations

Applicability

The Project or Program to which the construction work covered by this contract pertains is being assisted by the United States of America and the following Federal Labor Standards Provisions are included in this Contract pursuant to the provisions applicable to such Federal assistance.

A. 1. (i) Minimum Wages. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of 29 CFR 5.5(a)(1)(iv); also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs, which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period.

Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under 29 CFR 5.5(a)(1)(ii) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible, place where it can be easily seen by the workers.

(ii) (a) Any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. HUD shall approve an additional classification and wage rate and fringe benefits therefor only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(b) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and HUD or its designee agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by HUD or its designee to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, D.C. 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB control number 1215-0140.)

(c) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and HUD or its designee do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), HUD or its designee shall refer the questions, including the views of all interested parties and the recommendation of HUD or its designee, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

(d) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (1)(ii)(b) or (c) of this paragraph, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part

of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

2. Withholding. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee or helper, employed or working on the site of the work, all or part of the wages required by the contract, HUD or its designee may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased. HUD or its designee may, after written notice to the contractor, disburse such amounts withheld for and on account of the contractor or subcontractor to the respective employees to whom they are due. The Comptroller General shall make such disbursements in the case of direct Davis-Bacon Act contracts.

3. (i) Payrolls and basic records. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in Section 1(b)(2)(B) of the Davis-bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5 (a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been

communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs. (Approved by the Office of Management and Budget under OMB Control Numbers 1215-0140 and 1215-0017.)

(ii) (a) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to HUD or its designee if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant sponsor, or owner, as the case may be, for transmission to HUD or its designee. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i) except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at <http://www.dol.gov/esa/whd/forms/wh347instr.htm> or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to HUD or its designee if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant sponsor, or owner, as the case may be, for transmission to HUD or its designee, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this subparagraph for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to HUD or its designee. (Approved by the Office of Management and Budget under OMB Control Number 1215-0149.)

(b) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be provided under 29 CFR 5.5 (a)(3)(ii), the appropriate information is being maintained under 29 CFR 5.5(a)(3)(i), and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 CFR Part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(c) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by subparagraph A.3.(ii)(b).

(d) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under subparagraph A.3.(i) available for inspection, copying, or transcription by authorized representatives of HUD or its designee or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, HUD or its designee may, after written notice to the contractor, sponsor, applicant or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and Trainees.

(i) **Apprentices.** Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who

is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) **Trainees.** Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by

the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal employment opportunity. The utilization of apprentices, trainees and journeymen under 29 CFR Part 5 shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR Part 3 which are incorporated by reference in this contract

6. Subcontracts. The contractor or subcontractor will insert in any subcontracts the clauses contained in subparagraphs 1 through 11 in this paragraph A and such other clauses as HUD or its designee may by appropriate instructions require, and a copy of the applicable prevailing wage decision, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in this paragraph.

7. Contract termination; debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act Requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract

9. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and HUD or its designee, the U.S. Department of Labor, or the employees or their representatives.

10. (i) Certification of Eligibility. By entering into this contract the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be

awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001. Additionally, U.S. Criminal Code, Section 1 01 0, Title 18, U.S.C., "Federal Housing Administration transactions", provides in part: "Whoever, for the purpose of . . . influencing in any way the action of such Administration..... makes, utters or publishes any statement knowing the same to be false..... shall be fined not more than \$5,000 or imprisoned not more than two years, or both."

11. Complaints, Proceedings, or Testimony by Employees. No laborer or mechanic to whom the wage, salary, or other labor standards provisions of this Contract are applicable shall be discharged or in any other manner discriminated against by the Contractor or any subcontractor because such employee has filed any complaint or instituted or caused to be instituted any proceeding or has testified or is about to testify in any proceeding under or relating to the labor standards applicable under this Contract to his employer.

B. Contract Work Hours and Safety Standards Act. The provisions of this paragraph B are applicable where the amount of the prime contract exceeds \$100,000. As used in this paragraph, the terms "laborers" and "mechanics" include watchmen and guards.

(1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which the individual is employed on such work to work in excess of 40 hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of 40 hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in subparagraph (1) of this paragraph, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in subparagraph (1) of this paragraph, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of 40 hours without payment of the overtime wages required by the clause set forth in subparagraph (1) of this paragraph.

(3) Withholding for unpaid wages and liquidated damages. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contract, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act which is held by the same prime contractor such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in subparagraph (2) of this paragraph.

(4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in subparagraph (1) through (4) of this paragraph and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in subparagraphs (1) through (4) of this paragraph.

C. Health and Safety. The provisions of this paragraph C are applicable where the amount of the prime contract exceeds \$100,000.

(1) No laborer or mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his health and safety as determined under construction safety and health standards promulgated by the Secretary of Labor by regulation.

(2) The Contractor shall comply with all regulations issued by the Secretary of Labor pursuant to Title 29 Part 1926 and failure to comply may result in imposition of sanctions pursuant to the Contract Work Hours and Safety Standards Act, (Public Law 91-54, 83 Stat 96). 40 USC 3701 et seq.

(3) The contractor shall include the provisions of this paragraph in every subcontract so that such provisions will be binding on each subcontractor. The contractor shall take such action with respect to any subcontractor as the Secretary of Housing and Urban Development or the Secretary of Labor shall direct as a means of enforcing such provisions.

Equal Opportunity

EQUAL OPPORTUNITY CLAUSE
Executive Order 11246, as amended: 41 CFR Part 60-1.4(b)

During the performance of this contract, the contractor agrees as follows:

(1) The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, or national origin. such action shall include, but not be limited to the following: Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

(2) The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive considerations for employment without regard to race, color, religion, sex, or national origin.

(3) The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(4) The contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

(5) The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(6) In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(7) The contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance: *Provided, however,* That in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency the contractor may request the United States to enter into such litigation to protect the interests of the United States.

The applicant further agrees that it will be bound by the above equal opportunity clause with respect to its own employment practices when it participates in federally assisted construction work: *Provided*, That if the applicant so participating is a State or local government, the above equal opportunity clause is not applicable to any agency, instrumentality or subdivision of such government which does not participate in work on or under the contract.

The applicant agrees that it will assist and cooperate actively with the administering agency and the Secretary of Labor in obtaining the compliance of contractors and subcontractors with the equal opportunity clause and the rules, regulations, and relevant orders of the Secretary of Labor, that it will furnish the administering agency and the Secretary of Labor such information as they may require for the supervision of such compliance, and that it will otherwise assist the administering agency in the discharge of the agency's primary responsibility for securing compliance.

The applicant further agrees that it will refrain from entering into any contract or contract modification subject to Executive Order 11246 of September 24, 1965, with a contractor debarred from, or who has not demonstrated eligibility for, Government contracts and federally assisted construction contracts pursuant to the Executive order and will carry out such sanctions and penalties for violation of the equal opportunity clause as may be imposed upon contractors and subcontractors by the administering agency or the Secretary of Labor pursuant to Part II, Subpart D of the Executive order. In addition, the applicant agrees that if it fails or refuses to comply with these undertakings, the administering agency may take any or all of the following actions: Cancel, terminate, or suspend in whole or in part this grant (contract, loan, insurance, guarantee); refrain from extending any further assistance to the applicant under the program with respect to which the failure or refund occurred until satisfactory assurance of future compliance has been received from such applicant; and refer the case to the Department of Justice for appropriate legal proceedings.

STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION CONTRACT SPECIFICATIONS
(Executive Order 11246: 41 CFR Part 60.4.3)

1. As used in these specifications:

a. "Covered area" means the geographical area described in the solicitation from which this contract resulted;

b. "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;

c. "Employer identification number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.

d. "Minority" includes:

(i) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);

(ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);

(iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and

(iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

2. Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of \$10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.

3. If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7 a through p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has

employees in the covered area. Covered Construction contractors performing construction work in geographical areas where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the FEDERAL REGISTER in notice form, and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers. The Contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.

5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.

6. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the Contractor may have taken.

d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under 7b above.

f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with onsite supervisory personnel such as Superintendents, General Foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipates doing business.

i. Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's work force.

k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR part 60-3.

l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

n. Ensure that all facilities and company activities are nonsegregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

p. Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7a through p). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7a through p of these Specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).

10. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

11. The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

14. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

(b) The notice set forth in 41 CFR 60-4.2 and the specifications set forth in 41 CFR 60-4.3 replace the New Form for Federal Equal Employment Opportunity Bid Conditions for Federal and Federally Assisted Construction published at 41 FR 32482 and commonly known as the Model Federal EEO Bid Conditions, and the New Form shall not be used after the regulations in 41 CFR part 60-4 become effective.

NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION
TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY
Executive Order 11246: 41CFR Part 60-2

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Specifications" set forth herein.

2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

Time- tables	Goals for minority participation for each trade	Goals for female participation in each trade
	8.5%	6.9%

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the contractor also is subject to the goals for both its federally involved and nonfederally involved construction.

The Contractor's compliance with the Executive Order and the regulations in 41 CFR part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 working days of award of any construction subcontract in excess of \$10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed.

4. As used in this Notice, and in the contract resulting from this solicitation, the "covered area" is (insert description of the geographical areas where the contract is to be performed giving the state, county and city, if any).

Section 3

SECTION 3 CLAUSE
24 CFR Part 135.38

All section 3 covered contracts shall include the following clause (referred to as the section 3 clause):

A. The work to be performed under this contract is subject to the requirements of section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701u (section 3). The purpose of section 3 is to ensure that employment and other economic opportunities generated by HUD assistance or HUD-assisted projects covered by section 3, shall, to the greatest extent feasible, be directed to low- and very low-income persons, particularly persons who are recipients of HUD assistance for housing.

B. The parties to this contract agree to comply with HUD's regulations in 24 CFR part 135, which implement section 3. As evidenced by their execution of this contract, the parties to this contract certify that they are under no contractual or other impediment that would prevent them from complying with the part 135 regulations.

C. The contractor agrees to send to each labor organization or representative of workers with which the contractor has a collective bargaining agreement or other understanding, if any, a notice advising the labor organization or workers' representative of the contractor's commitments under this section 3 clause, and will post copies of the notice in conspicuous places at the work site where both employees and applicants for training and employment positions can see the notice. The notice shall describe the section 3 preference, shall set forth minimum number and job titles subject to hire, availability of apprenticeship and training positions, the qualifications for each; and the name and location of the person(s) taking applications for each of the positions; and the anticipated date the work shall begin.

D. The contractor agrees to include this section 3 clause in every subcontract subject to compliance with regulations in 24 CFR part 135, and agrees to take appropriate action, as provided in an applicable provision of the subcontract or in this section 3 clause, upon a finding that the subcontractor is in violation of the regulations in 24 CFR part 135. The contractor will not subcontract with any subcontractor where the contractor has notice or knowledge that the subcontractor has been found in violation of the regulations in 24 CFR part 135.

E. The contractor will certify that any vacant employment positions, including training positions, that are filled (1) after the contractor is selected but before the contract is executed, and (2) with persons other than those to whom the regulations of 24 CFR part 135 require employment opportunities to be directed, were not filled to circumvent the contractor's obligations under 24 CFR part 135.

F. Noncompliance with HUD's regulations in 24 CFR part 135 may result in sanctions, termination of this contract for default, and debarment or suspension from future HUD assisted contracts.

G. With respect to work performed in connection with section 3 covered Indian housing assistance, section 7(b) of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450e) also applies to the work to be performed under this contract. Section 7(b) requires that to the greatest extent feasible (i) preference and opportunities for training and employment shall be given to Indians, and (ii) preference in the award of contracts and subcontracts shall be given to Indian organizations and Indian-owned Economic Enterprises. Parties to this contract that are subject to the provisions of section 3 and section 7(b) agree to comply with section 3 to the maximum extent feasible, but not in derogation of compliance with section 7(b).

Washtenaw County OCED Approved Section 3 Contractors

Name	Address	City	Zip Code	Contact	Phone	Type
Section 3						
A.H. Construction, LLC	5417 Daytona	Ypsilanti	48197	Ali Huwio	734-481-1983	Housing Rehab, Roofing, Siding
All-Temp Heating & Cooling, Inc.	1262 Clarita	Ypsilanti	48198	Dan Sword	734-483-8598	HVAC
Huddleston Group & Associates, LLC	3961 Hillside Drive	Ypsilanti	48197	Guy Huddleston	313-586-3994	HVAC, Housing Rehab
LaSant Building. Inc.	7754 Hidden Ridge Lane	Northville	48168	Danielle Bass	248-486-6868	Housing Rehab, Excavation
Saladino Construction Company Inc.	3303 W. North Territorial Rd.	Ann Arbor	48105	Zina Saladino	734-665-5913	Paving Concrete
Stephen B. St. Clair, Inc	10150 Burmeister Rd	Manchester	48158	Stephen B. St.Clair	734-320-2050	Housing Rehab

Date: as of 7/10/2019

Contractor Email List

Instructions:

1. Click on the combined list of emails under Complete List.
2. Hold the Ctrl key and hit the C key to copy the list to the clipboard.
3. Open up a new email message or run a report and Export using the Microsoft Mail option
4. Click on the To: box
5. Hold the Ctrl key and hit the V key to paste the list into the To: box.
6. Type your message and send it.

Section 3 Contractors

Complete List

alihuwo@sbcglobal.net; UgMug@aol.com; saladinoco@aol.com; office@lasantbuilding.com; hudconstruction@att.net; dsword7373@sbcglobal.net

Itemized List

Company Name	Email Address
A.H. Construction, LLC	alihuwo@sbcglobal.net
All-Temp Heating & Cooling, Inc.	dsword7373@sbcglobal.net
Huddleston Group & Associates, LLC	hudconstruction@att.net
LaSant Building, Inc.	office@lasantbuilding.com
Saladino Construction Company Inc.	saladinoco@aol.com
Stephen B. St. Clair, Inc	UgMug@aol.com

SECTION 3 DEFINITIONS

"SECTION 3 RESIDENT" MEANS:

1. A public housing resident who resides in the metropolitan area* (Washtenaw County) or non-metropolitan county in which the Section 3 covered assistance is expended and who is considered to be a low-to very low-income person; or
2. An individual who resides in the metropolitan area* (Washtenaw County) or non-metropolitan county in which the Section 3 covered assistance is expended and who is considered to be a low-to very low-income person.

2019 LOW-INCOME LIMITS FOR WASHTENAW COUNTY

Family Size: Number in Household	Household Income (less than)
☐ 1 PERSON	\$52,850
☐ 2 PERSON	\$60,400
☐ 3 PERSON	\$67,950
☐ 4 PERSON	\$75,500
☐ 5 PERSON	\$81,550
☐ 6 PERSON	\$87,600
☐ 7 PERSON	\$93,650
☐ 8 PERSON	\$99,700

"NEW HIRE" MEANS:

A person who is not on the contractor's payroll at the time of selection for the Section 3 award.

SECTION 3 BUSINESS DEFINED

A Section 3 Business concern is a business:

1. That is **51 % or more owned** by a Section 3 Washtenaw County resident(s) and have total household incomes less than the income limits in the above table based on the number of persons in the family; or
2. Whose **permanent, full-time employees** include persons, at **least 30 %** of whom are currently Section 3 Washtenaw County residents and have total household incomes less than the income limits in the above table based on the number of persons in the family; or
3. That provide evidence of a commitment to subcontract in excess of 25 % of the total dollar award of all subcontracts to be awarded to business concerns that meet the qualifications set forth in (1) or (2) above. Contractors must complete three Section 3 covered projects with Washtenaw County and successfully meet the requirements for Section 3 for those three projects in order to apply for Section 3 Business Concern status under this option with Washtenaw County.

*=Washtenaw County is located in the Ann Arbor Metropolitan Statistical Area, which is entirely comprised of Washtenaw County (per U.S. President's Office of Management and Budget)

- A person seeking the training or employment preference; or a business seeking the preference provided by Section 3 bears the responsibility of providing evidence (if requested) that the person is eligible for that preference.

SECTION 3	FACT SHEET, BUSINESS CERTIFICATION & REPORTING INSTRUCTIONS
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A. **PURPOSE**

The purpose of Section 3 is to ensure that employment and other economic opportunities created by HUD assistance to construction and rehabilitation projects is directed to low-income persons.

B. **SECTION 3 COVERED PROJECT OR CONSTRUCTION CONTRACT CRITERIA**

A Section 3 covered project is one that meets the Section 3 threshold level that is, a Project exceeds \$200,000 in Federal assistance for housing construction, reconstruction, conversion, rehabilitation or public construction.

A Section 3 covered construction contract applies to contractors and subcontractors when any *contract or subcontract* exceeds \$100,000 for housing construction, reconstruction, conversion, rehabilitation or public construction.

C. **REQUIRED COMPLIANCE GOALS**

1. **Employment - 30 %** of the aggregate number of **new hires** for a covered project will be low income persons (A low income person is defined as having a family income less than 80% of the HUD established median income for Washtenaw County as found in the Section 3 Resident Income Verification Form.).
2. **Contracting** - Award at least **10 %** of the total dollar amount for building trades work related to the project and at least **3 %** of all other covered contracts to Section 3 businesses.

D. **SECTION 3 STRATEGY OR PLAN REQUIREMENT**

Prior to or at the time of the contract signing between owner/developer and the contractor for the work on this project, the contractor is required to develop and complete with owner/developer, a Section 3 strategy or plan with final approval of the Section 3 strategy or plan by the Washtenaw County/City of Ann Arbor Office of Community and Economic Development (OCED). The Section 3 Plan must include, but not be limited to, the following, all per the requirements of Section 3:

1. Section 3 contracting goals for the construction contract and other contracts on the project;
2. Section 3 employment and training goals for the project;
3. Outreach to solicit Washtenaw County Section 3 Business Concerns;
4. Outreach to solicit Section 3 Washtenaw County Residents;
5. Project neighborhood area for the project;
6. Section 3 coordinator.

OCED has a template or model Section 3 Plan/Strategy available that you may use for the development of the Section 3 strategy or plan for the project. OCED also has a list of certified Washtenaw County Section 3 Business Concerns.

D. **SECTION 3 BUSINESS CERTIFICATION APPLICATIONS:**

Applications for Section 3 Business Certification may be obtained from the ***Washtenaw County OCED, 415 W. Michigan Ave., Suite 2200, P.O. Box 915, Ypsilanti, MI 48197.***

APPLICATION PROCESS:

To be considered for certification as a Section 3 Business Concern, a business must complete the ***Section 3 Clause, submit the appropriate Section 3 Business Certification Forms and provide all required supporting documentation.***

1. **(Category 1) Business Ownership:**

- Ø When a qualified Section 3 Resident is the primary owner having 51% or more ownership he/she (or, if less than 51%, holds the greatest percentage of ownership) must complete the *Section 3 Business Certification Form (51 % Section 3 Resident Ownership)* form. This category was created by HUD for business concerns that are primarily owned by a person(s) that meet the HUD definition of being low income.
- Ø If there are two or more Section 3 Resident owners that together own 51% or more of the business, each additional owner (not having majority ownership) must complete the *Section 3 Resident Income Verification Form (Section 3 Business Certification)*.

2. **(Category 2) Percentage of Employees Criteria:**

- Ø A business having at least 30% permanent, full time Section 3 Residents on the payroll completes the *Section 3 Business Certification Form (30 % Section 3 Resident Employment)*. At least 30% of permanent, full

time employees must be Section 3 Residents or within three (3) years of the date of first employment with the business were Section 3 Residents.

- θ A *Section 3 Resident Income Verification Form (Section 3 Business Certification)* must be completed by each Section 3 Resident employee as evidence that each individual meets the HUD definition of a Section 3 Resident.

E. DOCUMENTATION:

- θ The following completed forms are required for certification:
 - o Section 3 - **51 % or 30 %** Business Certification Application;
 - o Section 3 Clause;
 - o Register with the Office of Community and Economic Development to become an approved contractor and/or subcontractor;
 - o Submit Articles of Incorporation with State of Michigan Seal;
 - o Submit Ownership or Partnership Agreement(s) or if applicable, Notarized Affidavit or Secretary of State Certification to confirm that applicant(s) is or are the major shareholder(s)/owner(s);
 - o Submit Capacity evaluation: demonstration of business experience, i.e., list at least 10 previous jobs, existing jobs and 3 current references;
 - o Submit Largest Contract Award verification;
 - o If 51% Section 3 Resident Ownership; Submit Most Recent IRS Tax Statement (Individual(s) and Corporate or if a Sole Proprietor Submit IRS 1040 with Schedule C to confirm income.
 - o Submit Identification (i.e. Passport, Drivers License)
 - o Workers Compensation Certificate

F. CERTIFICATION:

- a. The Section 3 Business Certification Letter will be issued to acknowledge that a business has met the criteria established by the HUD Act of 1968, 24 CFR PART 135 - Section 3.
 - o The business shall be listed in the Section 3 Washtenaw County/City of Ann Arbor OCED Business Directory provided the business also completes a contractor or sub-contractor application (as applicable) to be an approved contractor/sub-contractor with Washtenaw County/City of Ann Arbor OCED. Alternatively, the contractor/sub-contractor could choose to be a Section 3 business concern for only the project.

G. REPORTING RESPONSIBILITIES (*Transmit reports via Email or as hard copies to address below*)

During the life of the project these forms are collected by the **Owner / Developer**, checked for accuracy and completeness and submitted with the Request for Reimbursement to the Washtenaw County/City of Ann Arbor Office of Community and Economic Development (OCED) . If there is no disbursement request within a quarter, submit the report to the Compliance Officer no less than quarterly.

SECTION 3 CLAUSE ACKNOWLEDGEMENT FORM

1. **Owner / Developer** completes Section 3 Clause Acknowledgement Form (Submit once during life of project). The Section 3 Clause is required in every Section 3 covered contract and stipulates Section 3 applicability and requirements.
2. **Covered Contractor / Subcontractor** completes Section 3 Clause Acknowledgement Form (Submit once during life of project). The Section 3 Clause is required in every Section 3 covered contract and stipulates Section 3 applicability and requirements.

PERMANENT EMPLOYEE LISTING

1. **Owner / Developer** provides a complete list of permanent employees, including name and job category.
2. **Covered Contractor / Subcontractor** provides a complete list of permanent employees, including name and job category.

SECTION 3 SUMMARY REPORT FORM (HUD FORM 60002)

1. **Owner / Developer** completes the Section 3 Summary Report Form to account for all construction Contractors and subcontractors and businesses providing other services working on the project.
2. **Covered Contractor / Subcontractor** completes the Section 3 Summary Report Form to report all new hires for the covered project and the construction contracts and subcontracts with Section 3 Business Concerns. Contractor/subcontractor provides **all** *Section 3 Resident New Hires* the *Section 3 Income Verification Form* for completion and signature and proof of residency.

Transmit Documents to:

Terry R. Brinkman
Office of Community and Economic Development: 415 W. Michigan Ave., Suite 2200, P.O. Box 915, Ypsilanti, MI 48197, Phone: (734) 544-2985,
Email: brinkmat@ewashtenaw.org

Required Contractor Documents

Section 3 Plan Information Sheet

Complete all items highlighted in Gray

For [Project Name and Address]

Name of General Contractor: [redacted]

Address: [redacted]

Primary Contact [redacted]

Phone number: [redacted]

Email: [redacted]

Goals

Contracting:

To demonstrate compliance with Section 3 regulations, it is desirous to award at least 10 percent of the total dollar amount of all Section 3 covered contracts for building trades work.

Dollar amount of the construction contract [this is your total bid amount]: [redacted]

10% of the total contract is [this is 10% of your total bid amount]: [redacted]

These goals are affirmed: Initials: (General Contractor) [redacted]

If we do not feel it is feasible to meet the minimum goals set forth above, we will be prepared to demonstrate why it was not possible. We understand failure to follow our Section 3 Plan could result in the Secretary of Housing and Urban Development ("HUD") finding us non-compliant with the Section 3 regulations.

Employment and Training:

[redacted] [insert contractor name here] (the contractor) and all subcontractors will follow the requirements outlined in *Housing and Urban Development Act of 1968 Section 3 Plan for Washtenaw County/City of Ann Arbor Office of Community Development* (Dated June 2010) (County/City OCED Section 3 Plan). The contractor must complete certifications acknowledging the Section 3 contracting and employment provisions required by the County/City OCED Plan. Such certifications shall be adequately supported with appropriate documentation as referenced in the form. The required forms are attached as Attachments 1-17 at the end of this document [to be attached with the final version of the Section 3 Plan]. As part of the submittal of the Section 3 Resident Application Form (Attachment 5), each applicant must submit a copy of their PHA/IHA Residential lease less than 3 years from day of employment (if PHA/IHA resident), or most recent individual IRS Tax Statement or any other documentation for proof of household income as requested by OCED. All applicants will be required to submit copies of their identification (i.e. Passport, Drivers License) that includes their current residential address.

Public Agency, Covered Contractors and Covered Subcontractors

To meet the contracting and employment requirements of Section 3, the following minimum steps must be taken by the Public Agency, covered contractor and covered subcontractor:

1. Obtain a list of certified Section 3 business concerns from OCED.
2. Attend all pre-bid and pre-construction conferences to obtain information about the Section 3 program requirements.
3. Solicit at least 3 bids from the OCED list of Section 3 business concerns. If such list has fewer than three (3) qualified businesses, then the contractor/subcontractor must contact the entire list.
4. Provide plans and specifications or information regarding the location of plans to Section 3 business concerns.
5. Attempt to the greatest extent feasible to meet the following project contracting and employment goals:
 - o 10% of the total dollar amount of all Section 3 covered contracts for building trades work arising in connection with housing rehabilitation, housing construction, and other public construction will be awarded to qualifying Section 3 business concerns for this project.
 - o At least 3% of the total dollar amount of all other Section 3 covered contracts (i.e. architect, appraisal, etc.) will be awarded to qualifying Section 3 business concerns for this project.
 - o The goal of employment in Section 3 covered contracts is 30% of the aggregate number of new hires in any fiscal year will be Section 3 residents for this project.

Goals apply to all construction costs of the project, not just the amount of HUD financial assistance.

Records must be maintained on goals reached, and efforts/actions taken to reach goals. If goals are not met, a description of impediments encountered despite actions taken must be included. Reporting of such efforts/actions must be made to the OCED on forms supplied by the OCED.

Contractor's Requirements in Employing Section 3 Participants

Under the OCED Section 3 Program, contractors and subcontractors are required to: Provide employment opportunities to Section 3 residents/participants in the priority order listed below:

- A. Category 1 – Section 3 Resident
 - o Residents of the housing development or development for which the contract shall be expended.
- B. Category 2 – Section 3 Resident
 - o Section 8 residents as well as all other Washtenaw County residents residing in the vicinity of the project who meet the income guidelines for Section 3 preference (refer to Section 3 Income Limits for Ann Arbor Metropolitan Statistical Area).
- C. Category 3 – Section 3 Resident
 - o Participants in HUD Youth build program being carried out in the project boundary area.
- D. Category 4 – Section 3 Resident
 - o Section 8 residents as well as all other residents residing in Washtenaw County who meet the income guidelines for Section 3 preference (refer to Section 3 Income Limits for Ann Arbor Metropolitan Statistical Area).

To demonstrate compliance with Section 3 regulations, it is desirous to employ Section 3 residents as 30 percent of the aggregate number of new hires, and to provide training to those new hires. We agree to provide information regarding existing employees and hiring needs as a part of this plan.

A concerted effort will be made to meet the goals in this plan. If the goals are not met, we agree to provide an explanation of challenges in meeting the goals described in this plan, and documentation of our efforts to reach these goals.

Outreach

We are committed to conduct an aggressive outreach campaign to make Section 3 Businesses and Section 3 Residents aware of contracting and employment opportunities in connection with this Section 3 Covered Project. Efforts will include, but not be limited to [Review the following, make changes if you would like or you can go with the following strategies. You are required to do the third bulleted item below – contacting all the approved Section 3 businesses as relevant to the project]:

- Publication of opportunities in the Washtenaw County Press or other local newspapers.
- Publication of opportunities with Michigan Works.
- Inviting Section 3 business concerns that have been certified by the Washtenaw County/City of Ann Arbor Office of Community and Economic Development (OCED) to relevant bidding opportunities.
- Use of signage at the project site and flyers posted in the neighborhood and surrounding areas.
- Notification to the Ann Arbor Housing Commission, Barrier Busters, Washtenaw Housing Alliance, and Washtenaw County Continuum of Care, and other appropriate organizations.
- Notification of potential bidding opportunities, training or employment opportunities to Neighborhood and Non-profits groups servicing low-income persons.
- Communicate opportunities to contractor and trade organizations, employment agencies and career centers.

It is not required to include all of these methods in a Section 3 implementation strategy. However, a robust strategy that makes a good faith effort to meet the objectives stated in this plan is expected. Washtenaw County/City of Ann Arbor Office of Community and Economic Development reserves the right to request documentation of efforts made (e.g. proof of advertisement in local newspapers, flyers, and other modes of communications) in order to meet Section 3 goals at any time.

Section 3 Coordinator

Name: _____

Contact information: _____

This person will serve as the main point of contact for all Section 3 related issues on behalf of general contractor, and subcontractors.

Estimated Workforce Needed for Section 3 Covered Project (Prime/General Contractor) to be included as Attachment 3 in the final Section 3 Plan

Name of Company	
Project Name	
Period Covered	
Date Submitted	

Job Category	Total Estimated Positions Needed for Project	Number of Positions Occupied by Permanent Employees	Number of Positions to be Filled with Section 3 Residents

If no new job opportunities will be available during this project, state the reason below:

Reporting

We agree to provide Washtenaw County/City of Ann Arbor Office of Community and Economic Development the following documentation after the Section 3 qualified project is substantially completed, and will freely submit this information at any time if requested by OCED.

- Washtenaw County/City of Ann Arbor Office of Community and Economic Development Section 3 Summary Report
- Contract and Subcontract Activity Report
- The contractor will present a list, to the Section 3 Coordinator, of the number of subcontracting and/or employment opportunities expected to be generated from the contract.
- All the applicable required forms to meet Section 3 Requirements, including, but not limited to the forms found in Attachments 1-17 of this document [to be inserted as attachments in final version of Section 3 Plan].

General Statement

as the Public Agency, and _____, as the general contractor are committed to comply with the Section 3 act, the Section 3 regulations, and Washtenaw County/City of Ann Arbor Office of Community and Economic Development (MSHDA) Section 3 Guidelines. It is our desire to work together to ensure compliance, to the greatest extent feasible, through the awarding of contracts for work and services to Section 3 companies, and to provide employment and training to Section 3 residents. We commit to include the Section 3 clause in the construction contract and all subcontracts. All subcontractors interested in submitting bids for contracts will be informed of the Section 3 requirements and goals. We agree to provide Washtenaw County/City of Ann Arbor Office of Community and Economic Development (OCED) with copies of all bids received in response to the invitation to bid and copies of all contracts awarded in excess of \$100,000.00.

General Contractor:

(Print/type name of organization)

By: _____ [signature required]

(Print/type name and title)

Date: _____

The contents of this Draft Section 3 Plan will be inserted into the final Section 3 Plan, which will include Attachments 1-17.

SUB-CONTRACTOR INFORMATION SHEET

Project:	Phone:
General Contractor (Name of Company) & Federal Identification Number & Race of Owner and WBE Status of Owner(s):	Address:

Sub-Company Name/Federal Identification Number/Street Address/City/State/Zip	Contact Person	Phone	Work Done	Sub- Contract Amount	Paid (Y) (N)
				MBE/WBE?	Race
				MBE/WBE?	Race
				MBE/WBE?	Race
				MBE/WBE?	Race

Attach additional sheet(s) if necessary

WAGE REQUIREMENT DATA SHEET

(Please submit before starting work on job)

PROJECT NAME: _____ PROJECT NO: _____ PROJECT LOCATION: _____ _____ _____ COUNTY/STATE: _____	SUBCONTRACTOR'S NAME AND ADDRESS: _____ _____ _____ _____ PHONE NO: _____ IRS NO: _____
---	---

WAGE DECISION USED FOR THIS PROJECT: MI _____ MODIFICATION _____ DATE _____

CONTRACT DATA

WORK TO BE PERFORMED: _____
(Be Specific)

CONTRACT AMOUNT: \$ _____ AWARD DATE: _____ START DATE: _____

PRECONSTRUCTION STATEMENT

I/We have received a copy of the applicable wage rates for the above named project
Yes No

I/We have read and understand the information contained in the "Labor Standards: Instructions for Subcontractors" packet
Yes No

SUBCONTRACTOR'S CERTIFICATION STATEMENT

The name, title and address of the owner, partners or officers of the undersigned are:

<u>Name</u>	<u>Title</u>	<u>Address</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

PAYROLL AUTHORIZATION STATEMENT

The following person(s) is/are hereby authorized to complete and sign all payroll forms (WH-347) submitted for the above named project

_____ (Print name and title)	X	_____ (prove sample of signature)
_____ (Print name and title)	X	_____ (prove sample of signature)

THE WILLFUL FALSIFICATION OF THE ABOVE STATEMENTS MAY SUBJECT THE SUBCONTRACTOR TO CIVIL OR CRIMINAL PROSECUTION. SEE SECTION 1010 OF TITLE 18 AND SECTION 231 OF THE UNITED STATES CODE.

Date: _____	_____ (Print name of subcontractor)
Check box if additional sheet is attached	By: X _____
	Its: _____

The following are the basic hourly rate and fringe benefits paid to our employees, and where the fringe benefits payments are made:

TRADE _____	Union Name/Local _____
Basic Hourly rate: _____	Fringe Benefits _____ \$ _____
	(list) _____ \$ _____
	_____ \$ _____
	_____ \$ _____
	_____ \$ _____
	_____ \$ _____

The undersigned certifies compliance with all Labor Standards and Prevailing Wage requirements

Date: _____

Equal Employment Opportunity is **THE LAW**

Private Employers, State and Local Governments, Educational Institutions, Employment Agencies and Labor Organizations

Applicants to and employees of most private employers, state and local governments, educational institutions, employment agencies and labor organizations are protected under Federal law from discrimination on the following bases:

RACE, COLOR, RELIGION, SEX, NATIONAL ORIGIN

Title VII of the Civil Rights Act of 1964, as amended, protects applicants and employees from discrimination in hiring, promotion, discharge, pay, fringe benefits, job training, classification, referral, and other aspects of employment, on the basis of race, color, religion, sex (including pregnancy), or national origin. Religious discrimination includes failing to reasonably accommodate an employee's religious practices where the accommodation does not impose undue hardship.

DISABILITY

Title I and Title V of the Americans with Disabilities Act of 1990, as amended, protect qualified individuals from discrimination on the basis of disability in hiring, promotion, discharge, pay, fringe benefits, job training, classification, referral, and other aspects of employment. Disability discrimination includes not making reasonable accommodation to the known physical or mental limitations of an otherwise qualified individual with a disability who is an applicant or employee, barring undue hardship.

AGE

The Age Discrimination in Employment Act of 1967, as amended, protects applicants and employees 40 years of age or older from discrimination based on age in hiring, promotion, discharge, pay, fringe benefits, job training, classification, referral, and other aspects of employment.

SEX (WAGES)

In addition to sex discrimination prohibited by Title VII of the Civil Rights Act, as amended, the Equal Pay Act of 1963, as amended, prohibits sex discrimination in the payment of wages to women and men performing substantially equal work, in jobs that require equal skill, effort, and responsibility, under similar working conditions, in the same establishment.

GENETICS

Title II of the Genetic Information Nondiscrimination Act of 2008 protects applicants and employees from discrimination based on genetic information in hiring, promotion, discharge, pay, fringe benefits, job training, classification, referral, and other aspects of employment. GINA also restricts employers' acquisition of genetic information and strictly limits disclosure of genetic information. Genetic information includes information about genetic tests of applicants, employees, or their family members; the manifestation of diseases or disorders in family members (family medical history); and requests for or receipt of genetic services by applicants, employees, or their family members.

RETALIATION

All of these Federal laws prohibit covered entities from retaliating against a person who files a charge of discrimination, participates in a discrimination proceeding, or otherwise opposes an unlawful employment practice.

WHAT TO DO IF YOU BELIEVE DISCRIMINATION HAS OCCURRED

There are strict time limits for filing charges of employment discrimination. To preserve the ability of EEOC to act on your behalf and to protect your right to file a private lawsuit, should you ultimately need to, you should contact EEOC promptly when discrimination is suspected:

The U.S. Equal Employment Opportunity Commission (EEOC), 1-800-669-4000 (toll-free) or 1-800-669-6820 (toll-free TTY number for individuals with hearing impairments). EEOC field office information is available at www.eeoc.gov or in most telephone directories in the U.S. Government or Federal Government section. Additional information about EEOC, including information about charge filing, is available at www.eeoc.gov.

Employers Holding Federal Contracts or Subcontracts

Applicants to and employees of companies with a Federal government contract or subcontract are protected under Federal law from discrimination on the following bases:

RACE, COLOR, RELIGION, SEX, NATIONAL ORIGIN

Executive Order 11246, as amended, prohibits job discrimination on the basis of race, color, religion, sex or national origin, and requires affirmative action to ensure equality of opportunity in all aspects of employment.

INDIVIDUALS WITH DISABILITIES

Section 503 of the Rehabilitation Act of 1973, as amended, protects qualified individuals from discrimination on the basis of disability in hiring, promotion, discharge, pay, fringe benefits, job training, classification, referral, and other aspects of employment. Disability discrimination includes not making reasonable accommodation to the known physical or mental limitations of an otherwise qualified individual with a disability who is an applicant or employee, barring undue hardship. Section 503 also requires that Federal contractors take affirmative action to employ and advance in employment qualified individuals with disabilities at all levels of employment, including the executive level.

DISABLED, RECENTLY SEPARATED, OTHER PROTECTED, AND ARMED FORCES SERVICE MEDAL VETERANS

The Vietnam Era Veterans' Readjustment Assistance Act of 1974, as amended, 38 U.S.C. 4212, prohibits job discrimination and requires affirmative action to employ and advance in employment disabled veterans, recently separated veterans (within

three years of discharge or release from active duty), other protected veterans (veterans who served during a war or in a campaign or expedition for which a campaign badge has been authorized), and Armed Forces service medal veterans (veterans who, while on active duty, participated in a U.S. military operation for which an Armed Forces service medal was awarded).

RETALIATION

Retaliation is prohibited against a person who files a complaint of discrimination, participates in an OFCCP proceeding, or otherwise opposes discrimination under these Federal laws.

Any person who believes a contractor has violated its nondiscrimination or affirmative action obligations under the authorities above should contact immediately:

The Office of Federal Contract Compliance Programs (OFCCP), U.S. Department of Labor, 200 Constitution Avenue, N.W., Washington, D.C. 20210, 1-800-397-6251 (toll-free) or (202) 693-1337 (TTY). OFCCP may also be contacted by e-mail at OFCCP-Public@dol.gov, or by calling an OFCCP regional or district office, listed in most telephone directories under U.S. Government, Department of Labor.

Programs or Activities Receiving Federal Financial Assistance

RACE, COLOR, NATIONAL ORIGIN, SEX

In addition to the protections of Title VII of the Civil Rights Act of 1964, as amended, Title VI of the Civil Rights Act of 1964, as amended, prohibits discrimination on the basis of race, color or national origin in programs or activities receiving Federal financial assistance. Employment discrimination is covered by Title VI if the primary objective of the financial assistance is provision of employment, or where employment discrimination causes or may cause discrimination in providing services under such programs. Title IX of the Education Amendments of 1972 prohibits employment discrimination on the basis of sex in educational programs or activities which receive Federal financial assistance.

INDIVIDUALS WITH DISABILITIES

Section 504 of the Rehabilitation Act of 1973, as amended, prohibits employment discrimination on the basis of disability in any program or activity which receives Federal financial assistance. Discrimination is prohibited in all aspects of employment against persons with disabilities who, with or without reasonable accommodation, can perform the essential functions of the job.

If you believe you have been discriminated against in a program of any institution which receives Federal financial assistance, you should immediately contact the Federal agency providing such assistance.

EMPLOYEE RIGHTS UNDER THE DAVIS-BACON ACT

FOR LABORERS AND MECHANICS EMPLOYED ON FEDERAL OR FEDERALLY ASSISTED CONSTRUCTION PROJECTS

THE UNITED STATES DEPARTMENT OF LABOR WAGE AND HOUR DIVISION

**PREVAILING
WAGES**

You must be paid not less than the wage rate listed in the Davis-Bacon Wage Decision posted with this Notice for the work you perform.

OVERTIME

You must be paid not less than one and one-half times your basic rate of pay for all hours worked over 40 in a work week. There are few exceptions.

ENFORCEMENT

Contract payments can be withheld to ensure workers receive wages and overtime pay due, and liquidated damages may apply if overtime pay requirements are not met. Davis-Bacon contract clauses allow contract termination and debarment of contractors from future federal contracts for up to three years. A contractor who falsifies certified payroll records or induces wage kickbacks may be subject to civil or criminal prosecution, fines and/or imprisonment.

APPRENTICES

Apprentice rates apply only to apprentices properly registered under approved Federal or State apprenticeship programs.

PROPER PAY

If you do not receive proper pay, or require further information on the applicable wages, contact the Contracting Officer listed below:

or contact the U.S. Department of Labor’s Wage and Hour Division.



For additional information:

1-866-4-USWAGE

(1-866-487-9243) TTY: 1-877-889-5627



WWW.WAGEHOUR.DOL.GOV

DERECHOS DEL EMPLEADO

BAJO LA LEY DAVIS-BACON

PARA OBREROS Y MECÁNICOS EMPLEADOS EN PROYECTOS DE CONSTRUCCIÓN FEDERAL O CON ASISTENCIA FEDERAL

LA SECCIÓN DE HORAS Y SUELDOS DEL DEPARTAMENTO DE TRABAJO DE EEUU

SALARIOS PREVALECIENTES	No se le puede pagar menos de la tasa de pago indicada en la Decisión de Salarios Davis-Bacon fijada con este Aviso para el trabajo que Ud. desempeña.
SOBRETIEMPO	Se le ha de pagar no menos de tiempo y medio de su tasa básica de pago por todas las horas trabajadas en exceso de 40 en una semana laboral. Existen pocas excepciones.
CUMPLIMIENTO	Se pueden retener pagos por contratos para asegurarse que los obreros reciban los salarios y el pago de sobretiempo debidos, y se podría aplicar daños y perjuicios si no se cumple con las exigencias del pago de sobretiempo. Las cláusulas contractuales de Davis-Bacon permiten la terminación y exclusión de contratistas para efectuar futuros contratos federales hasta tres años. El contratista que falsifique los registros certificados de las nóminas de pago o induzca devoluciones de salarios puede ser sujeto a procesamiento civil o criminal, multas y/o encarcelamiento.
APRENDICES	Las tasas de aprendices sólo se aplican a aprendices correctamente inscritos bajo programas federales o estatales aprobados.
PAGO APROPIADO	Si Ud. no recibe el pago apropiado, o precisa de información adicional sobre los salarios aplicables, póngase en contacto con el Contratista Oficial que aparece abajo:

o póngase en contacto con la Sección de Horas y Sueldos del Departamento de Trabajo de EEUU.



Para obtener información adicional:

1-866-4-USWAGE

(1-866-487-9243) TTY: 1-877-889-5627

WWW.WAGEHOUR.DOL.GOV



U.S. Department of Labor
Wage and Hour Division

PAYROLL

(For Contractor's Optional Use; See Instructions at www.dol.gov/whd/forms/wh347instr.htm)



Persons are not required to respond to the collection of information unless it displays a currently valid OMB control number.

Rev. Dec. 2008

OMB No.: 1235-0008
Expires: 04/30/2021

NAME OF CONTRACTOR ☐ OR SUBCONTRACTOR ☐		ADDRESS	
PAYROLL NO.	FOR WEEK ENDING	PROJECT AND LOCATION	PROJECT OR CONTRACT NO.

(1) NAME AND INDIVIDUAL IDENTIFYING NUMBER (e.g., LAST FOUR DIGITS OF SOCIAL SECURITY NUMBER) OF WORKER	(2) NO. OF WITHHOLDING EXEMPTIONS	(3) WORK CLASSIFICATION	OT. OR ST.	(4) DAY AND DATE							(5) TOTAL HOURS	(6) RATE OF PAY	(7) GROSS AMOUNT EARNED	(8) DEDUCTIONS						(9) NET WAGES PAID FOR WEEK																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
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While completion of Form WH-347 is optional, it is mandatory for covered contractors and subcontractors performing work on Federally financed or assisted construction contracts to respond to the information collection contained in 29 C.F.R. §§ 3.3, 5.5(a). The Copeland Act (40 U.S.C. § 3145) contractors and subcontractors performing work on Federally financed or assisted construction contracts to "furnish weekly a statement with respect to the wages paid each employee during the preceding week." U.S. Department of Labor (DOL) regulations at 29 C.F.R. § 5.5(a)(3)(ii) require contractors to submit weekly a copy of all payrolls to the Federal agency contracting for or financing the construction project, accompanied by a signed "Statement of Compliance" indicating that the payrolls are correct and complete and that each laborer or mechanic has been paid not less than the proper Davis-Bacon prevailing wage rate for the work performed. DOL and federal contracting agencies receiving this information review the information to determine that employees have received legally required wages and fringe benefits.

Public Burden Statement

We estimate that it will take an average of 55 minutes to complete this collection, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. If you have any comments regarding these estimates or any other aspect of this collection, including suggestions for reducing this burden, send them to the Administrator, Wage and Hour Division, U.S. Department of Labor, Room S3502, 200 Constitution Avenue, N.W. Washington, D.C. 20210

(over)

Date _____

I, _____
(Name of Signatory Party) (Title)

do hereby state:

(1) That I pay or supervise the payment of the persons employed by

_____ on the
(Contractor or Subcontractor)
_____ ; that during the payroll period commencing on the
(Building or Work)

_____ day of _____, _____, and ending the _____ day of _____, _____,
all persons employed on said project have been paid the full weekly wages earned, that no rebates have
been or will be made either directly or indirectly to or on behalf of said

_____ from the full
(Contractor or Subcontractor)

weekly wages earned by any person and that no deductions have been made either directly or indirectly
from the full wages earned by any person, other than permissible deductions as defined in Regulations, Part
3 (29 C.F.R. Subtitle A), issued by the Secretary of Labor under the Copeland Act, as amended (48 Stat. 948,
63 Stat. 108, 72 Stat. 967; 76 Stat. 357; 40 U.S.C. § 3145), and described below:

(2) That any payrolls otherwise under this contract required to be submitted for the above period are
correct and complete; that the wage rates for laborers or mechanics contained therein are not less than the
applicable wage rates contained in any wage determination incorporated into the contract; that the classifications
set forth therein for each laborer or mechanic conform with the work he performed.

(3) That any apprentices employed in the above period are duly registered in a bona fide apprenticeship
program registered with a State apprenticeship agency recognized by the Bureau of Apprenticeship and
Training, United States Department of Labor, or if no such recognized agency exists in a State, are registered
with the Bureau of Apprenticeship and Training, United States Department of Labor.

(4) That:

(a) WHERE FRINGE BENEFITS ARE PAID TO APPROVED PLANS, FUNDS, OR PROGRAMS

☐ — in addition to the basic hourly wage rates paid to each laborer or mechanic listed in
the above referenced payroll, payments of fringe benefits as listed in the contract
have been or will be made to appropriate programs for the benefit of such employees,
except as noted in section 4(c) below.

(b) WHERE FRINGE BENEFITS ARE PAID IN CASH

☐ — Each laborer or mechanic listed in the above referenced payroll has been paid,
as indicated on the payroll, an amount not less than the sum of the applicable
basic hourly wage rate plus the amount of the required fringe benefits as listed
in the contract, except as noted in section 4(c) below.

(c) EXCEPTIONS

EXCEPTION (CRAFT)	EXPLANATION

REMARKS:

NAME AND TITLE

SIGNATURE

THE WILLFUL FALSIFICATION OF ANY OF THE ABOVE STATEMENTS MAY SUBJECT THE CONTRACTOR OR
SUBCONTRACTOR TO CIVIL OR CRIMINAL PROSECUTION. SEE SECTION 1001 OF TITLE 18 AND SECTION 231 OF TITLE
31 OF THE UNITED STATES CODE.

**WAGE DEDUCTION AUTHORIZATION FOR
FEDERAL ASSISTED PROJECTS
DEDUCTION APPROVAL/"OTHER" DEDUCTION FORM**

This form must accompany the first certified payroll on which deduction appears. Submit form only once unless revisions are necessary.

Project Name: _____ **Project Number:** _____

Subcontractor Name: _____

Title 29, Part 3 of the Code of Federal Regulations provides for "anti-kickback" regulations as governed by the Copeland Act. The contractor shall comply with the requirements incorporated by reference in the project contract.

Payments for the benefit of employees, their families and dependents are permitted on federally assisted projects as long as the deduction is a) Not otherwise prohibited by law; b) Voluntarily consented to by the employee, in writing, and in advance of the period in which the work is to be done; and c) Such consent is not a condition either for the obtaining of, or the continuation of employment.

EMPLOYEE CONSENT TO WAGE DEDUCTION

I, _____, authorize the deduction(s) listed below from my wages:
(print name)

Purpose of Deduction	Amount	Frequency (Hr/Wk/Mo)	Time Frame (From-To)
<u>Insurance Payments</u>	\$ _____	_____	_____
<u>401K/Retirement Payments</u>	\$ _____	_____	_____
<u>Friend of the Court/Child Sup</u>	\$ _____	_____	_____
<u>Union Dues</u>	\$ _____	_____	_____
<u>Cell Phone Payments</u>	\$ _____	_____	_____
<u>Vehicle/Mileage</u>	\$ _____	_____	_____
<u>Pay Advances</u>	\$ _____	_____	_____
<u>Tools/Equipment</u>	\$ _____	_____	_____
<u>Loans</u>	\$ _____	_____	_____
<u>Other:</u>	\$ _____	_____	_____
<u>Other:</u>	\$ _____	_____	_____
<u>Other:</u>	\$ _____	_____	_____

_____ Employee Signature	_____ Last 4 digits of Social Security #	_____ Date
-----------------------------	---	---------------

_____ Subcontractor Signature	_____ Print Name/Title	_____ Date
----------------------------------	---------------------------	---------------

Waiver of Lien

My/our contract with: _____ to
provide _____ for the improvement
to: _____

(Check One)

☐ Partial Conditional

I hereby waive my/our construction lien to the amount \$_____ for
labor/materials provided. This waiver, together with all previous waivers, if any, does not cover
amounts due to me/us for the contract improvement provided.

This waiver is conditioned on actual payment of \$_____.

☐ Partial Unconditional

Having been fully paid and satisfied, hereby waive my/our construction lien to the
amount of \$_____ for the labor/materials provided through _____. This
waiver, together with all previous waivers, if any, does/does not cover all amounts due to me/us
for contract improvement provided through the date shown above.

☐ Full Conditional

Having been fully paid and satisfied, all my/our construction lien rights against such
property are hereby waived and released.

This waiver is conditioned on the actual payment of \$_____.

☐ Full Unconditional

Having been fully paid and satisfied, all my/our construction lien rights against such
property are hereby waived and released.

Date: _____

Signature: _____

Company: _____

Address: _____

Phone: _____

DO NOT SIGN BLANK FORM

This document can be completed on-line. Place the cursor in the first field, make your entry, and tab to the next field. When you are finished, press the print button to print your completed form. This form CANNOT BE submitted electronically. If you need to clear the form for any reason, click the Clear button.

Print

Clear

FULL UNCONDITIONAL WAIVER

My/our contract with _____ to provide
_____ for the improvement of the property described as

_____ having been
fully paid and satisfied, all my/our construction lien rights against such property
are hereby waived and released.

(Printed Name of Lien Claimant)

(Signature of lien claimant)

Signed on: _____

Address: _____

Telephone: _____

DO NOT SIGN BLANK OR INCOMPLETE FORMS. RETAIN A COPY.

SWORN STATEMENT

State of Michigan

} §

County of Washtenaw

_____, being duly sworn, states the following:

is the (contractor)(subcontractor) for an improvement to the following real property in Washtenaw

County, Michigan, described as follows: _____

The following is a statement of each subcontractor, supplier and laborer, for whom payment of wages or fringe benefits and withholdings is due but unpaid, with whom the **(contractor)(subcontractor)** has (contracted)(subcontracted) for performance under the contract with the owner or lessee, and the amounts due to the persons as of the date of this statement are correctly and fully set forth opposite their names:

Name, Address & Phone Number of Subcontractor, Supplier, or Laborer	Type of Improvement Furnished	Total Contract Price	Amount Already Paid	Amount Currently Owing	Balance to Complete (optional)	Amount of Laborer Wages Due but Unpaid	Amount of Fringe Benefits and Withholdings Due But Unpaid
Totals							

(Some columns may not be applicable to all persons listed)

The contractor has not procured material from, or subcontracted with, any person other than those set forth and owes no money for the improvement other than the sums set forth.*

I make this statement as the (contractor)(subcontractor) or as of the (contractor)(sub-contractor) to represent to the owner or lessee of the property and his or her agents that the property is free from claims of construction liens, or the possibility of construction liens, except as specifically set forth in this statement and except for claims of construction liens by laborers that may be provided under Section 109 of the Construction Lien Act, 1980 PA 497, MCL 570.1 109.

WARNING TO OWNER OR LESSEE: AN OWNER OR LESSEE OF THE PROPERTY MAY NOT RELY ON THIS SWORN STATEMENT TO AVOID THE CLAIM OF A SUBCONTRACTOR, SUPPLIER OR LABORER WHO HAS PROVIDED A NOTICE OF FURNISHING OR A LABORER WHO MAY PROVIDE A NOTICE OF FURNISHING UNDER SECTION 109 OF THE CONSTRUCTION LIEN ACT, 1980 PA 497, MCL 570.1109 TO THE DESIGNEE OR TO THE OWNER OR LESSEE IF THE DESIGNEE IS NOT NAMED OR HAS DIED.

IF THIS SWORN STATEMENT IS IN REGARD TO A RESIDENTIAL STRUCTURE, ON RECEIPT OF THIS SWORN STATEMENT, THE OWNER OR LESSEE, OR THE OWNER'S OR LESSEE'S DESIGNEE MUST GIVE NOTICE OF ITS RECEIPT, EITHER IN WRITING, OR BY TELEPHONE, OR PERSONALLY. TO EACH SUBCONTRACTOR, SUPPLIER, AND LABORER WHO HAS PROVIDED A NOTICE OF FURNISHING UNDER SECTION 109 OR, IF A NOTICE OF FURNISHING IS EXCUSED UNDER SECTION 108 OR 108A, TO EACH SUBCONTRACTOR, SUPPLIER, AND LABORER NAMED IN THE SWORN STATEMENT. IF A SUBCONTRACTOR, SUPPLIER WHO HAS PROVIDED LESSEE, OR DESIGNEE SHALL PROVIDE THE REQUESTER A COPY OF THE SWORN STATEMENT WITHIN 10 BUSINESS DAYS AFTER RECEIVING THE REQUEST.

Dependent Printed Name

Dependent Signature

WARNING TO DEPENDENT: A PERSON WHO GIVES A FALSE SWORN STATEMENT WITH INTENT TO DEFRAUD IS SUBJECT TO CRIMINAL PENALTIES AS PROVIDED IN SECTION 110 OF THE CONSTRUCTION LIEN ACT, 1980 PA 497, MCL 570.1110.

Subscribed and sworn to before me this

_____ day of _____, _____

Notary Public, _____ County, Michigan

My Commission Expires:

*Materials furnished by a contractor or a subcontractor out of his or her own inventory, and which has not been purchased specifically for the purpose of performing the contract, need not be listed.

Section 3 Summary Report

Economic Opportunities for Low – and Very Low-Income Persons

U.S. Department of Housing
and Urban Development
Office of Fair Housing
And Equal Opportunity

OMB Approval No: 2529-0043
(exp. 11/30/2010)

HUD Field Office:

Section back of page for Public Reporting Burden statement

1. Recipient Name & Address: (street, city, state, zip)	2. Federal Identification: (grant no.)	3. Total Amount of Award:
	4. Contact Person	5. Phone: (include area code)
	6. Length of Grant:	7. Reporting Period:
8. Date Report Submitted:	9. Program Code: (Use separate sheet for each program code)	10. Program Name:

Part I: Employment and Training (** Columns B, C and F are mandatory fields. Include New Hires in E &F)

A Job Category	B Number of New Hires	C Number of New Hires that are Sec. 3 Residents	D % of Aggregate Number of Staff Hours of New Hires that are Sec. 3 Residents	E % of Total Staff Hours for Section 3 Employees and Trainees	F Number of Section 3 Trainees
Professionals					
Technicians					
Office/Clerical					
Construction by Trade (List Trade)					
Trade					
Trade					
Trade					
Trade					
Other (List)					
Total					

* Program Codes
1 = Flexible Subsidy
2 = Section 202/811

3 = Public/Indian Housing
A = Development,
B = Operation
C = Modernization

4 = Homeless Assistance
5 = HOME
6 = HOME State Administered
7 = CDBG Entitlement

8 = CDBG State Administered
9 = Other CD Programs
10 = Other Housing Programs

Part II: Contracts Awarded

1. Construction Contracts:

A. Total dollar amount of all contracts awarded on the project	\$
B. Total dollar amount of contracts awarded to Section 3 businesses	\$
C. Percentage of the total dollar amount that was awarded to Section 3 businesses	%
D. Total number of Section 3 businesses receiving contracts	

2. Non-Construction Contracts:

A. Total dollar amount all non-construction contracts awarded on the project/activity	\$
B. Total dollar amount of non-construction contracts awarded to Section 3 businesses	\$
C. Percentage of the total dollar amount that was awarded to Section 3 businesses	%
D. Total number of Section 3 businesses receiving non-construction contracts	

Part III: Summary

Indicate the efforts made to direct the employment and other economic opportunities generated by HUD financial assistance for housing and community development programs, to the greatest extent feasible, toward low- and very low-income persons, particularly those who are recipients of government assistance for housing. (Check all that apply.)

- ☐ Attempted to recruit low-income residents through: local advertising media, signs prominently displayed at the project site, contracts with the community organizations and public or private agencies operating within the metropolitan area (or nonmetropolitan county) in which the Section 3 covered program or project is located, or similar methods.
- ☐ Participated in a HUD program or other program which promotes the training or employment of Section 3 residents.
- ☐ Participated in a HUD program or other program which promotes the award of contracts to business concerns which meet the definition of Section 3 business concerns.
- ☐ Coordinated with Youthbuild Programs administered in the metropolitan area in which the Section 3 covered project is located.
- ☐ Other; describe below.

Public reporting for this collection of information is estimated to average 2 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. This agency may not collect this information, and you are not required to complete this form, unless it displays a currently valid OMB number.

Section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701u, mandates that the Department ensures that employment and other economic opportunities generated by its housing and community development assistance programs are directed toward low- and very-low income persons, particularly those who are recipients of government assistance housing. The regulations are found at 24 CFR Part 135. The information will be used by the Department to monitor program recipients' compliance with Section 3, to assess the results of the Department's efforts to meet the statutory objectives of Section 3, to prepare reports to Congress, and by recipients as self-monitoring tool. The data is entered into a database and will be analyzed and distributed. The collection of information involves recipients receiving Federal financial assistance for housing and community development programs covered by Section 3. The information will be collected annually to assist HUD in meeting its reporting requirements under Section 808(e)(6) of the Fair Housing Act and Section 916 of the HCDA of 1992. An assurance of confidentiality is not applicable to this form. The Privacy Act of 1974 and OMB Circular A-108 are not applicable. The reporting requirements do not contain sensitive questions. Data is cumulative; personal identifying information is not included.

Form HUD-60002, **Section 3 Summary Report, Economic Opportunities for Low- and Very Low-Income Persons.**

Instructions: This form is to be used to report annual accomplishments regarding employment and other economic opportunities provided to low- and very low-income persons under Section 3 of the Housing and Urban Development Act of 1968. The Section 3 regulations apply to any **public and Indian housing programs** that receive: (1) development assistance pursuant to Section 5 of the U.S. Housing Act of 1937; (2) operating assistance pursuant to Section 9 of the U.S. Housing Act of 1937; or (3) modernization grants pursuant to Section 14 of the U.S. Housing Act of 1937 and to **recipients of housing and community development assistance in excess of \$200,000** expended for: (1) housing rehabilitation (including reduction and abatement of lead-based paint hazards); (2) housing construction; or (3) other public construction projects; and to **contracts and subcontracts in excess of \$100,000** awarded in connection with the Section-3-covered activity.

Form HUD-60002 has three parts, which are to be completed for all programs covered by Section 3. Part I relates to **employment and training**. The recipient has the option to determine numerical employment/training goals either on the basis of the number of hours worked by new hires (columns B, D, E and F). Part II of the form relates to **contracting**, and Part III summarizes recipients' **efforts** to comply with Section 3.

Recipients or contractors subject to Section 3 requirements must maintain appropriate documentation to establish that HUD financial assistance for housing and community development programs were directed toward low- and very low-income persons.* A recipient of Section 3 covered assistance shall submit one copy of this report to HUD Headquarters, Office of Fair Housing and Equal Opportunity. Where the program providing assistance requires an annual performance report, this Section 3 report is to be submitted at the same time the program performance report is submitted. Where an annual performance report is not required, this Section 3 report is to be submitted by January 10 and, if the project ends before December 31, within 10 days of project completion. **Only Prime Recipients are required to report to HUD. The report must include accomplishments of all recipients and their Section 3 covered contractors and subcontractors.**

- HUD Field Office: Enter the Field Office name .
1. Recipient: Enter the name and address of the recipient submitting this report.
 2. Federal Identification: Enter the number that appears on the award form (with dashes). The award may be a grant, cooperative agreement or contract.
 3. Dollar Amount of Award: Enter the dollar amount, rounded to the nearest dollar, received by the recipient.
 - 4 & 5. Contact Person/Phone: Enter the name and telephone number of the person with knowledge of the award and the recipient's implementation of Section 3.
 6. Reporting Period: Indicate the time period (months and year) this report covers.
 7. Date Report Submitted: Enter the appropriate date.

Submit one (1) copy of this report to the HUD Headquarters Office of Fair Housing and Equal Opportunity, at the same time the performance report is submitted to the program office. The Section 3 report is submitted by January 10. Include only contracts executed during the period specified in item 8. PHAs/IHAs are to report all contracts/subcontracts.

* The terms "low-income persons" and very low-income persons" have the same meanings given the terms in section 3 (b) (2) of the United States Housing Act of 1937. **Low-income persons** mean families (including single persons) whose incomes do not exceed 80 percent of the median income for the area, as determined by the Secretary, with adjustments for smaller and larger families, except that

8. Program Code: Enter the appropriate program code as listed at the bottom of the page.
9. Program Name: Enter the name of HUD Program corresponding with the "Program Code" in number 8.

Part I: Employment and Training Opportunities

Column A: Contains various job categories. Professionals are defined as people who have special knowledge of an occupation (i.e. supervisors, architects, surveyors, planners, and computer programmers). For construction positions, list each trade and provide data in columns B through F for each trade where persons were employed. The category of "Other" includes occupations such as service workers.

Column B: (Mandatory Field) Enter the number of new hires for each category of workers identified in **Column A** in connection with this award. New hire refers to a person who is not on the contractor's or recipient's payroll for employment at the time of selection for the Section 3 covered award or at the time of receipt of Section 3 covered assistance.

Column C: (Mandatory Field) Enter the number of Section 3 new hires for each category of workers identified in **Column A** in connection with this award. Section 3 new hire refers to a Section 3 resident who is not on the contractor's or recipient's payroll for employment at the time of selection for the Section 3 covered award or at the time of receipt of Section 3 covered assistance.

Column D: Enter the percentage of all the staff hours of new hires (Section 3 residents) in connection with this award.

Column E: Enter the percentage of the total staff hours worked for Section 3 employees and trainees (including new hires) connected with this award. Include staff hours for part-time and full-time positions.

Column F: (Mandatory Field) Enter the number of Section 3 residents that were trained in connection with this award.

Part II: Contract Opportunities

Block 1: Construction Contracts

Item A: Enter the total dollar amount of all contracts awarded on the project/program.

Item B: Enter the total dollar amount of contracts connected with this project/program that were awarded to Section 3 businesses.

Item C: Enter the percentage of the total dollar amount of contracts connected with this project/program awarded to Section 3 businesses.

Item D: Enter the number of Section 3 businesses receiving awards.

Block 2: Non-Construction Contracts

Item A: Enter the total dollar amount of all contracts awarded on the project/program.

Item B: Enter the total dollar amount of contracts connected with this project awarded to Section 3 businesses.

Item C: Enter the percentage of the total dollar amount of contracts connected with this project/program awarded to Section 3 businesses.

Item D: Enter the number of Section 3 businesses receiving awards.

Part III: Summary of Efforts – Self -explanatory

The Secretary may establish income ceilings higher or lower than 80 percent of the median for the area on the basis of the Secretary's findings such that variations are necessary because of prevailing levels of construction costs or unusually high- or low-income families. **Very low-income persons** mean low-income families (including single persons) whose incomes do not exceed 50 percent of the median family income area, as determined by the Secretary with adjustments or smaller and larger families, except that the Secretary may establish income ceilings higher or lower than 50 percent of the median for the area on the basis of the Secretary's findings that such variations are necessary because of unusually high or low family incomes.

Project Wage Decision

"General Decision Number: MI20190001 07/19/2019

Superseded General Decision Number: MI20180001

State: Michigan

Construction Types: Highway (Highway, Airport & Bridge xxxxx
and Sewer/Incid. to Hwy.)

Counties: Michigan Statewide.

Note: Under Executive Order (EO) 13658, an hourly minimum wage of \$10.60 for calendar year 2019 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least \$10.60 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2019. If this contract is covered by the EO and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must pay workers in that classification at least the wage rate determined through the conformance process set forth in 29 CFR 5.5(a)(1)(ii) (or the EO minimum wage rate, if it is higher than the conformed wage rate). The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

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Modification Number	Publication Date
0	01/04/2019
1	01/25/2019
2	03/08/2019
3	07/05/2019
4	07/19/2019

CARP0004-004 06/01/2018

REMAINDER OF STATE

	Rates	Fringes
CARPENTER (Piledriver).....	\$ 27.12	20.19

CARP0004-005 06/01/2018

LIVINGSTON (Townships of Brighton, Deerfield, Genoa, Hartland,
Oceola & Tyrone), MACOMB, MONROE, OAKLAND, SANILAC, ST. CLAIR
AND WAYNE COUNTIES

	Rates	Fringes
CARPENTER (Piledriver).....	\$ 30.50	27.28

ELEC0017-005 06/03/2019

STATEWIDE

	Rates	Fringes
Line Construction		
Groundman/Driver.....	\$ 28.58	15.27
Journeyman Signal Tech, Communications Tech, Tower		
Tech & Fiber Optic Splicers.	\$ 40.35	18.80
Journeyman Specialist.....	\$ 46.40	20.62
Operator A.....	\$ 34.10	16.93
Operator B.....	\$ 31.84	16.25

Classifications

Journeyman Specialist: Refers to a crew of only one person working alone.

Operator A: Shall be proficient in operating all power equipment including: Backhoe,

Excavator, Directional Bore and Boom/Digger truck.

Operator B: Shall be proficient in operating any 2 of the above mentioned pieces of equipment listed under Operator A.

ENGI0324-003 06/01/2019

ALCONA, ALPENA, ARENAC, BAY, CHEBOYGAN, CLARE, CLINTON, CRAWFORD, GENESEE, GLADWIN, GRATIOT, HURON, INGHAM, IOSCO, ISABELLA, JACKSON, LAPEER, LENAWEE, LIVINGSTON, MACOMB, MIDLAND, MONROE, MONTMORENCY, OAKLAND, OGEMAW, OSCODA, OTSEGO, PRESQUE ISLE, ROSCOMMON, SAGINAW, ST. CLAIR, SANILAC, SHIAWASSEE, TUSCOLA, WASHTENAW AND WAYNE COUNTIES:

	Rates	Fringes
OPERATOR: Power Equipment		
(Steel Erection)		
GROUP 1.....	\$ 46.52	24.35
GROUP 2.....	\$ 47.52	24.35
GROUP 3.....	\$ 45.02	24.35
GROUP 4.....	\$ 46.02	24.35
GROUP 5.....	\$ 43.52	24.35
GROUP 6.....	\$ 44.52	24.35
GROUP 7.....	\$ 43.25	24.35
GROUP 8.....	\$ 44.25	24.35
GROUP 9.....	\$ 42.80	24.35
GROUP 10.....	\$ 43.80	24.35
GROUP 11.....	\$ 42.07	24.35
GROUP 12.....	\$ 43.07	24.35
GROUP 13.....	\$ 41.71	24.35
GROUP 14.....	\$ 42.71	24.35
GROUP 15.....	\$ 41.07	24.35

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GROUP 16.....\$ 38.37	24.35
GROUP 17.....\$ 23.89	11.50
GROUP 18.....\$ 27.38	11.50

FOOTNOTE:

Paid Holidays: New Year's Day, Memorial Day, Fourth of July,
Labor Day, Thanksgiving Day and Christmas Day.

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Engineer when operating combination of boom and jib
400' or longer

GROUP 2: Engineer when operating combination of boom and jib
400' or longer on a crane that requires an oiler

GROUP 3: Engineer when operating combination of boom and jib
300' or longer

GROUP 4: Engineer when operating combination of boom and jib
300' or longer on a crane that requires an oiler

GROUP 5: Engineer when operating combination of boom and jib
220' or longer

GROUP 6: Engineer when operating combination of boom and jib
220' or longer on a crane that requires an oiler

GROUP 7: Engineer when operating combination of boom and jib
140' or longer

GROUP 8: Engineer when operating combination of boom and jib
140' or longer on a crane that requires an oiler

GROUP 9: Tower crane & derrick operator (where operator's
work station is 50 ft. or more above first sub-level)

GROUP 10: Tower crane & derrick operator (where operator's
work station is 50 ft. or more above first sub-level) on a
crane that requires an oiler

<https://beta.sam.gov/wage-determination/MI20190001/4/document>

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GROUP 11: Engineer when operating combination of boom and jib
120' or longer

GROUP 12: Engineer when operating combination of boom and jib
120' or longer on a crane that requires an oiler

GROUP 13: Crane operator; job mechanic and 3 drum hoist and
excavator

GROUP 14: Crane operator on a crane that requires an oiler

GROUP 15: Hoisting operator; 2 drum hoist and rubber tired
backhoe

GROUP 16: Forklift and 1 drum hoist

GROUP 17: Compressor or welder operator

GROUP 18: Oiler

ENGI0324-004 06/01/2018

AREA 1: ALLEGAN, BARRY, BERRIEN, BRANCH, CALHOUN, CASS, EATON,
HILLSDALE, IONIA, KALAMAZOO, KENT, LAKE, MANISTEE, MASON,
MECOSTA, MONTCALM, MUSKEGON, NEWAYGO, OCEANA, OSCEOLA, OTTAWA,
ST. JOSEPH, VAN BUREN

AREA 2: ANTRIM, BENZIE, CHARLEVOIX, EMMET, GRAND TRAVERSE,
KALKASKA, LEELANAU, MISSAUKEE AND WEXFORD COUNTIES:

	Rates	Fringes
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OPERATOR: Power Equipment
(Steel Erection)

AREA 1

GROUP 1.....	\$ 45.37	23.85
GROUP 2.....	\$ 42.10	23.85
GROUP 3.....	\$ 40.56	23.85

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GROUP 4.....	\$ 37.82	23.85
GROUP 5.....	\$ 23.64	11.00
GROUP 6.....	\$ 27.08	11.00
AREA 2		
GROUP 1.....	\$ 45.37	23.85
GROUP 2.....	\$ 42.10	23.85
GROUP 3.....	\$ 40.56	23.85
GROUP 4.....	\$ 37.82	23.85
GROUP 5.....	\$ 23.64	11.00
GROUP 6.....	\$ 27.08	11.00

FOOTNOTES:

Crane operator with main boom and jib 300' or longer: \$1.50 additional to the group 1 rate. Crane operator with main boom and jib 400' or longer: \$3.00 additional to the group 1 rate.

PAID HOLIDAYS: New Year's Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving Day and Christmas Day.

POWER EQUIPMENT OPERATOR CLASSIFICATIONS:

GROUP 1: Crane Operator with main boom & jib 400', 300', or 220' or longer.

GROUP 2: Crane Operator with main boom & jib 140' or longer, Tower Crane; Gantry Crane; Whirley Derrick.

GROUP 3: Regular Equipment Operator, Crane, Dozer, Loader, Hoist, Straddle Wagon, Mechanic, Grader and Hydro Excavator.

GROUP 4: Air Tugger (single drum), Material Hoist Pump 6" or over, Elevators, Brokk Concrete Breaker.

GROUP 5: Air Compressor, Welder, Generators, Conveyors

GROUP 6: Oiler and fire tender

ENGI0324-005 09/01/2018

AREA 1: GENESEE, LAPEER, LIVINGSTON, MACOMB, MONROE, OAKLAND,
ST. CLAIR, WASHTENAW AND WAYNE COUNTIES

AREA 2: ALCONA, ALLEGAN, ALGER, ALPENA, ANTRIM, ARENAC, BARAGA,
BARRY, BAY, BENZIE, BERRIEN, BRANCH, CALHOUN, CASS,
CHARLEVOIX, CHEBOYGAN, CHIPPEWA, CLARE, CLINTON, CRAWFORD,
DELTA, DICKINSON, EATON, EMMET, GLADWIN, GOGEBIC, GRAND
TRAVERSE, GRATIOT, HILLSDALE, HOUGHTON, HURON, INGHAM, IONIA,
IOSCO, IRON, ISABELLA, JACKSON, KALAMAZOO, KALKASKA, KENT,
KWEENAW, LAKE, LEELANAU, LENAWEE, LUCE, MACKINAC, MANISTEE,
MARQUETTE, MASON, MECOSTA, MENOMINEE, MIDLAND, MISSAUKEE,
MONTCALM, MONTMORENCY, MUSKEGON, NEWAYGO, OCEANA, OGEMAW,
ONTONAGON, OSCEOLA, OSCODA, OTSEGO, OTTAWA, PRESQUE ISLE,
ROSCOMMON, SAGINAW, SANILAC, SCHOOLCRAFT, SHIAWASSEE, ST.
JOSEPH, TUSCOLA, VAN BUREN AND WEXFORD COUNTIES

	Rates	Fringes
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OPERATOR: Power Equipment
(Underground construction
(including sewer))

AREA 1:

GROUP 1.....	\$ 32.53	23.85
GROUP 2.....	\$ 27.80	23.85
GROUP 3.....	\$ 27.07	23.85
GROUP 4.....	\$ 26.50	23.85

AREA 2:

GROUP 1.....	\$ 30.82	23.85
GROUP 2.....	\$ 25.93	23.85
GROUP 3.....	\$ 25.43	23.85
GROUP 4.....	\$ 25.15	23.85

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Backfiller tamper; Backhoe; Batch plant operator
(concrete); Clamshell; Concrete paver (2 drums or larger);
Conveyor loader (Euclid type); Crane (crawler, truck type
or pile driving); Dozer; Dragline; Elevating grader;
Endloader; Gradall (and similar type machine); Grader;
Mechanic; Power shovel; Roller (asphalt); Scraper

(self-propelled or tractor drawn); Side boom tractor (type D-4 or equivalent and larger); Slip form paver; Slope paver; Trencher (over 8 ft. digging capacity); Well drilling rig; Concrete pump with boom operator; Hydro Excavator

GROUP 2: Boom truck (power swing type boom); Crusher; Hoist; Pump (1 or more - 6-in. discharge or larger - gas or diesel- powered or powered by generator of 300 amperes or more - inclusive of generator); Side boom tractor (smaller than type D-4 or equivalent); Tractor (pneu-tired, other than backhoe or front end loader); Trencher (8-ft. digging capacity and smaller); Vac Truck

GROUP 3: Air compressors (600 cfm or larger); Air compressors (2 or more-less than 600 cfm); Boom truck (non-swinging, non- powered type boom); Concrete breaker (self-propelled or truck mounted - includes compressor); Concrete paver (1 drum-1/2 yd. or larger); Elevator (other than passenger); Maintenance person; Pump (2 or more-4-in. up to 6-in. discharge-gas or diesel powered - excluding submersible pumps); Pumpcrete machine (and similar equipment); Wagon drill (multiple); Welding machine or generator (2 or more-300 amp. or larger - gas or diesel powered)

GROUP 4: Boiler; Concrete saw (40 hp or over); Curing machine (self-propelled); Farm tractor (with attachment); Finishing machine (concrete); Fire person; Hydraulic pipe pushing machine; Mulching equipment; Oiler; Pumps (2 or more up to 4-in. discharge, if used 3 hours or more a day, gas or diesel powered - excluding submersible pumps); Roller (other than asphalt); Stump remover; Trencher (service); Vibrating compaction equipment, self-propelled (6 ft. wide or over); End dump operator; Sweeper (Wayne type); Water wagon and Extend-a boom forklift

ENGI0324-006 06/01/2018

AREA 1: GENESEE, MACOMB, MONROE, OAKLAND, WASHTENAW AND WAYNE
COUNTIES

AREA 2: ALCONA, ALGER, ALLEGAN, ALPENA, ANTRIM, ARENAC, BARAGA,
 BARRY, BAY, BENZIE, BERRIEN, BRANCH, CALHOUN, CASS, CHARLEVOIX,
 CHEBOYGAN, CHIPPEWA, CLARE, CLINTON, CRAWFORD, DELTA,
 DICKINSON, EATON, EMMET, GLADWIN, GOGEBIC, GRAND TRAVERSE,
 GRATIOT, HILLSDALE, HOUGHTON, HURON, INGHAM, IONIA, IOSCO,
 IRON, ISABELLA, JACKSON, KALAMAZOO, KALKASKA, KENT, KEWEENAW,
 LAKE, LAPEER, LEELANAU, LENAWEE, LIVINGSTON, LUCE, MACKINAC,
 MANISTEE, MARQUETTE, MASON, MECOSTA, MENOMINEE, MIDLAND,
 MISSAUKEE, MONTCALM, MONTMORENCY, MUSKEGON, NEWAYGO, OCEANA,
 OGEAW, ONTONAGON, OSCEOLA, OSCODA, OTSEGO, OTTAWA, PRESQUE
 ISLE, ROSCOMMON, SAGINAW, ST. CLARE, ST. JOSEPH, SANILAC,
 SCHOOLCRAFT, SHIAWASSEE, TUSCOLA, VAN BUREN AND WEXFORD COUNTIES

	Rates	Fringes
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Power equipment operators:

(AIRPORT, BRIDGE & HIGHWAY

CONSTRUCTION)

AREA 1

GROUP 1.....	\$ 33.36	23.90
GROUP 2.....	\$ 26.63	23.90
GROUP 3.....	\$ 27.93	23.90
GROUP 4.....	\$ 25.90	23.90
GROUP 5.....	\$ 20.70	11.00

AREA 2

GROUP 1.....	\$ 33.36	23.90
GROUP 2.....	\$ 26.63	23.90
GROUP 3.....	\$ 27.93	23.90
GROUP 4.....	\$ 25.90	23.90
GROUP 5.....	\$ 20.70	11.00

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Asphalt plant operator; Crane operator (does not include work on bridge construction projects when the crane operator is erecting structural components); Dragline operator; Shovel operator; Locomotive operator; Paver operator (5 bags or more); Elevating grader operator; Pile driving operator; Roller operator (asphalt); Blade grader operator; Trenching machine operator (ladder or wheel

type); Auto-grader; Slip form paver; Self-propelled or tractor-drawn scraper; Conveyor loader operator (Euclid type); Endloader operator (1 yd. capacity and over); Bulldozer; Hoisting engineer; Tractor operator; Finishing machine operator (asphalt); Mechanic; Pump operator (6-in. discharge or over, gas, diesel powered or generator of 300 amp. or larger); Shouldering or gravel distributing machine operator (self-propelled); Backhoe (with over 3/8 yd. bucket); Side boom tractor (type D-4 or equivalent or larger); Tube finisher (slip form paving); Gradall (and similar type machine); Asphalt paver (self-propelled); Asphalt planer (self-propelled); Batch plant (concrete-central mix); Slurry machine (asphalt); Concrete pump (3 in. and over); Roto-mill; Swinging boom truck (over 12 ton capacity); Hydro demolisher (water blaster); Farm-type tractor with attached pan

GROUP 2: Screening plant operator; Washing plant operator; Crusher operator; Backhoe (with 3/8 yd. bucket or less); Side boom tractor (smaller than D-4 type or equivalent); Sweeper (Wayne type and similar equipment); Vacuum truck operator; Batch plant (concrete dry batch)

GROUP 3: Grease Truck

GROUP 4: Air compressor operator (600 cu. ft. per min or more); Air compressor operator (two or more, less than 600 cfm); Wagon drill operator; Concrete breaker; Tractor operator (farm type with attachment)

GROUP 5: Boiler fire tender; Oiler; Fire tender; Trencher (service); Flexplane operator; Cleftplane operator; Grader operator (self-propelled fine-grade or form (concrete)); Finishing machine operator (concrete); Boom or winch hoist truck operator; Endloader operator (under 1 yd. capacity); Roller operator (other than asphalt); Curing equipment operator (self-propelled); Concrete saw operator (40 h.p. or over); Power bin operator; Plant drier operator (asphalt); Vibratory compaction equipment operator (6 ft. wide or over); Guard post driver operator (power driven); All mulching equipment; Stump remover; Concrete pump (under

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3-in.); Mesh installer (self- propelled); Tractor operator
(farm type); End dump; Skid steer

ENGI0324-007 05/01/2019

ALGER, BARAGA, CHIPPEWA, DELTA, DICKINSON, GOGEBIC, HOUGHTON,
IRON, KEWEENAW, LUCE, MACKINAC MARQUETTE, MENOMINEE, ONTONAGON
AND SCHOOLCRAFT COUNTIES:

	Rates	Fringes
OPERATOR: Power Equipment		
(Steel Erection)		
Compressor, welder and forklift.....	\$ 33.90	24.10
Crane operator, main boom & jib 120' or longer.....	\$ 39.87	24.10
Crane operator, main boom & jib 140' or longer.....	\$ 40.17	24.10
Crane operator, main boom & jib 220' or longer.....	\$ 40.76	24.10
Mechanic with truck and tools.....	\$ 39.00	24.10
Oiler and fireman.....	\$ 31.86	24.10
Regular operator.....	\$ 37.22	24.10

ENGI0324-008 10/01/2015

ALCONA, ALGER, ALLEGAN, ALPENA, ANTRIM, ARENAC, BARAGA, BARRY,
BAY, BENZIE, BERRIEN, BRANCH, CALHOUN, CASS, CHARLEVOIX,
CHEBOYGAN, CHIPPEWA, CLARE, CLINTON, CRAWFORD, DELTA,
DICKINSON, EATON, EMMET, GENESEE, GLADWIN, GOGEBIC, GRAND
TRAVERSE, GRATIOT, HILLSDALE, HOUGHTON, HURON, INGHAM, IONIA,
IOSCO, IRON, ISABELLA, JACKSON, KALAMAZOO, KALKASKA, KENT,
KEWEENAW, LAKE, LAPEER, LEELANAU, LENAWEE, LIVINGSTON, LUCE,
MACKINAC, MACOMB, MANISTEE, MARQUETTE, MASON, MECOSTA,
MENOMINEE, MIDLAND, MISSAUKEE, MONTCALM, MONTMORENCY, MONROE,
MUSKEGON, NEWAYGO, OAKLAND, OCEANA, OGEMAW, ONTONAGON, OSCEOLA,
OSCODA, OTSEGO, OTTAWA, PRESQUE ISLE, ROSCOMMON, SAGINAW, ST.

<https://beta.sam.gov/wage-determination/MI20190001/4/document>

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CLARE, ST. JOSEPH, SANILAC, SCHOOLCRAFT, SHIAWASSEE, TUSCOLA,
VAN BUREN, WASHTENAW, WAYNE AND WEXFORD COUNTIES

	Rates	Fringes
OPERATOR: Power Equipment		
(Sewer Relining)		
GROUP 1.....	\$ 30.70	12.93
GROUP 2.....	\$ 29.17	12.93

SEWER RELINING CLASSIFICATIONS

GROUP 1: Operation of audio-visual closed circuit TV system,
including remote in-ground cutter and other equipment used
in connection with the CCTV system

GROUP 2: Operation of hot water heaters and circulation
systems, water jetters and vacuum and mechanical debris
removal systems

ENGI0325-012 05/01/2018

	Rates	Fringes
Power equipment operators -		
gas distribution and duct		
installation work:		
GROUP 1.....	\$ 30.68	23.85
GROUP 2.....	\$ 30.56	23.85
GROUP 3.....	\$ 28.85	23.85

SCOPE OF WORK: The construction, installation, treating and
reconditioning of pipelines transporting gas vapors within
cities, towns, subdivisions, suburban areas, or within
private property boundaries, up to and including private
meter settings of private industrial, governmental or other
premises, more commonly referred to as ""distribution work,""
starting from the first metering station, connection,
similar or related facility, of the main or cross country

pipeline and including duct installation.

Group 1: Backhoe, crane, grader, mechanic, dozer (D-6 equivalent or larger), side boom (D-4 equivalent or larger), trencher(except service), endloader (2 yd. capacity or greater).

GROUP 2: Dozer (less than D-6 equivalent), endloader (under 2 yd. capacity), side boom (under D-4 capacity), backfiller, pumps (1 or 2 of 6-inch discharge or greater), boom truck (with powered boom), tractor (wheel type other than backhoe or front endloader). Tamper (self-propelled), boom truck (with non-powered boom), concrete saw (20 hp or larger), pumps (2 to 4 under 6-inch discharge), compressor (2 or more or when one is used continuously into the second day) and trencher(service).

GROUP 3: Oiler, hydraulic pipe pushing machine, grease person and hydrostatic testing operator.

IRON0008-007 06/01/2018

ALGER, BARAGA, CHIPPEWA, DELTA, DICKINSON, GOGEBIC, HOUGHTON,
IRON, KEWEENAW, LUCE, MACKINAC MARQUETTE, MENOMINEE, ONTONAGON
AND SCHOOLCRAFT COUNTIES:

	Rates	Fringes
Ironworker - pre-engineered metal building erector.....	\$ 23.70	6.95
IRONWORKER		
General contracts \$10,000,000 or greater.....	\$ 30.92	26.97
General contracts less than \$10,000,000.....	\$ 30.92	26.97

Paid Holidays: New Year's Day, Memorial Day, July 4th, Labor
Day, Thanksgiving Day & Christmas Day.

IRON0025-002 06/01/2018

ALCONA, ALPENA, ARENAC, BAY, CHEBOYGAN, CLARE, CLINTON,
CRAWFORD, GENESEE, GLADWIN, GRATIOT, HURON, INGHAM, IOSCO,
ISABELLA, JACKSON, LAPEER, LIVINGSTON, MACOMB, MIDLAND,
MONTMORENCY, OAKLAND, OGEMAW, OSCODA, OTSEGO, PRESQUE ISLE,
ROSCOMMON, SAGINAW, SANILAC, SHIAWASSEE, ST. CLAIR, TUSCOLA,
WASHTENAW AND WAYNE COUNTIES:

	Rates	Fringes
Ironworker - pre-engineered metal building erector		
Alcona, Alpena, Arenac, Cheboygan, Clare, Clinton, Crawford, Gladwin, Gratiot, Huron, Ingham, Iosco, Isabella, Jackson, Lapeer, Livingston (west of Burkhardt Road), Montmorency, Ogemaw, Oscoda, Otsego, Presque Isle, Roscommon, Sanilac, Shiawassee, Tuscola & Washtenaw (west of U.S. 23).	\$ 24.26	22.11
Bay, Genesee, Lapeer, Livingston (east of Burkhardt Road), Macomb, Midland, Oakland, Saginaw, St. Clair, The University of Michigan, Washtenaw (east of U.S. 23) & Wayne...	\$ 25.48	23.11
IRONWORKER		
Ornamental and Structural...	\$ 35.52	28.65
Reinforcing.....	\$ 29.48	27.74

IRON0055-005 07/01/2018

LENAWEE AND MONROE COUNTIES:

	Rates	Fringes
IRONWORKER		
Pre-engineered metal		
buildings.....	\$ 23.59	19.35
All other work.....	\$ 30.13	23.25

IRON0292-003 06/01/2018

BERRIEN AND CASS COUNTIES:

	Rates	Fringes
IRONWORKER (Including		
pre-engineered metal building		
erector).....	\$ 29.75	22.01

IRON0340-001 06/19/2017

ALLEGAN, ANTRIM, BARRY, BENZIE, BRANCH, CALHOUN, CHARLEVOIX,
EATON, EMMET, GRAND TRAVERSE, HILLSDALE, IONIA, KALAMAZOO,
KALKASKA, KENT, LAKE, LEELANAU, MANISTEE, MASON, MECOSTA,
MISSAUKEE, MONTCALM, MUSKEGON, NEWAYGO, OCEANA, OSCEOLA,
OTTAWA, ST. JOSEPH, VAN BUREN AND WEXFORD COUNTIES:

	Rates	Fringes
IRONWORKER (Including		
pre-engineered metal building		
erector).....	\$ 24.43	24.67

LABO0005-006 10/01/2017

	Rates	Fringes
Laborers - hazardous waste		
abatement: (ALCONA, ALPENA,		
ANTRIM, BENZIE, CHARLEVOIX,		
CHEBOYGAN, CRAWFORD, EMMET,		

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GRAND TRAVERSE, IOSCO,
KALKASKA, LEELANAU,
MISSAUKEE, MONTMORENCY,
OSCODA, OTSEGO, PRESQUE ISLE
AND WEXFORD COUNTIES - Zone

10)

Levels A, B or C.....\$ 17.45	12.75
class b.....\$ 18.00	12.85

Work performed in
conjunction with site
preparation not requiring
the use of personal
protective equipment;

Also, Level D.....\$ 16.45	12.75
class a.....\$ 17.00	12.85

Zone 10

Laborers - hazardous waste
abatement: (ALGER, BARAGA,
CHIPPEWA, DELTA, DICKINSON,
GOGBIC, HOUGHTON, IRON,
KEWEENAW, LUCE, MACKINAC,
MARQUETTE, MENOMINEE,
ONTONAGON AND SCHOOLCRAFT
COUNTIES - Zone 11)

Levels A, B or C.....\$ 21.63	12.88
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Work performed in
conjunction with site
preparation not requiring
the use of personal
protective equipment;

Also, Level D.....\$ 20.63	12.88
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Laborers - hazardous waste
abatement: (ALLEGAN, BARRY,
BERRIEN, BRANCH, CALHOUN,
CASS, IONIA COUNTY (except
the city of Portland);
KALAMAZOO, KENT, LAKE,
MANISTEE, MASON, MECOSTA,
MONTCALM, MUSKEGON, NEWAYGO,
OCEANA, OSCEOLA, OTTAWA, ST.
JOSEPH AND VAN BUREN COUNTIES

<https://beta.sam.gov/wage-determination/MI20190001/4/document>

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- Zone 9)

Levels A, B or C.....\$ 20.95 12.85

Work performed in
conjunction with site
preparation not requiring
the use of personal
protective equipment;

Also, Level D.....\$ 19.95 12.85

Laborers - hazardous waste

abatement: (ARENAC, BAY,
CLARE, GLADWIN, GRATIOT,
HURON, ISABELLA, MIDLAND,
OGEMAW, ROSCOMMON, SAGINAW

AND TUSCOLA COUNTIES - Zone 8)

Levels A, B or C.....\$ 20.65 12.85

Work performed in
conjunction with site
preparation not requiring
the use of personal
protective equipment;

Also, Level D.....\$ 19.65 12.85

Laborers - hazardous waste

abatement: (CLINTON, EATON

AND INGHAM COUNTIES; IONIA

COUNTY (City of Portland);

LIVINGSTON COUNTY (west of

Oak Grove Rd., including the

City of Howell) - Zone 6)

Levels A, B or C.....\$ 24.65 12.85

Work performed in
conjunction with site
preparation not requiring
the use of personal
protective equipment;

Also, Level D.....\$ 23.65 12.85

Laborers - hazardous waste

abatement: (GENESEE, LAPEER

AND SHIAWASSEE COUNTIES -

Zone 7)

Levels A, B or C.....\$ 23.61 13.41

Work performed in

<https://beta.sam.gov/wage-determination/MI20190001/4/document>

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conjunction with site

preparation not requiring

the use of personal

protective equipment;

Also, Level D.....\$ 22.61 13.41

Laborers - hazardous waste

abatement: (HILLSDALE,

JACKSON AND LENAWE COUNTY

- Zone 4)

Levels A, B or C.....\$ 24.19 12.85

Work performed in

conjunction with site

preparation not requiring

the use of personal

protective equipment;

Also, Level D.....\$ 23.19 12.85

Laborers - hazardous waste

abatement: (LIVINGSTON COUNTY

(east of Oak Grove Rd. and

south of M-59, excluding the

city of Howell); AND

WASHTENAW COUNTY - Zone 3)

Levels A, B or C.....\$ 29.70 14.20

Work performed in

conjunction with site

preparation not requiring

the use of personal

protective equipment;

Also, Level D.....\$ 28.70 14.20

Laborers - hazardous waste

abatement: (MACOMB AND WAYNE

COUNTIES - Zone 1)

Levels A, B or C.....\$ 28.35 16.75

Work performed in

conjunction with site

preparation not requiring

the use of personal

protective equipment;

Also, Level D.....\$ 27.35 16.75

Laborers - hazardous waste

abatement: (MONROE COUNTY -

<https://beta.sam.gov/wage-determination/MI20190001/4/document>

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Zone 4)

Levels A, B or C.....\$ 30.85 14.45

Work performed in
conjunction with site
preparation not requiring
the use of personal
protective equipment;

Also, Level D.....\$ 29.84 14.45

Laborers - hazardous waste
abatement: (OAKLAND COUNTY
and the Northeast portion of
LIVINGSTON COUNTY bordered by
Oak Grove Road on the West
and M-59 on the South - Zone

2)

Level A, B, C.....\$ 28.85 16.75

Work performed in
conjunction with site
preparation not requiring
the use of personal
protective equipment;

Also, Level D.....\$ 27.85 16.75

Laborers - hazardous waste
abatement: (SANILAC AND ST.
CLAIR COUNTIES - Zone 5)

Levels A, B or C.....\$ 25.19 15.86

Work performed in
conjunction with site
preparation not requiring
the use of personal
protective equipment;

Also, Level D.....\$ 24.19 15.86

LAB00259-001 09/01/2018

AREA 1: MACOMB, OAKLAND AND WAYNE COUNTIES

AREA 2: ALCONA, ALGER, ALLEGAN, ALPENA, ANTRIM, ARENAC, BARAGA,
BARRY, BAY, BENZIE, BERRIEN, BRANCH, CALHOUN, CASS, CHARLEVOIX,
CHEBOYGAN, CHIPPEWA, CLARE, CLINTON, CRAWFORD, DELTA,
DICKINSON, EATON, EMMET, GENESEE, GLADWIN, GOGEBIC, GRAND
TRAVERSE, GRATIOT, HILLSDALE, HOUGHTON, HURON, INGHAM, IONIA,

<https://beta.sam.gov/wage-determination/MI20190001/4/document>

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IOSCO, IRON, ISABELLA, JACKSON, KALAMAZOO, KALKASKA, KENT,
KEWEENAW, LAKE, LAPEER, LEELANAU, LENAWEE, LIVINGSTON, LUCE,
MACKINAC, MANISTEE, MARQUETTE, MASON, MECOSTA, MENOMINEE,
MIDLAND, MISSAUKEE, MONROE, MONTCALM, MONTMORENCY, MUSKEGON,
NEWAYGO, OCEANA, OGEMAW, ONTONAGON, OSCEOLA, OSCODA, OTSEGO,
OTTAWA, PRESQUE ISLE, ROSCOMMON, SAGINAW, ST. CLARE, ST.
JOSEPH, SANILAC, SCHOOLCRAFT, SHIAWASSEE, TUSCOLA, VAN BUREN,
WASHTENAW AND WEXFORD COUNTIES

	Rates	Fringes
Laborers - tunnel, shaft and caisson:		
AREA 1		
GROUP 1.....	\$ 22.57	16.80
GROUP 2.....	\$ 22.68	16.80
GROUP 3.....	\$ 22.74	16.80
GROUP 4.....	\$ 22.92	16.80
GROUP 5.....	\$ 23.17	16.80
GROUP 6.....	\$ 23.50	16.80
GROUP 7.....	\$ 16.78	16.80
AREA 2		
GROUP 1.....	\$ 24.10	12.85
GROUP 2.....	\$ 24.19	12.85
GROUP 3.....	\$ 24.29	12.85
GROUP 4.....	\$ 24.45	12.85
GROUP 5.....	\$ 24.71	12.85
GROUP 6.....	\$ 25.02	12.85
GROUP 7.....	\$ 17.29	12.85

SCOPE OF WORK: Tunnel, shaft and caisson work of every type
and description and all operations incidental thereto,
including, but not limited to, shafts and tunnels for
sewers, water, subways, transportation, diversion,
sewerage, caverns, shelters, aquifers, reservoirs, missile
silos and steel sheeting for underground construction.

TUNNEL LABORER CLASSIFICATIONS

GROUP 1: Tunnel, shaft and caisson laborer, dump, shanty, hog

house tender, testing (on gas) and watchman

GROUP 2: Manhole, headwall, catch basin builder, bricklayer
tender, mortar machine and material mixer

GROUP 3: Air tool operator (jackhammer, bush hammer and grinder), first bottom, second bottom, cage tender, car pusher, carrier, concrete, concrete form, concrete repair, cement invert laborer, cement finisher, concrete shoveler, conveyor, floor, gasoline and electric tool operator, gunite, grout operator, welder, heading dinky person, inside lock tender, pea gravel operator, pump, outside lock tender, scaffold, top signal person, switch person, track, tugger, utility person, vibrator, winch operator, pipe jacking, wagon drill and air track operator and concrete saw operator (under 40 h.p.)

GROUP 4: Tunnel, shaft and caisson mucker, bracer, liner plate, long haul dinky driver and well point

GROUP 5: Tunnel, shaft and caisson miner, drill runner, key board operator, power knife operator, reinforced steel or mesh (e.g. wire mesh, steel mats, dowel bars, etc.)

GROUP 6: Dynamite and powder

GROUP 7: Restoration laborer, seeding, sodding, planting, cutting, mulching and top soil grading; and the restoration of property such as replacing mailboxes, wood chips, planter boxes, flagstones, etc.

LAB00334-001 09/01/2018

	Rates	Fringes
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Laborers - open cut:

ZONE 1 - MACOMB, OAKLAND

AND WAYNE COUNTIES:

GROUP 1.....	\$ 22.42	16.80
GROUP 2.....	\$ 22.53	16.80

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GROUP 3.....	\$ 22.58	16.80
GROUP 4.....	\$ 22.66	16.80
GROUP 5.....	\$ 22.72	16.80
GROUP 6.....	\$ 20.17	16.80
GROUP 7.....	\$ 16.79	16.80

ZONE 2 - LIVINGSTON COUNTY

(east of M-151 (Oak Grove Rd.)); MONROE AND

WASHTENAW COUNTIES:

GROUP 1.....	\$ 23.75	12.85
GROUP 2.....	\$ 23.86	12.85
GROUP 3.....	\$ 23.98	12.85
GROUP 4.....	\$ 24.05	12.85
GROUP 5.....	\$ 24.20	12.85
GROUP 6.....	\$ 21.50	12.85
GROUP 7.....	\$ 18.14	12.85

ZONE 3 - CLINTON, EATON,

GENESEE, HILLSDALE AND

INGHAM COUNTIES; IONIA

COUNTY (City of Portland);

JACKSON, LAPEER AND

LENAWEE COUNTIES;

LIVINGSTON COUNTY (west of

M-151 Oak Grove Rd.);

SANILAC, ST. CLAIR AND

SHIAWASSEE COUNTIES:

GROUP 1.....	\$ 21.94	12.85
GROUP 2.....	\$ 22.08	12.85
GROUP 3.....	\$ 22.20	12.85
GROUP 4.....	\$ 22.25	12.85
GROUP 5.....	\$ 22.39	12.85
GROUP 6.....	\$ 19.69	12.85
GROUP 7.....	\$ 16.84	12.85

ZONE 4 - ALCONA, ALLEGAN,

ALPENA, ANTRIM, ARENAC,

BARRY, BAY, BENZIE,

BERRIEN, BRANCH,

CALHOUN, CASS, CHARLEVOIX,

CHEBOYGAN, CLARE,

CRAWFORD, EMMET,

GLADWIN, GRAND TRAVERSE,

GRATIOT AND HURON
 COUNTIES; IONIA COUNTY
 (EXCEPT THE CITY OF
 PORTLAND); IOSCO,
 ISABELLA, KALAMAZOO,
 KALKASKA, KENT,
 LAKE, LEELANAU, MANISTEE,
 MASON, MECOSTA, MIDLAND,
 MISSAUKEE, MONTCALM,
 MONTMORENCY, MUSKEGON,
 NEWAYGO, OCEANA, OGEMAW,
 OSCEOLA, OSCODA, OTSEGO,
 OTTAWA, PRESQUE ISLE,
 ROSCOMMON, SAGINAW, ST.
 JOSEPH, TUSCOLA, VAN BUREN
 AND WEXFORD COUNTIES:

GROUP 1.....\$ 20.97	12.85
GROUP 2.....\$ 21.10	12.85
GROUP 3.....\$ 21.21	12.85
GROUP 4.....\$ 21.28	12.85
GROUP 5.....\$ 21.40	12.85
GROUP 6.....\$ 18.62	12.85
GROUP 7.....\$ 16.96	12.85

ZONE 5 - ALGER, BARAGA,
 CHIPPEWA, DELTA,
 DICKINSON, GOGEBIC,
 HOUGHTON, IRON,
 KEWEENAW, LUCE, MACKINAC,
 MARQUETTE, MENOMINEE,
 ONTONAGON AND SCHOOLCRAFT
 COUNTIES:

GROUP 1.....\$ 21.19	12.85
GROUP 2.....\$ 21.33	12.85
GROUP 3.....\$ 21.46	12.85
GROUP 4.....\$ 21.51	12.85
GROUP 5.....\$ 21.56	12.85
GROUP 6.....\$ 18.94	12.85
GROUP 7.....\$ 17.05	12.85

SCOPE OF WORK:

Open cut construction work shall be construed to mean work which requires the excavation of earth including industrial, commercial and residential building site excavation and preparation, land balancing, demolition and removal of concrete and underground appurtenances, grading, paving, sewers, utilities and improvements; retention, oxidation, flocculation and irrigation facilities, and also including but not limited to underground piping, conduits, steel sheeting for underground construction, and all work incidental thereto, and general excavation. For all areas except the Upper Peninsula, open cut construction work shall also be construed to mean waterfront work, piers, docks, seawalls, breakwalls, marinas and all incidental work. Open cut construction work shall not include any structural modifications, alterations, additions and repairs to buildings, or highway work, including roads, streets, bridge construction and parking lots or steel erection work and excavation for the building itself and back filling inside of and within 5 ft. of the building and foundations, footings and piers for the building. Open cut construction work shall not include any work covered under Tunnel, Shaft and Caisson work.

OPEN CUT LABORER CLASSIFICATIONS

GROUP 1: Construction laborer

GROUP 2: Mortar and material mixer, concrete form person, signal person, well point person, manhole, headwall and catch basin builder, headwall, seawall, breakwall and dock builder

GROUP 3: Air, gasoline and electric tool operator, vibrator operator, driller, pump person, tar kettle operator, bracer, rodder, reinforced steel or mesh person (e.g., wire mesh, steel mats, dowel bars, etc.), welder, pipe jacking and boring person, wagon drill and air track operator and concrete saw operator (under 40 h.p.), windlass and tugger person and directional boring person

GROUP 4: Trench or excavating grade person

GROUP 5: Pipe layer (including crock, metal pipe, multi-plate or other conduits)

GROUP 6: Grouting man, audio-visual television operations and all other operations in connection with closed circuit television inspection, pipe cleaning and pipe relining work and the installation and repair of water service pipe and appurtenances

GROUP 7: Restoration laborer, seeding, sodding, planting, cutting, mulching and top soil grading; and the restoration of property such as replacing mailboxes, wood chips, planter boxes, flagstones, etc.

LAB00465-001 06/01/2018

LABORER: Highway, Bridge and Airport Construction

AREA 1: GENESEE, MACOMB, MONROE, OAKLAND, WASHTENAW AND WAYNE COUNTIES

AREA 2: ALLEGAN, BARRY, BAY, BERRIEN, BRANCH, CALHOUN, CASS, CLINTON, EATON, GRATIOT, HILLSDALE, HURON, INGHAM, JACKSON, KALAMAZOO, LAPEER, LENAWEE, LIVINGSTON, MIDLAND, MUSKEGON, SAGINAW, SANILAC, SHIAWASSEE, ST. CLAIR, ST. JOSEPH, TUSCOLA AND VAN BUREN COUNTIES

AREA 3: ALCONA, ALPENA, ANTRIM, ARENAC, BENZIE, CHARLEVOIX, CHEBOYGAN, CLARE, CRAWFORD, EMMET, GLADWIN, GRAND TRAVERSE, IONIA, IOSCO, ISABELLA, KALKASKA, KENT, LAKE, LEELANAU, MANISTEE, MASON, MECOSTA, MISSAUKEE, MONTCALM, MONTMORENCY, NEWAYGO, OCEANA, OGEMAW, OSCEOLA, OSCODA, OTSEGO, OTTAWA, PRESQUE ISLE, ROSCOMMON AND WEXFORD COUNTIES

AREA 4: ALGER, BARAGA, CHIPPEWA, DELTA, DICKINSON, GOGEBIC, HOUGHTON, IRON, KEWEENAW, LUCE, MACKINAC, MARQUETTE, MENOMINEE, ONTONAGON AND SCHOOLCRAFT COUNTIES

	Rates	Fringes
LABORER (AREA 1)		
GROUP 1.....	\$ 26.12	12.85
GROUP 2.....	\$ 26.25	12.85
GROUP 3.....	\$ 26.43	12.85
GROUP 4.....	\$ 26.51	12.85
GROUP 5.....	\$ 26.72	12.85
GROUP 6.....	\$ 27.02	12.85
LABORER (AREA 2)		
GROUP 1.....	\$ 24.02	12.85
GROUP 2.....	\$ 24.22	12.85
GROUP 3.....	\$ 24.46	12.85
GROUP 4.....	\$ 24.81	12.85
GROUP 5.....	\$ 24.68	12.85
GROUP 6.....	\$ 25.02	12.85
LABORER (AREA 3)		
GROUP 1.....	\$ 23.27	12.85
GROUP 2.....	\$ 23.48	12.85
GROUP 3.....	\$ 23.77	12.85
GROUP 4.....	\$ 24.21	12.85
GROUP 5.....	\$ 23.83	12.85
GROUP 6.....	\$ 24.26	12.85
LABORER (AREA 4)		
GROUP 1.....	\$ 23.32	12.85
GROUP 2.....	\$ 23.53	12.85
GROUP 3.....	\$ 23.82	12.85
GROUP 4.....	\$ 24.26	12.85
GROUP 5.....	\$ 23.88	12.85
GROUP 6.....	\$ 24.31	12.85

LABORER CLASSIFICATIONS

GROUP 1: Asphalt shoveler or loader; asphalt plant misc.;
 burlap person; yard person; dumper (wagon, truck, etc.);
 joint filling laborer; miscellaneous laborer; unskilled
 laborer; sprinkler laborer; form setting laborer; form
 stripper; pavement reinforcing; handling and placing (e.g.,
 wire mesh, steel mats, dowel bars); mason's tender or
 bricklayer's tender on manholes; manhole builder;
 headwalls, etc.; waterproofing, (other than buildings) seal

coating and slurry mix, shoring, underpinning; pressure grouting; bridge pin and hanger removal; material recycling laborer; horizontal paver laborer (brick, concrete, clay, stone and asphalt); ground stabilization and modification laborer; grouting; waterblasting; top person; railroad track and trestle laborer; carpenters' tender; guard rail builders' tender; earth retention barrier and wall and M.S.E. wall installer's tender; highway and median installer's tender(including sound, retaining, and crash barriers); fence erector's tender; asphalt raker tender; sign installer; remote control operated equipment.

GROUP 2: Mixer operator (less than 5 sacks); air or electric tool operator (jackhammer, etc.); spreader; boxperson (asphalt, stone, gravel); concrete paddler; power chain saw operator; paving batch truck dumper; tunnel mucker (highway work only); concrete saw (under 40 h.p.) and dry pack machine; roto-mill grounds person.

GROUP 3: Tunnel miner (highway work only); finishers tenders; guard rail builders; highway and median barrier installer; earth retention barrier and wall and M.S.E. wall installer's (including sound, retaining and crash barriers); fence erector; bottom person; powder person; wagon drill and air track operator; diamond and core drills; grade checker; certified welders; curb and side rail setter's tender.

GROUP 4: Asphalt raker

GROUP 5: Pipe layers, oxy-gun

GROUP 6: Line-form setter for curb or pavement; asphalt screed checker/screw man on asphalt paving machines.

LAB01076-005 04/01/2018

MICHIGAN STATEWIDE

Rates	Fringes
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LABORER (DISTRIBUTION WORK)

Zone 1.....	\$ 20.27	12.85
Zone 2.....	\$ 18.59	12.85
Zone 3.....	\$ 16.76	12.85
Zone 4.....	\$ 16.12	12.85
Zone 5.....	\$ 16.12	12.85

DISTRIBUTION WORK - The construction, installation, treating and reconditioning of distribution pipelines transporting coal, oil, gas or other similar materials, vapors or liquids, including pipelines within private property boundaries, up to and including the meter settings on residential, commercial, industrial, institutional, private and public structures. All work covering pumping stations and tank farms not covered by the Building Trades Agreement. Other distribution lines with the exception of sewer, water and cable television are included.

Underground Duct Layer Pay: \$.40 per hour above the base pay rate.

Zone 1 - Macomb, Oakland and Wayne

Zone 2 - Monroe and Washtenaw

Zone 3 - Bay, Genesee, Lapeer, Midland, Saginaw, Sanilac, Shiawassee and St. Clair

Zone 4 - Alger, Baraga, Chippewa, Delta, Dickinson, Gogebic, Houghton, Iron, Keweenaw, Luce, Mackinac, Marquette, Menominee, Ontonagon and Schoolcraft

Zone 5 - Remaining Counties in Michigan

PAIN0022-002 07/01/2008

HILLSDALE, JACKSON AND LENAWEE COUNTIES; LIVINGSTON COUNTY (east of the eastern city limits of Howell, not including the city of Howell, north to the Genesee County line and south to the Washtenaw County line); MACOMB, MONROE, OAKLAND, WASHTENAW AND WAYNE COUNTIES:

	Rates	Fringes
PAINTER.....	\$ 25.06	14.75

FOOTNOTES: For all spray work and journeyman rigging for spray work, also blowing off, \$0.80 per hour additional (applies only to workers doing rigging for spray work on off the floor work. Does not include setting up or moving rigging on floor surfaces, nor does it apply to workers engaged in covering up or tending spray equipment. For all sandblasting and spray work performed on highway bridges, overpasses, tanks or steel, \$0.80 per hour additional. For all brushing, cleaning and other preparatory work (other than spraying or steeplejack work) at scaffold heights of fifty (50) feet from the ground or higher, \$0.50 per hour additional. For all preparatorial work and painting performed on open steel under forty (40) feet when no scaffolding is involved, \$0.50 per hour additional. For all swing stage work-window jacks and window belts-exterior and interior, \$0.50 per hour additional. For all spray work and sandblaster work to a scaffold height of forty (40) feet above the floor level, \$0.80 per hour additional. For all preparatorial work and painting on all highway bridges or overpasses up to forty (40) feet in height, \$0.50 per hour additional. For all steeplejack work performed where the elevation is forty (40) feet or more, \$1.25 per hour additional.

 PAIN0312-001 06/01/2018

EXCLUDES: ALLEGAN COUNTY (Townships of Dorr, Fillmore, Heath, Hopkins, Laketown, Leighton, Manlius, Monterey, Overisel, Salem, Saugatuck and Wayland); INCLUDES: Barry, Berrien, Branch, Calhoun, Cass, Hillsdale, Kalamazoo, St. Joseph, Van Buren

	Rates	Fringes
PAINTER		

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Brush and roller.....\$ 23.74	13.35
Spray, Sandblast, Sign	
Painting.....\$ 24.94	13.35

PAIN0845-003 05/10/2018

CLINTON COUNTY; EATON COUNTY (does not include the townships of Bellevue and Olivet); INGHAM COUNTY; IONIA COUNTY (east of Hwy. M 66); LIVINGSTON COUNTY (west of the eastern city limits of Howell, including the city of Howell, north to the Genesee County line and south to the Washtenaw County line); AND SHIAWASSEE COUNTY (Townships of Bennington, Laingsbury and Perry):

	Rates	Fringes
PAINTER.....\$ 25.49		13.74

PAIN0845-015 05/10/2018

MUSKEGON COUNTY; NEWAYGO COUNTY (except the Townships of Barton, Big Prairie, Brooks, Croton, Ensley, Everett, Goodwell, Grant, Home, Monroe, Norwich and Wilcox); OCEANA COUNTY; OTTAWA COUNTY (except the townships of Allendale, Blendone, Chester, Georgetown, Holland, Jamestown, Olive, Park, Polkton, Port Sheldon, Tallmadge, Wright and Zeeland):

	Rates	Fringes
PAINTER.....\$ 25.49		13.74

PAIN0845-018 05/10/2018

ALLEGAN COUNTY (Townships of Dorr, Fillmore, Heath, Hopkins, Laketown, Leighton, Manlius, Monterey, Overisel, Salem, Saugatuck and Wayland); IONIA COUNTY (west of Hwy. M-66); KENT, MECOSTA AND MONTCALM COUNTIES; NEWAYGO COUNTY (Townships of Barton, Big Prairie, Brooks, Croton, Ensley, Everett, Goodwell, Grant, Home, Monroe, Norwich and Wilcox); OSCEOLA COUNTY (south

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of Hwy. #10); OTTAWA COUNTY (Townships of Allendale, Blendone, Chester, Georgetown, Holland, Jamestown, Olive, Park, Polkton, Port Sheldon, Tallmadge, Wright and Zeeland):

	Rates	Fringes
PAINTER.....	\$ 25.49	13.74

FOOTNOTES: Lead abatement work: \$1.00 per hour additional.

PAIN1011-003 06/03/2018

ALGER, BARAGA, CHIPPEWA, DELTA, DICKINSON, GOGEBIC, HOUGHTON, IRON, KEWEENAW, LUCE, MACKINAC, MARQUETTE, MENOMINEE, ONTONAGON AND SCHOOLCRAFT COUNTIES:

	Rates	Fringes
PAINTER.....	\$ 25.31	12.78

FOOTNOTES: High pay (bridges, overpasses, watertower): 30 to 80 ft.: \$.65 per hour additional. 80 ft. and over: \$1.30 per hour additional.

PAIN1474-002 06/01/2010

HURON COUNTY; LAPEER COUNTY (east of Hwy. M-53); ST. CLAIR, SANILAC AND TUSCOLA COUNTIES:

	Rates	Fringes
PAINTER.....	\$ 23.79	12.02

FOOTNOTES: Lead abatement work: \$1.00 per hour additional.
Work with any hazardous material: \$1.00 per hour additional. Sandblasting, steam cleaning and acid cleaning: \$1.00 per hour additional. Ladder work at or above 40 ft.,

scaffold work at or above 40 ft., swing stage, boatswain chair, window jacks and all work performed over a falling height of 40 ft.: \$1.00 per hour additional. Spray gun work, pick pullers and those handling needles, blowing off by air pressure, and any person rigging (setting up and moving off the ground): \$1.00 per hour additional. Steeplejack, tanks, gas holders, stacks, flag poles, radio towers and beacons, power line towers, bridges, etc.: \$1.00 per hour additional, paid from the ground up.

 * PAIN1803-003 06/01/2019

ALCONA, ALPENA, ANTRIM, ARENAC, BAY, BENZIE, CHARLEVOIX, CHEBOYGAN, CLARE, CRAWFORD, EMMET, GLADWIN, GRAND TRAVERSE, GRATIOT, IOSCO, ISABELLA, KALKASKA, LAKE, LEELANAU, MANISTEE, MASON, MIDLAND, MISSAUKEE, MONTMORENCY AND OGEMAW COUNTIES; OSCEOLA COUNTY (north of Hwy. #10); OSCODA, OTSEGO, PRESQUE ISLE, ROSCOMMON, SAGINAW AND WEXFORD COUNTIES:

	Rates	Fringes
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PAINTER

Work performed on water, bridges over water or moving traffic, radio and powerline towers, elevated tanks, steeples, smoke stacks over 40 ft. of falling heights, recovery of lead-based paints and any work associated with industrial plants, except maintenance of industrial

plants.....	\$ 25.39	14.68
All other work, including maintenance of industrial plant.....	\$ 25.39	14.68

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FOOTNOTES: Spray painting, sandblasting, blowdown associated with spraying and blasting, water blasting and work involving a swing stage, boatswain chair or spider: \$1.00 per hour additional. All work performed inside tanks, vessels, tank trailers, railroad cars, sewers, smoke stacks, boilers or other spaces having limited egress not including buildings, opentop tanks, pits, etc.: \$1.25 per hour additional.

PLAS0514-001 06/01/2018

ZONE 1: GENESEE, LIVINGSTON, MACOMB, MONROE, OAKLAND, SAGINAW, WASHTENAW AND WAYNE COUNTIES

ZONE 2: ALCONA, ALGER, ALLEGAN, ALPENA, ANTRIM, ARENAC, BARAGA, BARRY, BAY, BENZIE, BERRIEN, BRANCH, CALHOUN, CASS, CHARLEVOIX, CHEBOYGAN, CHIPPEWA, CLARE, CLINTON, CRAWFORD, DELTA, DICKINSON, EATON, EMMET, GLADWIN, GOGEBIC, GRAND TRAVERSE, GRATIOT, HILLSDALE, HOUGHTON, HURON, INGHAM, IONIA, IOSCO, IRON, ISABELLA, JACKSON, KALAMAZOO, KALKASKA, KENT, KEWEENAW, LAKE, LAPEER, LEELANAU, LENAWEE, LUCE, MACKINAC, MANISTEE, MARQUETTE, MASON, MECOSTA, MENOMINEE, MIDLAND, MISSAUKEE, MONTCALM, MONTMORENCY, MUSKEGON, NEWAYGO, OCEANA, OGEMAW, ONTONAGON, OSCEOLA, OSCODA, OTSEGO, OTTAWA, PRESQUE ISLE, ROSCOMMON, SANILAC, SCHOOLCRAFT, SHIAWASSEE, ST. CLAIR, ST. JOSEPH, TUSCOLA, VAN BUREN AND WEXFORD COUNTIES

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER		
ZONE 1.....	\$ 31.47	13.81
ZONE 2.....	\$ 29.97	13.81

PLUM0190-003 05/01/2015

ALCONA, ALGER, ALLEGAN, ALPENA, ANTRIM, ARENAC, BARAGA, BARRY, BAY, BENZIE, BERRIEN, BRANCH, CALHOUN, CASS, CHARLEVOIX, CHEBOYGAN, CHIPPEWA, CLARE, CLINTON, CRAWFORD, DELTA, DICKINSON, EATON, EMMET, GENESEE, GLADWIN, GOGEBIC, GRAND

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TRAVERSE, GRATIOT, HILLSDALE, HOUGHTON, HURON, INGHAM, IONIA,
IOSCO, IRON, ISABELLA, JACKSON, KALAMAZOO, KALKASKA, KENT,
KEWEENAW, LAKE, LAPEER, LEELANAU, LENAWEE, LIVINGSTON, LUCE,
MACKINAC, MACOMB, MANISTEE, MARQUETTE, MASON, MECOSTA,
MENOMINEE, MIDLAND, MISSAUKEE, MONTCALM, MONTMORENCY, MONROE,
MUSKEGON, NEWAYGO, OAKLAND, OCEANA, OGEMAW, ONTONAGON, OSCEOLA,
OSCODA, OTSEGO, OTTAWA, PRESQUE ISLE, ROSCOMMON, SAGINAW, ST.
CLARE, ST. JOSEPH, SANILAC, SCHOOLCRAFT, SHIAWASSEE, TUSCOLA,
VAN BUREN, WASHTENAW, WAYNE AND WEXFORD COUNTIES

	Rates	Fringes
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Plumber/Pipefitter - gas

distribution pipeline:

Welding in conjunction

with gas distribution

pipeline work.....	\$ 33.03	20.19
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All other work:.....	\$ 24.19	12.28
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TEAM0007-004 06/01/2018

AREA 1: ALCONA, ALGER, ALLEGAN, ALPENA, ANTRIM, ARENAC, BARAGA,
BARRY, BAY, BENZIE, BERRIEN, BRANCH, CALHOUN, CASS, CHARLEVOIX,
CHEBOYGAN, CHIPPEWA, CLARE, CLINTON, CRAWFORD, DELTA,
DICKINSON, EATON, EMMET, GLADWIN, GOGEBIC, GRAND TRAVERSE,
GRATIOT, HILLSDALE, HOUGHTON, HURON, INGHAM, IONIA, IOSCO,
IRON, ISABELLA, JACKSON, KALAMAZOO, KALKASKA, KENT, KEWEENAW,
LAKE, LAPEER, LEELANAU, LENAWEE, LUCE, MACKINAC, MANISTEE,
MARQUETTE, MASON, MECOSTA, MENOMINEE, MIDLAND, MISSAUKEE,
MONTCALM, MONTMORENCY, MUSKEGON, NEWAYGO, OCEANA, OGEMAW,
ONTONAGON, OSCEOLA, OSCODA, OTSEGO, OTTAWA, PRESQUE ISLE,
ROSCOMMON, SAGINAW, SANILAC, SCHOOLCRAFT, SHIAWASSEE, ST.
CLAIR, ST. JOSEPH, TUSCOLA, VAN BUREN AND WEXFORD COUNTIES

AREA 2: GENESEE, LIVINGSTON, MACOMB, MONROE, OAKLAND, WASHTENAW
AND WAYNE COUNTIES

	Rates	Fringes
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<https://beta.sam.gov/wage-determination/MI20190001/4/document>

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TRUCK DRIVER

AREA 1

Euclids, double bottoms
and lowboys.....\$ 26.55 .50 + a+b
Trucks under 8 cu. yds.....\$ 26.30 .50 + a+b
Trucks, 8 cu. yds. and
over.....\$ 26.40 .50 + a+b

AREA 2

Euclids, double bottoms
and lowboys.....\$ 24.895 .50 + a+b
Euclids, double bottoms
and lowboys.....\$ 26.65 .50 + a+b
Trucks under 8 cu. yds.....\$ 26.40 .50 + a+b
Trucks, 8 cu. yds. and
over.....\$ 26.50 .50 + a+b

Footnote:

a. \$446.70 per week

b. \$67.00 daily

TEAM0247-004 04/01/2013

AREA 1: ALCONA, ALGER, ALLEGAN, ALPENA, ANTRIM, ARENAC, BARAGA,
BARRY, BAY, BENZIE, BERRIEN, BRANCH, CALHOUN, CASS, CHARLEVOIX,
CHEBOYGAN, CHIPPEWA, CLARE, CLINTON, CRAWFORD, DELTA,
DICKINSON, EATON, EMMET, GLADWIN, GOGEBIC, GRAND TRAVERSE,
GRATIOT, HILLSDALE, HOUGHTON, HURON, INGHAM, IONIA, IOSCO,
IRON, ISABELLA, JACKSON, KALAMAZOO, KALKASKA, KENT, KEWEENAW,
LAKE, LAPEER, LEELANAU, LENAWEE, LUCE, MACKINAC, MANISTEE,
MARQUETTE, MASON, MECOSTA, MENOMINEE, MIDLAND, MISSAUKEE,
MONTCALM, MONTMORENCY, MUSKEGON, NEWAYGO, OCEANA, OGEMAW,
ONTONAGON, OSCEOLA, OSCODA, OTSEGO, OTTAWA, PRESQUE ISLE,
ROSCOMMON, SANILAC, SCHOOLCRAFT, SHIAWASSEE, SAGINAW, ST.
CLAIR, ST. JOSEPH, TUSCOLA, VAN BUREN AND WEXFORD COUNTIES

AREA 2: GENESEE, LIVINGSTON, MACOMB, MONROE, OAKLAND,
WASHTENAW AND WAYNE COUNTIES

Rates Fringes

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Sign Installer

AREA 1

GROUP 1.....	\$ 21.78	11.83
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GROUP 2.....	\$ 25.27	11.8375
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AREA 2

GROUP 1.....	\$ 22.03	11.83
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GROUP 2.....	\$ 25.02	11.8375
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FOOTNOTE:

a. \$132.70 per week, plus \$17.80 per day.

SIGN INSTALLER CLASSIFICATIONS:

GROUP 1: performs all necessary labor and uses all tools required to construct and set concrete forms required in the installation of highway and street signs

GROUP 2: performs all miscellaneous labor, uses all hand and power tools, and operates all other equipment, mobile or otherwise, required for the installation of highway and street signs

TEAM0247-010 04/01/2018

AREA 1: LAPEER AND SHIAWASSEE COUNTIES

AREA 2: GENESEE, MACOMB, MONROE, OAKLAND, ST. CLAIR, WASHTENAW AND WAYNE COUNTIES

Rates	Fringes
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TRUCK DRIVER (Underground construction)

AREA 1

GROUP 1.....	\$ 23.82	19.04
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GROUP 2.....	\$ 23.91	19.04
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GROUP 3.....	\$ 24.12	19.04
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<https://beta.sam.gov/wage-determination/MI20190001/4/document>

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AREA 2

GROUP 1.....	\$ 24.12	19.04
GROUP 2.....	\$ 24.26	19.04
GROUP 3.....	\$ 24.45	19.04

PAID HOLIDAYS: New Year's Day, Memorial Day, Fourth of July,
Labor Day, Thanksgiving Day and Christmas Day.

SCOPE OF WORK: Excavation, site preparation, land balancing,
grading, sewers, utilities and improvements; also including
but not limited to, tunnels, underground piping, retention,
oxidation, flocculation facilities, conduits, general
excavation and steel sheeting for underground construction.
Underground construction work shall not include any
structural modifications, alterations, additions and
repairs to buildings or highway work, including roads,
streets, bridge construction and parking lots or steel
erection.

TRUCK DRIVER CLASSIFICATIONS

GROUP 1: Truck driver on all trucks (EXCEPT dump trucks of 8
cubic yards capacity or over, pole trailers, semis, low
boys, Euclid, double bottom and fuel trucks)

GROUP 2: Truck driver on dump trucks of 8 cubic yards
capacity or over, pole trailers, semis and fuel trucks

GROUP 3: Truck driver on low boy, Euclid and double bottom

SUMI2002-001 05/01/2002

	Rates	Fringes
Flag Person.....	\$ 10.10	0.00
LINE PROTECTOR (ZONE 1:		
GENESEE, MACOMB, MONROE,		
OAKLAND, WASHTENAW AND WAYNE)....	\$ 18.98	12.85

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LINE PROTECTOR (ZONE 2:
STATEWIDE (EXCLUDING GENESEE,
MACOMB, MONROE, OAKLAND,
WASHTENAW AND WAYNE).....\$ 17.14 12.85

Pavement Marking Machine
(ZONE 1: GENESEE, MACOMB,
MONROE, OAKLAND, WASHTENAW
AND WAYNE COUNTIES)
Group 1.....\$ 25.74 12.85

Pavement Marking Machine
(ZONE 1: GENESEE, MACOMB,
MONROE, OAKLAND, WASHTENAW
AND WAYNE)
Group 2.....\$ 23.17 12.85

Pavement Marking Machine
(ZONE 2: STATEWIDE (EXCLUDING
GENESEE, MACOMB, MONROE,
OAKLAND, WASHTENAW AND WAYNE
COUNTIES)
Group 1.....\$ 23.67 12.85

Pavement Marking Machine
(ZONE 2: STATEWIDE (EXCLUDING
GENESEE, MACOMB, MONROE,
OAKLAND, WASHTENAW AND WAYNE)
Group 2.....\$ 21.30 12.85

WORK CLASSIFICATIONS:

PAVEMENT MARKER GROUP 1: Drives or operates a truck mounted
striper, grinder, blaster, groover, or thermoplastic melter
for the placement or removal of temporary or permanent
pavement markings or markers.

PAVEMENT MARKER GROUP 2: Performs all functions involved for
the placement or removal of temporary or permanent pavement
markings or markers not covered by the classification of
Pavement Marker Group 1 or Line Protector.

LINE PROTECTOR: Performs all operations for the protection or removal of temporary or permanent pavement markings or markers in a moving convoy operation not performed by the classification of Pavement Marker Group 1. A moving convoy operation is comprised of only Pavement Markers Group 1 and Line Protectors.

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates

the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

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On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION"

Appendix C:
Grading Permit

GRADING PERMIT

In consideration of the construction of sidewalk corner ramps in the City of Ypsilanti, according to the requirements set forth by the Americans with Disabilities Act (ADA), the undersigned hereby give permission to the City of Ypsilanti, or any contractor hired thereby for grading this property being in the _____¹/₄ Section____, T. 3 S., R. 7 E. City of Ypsilanti, Washtenaw County, Michigan.

The purpose of this temporary grading permit is to allow the construction of sidewalk corner ramps and sidewalk in accordance with the American with Disabilities Act (ADA) requirements. This grading permit allows restoring any disturbed property during construction and does not cause a change in the property lines.

Tax Parcel No. _____

- A. A Temporary Grading Permit approximately _____ feet x _____ feet, located along the frontage of said parcel in the _____¹/₄ of Section 13, T. 3 S., R. 7 E., City of Ypsilanti, Washtenaw County, Michigan.
- B. Corner ramp and sidewalk improvements, regrading and restoration of disturbed areas.
- C. Additional Conditions:
- (1) The permissive rights set forth herein shall start as of the date the contractor commences work on the above project and shall terminate on the date that the contractor completes the above project (not to exceed two years).
- (2) The work described above shall be constructed in a first class, workmanlike manner, and in accordance with applicable City, State and County standards, and upon completion, City of Ypsilanti shall have no further responsibilities, therefore.

This instrument contains the entire permit agreement. No further promises have been made except as shown herein.

WITNESSES:

GRANTOR:

Appendix D:
Ramp Locations

Jarvis St. @ N. Adams St. – Northeast Corner – 1 Ramps
Jarvis St. @ N. Adams St. – Northwest Corner – 1 Ramps
Jarvis St. @ N. Adams St. – Southeast Corner – 2 Ramps
Jarvis St. @ N. Adams St. – Southwest Corner – 2 Ramps

Jarvis St @ Jenness St – Northeast Corner – 2 Ramps
Jarvis St @ Jenness St – Northwest Corner – 2 Ramps
Jarvis St @ Jenness St – Southeast Corner – 1 Ramps
Jarvis St @ Jenness St – Southwest Corner – 1 Ramps

Lowell St @ Jarvis St. – Northeast Corner – 2 Ramps
Lowell St @ Jarvis St. – Southeast Corner – 2 Ramps

Jenness St. @ Saint Johns St. – Southeast Corner – 1 Ramps
Jenness St @ Saint Johns St. – Southwest Corner – 1 Ramps

ADDENDUM TO AGREEMENT FOR SERVICES

This Addendum shall be a part of a certain Agreement between the CITY OF YPSILANTI, a Michigan municipal home-rule corporation of One South Huron Street, Ypsilanti, Michigan 48197 referred to as "CITY", and _____, of _____, Michigan, referred to as "CONTRACTOR", a _____. (sole proprietor, corporation, partnership, etc.).

1. This Addendum is an addition and amendment to the primary Contract between the parties. In an event of a conflict between the language of this Addendum and the primary Contract, the language and terms of this Addendum shall take precedence.

2. Standard of Performance. The CONTRACTOR shall perform the Contract faithfully and diligently and perform the services in a competent, professional, satisfactory and proper manner and during the Contract term or extensions thereof, use every best effort and endeavor to promote the interests of the CITY and devote such time, attention, skill, knowledge and ability as is necessary to most effectively and efficiently carry out and perform the Contract.

3. The parties understand and agree that the CITY may terminate this Contract at any time with or without notice. In such event the CONTRACTOR will be compensated for work already completed

4. This Contract is to be performed in Washtenaw County, Michigan, and all legal venue shall exclusively lie therein.

5. The parties agree that time is of the essence in the performance of this Contract by the CONTRACTOR.

6. Each provision of this Contract shall be separately enforceable and in the event that a court of competent jurisdiction determines or adjudges that any provision of this Contract is invalid or illegal, such decision shall not affect the rest of the Contract which shall remain in full force and effect.

7. This Agreement shall be governed by and construed in accordance with the laws of Michigan.

8. Independent Contractor. The relationship of the CONTRACTOR to the CITY is and shall continue to be that of an independent contractor and no liability or benefits such as worker's compensation, pension rights, or other rights or liabilities arising out of or related to a contract for hire or employer/employee relationship shall arise or accrue to either party as a result of the performance of this Contract.

9. Waiver of Liability. The CONTRACTOR hereby waives any claim against the CITY and agrees not to hold the CITY liable for any personal injury or damage incurred by

it, its employees or associates on this project which is not held by a court of competent jurisdiction to be directly attributable to the sole and/or gross negligence or malicious intentional conduct of any employee of the CITY acting within the scope of their employment. It further agrees to hold the CITY harmless from any such claim by its employees or associates.

10. For the purpose of the hold harmless, indemnity, and insurance provisions contained in this Contract, the term "CITY" shall be deemed to include the City of Ypsilanti and all other associated, affiliated, allied or subsidiary entities, or commissions, officers, agents, representatives and employees.

11. The following Indemnification Agreement shall be, and is hereby, a provision of the Contract and shall be endorsed on the reverse sides of all certificates of insurance:

"The CONTRACTOR agrees to protect, defend, indemnity and hold the CITY and its officers, employees and agents free and harmless from and against any and all losses, penalties, damages, settlements, costs, charges, professional fees or other expenses or liabilities of every kind and character arising out of or relating to any and all claims, liens, demands, obligations, actions, proceedings or causes of action of every kind and character in connection with or arising directly or indirectly out of this Agreement and/or the performance hereof. Without limiting the generality of the foregoing, any and all such claims, etc., relating to personal injury, death, damage to property, defects in materials or workmanship, actual or alleged infringement of any patent, trademark, copy right (or application for any thereof) or any other tangible or intangible personal or property right, or any actual or alleged violation of any applicable statute, ordinance, administrative order, rule or regulation, or decree of any court, shall be included in the indemnity hereunder. The CONTRACTOR further agrees to investigate, handle, respond to, provide defense for and defend any such claims, etc., at his sole expense and agrees to bear all other costs and expenses related thereto, even if it (claims, etc.) is groundless, false or fraudulent."

12. Insurance.

a. The CONTRACTOR prior to commencing work shall provide at his own cost and expense the following insurance to the CITY in insurance companies licensed and/or approved in the State of Michigan, which insurance shall be evidenced by certificates and/or policies as determined by the CITY. All policies and certificates of insurance shall be approved by the Department of City Manager of the CITY prior to the inception of any work.

b. Each certificate or policy shall require that, thirty days prior to cancellation or material change in the policies, notice thereof shall be given to the CITY by registered mail, return receipt requested, for all of the following stated insurance policies. All such notices shall name the CONTRACTOR and identify the contract number.

c. All property losses shall be made payable to and adjusted with the CITY.

d. In order to determine financial strength and reputation of insurance carriers, all companies providing the coverages required shall be licensed or approved by the Insurance Bureau of the State in which the work is performed and shall have a financial rating not lower than XI and a policyholder's service rating no lower than B+ as listed in A.M. Best's Key Rating Guide, current edition. Certificates of insurance shall note A.M. Best's Rating. Companies with ratings lower than B+:XI will be acceptable only upon written consent of the CITY.

e. All policies and certificates of insurance of the CONTRACTOR shall contain the following clauses:

(1) The clause "other insurance provision" in a policy in which the CITY is named as an insured, shall not apply to the CITY.

(2) The insurance companies issuing the policy or policies shall have no recourse against the CITY (including its agents and agencies as aforesaid) for payment of any premiums or for assessments under any form of policy.

(3) Any and all deductibles in the above described insurance policies shall be assumed by and be for the account of, and at the sole risk of, the CONTRACTOR.

(4) The CITY (at its option) shall be listed as an Additional Named Insured on the following insurance coverages provided by the CONTRACTOR.

YES ____	NO ____	1)	Comprehensive General Liability
YES ____	NO ____	2)	Automobile Liability
YES ____	NO ____	3)	Owners Contractors Protective Liability

f. The CONTRACTOR shall maintain at its own expense during the term of this Contract the following insurance:

(1) Worker's Compensation insurance with Michigan statutory limits and employers' liability insurance with minimum limits of \$500,000 each accident.

(2) General Liability insurance with a minimum limit of liability per occurrence of \$1 Million Combined Single Limit (Bodily Injury/Property Damage), with no aggregate.

This insurance shall indicate on the Certificate of Insurance the following coverages:

- (a) Premises - Operations
- (b) Independent Contractor and Subcontractors
- (c) Products and Completed Operations
- (d) Broad Form Contractual
- (e) Broad Form Liability Endorsement

(3) Automobile Liability insurance with minimum limits of liability, per occurrence, of \$1 Million Combined Single Limit (Bodily Injury/Property Damage) unless otherwise indicated in the "Special Conditions" of the Contract specifications. This insurance shall include for bodily injury and property damage the following coverages:

- (a) Owned automobiles

- (b) Hired automobiles
- (c) Non-owned automobiles

(4) **Protective Liability Insurance: Owners and Contractors.** The CONTRACTOR shall provide the original and duplicate policy of insurance to the City Manager. This insurance contract shall name the CITY as the insured and remain in effect until the contract is accepted by the CITY.

The insurance shall provide minimum limits of liability per occurrence of \$500,000. Combined Single Limit. Said insurance shall provide that the term "Owner" or CITY shall be deemed to include all authorities, boards, bureaus, commissions, divisions, departments, districts and offices of the CITY and the individual members, employees and agents thereof in their official capacities.

(5) **Construction Insurance:** The CONTRACTOR at his own cost and expense shall provide and maintain the applicable construction insurance until the Contract is accepted by the CITY and/or its designee. This coverage shall be written for 100% of the completed value covering the CITY as the insured, with a deductible of not more than \$1,000. The CONTRACTOR shall provide the original and duplicate policy to the CITY (unless the CITY shall accept, in lieu thereof, all contained endorsements including all applicable provisions and coverages).

(6) **Professional Services.** CONTRACTOR shall provide professional liabilities (errors and omissions) insurance, with minimum limits of \$1 Million each occurrence.

(7) **Disability Benefits:** The CONTRACTOR shall provide proof of compliance with the Disability Benefits Law. (If applicable).

(8) **Additional insurance** may be required on an individual basis for extra hazardous contracts and specific service agreements. If such additional insurance is required for a specific contract, that requirement will be described in the "Special Conditions" of the contract specifications.

g. If any of the Property and Casualty insurance requirements are not complied with at their renewal dates, payments to the CONTRACTOR will be withheld until those requirements have been met, or at the option of the CITY the CITY may pay the Renewal Premium and withhold such payments from any monies due the CONTRACTOR.

h. In the event that claims in excess of the insured amounts provided herein, are filed by reason of any operations under the Contract, the amount of excess of such claims, or any portion thereof, may be withheld from payment due or to become due the CONTRACTOR until such time as the CONTRACTOR shall furnish such additional security covering such claims as may be determined by the CITY.

i. If at any time any of the foregoing policies shall be or become unsatisfactory to the CITY to form or substance, or if a company insuring any such policy shall be or become unsatisfactory to the CITY, the CONTRACTOR shall upon notice to that effect from the CITY promptly obtain a new policy, submit the same to the City Manager for approval and submit a certificate thereof as herein provided. Upon failure of the CONTRACTOR to furnish, deliver and maintain such insurance as above provided, this Contract, at the election of the CITY may be forthwith declared suspended, discontinued or terminated. Failure of the CONTRACTOR to take out and/or maintain or the taking out and/or maintenance of any required insurance, shall not relieve the CONTRACTOR from any liability under the Contract, nor shall the insurance requirements be construed to

conflict with or otherwise limit the obligations of the CONTRACTOR concerning indemnification.

j. Certificate of Insurance; required language. The Certificate of Insurance obtained by the CONTRACTOR shall contain the following language: "The City of Ypsilanti, Michigan, its elected officials, officers, employees, boards, commission, authorities, voluntary associations, and any other units operating under the jurisdiction of the City and within appointment of its operating budget, including the City of Ypsilanti, are named as additional insured, and such coverage shall be considered to be the primary coverage rather than any policies and insurance or self insurance retention owned or maintained by the City of Ypsilanti."

13. Conflict of Interest. The CONTRACTOR covenants that the CONTRACTOR (individually, or if a corporation, trust, limited liability company or partnership, "the entity") nor any officer, principal, partner, agent or employee of the entity has any interest nor shall they acquire any interest, directly or indirectly, which would conflict in the manner or degree of performance with the Contract. Further that if any such conflict of interest develops and exists during the term of the contract that the CONTRACTOR shall, within 7 days of the existence of such conflict of interest, notify the CITY in writing of the existence and nature of the said conflict of interest.

14. Contingent Fees. The CONTRACTOR warrants it has not employed or retained any company or person other than bonafide employees working solely for the CONTRACTOR, to solicit or secure this Contract, and that it has not paid or agreed to pay any company, or person, other than a bonafide employee working solely for the CONTRACTOR, any fee, commission, percentage, brokerage fee, gift, or any other consideration contingent upon or resulting from the award of making this Contract. For breach or violation of this warranty, the CITY shall have the right to annul the Contract without liability or, at its discretion, to deduct from the fees due the CONTRACTOR, or otherwise, recover the full amount of such fee, commission, percentage, brokerage fee, gift or contingent fee.

15. The CONTRACTOR further agrees to perform this Contract in accord with all federal, state and local laws and will not discriminate against, or give preferential treatment to, any person based on the person's actual or perceived race, color, religion, national origin, immigration status, sex, sexual orientation, gender identity, age, marital status, disability status, gender expression, familial status, education association, height, weight, or other criteria which is not relevant to the particular job. Breach of this provision may be regarded as material breach of the Agreement.

16. The CONTRACTOR further agrees not to discriminate against any employee or applicant for employment based on a person's actual or perceived race, color, religion, national origin, immigration status, sex, sexual orientation, gender identity, age, marital status, disability status, gender expression, familial status, education association, height, or weight (except insofar as it relates to a bonafide or occupational qualification reasonably necessary to the normal operation of the business). Breach of this provision may be regarded as material breach of the Agreement.

17. Permits. The CONTRACTOR shall secure and bear the cost of any permits or licenses of a temporary nature necessary for the prosecution of the work. In particular, he shall secure and bear the cost of shutting off and turning on public services of every nature which may be required by his operations. Where such discontinuance of service affects consumers, due and sufficient notice shall be served upon those so affected.

18. Improvement of Real Property or Performing Management Construction Services. In the event the contract provides for improvement of real property or performing management construction services as provided in MCLA 125.1591, the following provisions apply:

(A) A contract between CONTRACTOR and the CITY for an improvement as provided above shall contain the following provisions:

(a) That if a CONTRACTOR discovers one or both of the following physical conditions of the surface or subsurface at the improvement site, before disturbing the physical condition, the contractor shall promptly notify the CITY of the physical condition in writing:

(i) A subsurface or a latent physical condition at the site is differing materially from those indicated in the improvement contract.

(ii) An unknown physical condition at the site is of an unusual nature differing materially from those ordinarily encountered and generally recognized as inhering in work of the character provided for in the improvement contract.

(b) That if the CITY receives a notice under subdivision (A), the CITY shall promptly investigate the physical condition.

(c) That if the CITY determines that the physical conditions do materially differ and will cause an increase or decrease in costs or additional time needed to perform the contract, the CITY's determination shall be made in writing and an equitable adjustment shall be made and the contract modified in writing accordingly.

(d) That the CONTRACTOR cannot make a claim for additional costs or time because of a physical condition unless the CONTRACTOR has complied with the notice requirements of subdivision (A). The CITY may extend the time required for notice under subdivision (A).

(e) The CONTRACTOR cannot make a claim for an adjustment under the contract after the CONTRACTOR has received the final payment under the contract.

(B) If the CONTRACTOR does not agree with the CITY's determination, with the CITY's consent the CONTRACTOR may complete performance on the contract.

(C) At the option of the CITY, the CONTRACTOR and the CITY shall arbitrate the CONTRACTOR's entitlement to recover the actual increase in contract time and costs incurred because of the physical condition of the improvement site. The arbitration shall be conducted in accordance with the rules of the American Arbitration Association and judgment rendered may be entered in any court having jurisdiction.

19. American's With Disabilities Act Compliance. If this contract alters or resurfaces any streets, intersections, sidewalks, or curb ramps, CONTRACTOR shall

ensure that each portion of the project, to the maximum extent feasible, shall be altered in such manner that the altered portion of the facility is readily accessible to and usable by individuals with disabilities. Each project shall comply with the American's With Disabilities Act requirements, including 28 C.F.R. §§ 35.151(b),(c),(e)(1), and (e)(2) and 28 C.F.R. Part 36, App. A, the ADAAG.

Note: The City of Ypsilanti has chosen to follow the ADAAG standards rather than the UFAS standards. *See* United States Department of Justice ADA Title II Technical Assistance Manual, Section II-6.2100)

As used in this Section, the term "resurface" shall have the definition given by the United States Department of Justice Title II Technical Assistance Manual § II-6.6000 "Resurfacing beyond normal maintenance is an alteration. Merely filling potholes is considered to be normal maintenance."

As used in this Section, the term "to the maximum extent feasible" shall have the meaning set forth at 28 C.F.R. § 36.402(c).

As used in this Section, the term "readily accessible to and usable by persons with disabilities" shall have the meaning set forth at Section II-6.1000 of the US Department of Justice ADA Title II Technical Assistance Manual, and set forth at 28 CFR Appendix B Section 36.401.

20. Prevailing Wage. If the Contract is in amount in excess of \$25,000, all craftsmen, mechanics, and laborers (not including persons employed directly by the CITY) employed directly upon the site of the work shall receive at least the prevailing wages and fringe benefits of the building trades department for the corresponding classes of craftsmen, mechanics, and laborers, as determined and published by the Davis-Bacon division of the United States Department of Labor for the greater Ypsilanti Area. All subcontracts entered into by the CONTRACTOR for services or work under this Contract shall contain the provisions as set forth in this paragraph. CONTRACTOR and all subcontractors engaged in the performance of services or work under the Contract shall furnish proof, at the request of and satisfactory to the CITY, that the provisions of this paragraph are being complied with.

21. Living Wage.

A. (1) If this contract involves \$10,000, or more, Living Wages shall be paid according to the Ypsilanti Living Wage Ordinance (The Ordinance), being Chapter 2, Article VI, Division 4 of the City Code; and

(2) Suitable notices shall be posted in the work place; and

(3) Evidence of compliance including payroll records shall be provided to the Ypsilanti Personnel Department within 10 days of written request from the Ypsilanti Personnel Department.

B. In the event of violation of the provisions of The Ordinance or this contract this contract may be modified or terminated to comply with the provisions of The Ordinance, including withholding of moneys in amount equal to Living Wages not paid in accordance with The Ordinance and the City may also take action to recover the amount of the contract provided to any person found to have violated The Ordinance.

C. Any employee shall have a separate cause of action to enforce the provisions of this contract and The Ordinance and any rights conferred under The

Ordinance, in law and or equity, and any court of competent jurisdiction upon proper proof and the prevailing of the employee in such action, shall award actual damages, wage restitution, interest and actual attorney fees.

D. The City shall have the right to enforce this contract and The Ordinance in law or equity by court process including specific performance.

22. Minimum Wage.

A. (1) The CONTRACTOR must pay minimum wages to all employees according to the Minimum Wage Ordinance (The Ordinance), being Chapter 2, Article III, Division 3 of the City Code.

(2) The CONTRACTOR must post suitable notices in the work place.

(3) The CONTRACTOR must provide evidence of compliance, including payroll records, to the Ypsilanti Personnel Department within 10 days of written request from the Ypsilanti Personnel Department.

B. In the event of violation of the provisions of The Ordinance or this contract this contract may be modified or terminated to comply with the provisions of The Ordinance, including withholding of moneys in amount equal to Minimum Wages not paid in accordance with The Ordinance and the City may also take action to recover the amount of the contract provided to any person found to have violated The Ordinance.

C. Any employee shall have a separate cause of action to enforce the provisions of this contract and The Ordinance and any rights conferred under The Ordinance, in law and or equity, and any court of competent jurisdiction upon proper proof and the prevailing of the employee in such action, shall award actual damages, wage restitution, interest and actual attorney fees.

D. The City shall have the right to enforce this contract and The Ordinance in law or equity by court process including specific performance.

23. Not in Default to City. The CONTRACTOR hereby certifies that the CONTRACTOR is not in default to the CITY, and that there are no unpaid taxes, real or personal, owed to the CITY by the CONTRACTOR, and the CONTRACTOR has no other unfulfilled obligations to the CITY and is in compliance with all Ypsilanti City codes and ordinances. The parties understand that a breach of this provision is a material breach of the contract.

24. Except in amounts less than \$20 million, CONTRACTOR certifies that it, its successor, its parent company, or any of its subsidiaries or subunits does not engage in the practice of committing or contributing funds or property, extending credit, or contract for goods or services to develop petroleum resources, natural gas resources, or nuclear power in Iran.

25. Equal Employment Opportunity. If this Contract is funded in whole or part by monies derived from the Federal government (either directly or indirectly), CONTRACTOR shall comply with E.O. 11246, "Equal Employment Opportunity," as amended by E.O. 11375, "Amending Executive Order 11246 Relating to Equal Employment Opportunity," and as supplemented by regulations at 41 CFR part 60, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor."

26. Copeland "Anti-Kickback" Act. If this Contract in excess of \$2000 for construction or repair, and funded in whole or part by monies derived from the Federal government (either directly or indirectly), CONTRACTOR shall comply with the Copeland "Anti-Kickback" Act (18 U.S.C. 874), as supplemented by Department of Labor regulations (29 CFR part 3, "Contractors and Subcontractors on Public Building or Public Work Financed in Whole or in Part by Loans or Grants from the United States"). The Act provides that each contractor or sub-recipient shall be prohibited from inducing, by any means, any person employed in the construction, completion, or repair of public work, to give up any part of the compensation to which he is otherwise entitled.

27. Davis-Bacon Act. If this is a construction contract of more than \$2,000, or otherwise required by Federal program legislation, CONTRACTOR shall comply with the Davis-Bacon Act (40 U.S.C. 276a to a-7) and as supplemented by Department of Labor regulations (29 CFR part 5, "Labor Standards Provisions Applicable to Contracts Governing Federally Financed and Assisted Construction"). Under this Act, contractors shall be required to pay wages to laborers and mechanics at a rate not less than the minimum wages specified in a wage determination made by the Secretary of Labor. In addition, contractors shall be required to pay wages not less than once a week.

28. Contract Work Hours and Safety Standards Act. If this is a construction contract in excess of \$2000 or contract that involves the employment of mechanics or laborer in excess of \$2500, and funded in whole or part by monies derived from the Federal government (either directly or indirectly), CONTRACTOR shall comply with Sections 102 and 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 327-333), as supplemented by Department of Labor regulations (29 CFR part 5).

29. Rights to Inventions Made Under a Contract or Agreement. If this is a contract for the performance of experimental, developmental, or research work, and funded in whole or part by monies derived from the Federal government (either directly or indirectly), CONTRACTOR agrees to rights of the Federal Government and the recipient in any resulting invention in accordance with 37 CFR part 401, "Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants, Contracts and Cooperative Agreements," and any implementing regulations issued by the awarding agency.

30. Clean Air Act and the Federal Water Pollution Control Act. If this is a contract in excess of \$100,000, and funded in whole or part by monies derived from the Federal government (either directly or indirectly), CONTRACTOR agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401 et seq.) and the Federal Water Pollution Control Act as amended (33 U.S.C. 1251 et seq.).

31. Byrd Anti-Lobbying Amendment (31 U.S.C. 1352). If this is a contact above \$100,000, and funded in whole or part by monies derived from the Federal government (either directly or indirectly), CONTRACTOR certifies that it has not and will not use Federal

appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant or any other award covered by 31 U.S.C. 1352 and further agrees to disclosure of any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award.

32. The Contract and its attachments, and this Addendum, are the sole Contract and Agreement between the parties. Any changes, additions or deletions shall not be effective or actionable unless they are in writing signed by the parties.

IN WITNESS WHEREOF, the undersigned have set their hands this ____ day of _____, 20____.

CONTRACTOR

CITY OF YPSILANTI

BY: _____
Print:
Its:

BY: _____
Frances McMullan
City Manager

APPROVED AS TO FORM:

JOHN M. BARR P-10475
Ypsilanti City Attorney

Appendix F:
City of Ypsilanti Affirmative Action Ordinance

Sec. 2-316. - Definitions.

The following words, terms and phrases when used in this division shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

Affirmative action means all of the various methods and procedures by which equal opportunity to employment without regard to race, national origin, religion, sex, sexual orientation, age or marital status may be legally effectuated.

Age means chronological age.

Contractor means:

- (1) A person who, by contract, furnishes services, materials or supplies.
- (2) Contractor does not include persons who are merely creditors or debtors of the city, such as those holding the city's notes or bonds or persons whose notes, bonds or stock are held by the city.
- (3) Provisions of this division shall not apply to persons who are sole proprietors of their business and who have no employees. Contracts for amounts not exceeding \$2,000.00 shall also be exempt from this division.

Discriminate means to make a decision, offer to make a decision or refrain from making a decision based in whole or in part on the race, national origin, religion, sex, sexual orientation, age or marital status of another person or that person's relatives or associates.

Marital status means the state of being married, unmarried, divorced or widowed.

Minority means a person who is black, a Native American or a Spanish American or Spanish-surnamed American or an Asian.

Minority business enterprise means a business enterprise of which more than 50 percent of the voting shares or interest in the business is owned, controlled and operated by individuals who are members of a minority, or who are women, and with respect to which more than 50 percent of the net profit or loss attributable to the business accrues to shareholders who are members of a minority or women.

Religion means all aspects of religious observance and practices as well as beliefs unless an employer demonstrates that he is unable to reasonably accommodate an employee's or a prospective employee's religious observance or a practice without undue hardship on the conduct of the employer's business.

Sexual orientation means male or female homosexuality, heterosexuality or bisexuality, by preference or practice.

(Code 1983, § 1.271)

Cross reference— Definitions generally, § 1-2.

Sec. 2-317. - Compliance program.

The city shall establish a program of contract compliance, whereby good faith efforts of prospective contractors and contractors to provide affirmative action are monitored.

(Code 1983, § 1.272)

Sec. 2-318. - Compliance officer; rules.

The city manager shall appoint a contract compliance officer. The contract compliance officer or his designee shall establish rules, regulations, or guidelines, that may be necessary to implement contract compliance.

(Code 1983, § 1.273)

Sec. 2-319. - Approval of contractors.

All contractors proposing to do business with the city, except those specifically exempt by regulations promulgated by the city manager, shall receive approval from the contract compliance officer prior to entering into a contract with the city.

(Code 1983, § 1.274)

Sec. 2-320. - Employment opportunity.

Contractors shall take affirmative action to ensure that applicants are employed and that employees are treated during employment in the manner which provides equal employment opportunity and tends to eliminate inequity based upon race, national origin, religion, sex, sexual orientation, age or marital status.

(Code 1983, § 1.275)

Sec. 2-321. - Contractor's agreement.

During the performance of a contract, the contractor agrees as follows: The contractor will not discriminate against any employee or applicant for employment because of race, national origin, religion, sex, sexual orientation, age or marital status. The contractor shall take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, national origin, religion, sex, sexual orientation, age or marital status. Such action shall include, but not be limited to the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of this nondiscrimination clause per Presidential Executive Order Number 11246, Sub/Part B(i).

(Code 1983, § 1.276)

Sec. 2-322. - Information.

- (a) Each prospective contractor shall submit to the city, data showing current total employment by occupational category, sex and minority. The contractor will provide upon request and in a timely manner, all information the contract compliance officer deems necessary for evaluation of affirmative action, including providing access to all books, records and accounts pertaining to the contractor's employment practices.
- (b) If upon review of the aforementioned information, the contract compliance officer concludes that the prospective contractor's work force reasonably reflects the proportions of minorities and females in the labor force within the Ann Arbor—Ypsilanti standard metropolitan statistical area, such contractor will be deemed to have fulfilled the city's requirement for equal employment opportunity and will be considered an eligible bidder on city contracts.
- (c) Subsection (b) of this section shall not apply to any contract for which the contract compliance officer or his designee makes the determination that such provision cannot be fulfilled by minority business enterprises or minority group members or females located within a reasonable trade area determined in relation to the nature of work or services to be provided.
- (d) If, however, the contract compliance officer concludes that the prospective contractor's work force is deficient in representation of minorities and females compared to their proportional representation in the labor force of Ypsilanti—Ann Arbor standard metropolitan statistical area, the contractor will not

be deemed to have fulfilled the city's equal employment opportunity requirement and considered an ineligible bidder unless:

- (1) The contractor assures that ten percent of the total prime contract amount will be expended on services or supplies from minority business enterprises;
- (2) The contractor assures that ten percent of the total prime contract amount will be expended on services or supplies from persons employing at least 50 percent minorities, and that the contractor provides documentary evidence of such minority employment; or
- (3) The contractor agrees to work with the contract compliance officer to:
 - a. Set affirmative action goals, for each job category or division of the work force used in the completion of the work;
 - b. Provide periodic reports concerning the progress the contractor has made in meeting the affirmative action goals it has agreed to;
 - c. Permit the contract compliance officer access to all books, records and documents pertaining to its employment practices for the purpose of determining compliance with the affirmative action agreements.

The contract compliance officer will make a determination of reasonable progress in this direction using establishment criteria.

(Code 1983, § 1.277)

Sec. 2-323. - Compliance monitoring.

The contract compliance officer shall monitor the compliance of each contractor based upon the affirmative action agreement provisions of each contract. For instances of noncompliance, the contract compliance officer shall develop procedures and regulations which provide the contractor with notice of noncompliance. Such procedures and regulations shall include a provision for the posting of contractors not in compliance.

(Code 1983, § 1.278)

Sec. 2-324. - Contract provisions.

- (a) The city's contract shall provide further that breach of obligation to take affirmative action shall be a material breach of the contract for which the city shall be entitled, at its option, to do any or all of the following:
 - (1) To cancel, terminate or suspend the contract in whole or part or refuse to make any required periodic payments or both;
 - (2) Declare the contractor ineligible for the award of any future contracts with the city for a specified length of time;
 - (3) To recover liquidated damages of a specific sum, such sum to be that percentage of the labor expenditures for the time period involved which would have accrued to minority group members had the affirmative obligation not been breached;
 - (4) Impose for each day of noncompliance, liquidated damages of a specified sum, based upon the following schedule:

Contract Amount	Assessed Damages Per Day of

	Noncompliance
\$5,000.00—\$24,999.00	\$ 25.00
\$25,000.00—\$99,999.00	50.00
\$100,000.00—\$199,999.00	100.00
\$200,000.00—\$499,999.00	150.00
\$500,000.00—\$1,499,999.00	200.00
\$1,500,000.00—\$2,999,999.00	250.00
\$3,000,000.00—\$4,999,999.00	300.00
\$5,000,000.00 and above	500.00

- (b) In addition, the contractor shall be liable for any costs or expenses beyond the contract incurred by the city in obtaining from the other sources the work and services to be rendered or performed or goods or properties to be furnished or delivered to the city under this contract.

(Code 1983, § 1.279)

Sec. 2-325. - Initiation of prosecution for violation.

Prosecution for violation of this division may be initiated by complaint of the affected person or by the contract compliance officer on the basis of an investigation by that person.

(Code 1983, § 1.280)

Sec. 2-326. - Annual contract compliance report.

An annual contract compliance report shall be prepared and presented to city council by the first study session in July of each year, except for special reports requested by city council.

(Code 1983, § 1.281)

Sec. 2-327. - Local employees.

Contractors shall make good faith efforts to employ local persons so as to enhance the local economy.

(Code 1983, § 1.282)

Sec. 2-328. - Additional remedies.

Nothing contained in this division shall be deemed or construed to be substitute for or to abolish or impair existing, other or future legal remedies of the city or its officers or agencies, including criminal prosecutions under this or any other ordinance of the city or the laws of the state, even though such remedies may not be specifically enumerated or mentioned herein.

(Code 1983, § 1.283)

Sec. 2-329. - Penalties.

Where no specific penalty is provided for violation of any provision of this division, any person who shall violate any provision of this division shall be guilty of a misdemeanor and shall upon conviction be punished as provided in section 1-15.

(Code 1983, § 1.284)

Secs. 2-330—2-345. - Reserved.



REQUEST FOR LEGISLATION

TO: Mayor and City Council
FROM: Bonnie Wessler
DATE: September 10, 2019
SUBJECT: Connecting Communities

DESCRIPTION:
Connecting Communities

SUMMARY:

The City has been working with the Charter Township of Ypsilanti, the Washtenaw County Road Commission, MDOT, WATS, and Rep. Ronnie Peterson to complete a safe non-motorized crossing of I-94 at Huron Street. A statewide TAP grant has already been applied for by the Washtenaw County Road Commission (on behalf of the City, Township, and MDOT). We are seeking to apply for a Connecting Communities grant from Washtenaw County Parks and Recreation Commission for the match for this project.

RECOMMENDED ACTION: Approval

CITY MANAGER APPROVAL: _____ COUNCIL AGENDA DATE: _____

CITY MANAGER COMMENTS: _____

FISCAL SERVICES DIRECTOR APPROVAL: _____



**Resolution No. 2019-211
September 10, 2019**

RESOLVED BY THE COUNCIL OF THE CITY OF YPSILANTI:

WHEREAS, the City strongly supports safe nonmotorized transportation; and

WHEREAS, the Huron Street at I-94 lacks a safe pathway for pedestrians; and

WHEREAS, the need for a safe crossing is incorporated in the City's Master Plan and Nonmotorized Plan; and

NOW THEREFORE BE IT RESOLVED, THAT the City Council hereby approves the grant application for \$60,000 from the Washtenaw County Parks and Recreation Connecting Communities Program to assist in the engineering for a safe pathway across I-94 on Huron St.

OFFERED BY: _____

SECONDED BY: _____

YES: NO: ABSENT: VOTE:

This resolution is adopted by the Council of the City of Ypsilanti and approved by the Mayor this 10 day of September 2019

#Resolution No. 2019-211



**CITY OF YPSILANTI
DEPARTMENT OF PUBLIC WORKS
14 W. FOREST
YPSILANTI, MI 48197
734-483-1421**

September 5, 2019

City Council
City of Ypsilanti
1 S. Huron St.
Ypsilanti, MI 48197

Re: Potential Meeting Date to Schedule Road Prioritization Meeting

Honorable Mayor and Councilmembers,

It is my understanding that in the past it was a common practice to hold work sessions to discuss the condition of city roads and engage City Councilmembers in order to make decisions regarding the allocation of road funding and the prioritization of road projects. There have been several developments which create a need for the scheduling of a work session to address these items. The City Engineer OHM has recently completed PASER ratings for the City's non-federal aide eligible roads which has evaluated the condition of city roads. We have asked OHM to provide a presentation to Council to give an overview of the updated ratings. We are also working with Washtenaw County to identify some potential projects for a possible renewal of the 0.5 mil County Road millage. As the funds are limited staff wanted to seek Council input on the identification of those projects. Lastly, we can provide an overview of some of the scheduled road projects and where they are at in the process.

Staff is recommending that the work session be scheduled for **Tuesday, December 10, 2019 @ 6:00 p.m.** to discuss the above mentioned items. Please feel free to contact me if you have any additional questions and I look forward to further discussion of this matter.

Thanks,

Ron Akers, AICP
Director
Department of Public Services
734-483-1421
rakers@cityofypsilanti.com

DIVISION 4. – Permit Parking in Public Streets and Parking Lots

Sec. 102-131. - Purpose of division.

The purpose of the permit parking program is to provide an area for parking vehicles belonging to residents of dwelling units above ground floor commercial uses and employees, or business owners, working in the DDA Business Districts

(Code 1983, § 10.4(11.8(1)))

Sec. 102-132. - Designation of districts.

(a) DDA Business district permit areas will be designated by City Council by Resolution

(Code 1983, § 10.4(11.8(2)))

Sec. 102-134. - Eligibility.

Residents of residential units located above ground floor commercial establishments and employees will be able to park in the designated parking areas.

(Code 1983, § 10.4(11.8(4)))

Sec. 102-135. - Permits.

(a) *Application.*

- (1) Residents and Employees may make application to the treasurer in person. Residents must have a valid driver's license and prove residency either through a signed copy of their lease, utility bill, or as indicated on their driver's license. Residents must also provide a copy of their vehicle registered in their own name, or that of a spouse or parent for a permit which will be issued on a one permit per vehicle basis. Employees shall work for an establishment with a certificate of Occupancy and provide a pay stub, business card, or letter on said business letter head indicating their employment.
- (2) The building in which the resident resides must have a business use on the ground floor which has direct access to the street on which the building faces.
- (3) The residence of the applicant must be a structure for which parking for tenants or residents is not available on the building site.
- (4) The resident portion of the building in which the applicant resides must have a current certificate of compliance as required in section 18-146.
- (5) Proof must be shown that the vehicle to be registered belongs to the applicant, spouse, licensed dependent or the parents of a student tenant living at the address.
- (6) The applicant's vehicle must be currently licensed and be free of all outstanding or unpaid parking or moving violations prior to receiving a permit.

(b) *Duration.* Residential permits shall be available three times annually or on an annual basis.

(c) *Information required.* Each application or reapplication for a parking permit shall contain information sufficient to identify the applicant, resident address, email address and the license number of the

motor vehicle for which application is being made, as well as additional information which may be deemed relevant by the treasurer.

- (d) *Fees.* Annual fees for parking permits shall be as set by resolution of the city council beginning September 1. One-third-year fees shall be as set by resolution of the city council beginning January 1, May 1 and September 1. Permits purchased in succeeding months shall be reduced by an amount as set by resolution of the city council for each month thereafter. Temporary visitor permits shall be available upon application for specific times and dates with the police department at no additional cost.
- (e) *Display.* Permits shall be prominently displayed and permanently affixed to the vehicles as indicated on the application. The permit becomes null and void if found on a vehicle other than the vehicle listed on the application.

(Code 1983, § 10.4(11.8(5)—(8)))

Sec. 102-136. - Penalty for violation of division.

- (a) It shall be a violation of the application for a person holding a valid residential parking permit to use or display the permit on a motor vehicle other than the one for which the permit is issued. Violation of this subsection shall result in a fine of \$100.00 and shall result in permanent revocation of the residential parking permit.
- (b) It shall be unlawful for any person to copy, reproduce or otherwise bring into existence a facsimile or counterfeit parking permit. Any person convicted of violating this subsection shall be guilty of a misdemeanor, and upon conviction shall be punished as provided in section 1-15.

(Code 1983, § 10.4(11.8(9)))

Secs. 102-137—102-160. - Reserved.

Print**Citizen Advisory Boards and Commissions Participation Resume - Submission #1599****Date Submitted: 8/29/2019**

The people of Ypsilanti are involved in their City government and are an important part of the community's achievements. Individuals interested in receiving more information in regards to serving on an advisory board or commission are invited to contact the City Clerk's Office at 734-483-1100. Alternatively, citizens who would like to participate can submit their information in the form below.

Name*

Amy Swift

Email Address***Address****City**

Ypsilanti

State

MI

Zip Code

48197

Phone Number***Fax Number****Number of Years in the Community**

1

Ward You Live In

Riverside

Education

MS Historic Preservation (Columbia University); BS Interior Architecture (Lawrence Technological University)

Occupation

Owner, Building Hugger (historic window restoration)

Employer

Building Hugger

Are you applying for youth membership?

Three Commission Allow Youth Membership (Sustainability, Parks and Recreation, & Human Relations)

☐ Yes☒ No**I would like to be considered and could devote sufficient time to serve on the following board or commission:**☐ Review and Tax Assessment Board☐ Board of Ethics☐ Fire Civil Service Commission☐ YCUA☐ Ypsilanti Downtown Development Authority☐ Economic Development Corporation/Brownfield Redevelopment Authority☒ Historic District Commission☐ Ypsilanti Housing Commission☐ Human Relations Commission☐ Planning Commission☐ Non-motorized Advisory Committee☐ Zoning Board of Appeals☐ Property Maintenance Construction Board of Appeals☐ Parks and Recreation Commission☐ Ann Arbor Area Transit Authority☐ Police and Fire Pension Board☐ Huron River Watershed Council☐ Sustainability Commission☐ Police Advisory Commission**Party Affiliation**

If you are applying to serve on the Ethics Board please provide your political affiliation

Why are you interested in serving on these boards/commissions?*

With my academic background and work history I feel that I have a lot to offer my community. As an academic and former professor of architecture history at LTU & UDM I understand and have a deep reverence for the philosophy of living buildings. As a practitioner I spent my early career as an architectural designer before starting a construction company specializing in historic window restoration, so I recognize and support practical building solutions that support continued use and development without sacrificing historic integrity. Finally, as an owner of a historic home myself, I also appreciate that budget realities, the want of personal expression, and the need for function are all important considerations when reviewing submissions.

Work/volunteer experience related to the board or commission:

I work with Detroit and Detroit area commissions regularly in my line of work. I consult often on approval procedures (staff approval vs board reviewed) regarding windows with the Detroit HDC. Before moving to Ypsilanti last year I served 1 year on Detroit's Historic District Advisory Board. I am the co-chair of the Michigan Young Preservation chapter, under the Michigan Historic Preservation Network. I am very involved in the historic preservation field -- locally as well as statewide and nationally. I am inspired by the newer wave of preservation-mindedness that is community-centric, inclusive, and driven by climate action and smart development.

I understand that appointment to a City of Ypsilanti board or commission requires regular attendance at board meetings.

☒ Yes

I hereby certify that all of the information above is true.

☒ Yes

Citizen Advisory Boards and Commissions Participation Resume

The people of Ypsilanti are involved in their City government and are an important part of the community's achievements. Individuals interested in receiving more information in regards to serving on an advisory board or commission are invited to contact the City Clerk's Office at 734-483-1100. Alternatively, citizens who would like to participate can submit their information in the form below.

Name	Liano Sharon
Email Address	
Address	
City	Ypsilanti
State	MICHIGAN
Zip Code	48197
Phone Number	
Fax Number	Field not completed.
Number of Years in the Community	11
Ward You Live In	2
Education	BA Mathematics, post graduate work in curriculum and instruction.
Occupation	Consultant
Employer	Self
Are you applying for youth membership?	No
I would like to be considered and could devote sufficient time to serve on the following board or commission:	Human Relations Commission
Party Affiliation	Field not completed.

Field not completed.

Why are you interested in serving on these boards/commissions?

I want to help build relationships and promote policies that grow understanding, respect, and trust across the diverse Ypsilanti community.

Work/volunteer experience related to the board or commission:

I have more than 20 years experience working across cultures, bringing diverse stakeholders together, learning to understand different needs and perspectives, and communicating across cultural and language barriers to resolve conflicts, grow relationships, and build trust.

I understand that appointment to a City of Ypsilanti board or commission requires regular attendance at board meetings.

Yes

I hereby certify that all of the information above is true.

Yes

Email not displaying correctly? [View it in your browser.](#)



REQUEST FOR LEGISLATION

TO: Mayor and City Council
FROM: Frances McMullan
DATE: September 10, 2019
SUBJECT: IAFF 2017-2022 Collective Bargaining Agreement

DESCRIPTION:

IAFF 2017-2022 Collective Bargaining Agreement

SUMMARY:

IAFF, representing the city's firefighters, and the city have reached a tentative agreement on a new collective bargaining agreement for the term of July 1, 2017, through June 30, 2022.

PREVIOUS COUNCIL ACTION:

None

FINANCIAL IMPACT:

Economic Changes:

- Wages:
 - 7/1/2017 0%
 - 7/1/2018 0%
 - 1/1/2019 3% (retroactive)
 - 1/1/2020 2.5%
 - 1/1/2021 2.5%
 - 1/1/2022 2.5%
- Lump Sum
 - Payment of \$1,500 to be paid within 30 days of ratification to all members
- Active Employees Health Care
 - Effective 1/1/2020 three options for healthcare
 - BCN HMO H.S.A 3,000
 - Simply Blue PPO H.S.A 3,000

- Community Blue PPO HRA
- Retiree Healthcare (Hired on or after 7/1/2012)
 - Health Care Savings program City will contribute \$200 per month effective 7/1/2019 from \$150 per month previously
- Vision Insurance
 - All members of the bargaining unit are eligible for optical insurance with 100% of the premium paid by the City.
- IRS catch up clause
 - An employee who is within three years of eligibility for Normal Retirement may convert any amount of their unused, credited sick leave on the first full biweekly pay period in November to a contribution to his/her deferred compensation account.

Please refer to the tentative agreement for specific details.

ATTACHMENT:

Tentative agreement documents

CITY MANAGER APPROVAL: _____ COUNCIL AGENDA DATE: _____

CITY MANAGER COMMENTS: _____

FISCAL SERVICES DIRECTOR APPROVAL: _____



Resolution No. 2019-210
September 10, 2019

RESOLVED BY THE COUNCIL OF THE CITY OF YPSILANTI:

WHEREAS, the IAFF collective bargaining agreement with the city expired on June 30, 2017; and

WHEREAS, the city and the union have been engaged in contract negotiations for more than two years on a successor contract; and

WHEREAS, the city and the union have reached a tentative agreement on a new collective bargaining agreement for the term commencing on July 1, 2017, and terminating on June 30, 2022; and

WHEREAS, the city desires to approve the new contract as presented.

NOW THEREFORE BE IT RESOLVED THAT the Council of the City of Ypsilanti does hereby approve the new collective bargaining agreement between the City of Ypsilanti and the IAFF, for the term commencing on July 1, 2017 and terminating on June 30, 2022, as presented, and authorizes the Mayor, City Manager, and City Clerk to execute the agreement on behalf of the city, subject to approval as to form by the City Attorney.

OFFERED BY: _____

SECONDED BY: _____

YES: NO: ABSENT: VOTE:

This resolution is adopted by the Council of the City of Ypsilanti and approved by the Mayor this 10 day of September 2019

#Resolution No. 2019-210



Resolution No. 2019-209
September 10, 2019

RESOLVED BY THE COUNCIL OF THE CITY OF YPSILANTI:

That the City Council Meeting be adjourned, on call, by the Mayor or three (3) members of Council.

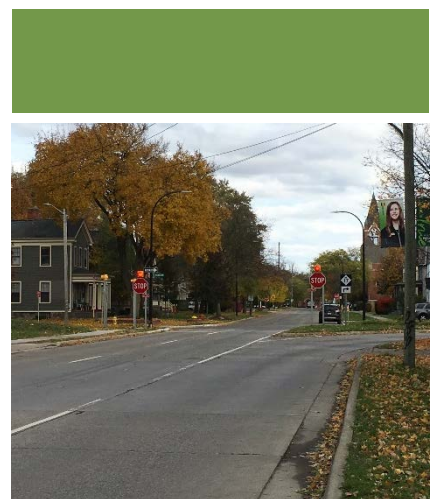
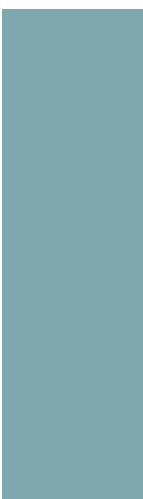
OFFERED BY: _____

SECONDED BY: _____

YES: NO: ABSENT: VOTE:

This resolution is adopted by the Council of the City of Ypsilanti and approved by the Mayor this
10 day of September 2019

#Resolution No. 2019-209



ROAD DIET CAPACITY ANALYSIS REPORT

June 26, 2019

(Draft Report)

Prepared by:



HUBBELL, ROTH & CLARK, INC
CONSULTING ENGINEERS SINCE 1915

555 Hulet Drive
Bloomfield Hills, MI 48302

ENGINEERING. ENVIRONMENT. EXCELLENCE.
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Section 1 - Executive Summary

The City of Ypsilanti selected Hubbell, Roth & Clark, Inc. (HRC) to analyze the feasibility of a road diet on the major roadways through the downtown area. The major roadways analyzed within the study area include the Washtenaw Avenue, Hamilton Street, Huron Street, and Michigan Avenue corridors. All the routes to be studied for the road diet are under the jurisdiction of the Michigan Department of Transportation (MDOT) Brighton Transportation Service Center (TSC).

The goal of this study is to provide enough detail about traffic safety and operations for stakeholders to make an informed decision about converting road segments using a road diet. The focus of this project will be the Synchro analysis of the roadway network to determine if the road diet will maintain an acceptable delay and level of service (LOS) with future traffic on the network. This study will contain all information required to meet the MDOT Road Diet Checklist (Form 1629, dated 4/18) for the MDOT Brighton TSC to present to the MDOT Engineering Operations Committee for approval.

The study analyzed 16 different intersections along the following four corridors in Downtown Ypsilanti:

1. Washtenaw Avenue between Summit Street and Hamilton Street
2. Hamilton Street between Washtenaw Avenue and Harriet Street
3. Huron Street between Cross Street and Harriet/Spring Streets
4. Michigan Avenue between Congress Street/Ballard Street and Huron Street

Figure 1 shows the study area that contains the road segments and intersections that were analyzed.

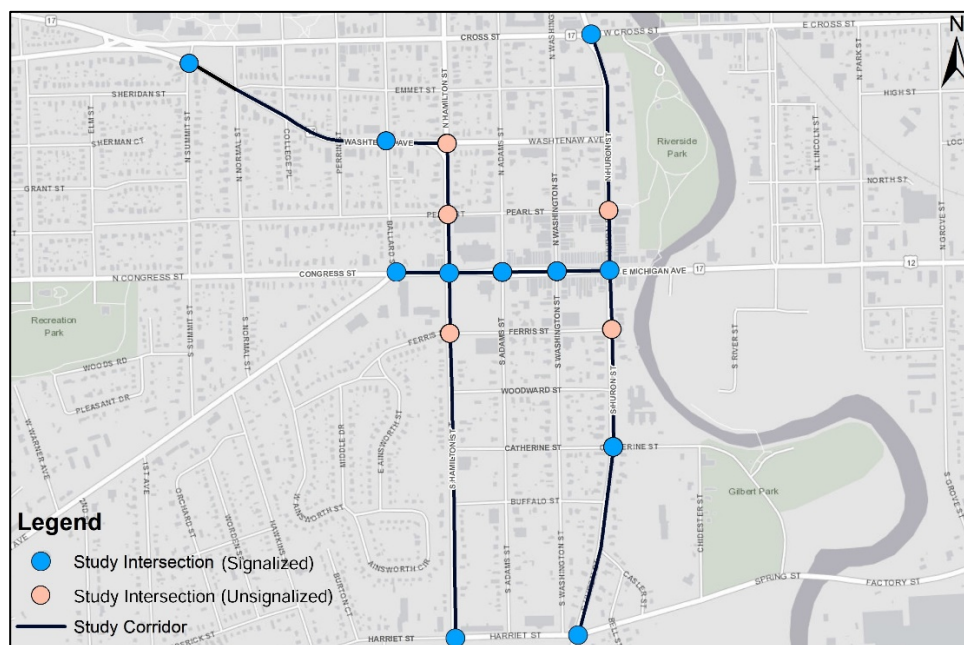


Figure 1: Study Area

The purpose of this study is to perform a feasibility analysis for implementing a road diet concept on the study corridors of Washtenaw Avenue, Hamilton Street, and Huron Street. The City has desired to investigate reducing these roadways from three travel lanes to two by replacing a travel lane with either a six-foot wide bike lane with a buffer or on-street parking. The City indicated there is no need for a road diet concept on Michigan Avenue since on-street parking already exists on both sides of the boulevard.

A capacity analysis was conducted on the roadway network during the AM, Midday, and PM peak hours for the existing, background, and road diet conditions to determine if the road diet has any adverse impacts on the roadway network. Through signal optimization and adding detection at various intersections, it was determined the road diet will not have any significant negative impacts on the roadway network.

The study also reviewed if the road diet had any adverse impacts on access management and sight distances, but none of the added design features associated with the road diet are anticipated to cause any issues. A Highway Safety Manual (HSM) analysis was also conducted to assess the safety implications for the conversion of the Washtenaw Avenue, Hamilton Street, and Huron Street corridors from a three-lane, one-way cross section to a two-lane, one-way cross section. These modifications include the introduction of a bike lane on Hamilton Street and Huron Street and parallel parking on Washtenaw Avenue with a small segment on Hamilton Street between Michigan Avenue and Ferris Street. The results from the HSM analysis predicts a reduction in total crash rate along all study segments by at least two crashes per mile per year. Fatal and injury crash rates are predicted to be reduced by at least one half.

The findings from this study show it will be feasible to convert these roadway segments using a road diet if the following recommendations are met:

1. Optimize the signal timings (adjust splits and offsets) and add detection to change the signal operation to fully actuated for the impacted intersections.
2. Add all signage and pavement markings associated with the road diet as indicated on the complete set of conceptual plans (Appendix F). Green MMA should be used at all conflict areas including bus stops and right-turns at unsignalized intersections.
3. Along eastbound Washtenaw Avenue approaching Normal Street, change the shared left-through lane to a left-turn lane drop. The northernmost travel lane downstream of the intersection will then be converted into on-street parking.
4. Along southbound Hamilton Street approaching Pearl Street, change the shared right-through lane to a right-turn lane drop. The westernmost travel lane downstream of the intersection will then be converted into a bike lane with a buffer.
5. Along northbound Huron Street approaching Harriet/Spring Street, remove the dedicated right-turn lane and change the easternmost through lane to a right-turn lane drop. The easternmost travel lane downstream of the intersection will then be converted into a bike lane with a buffer.

It should be noted again, however, the analysis along Hamilton Street south of Harriet Street is not included in this study and can be found in WATS's Huron I-94 Non-Motorized Crossing Report dated December 2014. Anything included in that area in this study is for reference purposes only.

The goal of this study has been achieved by providing thorough details about traffic safety and operations to show the existing roadway network with future traffic will accommodate the proposed road diet. The road diet also provides several advantages that include the following benefits:

- Improve mobility for bicyclists on Hamilton and Huron Streets by adding bike lanes
- Promote better land use by adding 24 on-street parking spaces on Washtenaw Avenue and five on Hamilton Street between Ferris Street and Michigan Avenue
- Improve pedestrian safety by removing at least 12 feet of travel lane width at every impacted intersection
- Encourage lower vehicle speeds by replacing a travel lane with either a bike lane with a buffer or on-street parking
- Reduce the predicted crashes per mile per year by reducing the number of travel lanes from three to two

With the added benefits and the road diet not having any significant negative impacts on the existing roadway network, HRC recommends the road diet to be applied to the 2022 MDOT Rehabilitation Project.

Section 2 - Introduction

The City of Ypsilanti selected Hubbell, Roth & Clark, Inc. (HRC) to analyze the feasibility of a road diet on the major roadways through the downtown area. The major roadways analyzed within the study area include the Washtenaw Avenue, Hamilton Street, Huron Street, and Michigan Avenue corridors. All the routes to be studied for the road diet are under the jurisdiction of the Michigan Department of Transportation (MDOT) Brighton Transportation Service Center (TSC).

The goal of this study is to provide enough detail about traffic safety and operations for stakeholders, especially the City and MDOT, to make an informed decision about converting road segments using a road diet. The intent for the road diet is to provide the City bike lanes and on-street parking along various segments in the study area. Figure 2 shows the study area that contains the road segments and intersections that were analyzed.



Figure 2: Study Area

The focus of this project will be the Synchro analysis of the roadway network to determine if the road diet will maintain an acceptable delay and level of service (LOS) with future traffic on the network. This study will contain all information required to meet the MDOT Road Diet Checklist (Form 1629, dated 4/18) for the MDOT Brighton TSC to present to the MDOT Engineering Operations Committee for approval.

Section 3 - Existing Roadway System

The study analyzed 16 different intersections along the following four corridors in Downtown Ypsilanti:

1. Washtenaw Avenue between Summit Street and Hamilton Street
 - a. Runs eastbound (one-way) and is a three-lane roadway with curb and gutter
 - b. Classified as a principal arterial with a posted speed of 35 miles per hour (MPH)
 - c. On-street parking is not permitted
 - d. Figure 3 shows typical street view of Washtenaw Avenue



Figure 3: Eastbound Washtenaw Avenue Approaching Ballard Street

2. Hamilton Street between Washtenaw Avenue and Harriet Street
 - a. Runs southbound (one-way) and is a three-lane roadway with curb and gutter
 - b. Classified as a principal arterial with a posted speed limit of 25 MPH between Washtenaw Avenue and Michigan Avenue and 40 MPH south of Michigan Avenue
 - c. On-street parking is not permitted
 - d. Figure 4 shows typical street view of Hamilton Street



Figure 4: Southbound Hamilton Street Approaching Pearl Street

3. Huron Street between Cross Street and Harriet/Spring Streets
 - a. Runs northbound (one-way) and is a three-lane roadway with curb and gutter
 - b. Classified as a principal arterial with a posted speed of 40 MPH between Harriet Street and Ferris Street, 30 MPH between Ferris Street and Pearl Street, and 35 MPH north of Pearl Street
 - c. On-street parking is not permitted except between Michigan Avenue and Pearl Street
 - d. Figure 5 shows typical street view of Huron Street



Figure 5: Northbound Huron Street Approaching Washtenaw Avenue

4. Michigan Avenue between Congress Street/Ballard Street and Huron Street
 - a. Runs eastbound and westbound and is a four-lane boulevard with and curb and gutter
 - b. Classified as a principal arterial with a posted speed limit of 30 MPH
 - c. On-street parking is permitted in both directions
 - d. Figure 6 shows typical street view of Michigan Avenue



Figure 6: Eastbound Michigan Avenue Approaching Adams Street

Section 4 - Existing Traffic Volumes

The study required data collection and field work included collecting eight-hour turning movement counts during the following times periods:

1. AM Peak: 7:00 AM – 9:00 AM
2. Midday Peak: 11:00 AM – 1:00 PM
3. PM Peak: 2:00 PM – 6:00 PM

It should be noted the actual peak hour chosen during each peak may vary from intersection to intersection though as the hour with the highest volume was selected to be analyzed.

Turning movement counts for 13 out of the 16 study intersections were taken via video camera by HRC in either October or November 2018 at the following intersections:

1. Washtenaw Avenue and Summit Street – Signalized
2. Washtenaw Avenue and Ballard Street – Signalized
3. Hamilton Street and Washtenaw Avenue – Unsignalized
4. Hamilton Street and Pearl Street – Unsignalized
5. Hamilton Street and Michigan Avenue – Signalized
6. Hamilton Street and Harriet Street – Signalized
7. Huron Street and Harriet/Spring Streets – Signalized
8. Huron Street and Catherine Street – Signalized
9. Huron Street and Michigan Avenue – Signalized
10. Huron Street and Pearl Street – Unsignalized
11. Huron Street and Cross Street – Signalized
12. Michigan Avenue and Adams Street – Signalized
13. Michigan Avenue and Washington Street – Signalized

Turning movement counts for the other three intersections were obtained from MDOT dated October 2016.

14. Hamilton Street and Ferris Street – Unsignalized
15. Huron Street and Ferris Street – Unsignalized
16. Michigan Avenue and Ballard/Congress Streets – Signalized

The complete turning movement count reports and existing volume diagrams can be found in **Appendix A** and **Appendix B**, respectively.

Section 5 - Multi-Modal Traffic Conditions

Transit

With the Ypsilanti Transit Center located in Downtown Ypsilanti, there are several transit routes within the study area. The Ypsilanti Transit Center is operated by the Ann Arbor Area Transportation Authority (TheRide) and is located on Pearl Street between Adams Street and Washington Street. There is a public parking lot just north of the transit center and six dedicated bus pull-ins on the north side of Pearl Street. Most of the routes have a 30-minute headway, but a few of the more popular ones operate more frequently. Figure 7 shows a complete system map of the 11 routes in the downtown area.

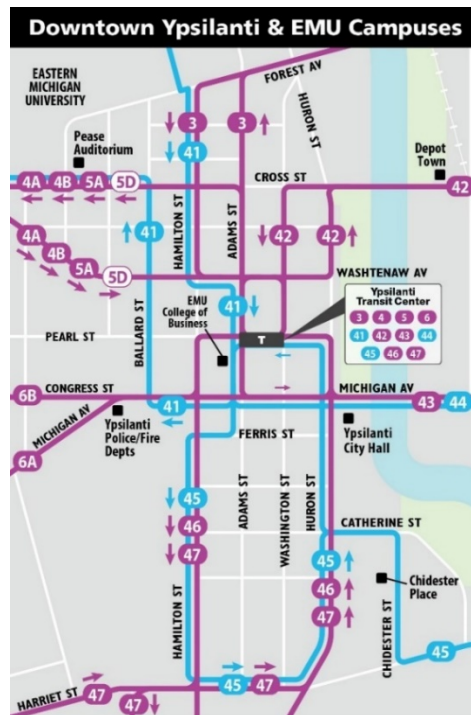


Figure 7: Downtown Ypsilanti Route Map

Out of the 11 routes, 10 of them travel on one of the study corridors and there are seven stops located within the study area. Table 1 shows the approximate location of each stop within the study area along with the associated routes.

Table 1: Routes Traveling within Study Area

Study Corridor	Stop Locations within Study Area (Route #)
Washtenaw Avenue	Between Summit and Normal Streets (4, 5)
	Between Perrin and Ballard Streets (4, 5)
Hamilton Street	Between Buffalo and Catherine Streets (45, 46, 47)
	Between Ferris Street and Michigan Avenue (46, 47)
Michigan Avenue	Between Ballard and Hamilton Streets (6)
Huron Street	Between Spring and Casler Streets (45, 46, 47)
	Between Catherine and Woodward Streets (45, 46, 47)

Pedestrian and Bicycle

Each of the study corridors also contain a sidewalk on both sides to allow for pedestrian travel. Every signalized intersection contains a crosswalk and pedestrian signal, but the unsignalized intersections typically do not have any pedestrian treatments. There are also no bike lanes on any of the study corridors. The pedestrian and bicycle activity during the AM, Midday, and PM peak hours are shown in Table 2.

Table 2: Pedestrian and Bicyclist Volumes at Study Intersections

Intersection	Crossing Pedestrians			Bicyclists on Roadway		
	AM Peak Hour	Midday Peak Hour	PM Peak Hour	AM Peak Hour	Midday Peak Hour	PM Peak Hour
Washtenaw Avenue and Summit Street	33	75	53	1	3	0
Washtenaw Avenue and Ballard Street	15	34	39	3	5	0
Hamilton Street and Michigan Avenue	23	109	49	0	3	2
Huron Street and Cross Street	16	17	43	4	1	1
Huron Street and Michigan Avenue	25	98	88	1	1	2
Michigan Avenue/Congress Street and Ballard Street	5	53	25	-	-	-
Michigan Avenue and Adams Street	29	107	89	0	1	0
Michigan Avenue and Washington Street	44	151	170	1	2	3
Huron Street and Harriet/Spring Street	6	11	10	0	1	0
Hamilton Street and Harriet Street	4	29	29	0	0	2
Huron Street and Catherine Street	4	9	7	0	2	0
Hamilton Street and Washtenaw Avenue	8	32	36	1	1	1
Hamilton Street and Pearl Street	15	41	30	1	5	2
Hamilton Street and Ferris Street	7	22	20	-	-	-
Huron Street and Ferris Street	5	13	11	-	-	-
Huron Street and Pearl Street	20	19	60	0	2	2

Section 6 - Background Traffic Growth

MDOT currently has a rehabilitation project scheduled on the study corridors that includes milling and resurfacing, concrete patching, and upgrading the ramps to meet the Americans with Disabilities Act (ADA) regulations in 2022, which is approximately four years from the data collection for this traffic study. Since the project is in Washtenaw County, personnel from the Washtenaw Area Transportation Study (WATS) were contacted for an annual growth rate to determine the background traffic on the study corridors. WATS provided an annual growth rate of 0.6% for Washtenaw Avenue, Hamilton Street, and Huron Street and 0.7% for Michigan Avenue. WATS's full correspondence is provided in Appendix C.

To determine the background traffic for the construction year of 2022, a future four-year traffic growth factor was applied to the existing traffic volumes. The growth factor was determined by the following formula:

$$\text{Future Traffic Growth Factor} = (1 + r)^y$$

Whereas: r = Annual Growth Rate
 y = Number of Years

Using the formula above, a future four-year traffic growth factor of 1.024 was used for Washtenaw Avenue and Hamilton Street, and Huron Street and 1.028 for Michigan Avenue to determine the future traffic for the construction year of 2022. It was also requested to provide a 20-year forecast to determine the future traffic volume in 2038. Using the same formula, a future 20-year traffic growth factor of 1.127 was used for Washtenaw Avenue, Hamilton Street, and Huron Street and 1.150 for Michigan Avenue to determine the future forecasted traffic in 2038. Table 3 shows the growth rates and factors for the study corridors.

Table 3: Growth Rates and Factors for Study Corridors

Study Corridor	WATS's Annual Growth Rate	4-Year Growth Factor	20-Year Growth Factor
Washtenaw Avenue	0.6%	1.024	1.127
Hamilton Street			
Huron Street			
Michigan Avenue	0.7%	1.028	1.150

The background volume diagrams for 2022 and 2038 are provided in Appendix D.

Section 7 - Road Diet Concept and Design

The purpose of this study is to perform a feasibility analysis for implementing a road diet concept on the study corridors of Washtenaw Avenue, Hamilton Street, and Huron Street. The City has desired to investigate reducing these roadways from three travel lanes to two by replacing a travel lane with either a six-foot wide bike lane with a buffer or on-street parking. The road diet concept would provide the following benefits:

- Improving mobility for non-vehicular transportation modes by adding bike lanes
- Promoting better land use by adding on-street parking
- Improving pedestrian safety by reducing the number of travel lanes needing to cross
- Promoting lower vehicle speeds by reducing the number of travel lanes
- Improving traffic safety by reducing the number of predicted crashes per year

The City indicated there is no need for a road diet concept on Michigan Avenue since on-street parking already exists on both sides of the boulevard.

The road diet concept applies to over one and a half miles of roadway within the study limits and expands further south outside the study limits along Hamilton Street over the I-94 underpass as indicated in WATS's Huron I-94 Non-Motorized Crossing Report dated December 2014. An understanding of the City's desire on where to implement on-street parking and bike lanes within the road diet was also determined at the Kick-Off Meeting held on January 24, 2019. A diagram from the meeting showing the field-measured roadway widths and on-street parking and bike lane locations is provided in Appendix E.

Along eastbound Washtenaw Avenue, the proposed road diet will impact nearly a quarter mile of roadway. The road diet will begin just east of Normal Street and continue up to Ballard Street. The shared-left through lane approaching Normal Street will be changed to a left-turn lane drop and the transition from three travel lanes to two will start downstream of the intersection. This segment will contain two travel lanes and on-street parking on the north side. The segment between Ballard Street and Hamilton Street with the eastbound channelized right-turn lane will remain intact. Figure 8 shows the proposed condition along Washtenaw Avenue at Perrin Street.

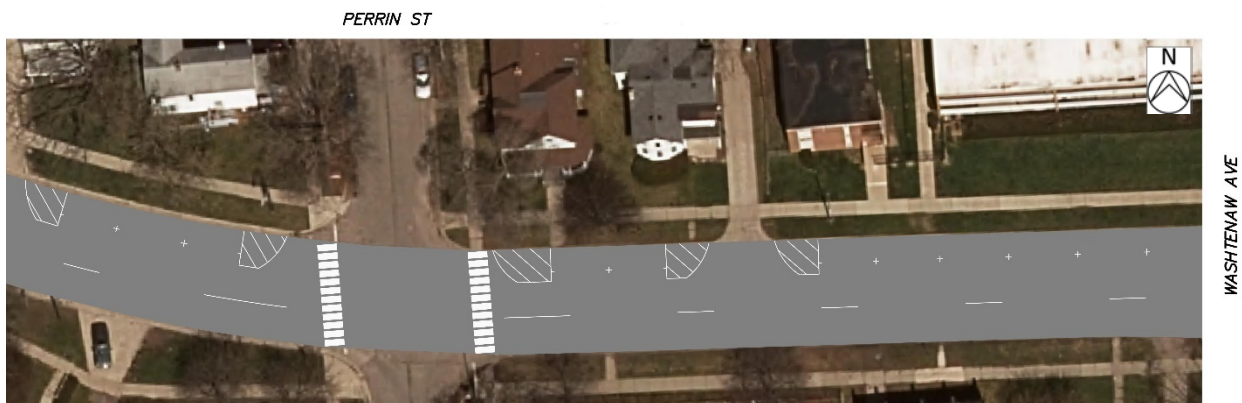


Figure 8: Proposed Condition along Washtenaw Avenue at Perrin Street

Along southbound Hamilton Street, the proposed road diet will impact over a half mile of roadway. The road diet will begin just south of Pearl Street and continue south of the I-94 underpass. The analysis south of Harriet Street, however, is not included in this study and can be found in WATS's Huron I-94 Non-Motorized Crossing Report dated December 2014. The shared right-through lane approaching Pearl Street will be changed to a right-turn lane drop and converted into a bike lane with a buffer downstream of the intersection. Figure 9 shows the proposed condition along Hamilton Street at Pearl Street.



Figure 9: Proposed Condition along Hamilton Street at Pearl Street

On-street parking will also be added along Hamilton Street between Ferris Street and Michigan Avenue. The dedicated left-turn lane will be replaced with five on-street parking spaces. Figure 10 shows the proposed condition along Hamilton Street at Ferris Street.

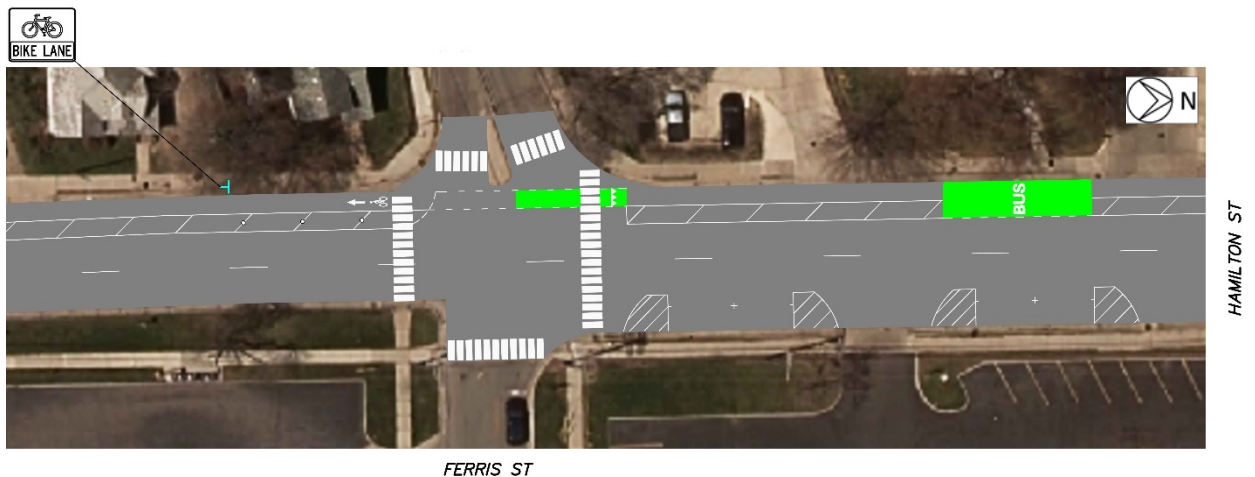


Figure 10: Proposed Condition along Hamilton Street at Ferris Street

Along northbound Huron Street, the proposed road diet will also impact over a half mile of roadway. The road diet will begin just north of Harriet/Spring Street and continue up to Ferris Street. The dedicated right-turn lane approaching Harriet/Spring Street will be removed and the easternmost through lane will be changed to a right-turn lane drop. The easternmost travel lane downstream of the intersection will be converted into a bike lane with a buffer up to Ferris Street. Figure 11 shows the proposed condition along Huron Street at Harriet/Spring Street.

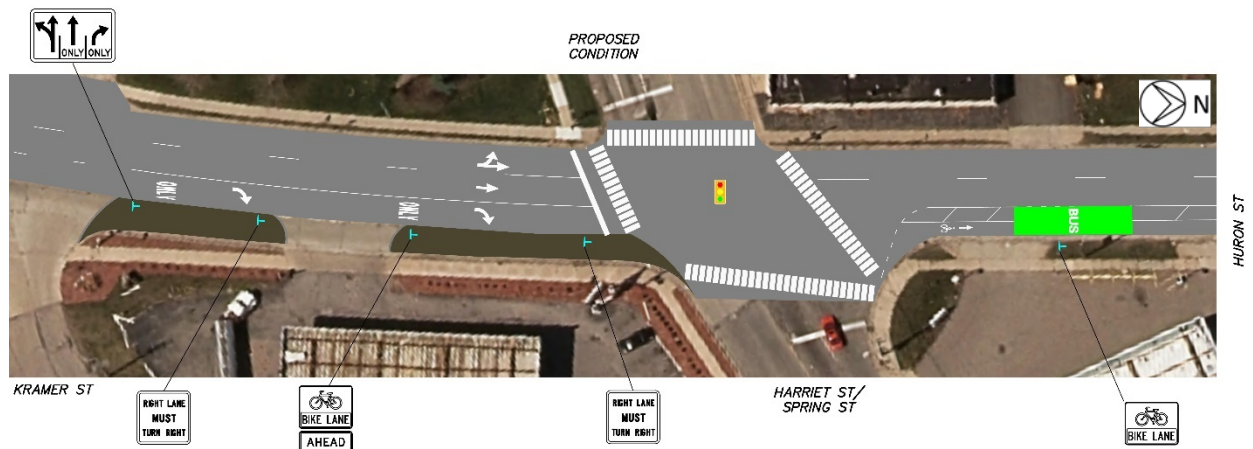


Figure 11: Proposed Condition along Huron Street at Harriet/Spring Street

If the City decides to extend the bike lane along Huron Street south of Harriet Street in the future, the bike lane could alternatively start just north of the I-94 westbound exit ramp and the easternmost through lane could be converted into a bike lane with a buffer. The dedicated right-turn lane approaching Harriet/Spring Street would remain intact, but further analysis would need to be done at the I-94 westbound exit ramp.

The segment of Huron Street between Ferris Street and Michigan Avenue already has a travel lane removed, but it will need to be restriped to include the bike lane. That space is currently being used as a loading zone, so the bike lane will be reduced from six feet to four feet wide with no buffer and share the space with an eight-foot wide loading zone. The bike lane will then end at Michigan Avenue and begin again downstream of Pearl Street. Figure 12 shows the proposed condition along Huron Street at Michigan Avenue.



Figure 12: Proposed Condition along Huron Street at Michigan Avenue

The segment of Huron Street between Michigan Avenue and Pearl Street contains two travel lanes with on-street parking and heavy traffic. Without modifying any curbs, the two northbound receiving lanes are only approximately 12 feet each. Due to the heavy traffic and limited travel way though, it is not recommended to encourage bicyclists to share the road. Instead, it is expected bicyclists will use the 14-foot safety path along the east side of the road or other wayfinding techniques to navigate from Michigan Avenue to Pearl Street. Alternatively, a bike ramp could also be installed to assist bicyclists from Huron Street to the safety path, but no modifications are scheduled for this segment at this time.

The bike lane and buffer along Huron Street will then begin again downstream of Pearl Street and continue up to Cross Street. Rather than diverging from two travel lanes to three though, the easternmost through lane will be converted into a bike lane with a buffer. As the bike lane approaches Cross Street, the bike lane will overtake the dedicated right-turn lane and end. Figure 13 and Figure 14 show the proposed conditions along Huron Street at Pearl Street and Cross Street, respectively.



Figure 13: Proposed Condition along Huron Street at Pearl Street

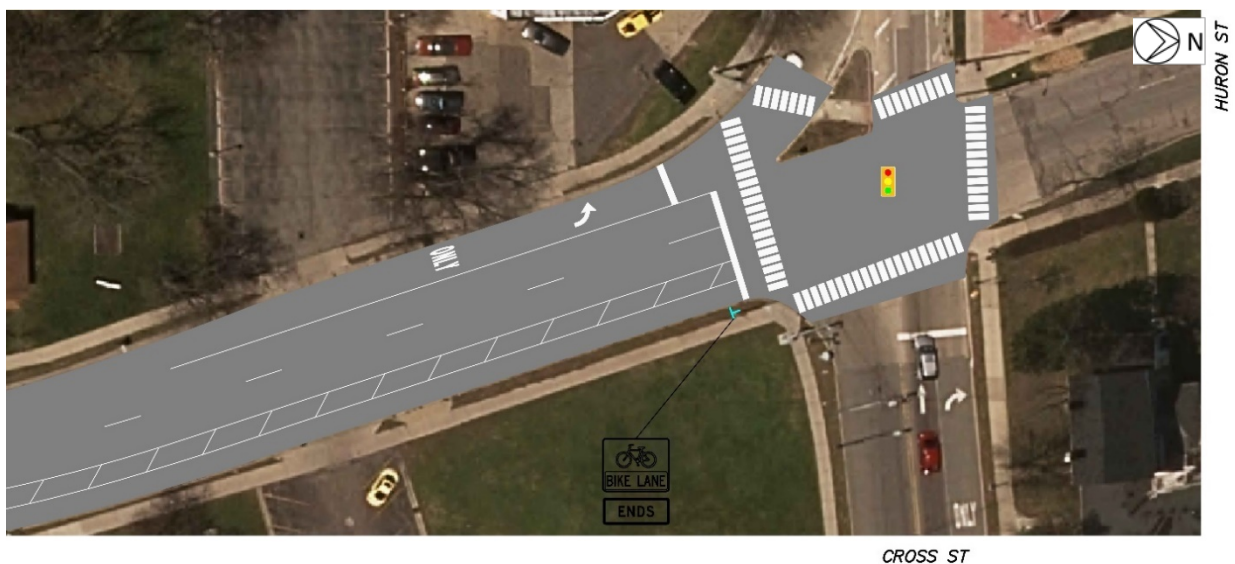


Figure 14: Proposed Condition along Huron Street at Cross Street

The complete set of conceptual plans are provided in Appendix F.

Section 8 - Intersection Capacity Analysis

Synchro 10 Software was used to analyze the roadway network for 11 signalized and 5 unsignalized intersections. The MDOT Brighton TSC provided recent models of the Ypsilanti area that were adapted to help create the study area. WATS also provided their model analyzing Hamilton Street south of Harriet Street that was merged with the background (2038) and road diet conditions of this study for reference purposes only. The capacity analysis for this segment though can be found in WATS's Huron I-94 Non-Motorized Crossing Report dated December 2014 and is not included in this report. The signalized and unsignalized intersections that were analyzed in this report are listed in Table 4 with their location shown in Figure 15 by Synchro node.

Table 4: Signalized and Unsignalized Intersections Analyzed in Study Area

Signalized		Unsignalized	
Synchro Node	Intersection	Synchro Node	Intersection
1002	Washtenaw Avenue and Summit Street	9000	Hamilton Street and Washtenaw Avenue
1004	Washtenaw Avenue and Ballard Street	9001	Hamilton Street and Pearl Street
1013	Hamilton Street and Michigan Avenue	9002	Hamilton Street and Ferris Street
1016	Huron Street and Cross Street	9003	Huron Street and Ferris Street
1023	Huron Street and Michigan Avenue	9004	Huron Street and Pearl Street
2000	Michigan Avenue/Congress Street and Ballard Street		
2004	Michigan Avenue and Adams Street		
2005	Michigan Avenue and Washington Street		
3001	Huron Street and Harriet/Spring Street		
3003	Hamilton Street and Harriet Street		
3004	Huron Street and Catherine Street		

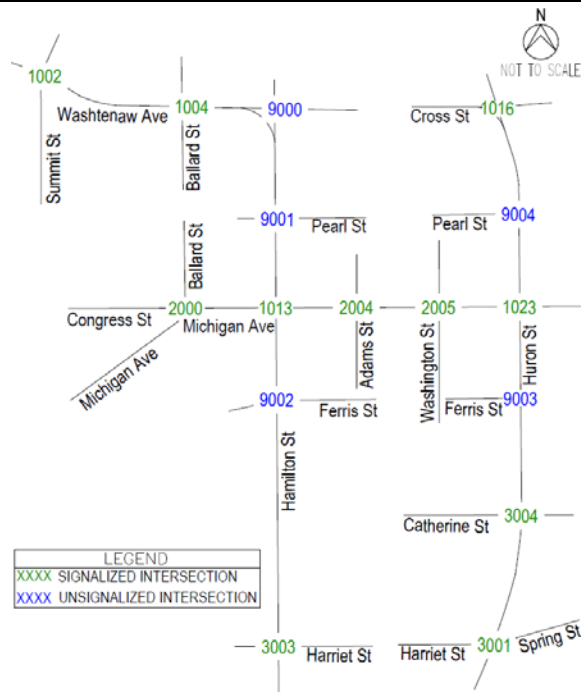


Figure 15: Analyzed Study Area

The capacity analysis was conducted on the roadway network during the AM, Midday, and PM peak hours for the existing, background, and road diet conditions. The existing roadway geometry was used for the existing and background conditions and the proposed geometry (see Section 7) was used for the road diet conditions. A detailed capacity analysis table broken down by condition, approach, and movement is provided in Appendix G and the Synchro reports are provided in Appendices H – L.

Signalized Intersection Capacity Analysis

The Highway Capacity Manual (HCM) definitions of signalized intersections was used. For signalized intersections, the HCM defines level of service (LOS) in terms of control delay. Delay may be measured in the field or it may be estimated. Delay is a complex measure and is dependent on several variables, including the quality of progression, the cycle length, the green ratio, and the volume-to-capacity ratio for the lane group or approach in question. Table 5 indicates the control delay criteria used for determining LOS for signalized intersections.

Table 5: LOS Criteria for Signalized Intersections

LOS	Control Delay per Vehicle (seconds)
A	< 10
B	> 10 to ≤ 20
C	> 20 to ≤ 35
D	> 35 to ≤ 55
E	> 55 to ≤ 80
F	> 80

LOS A describes operations with very low control delay up to 10.0 seconds per vehicle. This occurs when progression is exceptionally favorable, and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.

LOS B describes operations with control delay in the range of 10.1 to 20.0 seconds per vehicle. This generally occurs with good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.

LOS C describes operations with control delay in the range of 20.1 to 35.0 seconds per vehicle. These higher delays may result from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear in this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.

LOS D describes operations with control delay in the range of 35.1 to 55.0 seconds per vehicle. At level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume-to-capacity ratios. Many vehicles stop and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.

LOS E describes operations with control delay in the range of 55.1 to 80.0 seconds per vehicle. This is considered to be above the limit of acceptable delay for an urban roadway in the study area. These high delay values generally indicate poor progression, long cycle lengths, and high volume-to-capacity ratios. Individual cycle failures are frequent occurrences.

LOS F describes operations with control delay greater than 80.1 seconds per vehicle. This is considered to be unacceptable to most drivers. This condition often occurs with over saturation (i.e., when arrival flow rates exceed the capacity of the intersection). It may also occur at high volume-to-capacity ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

The following subsections provide the AM, Midday, and PM peak hour results of the capacity analysis for the signalized intersections. The signal timing plans were not altered or optimized for the Existing, Background, or Road Diet (without mitigation) Models. The signal timings and phasing settings were inputted in these Synchro models per the signal timing permits provided by MDOT and the Washtenaw County Road Commission shown in Appendix M. For the Road Diet with Mitigation Model though, the signal timing and phasing settings were optimized to verify if the delay and LOS could be improved or better balanced. Table 6 shows the five conditions that were modeled along with their characteristics.

Table 6: Modeled Conditions and Characteristics

Condition	Roadway Geometrics	Signal Timing Plans
Existing	Existing Road Geometry	Signal Timing Permit
Background 2022	Existing Road Geometry	Signal Timing Permit
Background 2038	Existing Road Geometry	Signal Timing Permit
Road Diet 2038 (without Mitigation)	Proposed Road Geometry	Signal Timing Permit
Road Diet 2038 with Mitigation	Proposed Road Geometry	Optimized

Washtenaw Avenue and Summit Street Capacity Analysis (Node 1002)

The intersection of Washtenaw Avenue and Summit Street has an acceptable delay and LOS for all conditions. No lane configuration changes by the road diet are being proposed and no changes to the signal are required. Table 7 shows the capacity analysis for Washtenaw Avenue and Summit Street.

Table 7: Washtenaw Avenue and Summit Street Capacity Analysis

Intersection	Synchro Node	Approach	Movement	Existing		Background 2022		Background 2038		Road Diet 2038		Road Diet Mitigation 2038	
				Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
Washtenaw Ave & Summit St	1002	AM Peak Hour											
		EB	LT/TH/RT	8.3	A	8.4	A	8.6	A	8.6	A	8.6	A
			Approach	8.3	A	8.4	A	8.6	A	8.6	A	8.6	A
		NB	TH/RT	32.3	C	32.7	C	34.1	C	34.1	C	34.1	C
			Approach	32.3	C	32.7	C	34.1	C	34.1	C	34.1	C
		SB	LT/TH	34.2	C	34.5	C	33.9	C	33.9	C	33.9	C
			Approach	34.2	C	34.5	C	33.9	C	33.9	C	33.9	C
		Intersection		13.4	B	13.5	B	13.9	B	13.9	B	13.9	B
		Midday Peak Hour											
		EB	LT/TH/RT	9.0	A	9.0	A	9.3	A	9.3	A	9.3	A
			Approach	9.0	A	9.0	A	9.3	A	9.3	A	9.3	A
		NB	TH/RT	29.7	C	29.9	C	30.7	C	30.7	C	30.7	C
			Approach	29.7	C	29.9	C	30.7	C	30.7	C	30.7	C
		SB	LT/TH	36.5	D	36.4	D	37.1	D	37.1	D	37.1	D
			Approach	36.5	D	36.4	D	37.1	D	37.1	D	37.1	D
		Intersection		12.7	B	12.8	B	13.1	B	13.1	B	13.1	B
		PM Peak Hour											
		EB	LT/TH/RT	12.2	B	12.5	B	13.7	B	13.7	B	13.7	B
			Approach	12.2	B	12.5	B	13.7	B	13.7	B	13.7	B
		NB	TH/RT	28.3	C	28.5	C	29.2	C	29.2	C	29.2	C
			Approach	28.3	C	28.5	C	29.2	C	29.2	C	29.2	C
		SB	LT/TH	37.3	D	37.4	D	38.1	D	38.1	D	38.1	D
			Approach	37.3	D	37.4	D	38.1	D	38.1	D	38.1	D
		Intersection		14.2	B	14.5	B	15.6	B	15.6	B	15.6	B

Washtenaw Avenue and Ballard Street Capacity Analysis (Node 1004)

The intersection of Washtenaw Avenue and Ballard Street has an acceptable delay and LOS for all conditions. The eastbound lane configuration will be impacted by the road diet, but no changes to the signal are required. Table 8 shows the capacity analysis for Washtenaw Avenue and Ballard Street.

Table 8: Washtenaw Avenue and Ballard Street Capacity Analysis

Intersection	Synchro Node	Approach	Movement	Existing		Background 2022		Background 2038		Road Diet 2038		Road Diet Mitigation 2038	
				Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
Washtenaw Ave & Ballard St	1004	AM Peak Hour											
		EB	LT/TH/RT	1.4	A	1.4	A	1.4	A	2.1	A	2.1	A
			Approach	1.4	A	1.4	A	1.4	A	2.1	A	2.1	A
		NB	TH/RT	34.7	C	34.6	C	34.7	C	34.7	C	34.7	C
			Approach	34.7	C	34.6	C	34.7	C	34.7	C	34.7	C
		SB	LT	33.4	C	33.3	C	33.3	C	33.3	C	33.3	C
			TH	33.6	C	33.5	C	33.5	C	33.5	C	33.5	C
			Approach	33.5	C	33.4	C	33.4	C	33.4	C	33.4	C
		Intersection		5.7	A	5.7	A	5.8	A	6.4	A	6.4	A
		Midday Peak Hour											
		EB	LT/TH/RT	0.8	A	0.8	A	0.9	A	1.8	A	1.8	A
			Approach	0.8	A	0.8	A	0.9	A	1.8	A	1.8	A
		NB	TH/RT	33.8	C	33.7	C	34.2	C	34.2	C	34.2	C
			Approach	33.8	C	33.7	C	34.2	C	34.2	C	34.2	C
		SB	LT	31.1	C	31.0	C	30.9	C	30.9	C	30.9	C
			TH	31.1	C	31.1	C	30.8	C	30.8	C	30.8	C
			Approach	31.1	C	31.0	C	30.9	C	30.9	C	30.9	C
		Intersection		6.5	A	6.5	A	6.6	A	7.3	A	7.3	A
		PM Peak Hour											
		EB	LT/TH/RT	0.5	A	0.5	A	0.5	A	1.6	A	1.6	A
			Approach	0.5	A	0.5	A	0.5	A	1.6	A	1.6	A
		NB	TH/RT	34.8	C	34.9	C	35.2	D	35.2	D	35.2	D
			Approach	34.8	C	34.9	C	35.2	D	35.2	D	35.2	D
		SB	LT	33.8	C	33.8	C	33.8	C	33.8	C	33.8	C
			TH	34.4	C	34.5	C	34.5	C	34.5	C	34.5	C
			Approach	34.2	C	34.3	C	34.3	C	34.3	C	34.3	C
		Intersection		3.5	A	3.6	A	3.6	A	4.6	A	4.6	A

Hamilton Street and Michigan Avenue Capacity Analysis (Node 1013)

The intersection of Hamilton Street and Michigan Avenue has an acceptable delay and LOS for all conditions during the AM and Midday peak hours, but they are unacceptable for various movements and conditions during the PM peak hour. The southbound lane configuration will be impacted by the road diet and changes to the signal timings and operation are being proposed. The Road Diet Mitigation 2038 condition improves the southbound traffic through signal optimization (adjusting splits and offsets) and adding detection to change the signal operation from pretimed to fully actuated, but it worsens the westbound traffic. The simulation, however, does not show there to be any queuing issues. Table 9 shows the capacity analysis for Hamilton Street and Michigan Avenue (movements with LOS E or F are in yellow).

Table 9: Hamilton Street and Michigan Avenue Capacity Analysis

Intersection	Synchro Node	Approach	Movement	Existing		Background 2022		Background 2038		Road Diet 2038		Road Diet Mitigation 2038	
				Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
Hamilton St & Michigan Ave	1013	AM Peak Hour											
		EB	TH/RT	19.1	B	19.2	B	19.6	B	19.6	B	20.8	C
			Approach	19.1	B	19.2	B	19.6	B	19.6	B	20.8	C
		WB	LT	12.8	B	13.3	B	15.3	B	15.3	B	16.7	B
			TH	8.4	A	8.7	A	9.8	A	9.8	A	12.1	B
			Approach	9.2	A	9.5	A	10.8	B	10.8	B	12.9	B
		SB	LT	23.0	C	23.2	C	23.8	C	23.4	C	21.2	C
			LT/TH/RT	21.7	C	21.7	C	22.1	C	N/A			
			TH/RT	N/A						23.9	C	21.7	C
			Approach	22.0	C	22.1	C	22.5	C	23.7	C	21.6	C
		Intersection		15.6	B	15.8	B	16.6	B	17.0	B	17.5	B
		Midday Peak Hour											
		EB	TH/RT	22.3	C	22.5	C	23.0	C	19.5	B	23.4	C
			Approach	22.3	C	22.5	C	23.0	C	19.5	B	23.4	C
		WB	LT	13.2	B	13.7	B	16.8	B	16.8	B	27.5	C
			TH	6.6	A	6.7	A	7.7	A	7.7	A	17.7	B
			Approach	8.5	A	8.7	A	10.3	B	10.3	B	20.5	C
		SB	LT	27.9	C	28.3	C	30.3	C	32.5	C	22.0	C
			LT/TH/RT	24.5	C	24.7	C	25.7	C	N/A			
			TH/RT	N/A						30.8	C	21.3	C
			Approach	25.3	C	25.6	C	26.8	C	31.3	C	21.5	C
		Intersection		20.0	B	20.3	C	21.4	C	22.9	C	21.6	C
		PM Peak Hour											
		EB	TH/RT	22.1	C	22.3	C	23.3	C	23.3	C	30.3	C
			Approach	22.1	C	22.3	C	23.3	C	23.3	C	30.3	C
		WB	LT	20.2	C	22.2	C	38.3	D	38.5	D	76.9	E
			TH	6.1	A	6.3	A	7.4	A	7.4	A	10.1	B
			Approach	11.0	B	11.9	B	18.2	B	18.3	B	33.5	C
		SB	LT	43.0	D	45.5	D	61.7	E	74.8	E	35.0	C
			LT/TH/RT	31.4	C	32.7	C	43.1	D	N/A			
			TH/RT	N/A						132.8	F	50.0	D
			Approach	34.2	C	35.8	D	47.6	D	115.3	F	45.5	D
		Intersection		26.2	C	27.3	C	35.6	D	73.4	E	39.6	D

Huron Street and Cross Street Capacity Analysis (Node 1016)

The intersection of Huron Street and Cross Street has an acceptable delay and LOS for all conditions. The northbound lane configuration will be impacted by the road diet, but no major changes to the signal are required. Only a minor offset change was made to the Road Diet Mitigation 2038 condition during the AM peak hour to improve progression along Huron Street. Table 10 shows the capacity analysis for Huron Street and Cross Street.

Table 10: Huron Street and Cross Street Capacity Analysis

Intersection	Synchro Node	Approach	Movement	Existing		Background 2022		Background 2038		Road Diet 2038		Road Diet Mitigation 2038		
				Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	
Huron St & Cross St	1016	AM Peak Hour												
		WB	TH	16.5	B	16.8	B	17.8	B	17.8	B	17.8	B	
			RT	10.9	B	10.9	B	10.9	B	10.9	B	10.9	B	
			Approach	16.2	B	16.4	B	17.4	B	17.4	B	17.4	B	
		NB	LT	Free Flow										
			TH	27.1	C	27.0	C	26.9	C	N/A				
			RT	24.7	C	24.6	C	24.4	C					
			TH/RT	N/A						28.9	C	14.5	B	
			Approach	22.0	C	26.5	C	26.4	C	28.9	C	14.5	B	
		Intersection		24.7	C	22.1	C	22.5	C	23.9	C	15.8	B	
		Midday Peak Hour												
		WB	TH	14.9	B	14.9	B	15.3	B	15.3	B	15.3	B	
			RT	12.4	B	12.4	B	12.5	B	12.5	B	12.5	B	
			Approach	14.7	B	14.8	B	15.1	B	15.1	B	15.1	B	
		NB	LT	Free Flow										
			TH	9.7	A	20.7	C	20.5	C	N/A				
			RT	11.2	B	22.5	C	22.3	C					
			TH/RT	N/A						23.4	C	23.4	C	
			Approach	10.3	B	21.4	C	21.2	C	23.4	C	23.4	C	
		Intersection		11.6	B	26.9	C	19.3	B	20.9	C	20.8	C	
		PM Peak Hour												
		WB	TH	14.8	B	14.9	B	15.3	B	15.3	B	15.3	B	
			RT	11.9	B	11.9	B	11.9	B	11.9	B	11.9	B	
			Approach	14.6	B	14.7	B	15.1	B	15.1	B	15.1	B	
		NB	LT	Free Flow										
			TH	23.8	C	23.8	C	23.6	C	N/A				
			RT	29.3	C	29.4	C	30.0	C					
			TH/RT	N/A						28.7	C	25.8	C	
			Approach	26.4	C	26.5	C	26.7	C	28.7	C	25.8	C	
		Intersection		23.1	C	23.2	C	23.4	C	24.9	C	22.7	C	

Huron Street and Michigan Avenue Capacity Analysis (Node 1023)

The intersection of Huron Street and Michigan Avenue has an acceptable delay and LOS for all conditions during the Midday and PM peak hours, but they are unacceptable for various movements and conditions during the AM peak hour. No lane configuration changes by the road diet are being proposed, but changes to the signal timing were made to mitigate background traffic growth. The Road Diet Mitigation 2038 condition improves the northbound traffic during the AM peak hour through signal optimization (adjusting splits) and maintains the westbound traffic from the Background 2038 condition. Table 11 shows the capacity analysis for Huron Street and Michigan Avenue (movements with LOS E or F are in yellow).

Table 11: Huron Street and Michigan Avenue Capacity Analysis

Intersection	Synchro Node	Approach	Movement	Existing		Background 2022		Background 2038		Road Diet 2038		Road Diet Mitigation 2038	
				Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
Huron St & Michigan Ave	1023	AM Peak Hour											
		EB	LT	14.6	B	14.8	B	16.4	B	16.4	B	17.6	B
			TH	4.8	A	4.8	A	4.9	A	4.9	A	4.8	A
			Approach	6.2	A	6.3	A	6.6	A	6.6	A	6.7	A
		WB	TH/RT	31.3	C	32.8	C	44.4	D	44.4	D	44.4	D
			RT	55.1	E	60.1	E	92.3	F	92.3	F	92.3	F
			Approach	38.6	D	41.2	D	59.1	E	59.1	E	59.1	E
		NB	LT	5.6	A	5.6	A	3.7	A	10.9	B	10.1	B
			TH/RT	28.0	C	31.8	C	56.4	E	59.3	E	34.9	C
			Approach	26.5	C	30.0	C	52.7	D	55.9	E	33.2	C
		Intersection		28.2	C	30.8	C	27.6	C	48.9	D	39.8	D
		Midday Peak Hour											
		EB	LT	24.8	C	8.0	A	9.7	A	9.7	A	8.9	A
			TH	15.0	B	3.9	A	4.1	A	4.1	A	3.5	A
			Approach	16.4	B	4.5	A	4.9	A	4.9	A	4.3	A
		WB	TH/RT	21.7	C	21.9	C	23.0	C	23.0	C	23.0	C
			RT	26.7	C	27.3	C	30.2	C	30.2	C	30.2	C
			Approach	23.2	C	23.5	C	25.2	C	25.2	C	25.2	C
		NB	LT	21.7	C	9.0	A	8.2	A	8.7	A	8.8	A
			TH/RT	31.9	C	17.6	B	18.6	B	18.1	B	18.2	B
			Approach	30.8	C	16.6	B	17.4	B	17.1	B	17.1	B
		Intersection		23.8	C	15.1	B	16.0	B	15.9	B	15.7	B
		PM Peak Hour											
		EB	LT	13.8	B	14.6	B	19.9	B	19.9	B	29.6	C
			TH	5.6	A	5.7	A	6.7	A	6.7	A	13.3	B
			Approach	6.7	A	6.9	A	8.5	A	8.5	A	15.4	B
		WB	TH/RT	23.6	C	23.9	C	25.9	C	25.9	C	25.9	C
			RT	31.5	C	32.8	C	39.3	D	39.3	D	39.3	D
			Approach	26.0	C	26.6	C	29.9	C	29.9	C	29.9	C
		NB	LT	10.2	B	10.2	B	10.7	B	12.9	B	16.8	B
			TH/RT	21.4	C	22.6	C	31.0	C	31.7	C	34.0	C
			Approach	20.1	C	21.1	C	28.6	C	29.5	C	32.0	C
		Intersection		15.6	B	17.9	B	22.0	C	22.2	C	25.5	C

Michigan Avenue and Congress Street and Ballard Street Capacity Analysis (Node 2000)

The intersection of Michigan Avenue and Congress Street and Ballard Street has an acceptable delay and LOS for all conditions. No lane configuration changes by the road diet are being proposed and no changes to the signal are required. Table 12 shows the capacity analysis for Michigan Avenue and Congress Street and Ballard Street.

Table 12: Michigan Avenue and Congress Street and Ballard Street Analysis

Intersection	Synchro Node	Approach	Movement	Existing		Background 2022		Background 2038		Road Diet 2038		Road Diet Mitigation 2038	
				Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
Michigan Ave & Congress St & Ballard St	2000	AM Peak Hour											
		EB	LT/TH/RT	44.4	D	44.5	D	44.8	D	44.8	D	44.8	D
			Approach	44.4	D	44.5	D	44.8	D	44.8	D	44.8	D
		WB	LT	17.7	B	17.9	B	18.4	B	18.4	B	18.4	B
			LT/TH/RT	18.7	B	18.8	B	19.6	B	19.6	B	19.6	B
			Approach	18.2	B	18.4	B	19.0	B	19.0	B	19.0	B
		SB	LT	42.1	D	42.1	D	42.1	D	42.1	D	42.1	D
			TH/RT	44.3	D	44.4	D	44.7	D	44.7	D	44.7	D
			Approach	43.9	D	44.0	D	44.3	D	44.3	D	44.3	D
		NB	RT	15.1	B	15.1	B	15.3	B	15.3	B	15.3	B
			Approach	15.1	B	15.1	B	15.3	B	15.3	B	15.3	B
		Intersection		22.0	C	22.1	C	22.5	C	22.5	C	22.5	C
		Midday Peak Hour											
		EB	LT/TH/RT	24.3	C	24.4	C	24.6	C	24.6	C	24.6	C
			Approach	24.3	C	24.4	C	24.6	C	24.6	C	24.6	C
		WB	LT	37.8	D	38.2	D	40.5	D	30.2	C	23.3	C
			LT/TH/RT	41.5	D	42.1	D	46.0	D	35.3	D	28.0	C
			Approach	39.7	D	40.2	D	43.3	D	32.8	C	25.6	C
		SB	LT	22.8	C	22.8	C	22.9	C	22.9	C	22.9	C
			TH/RT	22.7	C	22.7	C	22.7	C	22.7	C	22.7	C
			Approach	22.7	C	22.7	C	22.8	C	22.8	C	22.8	C
		NB	RT	22.5	C	22.5	C	22.7	C	22.7	C	22.7	C
			Approach	22.5	C	22.5	C	22.7	C	22.7	C	22.7	C
		Intersection		30.5	C	30.8	C	32.3	C	27.5	C	24.2	C
		PM Peak Hour											
		EB	LT/TH/RT	46.4	D	46.5	D	47.9	D	47.9	D	47.9	D
			Approach	46.4	D	46.5	D	47.9	D	47.9	D	47.9	D
		WB	LT	20.7	C	21.0	C	22.3	C	22.3	C	22.3	C
			TH	23.1	C	23.6	C	25.7	C	25.7	C	25.7	C
			Approach	21.9	C	22.3	C	24.0	C	24.0	C	24.0	C
		SB	LT	43.1	D	43.2	D	43.4	D	43.4	D	43.4	D
			TH/RT	41.9	D	42.0	D	42.0	D	42.0	D	42.0	D
			Approach	42.5	D	42.5	D	42.7	D	42.7	D	42.7	D
		NB	RT	16.1	B	16.2	B	16.4	B	16.4	B	16.4	B
			Approach	16.1	B	16.2	B	16.4	B	16.4	B	16.4	B
		Intersection		23.4	C	23.6	C	24.8	C	24.8	C	24.8	C

Michigan Avenue and Adams Street Capacity Analysis (Node 2004)

The intersection of Michigan Avenue and Adams Street has an acceptable delay and LOS for all conditions. No lane configuration changes by the road diet are being proposed and no changes to the signal are required. Table 13 shows the capacity analysis for Michigan Avenue and Adams Street.

Table 13: Michigan Avenue and Adams Street Capacity Analysis

Intersection	Synchro Node	Approach	Movement	Existing		Background 2022		Background 2038		Road Diet 2038		Road Diet Mitigation 2038	
				Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
Michigan Ave & Adams St	2004	AM Peak Hour											
		EB	LT/TH/RT	2.3	A	2.3	A	2.3	A	2.3	A	2.7	A
			Approach	2.3	A	2.3	A	2.3	A	2.3	A	2.7	A
		WB	LT/TH/RT	2.7	A	2.9	A	3.4	A	3.4	A	3.6	A
			Approach	2.7	A	2.9	A	3.4	A	3.4	A	3.6	A
		NB	LT	31.4	C	31.5	C	32.2	C	32.2	C	32.2	C
			TH/RT	30.5	C	30.6	C	31.3	C	31.3	C	31.3	C
			Approach	30.9	C	31.0	C	31.7	C	31.7	C	31.7	C
		SB	LT	28.7	C	28.8	C	29.0	C	29.0	C	29.0	C
			TH/RT	28.0	C	28.0	C	28.1	C	28.1	C	28.1	C
			Approach	28.3	C	28.3	C	28.5	C	28.5	C	28.5	C
		Intersection		6.2	A	6.3	A	6.7	A	6.7	A	6.9	A
		Midday Peak Hour											
		EB	LT/TH/RT	4.1	A	4.1	A	4.1	A	3.8	A	5.5	A
			Approach	4.1	A	4.1	A	4.1	A	3.8	A	5.5	A
		WB	LT/TH/RT	2.0	A	2.0	A	2.0	A	2.0	A	2.0	A
			Approach	2.0	A	2.0	A	2.0	A	2.0	A	2.0	A
		NB	LT	30.1	C	30.2	C	30.7	C	30.7	C	30.7	C
			TH/RT	30.2	C	30.3	C	30.7	C	30.7	C	30.7	C
			Approach	30.1	C	30.3	C	30.7	C	30.7	C	30.7	C
		SB	LT	29.5	C	29.6	C	30.1	C	30.1	C	30.1	C
			TH/RT	28.7	C	28.8	C	29.0	C	29.0	C	29.0	C
			Approach	29.0	C	29.1	C	29.4	C	29.4	C	29.4	C
		Intersection		7.1	A	7.1	A	7.2	A	7.1	A	7.9	A
		PM Peak Hour											
		EB	LT/TH/RT	3.4	A	3.4	A	3.6	A	3.2	A	5.2	A
			Approach	3.4	A	3.4	A	3.6	A	3.2	A	5.2	A
		WB	LT/TH/RT	1.7	A	1.7	A	2.0	A	1.9	A	5.6	A
			Approach	1.7	A	1.7	A	2.0	A	1.9	A	5.6	A
		NB	LT	28.5	C	28.5	C	28.8	C	28.8	C	28.8	C
			TH/RT	30.0	C	30.0	C	30.4	C	30.4	C	30.4	C
			Approach	29.7	C	29.7	C	30.1	C	30.1	C	30.1	C
		SB	LT	31.7	C	31.8	C	32.8	C	32.8	C	32.8	C
			TH/RT	29.4	C	29.5	C	29.8	C	29.8	C	29.8	C
			Approach	30.4	C	30.5	C	31.1	C	31.1	C	31.1	C
		Intersection		6.0	A	6.1	A	6.4	A	6.2	A	8.5	A

Michigan Avenue and Washington Street Capacity Analysis (Node 2005)

The intersection of Michigan Avenue and Washington Street has an acceptable delay and LOS for all conditions during the Midday and PM peak hours, but they are unacceptable for the northbound movements in various conditions during the AM peak hour. No lane configuration changes by the road diet are being proposed, but changes to the signal timing were made to mitigate background traffic growth. The Road Diet Mitigation 2038 condition improves the northbound traffic during the AM peak hour through signal optimization (adjusting splits). Table 14 shows the capacity analysis for Michigan Avenue and Washington Street (movements with LOS E or F are in yellow).

Table 14: Michigan Avenue and Washington Street Capacity Analysis

Intersection	Synchro Node	Approach	Movement	Existing		Background 2022		Background 2038		Road Diet 2038		Road Diet Mitigation 2038		
				Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	
Michigan Ave & Washington St	2005	AM Peak Hour												
		EB	LT/TH/RT	1.8	A	1.8	A	1.8	A	1.8	A	2.6	A	
			Approach	1.8	A	1.8	A	1.8	A	1.8	A	2.6	A	
		WB	LT/TH/RT	1.3	A	1.7	A	1.2	A	1.1	A	1.2	A	
			Approach	1.3	A	1.7	A	1.2	A	1.1	A	1.2	A	
		NB	LT/TH/RT	75.1	E	78.5	E	111.7	F	111.7	F	51.2	D	
			Approach	75.1	E	78.5	E	111.7	F	111.7	F	51.2	D	
		SB	LT/TH/RT	28.6	C	28.6	C	29.1	C	29.1	C	25.0	C	
			Approach	28.6	C	28.6	C	29.1	C	29.1	C	25.0	C	
		Intersection			13.1	B	13.7	B	18.5	B	18.5	B	9.7	A
		Midday Peak Hour												
		EB	LT/TH/RT	1.9	A	1.9	A	2.0	A	2.0	A	2.2	A	
			Approach	1.9	A	1.9	A	2.0	A	2.0	A	2.2	A	
		WB	LT/TH/RT	2.1	A	2.1	A	2.1	A	2.0	A	2.0	A	
			Approach	2.1	A	2.1	A	2.1	A	2.0	A	2.0	A	
		NB	LT/TH/RT	31.3	C	31.6	C	32.4	C	32.4	C	32.4	C	
			Approach	31.3	C	31.6	C	32.4	C	32.4	C	32.4	C	
		SB	LT/TH/RT	31.8	C	32.1	C	33.2	C	33.2	C	33.2	C	
			Approach	31.8	C	32.1	C	33.2	C	33.2	C	33.2	C	
		Intersection			5.4	A	5.5	A	5.6	A	5.6	A	5.7	A
		PM Peak Hour												
		EB	LT/TH/RT	1.9	A	1.9	A	2.4	A	2.2	A	5.1	A	
			Approach	1.9	A	1.9	A	2.4	A	2.2	A	5.1	A	
		WB	LT/TH/RT	2.3	A	2.3	A	2.2	A	2.1	A	0.9	A	
			Approach	2.3	A	2.3	A	2.2	A	2.1	A	0.9	A	
		NB	LT/TH/RT	33.2	C	33.4	C	35.2	D	35.2	D	35.2	D	
			Approach	33.2	C	33.4	C	35.2	D	35.2	D	35.2	D	
		SB	LT/TH/RT	40.6	D	41.7	D	49.0	D	49.0	D	49.0	D	
			Approach	40.6	D	41.7	D	49.0	D	49.0	D	49.0	D	
		Intersection			6.6	A	6.6	A	7.5	A	7.4	A	8.5	A

Huron Street and Harriet/Spring Street Capacity Analysis (Node 3001)

The intersection of Huron Street and Harriet/Spring Street has an acceptable delay and LOS for all conditions. The northbound lane configuration will be impacted by the road diet, but no major changes to the signal are required. Only minor split and offset changes were made to the Road Diet Mitigation 2038 condition to improve progression along Huron Street. Table 15 shows the capacity analysis for Huron Street and Harriet/Spring Street.

Table 15: Huron Street and Harriet/Spring Capacity Analysis

Intersection	Synchro Node	Approach	Movement	Existing		Background 2022		Background 2038		Road Diet 2038		Road Diet Mitigation 2038	
				Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
Huron St & Harriet/Spring St	3001	AM Peak Hour											
		EB	LT	22.9	C	22.9	C	23.5	C	23.5	C	23.6	C
			TH	22.3	C	22.3	C	22.3	C	22.3	C	22.6	C
			Approach	22.4	C	22.4	C	22.4	C	22.4	C	22.7	C
		WB	TH/RT	25.7	C	25.9	C	26.6	C	26.6	C	26.6	C
			Approach	25.7	C	25.9	C	26.6	C	26.6	C	26.6	C
		NB	LT/TH	13.1	B	13.3	B	14.4	B	35.3	D	35.3	D
			RT	9.3	A	9.4	A	9.6	A	13.4	B	13.4	B
			Approach	12.5	B	12.7	B	13.7	B	31.8	C	31.8	C
		Intersection		15.4	B	15.6	B	16.5	B	30.3	C	30.3	C
		Midday Peak Hour											
		EB	LT	19.0	B	18.9	B	19.4	B	20.3	C	21.1	C
			TH	18.2	B	18.3	B	18.8	B	19.7	B	20.9	C
			Approach	18.4	B	18.4	B	18.9	B	19.8	B	20.9	C
		WB	TH/RT	21.0	C	21.0	C	21.3	C	21.3	C	21.3	C
			Approach	21.0	C	21.0	C	21.3	C	21.3	C	21.3	C
		NB	LT/TH	11.5	B	11.6	B	12.0	B	11.8	B	11.8	B
			RT	10.2	B	10.2	B	10.3	B	10.7	B	10.7	B
			Approach	11.3	B	11.3	B	11.6	B	11.6	B	11.6	B
		Intersection		13.9	B	14.0	B	14.3	B	14.4	B	14.6	B
		PM Peak Hour											
		EB	LT	18.2	B	18.2	B	19.2	B	19.3	B	28.1	C
			TH	18.4	B	18.4	B	19.0	B	19.0	B	28.6	C
			Approach	18.1	B	18.4	B	19.0	B	19.0	B	28.6	C
		WB	TH/RT	20.4	C	20.6	C	21.1	C	21.1	C	22.0	C
			Approach	20.4	C	20.6	C	21.1	C	21.1	C	22.0	C
		NB	LT/TH	14.1	B	14.2	B	14.7	B	13.1	B	18.2	B
			RT	12.8	B	13.0	B	13.8	B	5.5	A	17.9	B
			Approach	13.8	B	13.9	B	14.5	B	11.4	B	18.1	B
		Intersection		16.0	B	16.1	B	16.7	B	14.7	B	20.6	C

Hamilton Street and Harriet Street Capacity Analysis (Node 3003)

The intersection of Hamilton Street and Harriet Street has an acceptable delay and LOS for all conditions during the AM and Midday peak hours, but they are unacceptable for various movements in the road diet conditions during the PM peak hour. The southbound lane configuration will be impacted by the road diet and changes to the signal timings and operation are being proposed. The Road Diet Mitigation 2038 condition improves the southbound traffic through signal optimization (adjusting splits and offsets) and adding detection to change the signal operation from semi-actuated to fully actuated, but it worsens the westbound traffic. The simulation does show some queuing for the westbound left-turning movement, but it passes validation and seems acceptable. Table 16 shows the capacity analysis for Hamilton Street and Harriet Street (movements with LOS E or F are in yellow).

Table 16: Hamilton Street and Harriet Street Capacity Analysis

Intersection	Synchro Node	Approach	Movement	Existing		Background 2022		Background 2038		Road Diet 2038		Road Diet Mitigation 2038	
				Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
Hamilton St & Harriet St	3003	AM Peak Hour											
		EB	TH/RT	22.4	C	22.4	C	22.6	C	22.6	C	32.7	C
			Approach	22.4	C	22.4	C	22.6	C	22.6	C	32.7	C
		WB	LT	12.8	B	13.1	B	14.6	B	17.6	B	27.7	C
			TH	7.9	A	8.0	A	8.6	A	10.8	B	18.7	B
			Approach	9.5	A	9.7	A	10.6	B	13.0	B	21.7	C
		SB	LT	13.3	B	13.3	B	13.8	B	13.2	B	5.6	A
			TH/RT	15.5	B	15.6	B	16.1	B	18.0	B	8.0	A
			Approach	15.3	B	15.4	B	15.9	B	17.6	B	7.9	A
		Intersection		13.9	B	14.0	B	14.6	B	16.4	B	18.2	B
		Midday Peak Hour											
		EB	TH/RT	22.5	C	22.5	C	22.9	C	22.9	C	32.4	C
			Approach	22.5	C	22.5	C	22.9	C	22.9	C	32.4	C
		WB	LT	14.3	B	14.5	B	15.5	B	16.2	B	30.7	C
			TH	6.8	A	6.8	A	6.8	A	7.0	A	14.1	B
			Approach	11.1	B	11.2	B	11.7	B	12.2	B	23.5	C
		SB	LT	12.8	B	12.8	B	13.2	B	12.2	B	7.1	A
			TH/RT	17.2	B	17.4	B	18.5	B	28.9	C	13.4	B
			Approach	16.9	B	17.1	B	18.1	B	27.6	C	12.9	B
		Intersection		16.1	B	16.2	B	17.0	B	22.7	C	18.7	B
		PM Peak Hour											
		EB	TH/RT	24.4	C	24.5	C	25.3	C	25.3	C	29.9	C
			Approach	24.4	C	24.5	C	25.3	C	25.3	C	29.9	C
		WB	LT	20.6	C	21.4	C	26.8	C	28.5	C	180.9	F
			TH	5.9	A	5.9	A	5.8	A	6.9	A	9.0	A
			Approach	14.1	B	14.5	B	17.5	B	18.9	B	104.4	F
		SB	LT	15.7	B	15.7	B	16.1	B	15.5	B	6.5	A
			TH/RT	29.6	C	32.0	C	54.3	D	253.1	F	30.1	C
			Approach	28.3	C	30.5	C	50.7	D	230.5	F	27.9	C
		Intersection		23.9	C	25.3	C	38.0	D	143.6	F	48.9	D

Huron Street and Catherine Street Capacity Analysis (Node 3004)

The intersection of Huron Street and Catherine Street has an acceptable delay and LOS for all conditions. The northbound lane configuration will be impacted by the road diet, but no changes to the signal are required. Table 17 shows the capacity analysis for Huron Street and Catherine Street.

Table 17: Huron Street and Catherine Street Capacity Analysis

Intersection	Synchro Node	Approach	Movement	Existing		Background 2022		Background 2038		Road Diet 2038		Road Diet Mitigation 2038	
				Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
Huron St & Catherine St	3004	AM Peak Hour											
		EB	LT/TH	34.8	C	34.8	C	34.5	C	34.5	C	34.5	C
			Approach	34.8	C	34.8	C	34.5	C	34.5	C	34.5	C
		WB	TH/RT	35.3	D	35.4	D	35.7	D	35.7	D	35.7	D
			Approach	35.3	D	35.4	D	35.7	D	35.7	D	35.7	D
		NB	LT/TH/RT	3.4	A	3.4	A	3.7	A	4.2	A	4.2	A
			Approach	3.4	A	3.4	A	3.7	A	4.2	A	4.2	A
		Intersection		5.6	A	5.6	A	5.9	A	6.3	A	6.3	A
		Midday Peak Hour											
		EB	LT/TH	34.6	C	34.6	C	34.8	C	34.8	C	34.8	C
			Approach	34.6	C	34.6	C	34.8	C	34.8	C	34.8	C
		WB	TH/RT	32.8	C	32.8	C	32.7	C	32.7	C	32.7	C
			Approach	32.8	C	32.8	C	32.7	C	32.7	C	32.7	C
		NB	LT/TH/RT	5.9	A	5.9	A	6.1	A	4.7	A	4.7	A
			Approach	5.9	A	5.9	A	6.1	A	4.7	A	4.7	A
		Intersection		8.6	A	8.6	A	8.8	A	7.6	A	7.6	A
		PM Peak Hour											
		EB	LT/TH	34.7	C	34.7	C	34.8	C	34.8	C	34.8	C
			Approach	34.7	C	34.7	C	34.8	C	34.8	C	34.8	C
		WB	TH/RT	33.1	C	33.1	C	33.0	C	33.0	C	33.0	C
			Approach	33.1	C	33.1	C	33.0	C	33.0	C	33.0	C
		NB	LT/TH/RT	3.9	A	3.9	A	4.1	A	4.4	A	1.1	A
			Approach	3.9	A	3.9	A	4.1	A	4.4	A	1.1	A
		Intersection		6.8	A	6.8	A	7.0	A	7.2	A	4.2	A

Unsignalized Intersection Capacity Analysis

The Highway Capacity Manual (HCM) definitions of unsignalized intersections were also used. At an unsignalized intersection with stop control on the minor approach, LOS F occurs when there are not enough gaps of suitable size to allow a minor-street demand to safely cross through traffic on the major street. This is typically evident from extremely long control delays experienced by minor street traffic and by queuing on the minor approaches. LOS F may also appear in the form of drivers on the minor street selecting smaller than usual gaps. In such cases, safety may be a problem and some disruption to the major traffic stream may result. Note that LOS F may not always result in long queues, but in adjustments to normal gap acceptance behavior. For example, this may occur when a left-turning vehicle uses a shorter than normal gap in traffic to complete a left-turn. Table 18 indicates the control delay criteria used for determining the LOS for unsignalized intersections.

Table 18: LOS Criteria for Unsignalized Intersections

LOS	Control Delay per Vehicle (seconds)
A	< 10
B	> 10 to ≤ 15
C	> 15 to ≤ 25
D	> 25 to ≤ 35
E	> 35 to ≤ 50
F	> 50

The following subsections provide the AM, Midday, and PM peak hour results of the capacity analysis for the unsignalized intersections.

Hamilton Street and Washtenaw Avenue Capacity Analysis (Node 9000)

The intersection of Hamilton Street and Washtenaw Avenue has an acceptable delay and LOS for all conditions during the AM and Midday peak hours, but they are unacceptable for the eastbound right-turning movement in all conditions during the PM peak hour. No lane configuration changes by the road diet are being proposed and it is an unsignalized intersection. The Road Diet Mitigation 2038 condition maintains the eastbound traffic from the Background 2038 condition. It should also be noted the eastbound right-turning movement is free flow (channelized right-turn), so the delay and LOS for the actual condition is much better than what is shown in the capacity analysis. Table 19 shows the capacity analysis for Hamilton Street and Washtenaw Avenue (movements with LOS E or F are in yellow).

Table 19: Hamilton Street and Washtenaw Avenue Capacity Analysis

Intersection	Synchro Node	Approach	Movement	Existing		Background 2022		Background 2038		Road Diet 2038		Road Diet Mitigation 2038	
				Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
Hamilton St & Washtenaw Ave	9000	AM Peak Hour											
		EB	TH	7.5	A	7.5	A	7.7	A	7.7	A	7.7	A
			RT	7.8	A	7.9	A	8.5	A	8.5	A	8.5	A
			Approach	7.7	A	7.8	A	8.4	A	8.4	A	8.4	A
		SB	LT/TH	8.0	A	8.0	A	8.3	A	8.3	A	8.3	A
			Approach	8.0	A	8.0	A	8.3	A	8.3	A	8.3	A
		Intersection		7.8	A	7.9	A	8.3	A	8.3	A	8.3	A
		Midday Peak Hour											
		EB	TH	8.5	A	8.5	A	8.8	A	8.8	A	8.8	A
			RT	10.7	B	11.1	B	13.1	B	13.1	B	13.1	B
			Approach	10.2	B	10.5	B	12.2	B	12.2	B	12.2	B
		SB	LT/TH	9.8	A	9.9	A	10.6	B	10.6	B	10.6	B
			Approach	9.8	A	9.9	A	10.6	B	10.6	B	10.6	B
		Intersection		10.1	B	10.3	B	11.7	B	11.7	B	11.7	B
		PM Peak Hour											
		EB	TH	11.3	B	11.5	B	12.4	B	12.4	B	12.4	B
			RT	41.0	E	47.0	E	79.7	F	79.7	F	79.7	F
			Approach	33.8	D	38.4	E	63.4	F	63.4	F	63.4	F
		SB	LT/TH	20.0	C	21.4	C	30.0	D	30.0	D	30.0	D
			Approach	20.0	C	21.4	C	30.0	D	30.0	D	30.0	D
		Intersection		29.0	D	32.5	D	51.7	F	51.7	F	51.7	F

Hamilton Street and Pearl Street Capacity Analysis (Node 9001)

The intersection of Hamilton Street and Pearl Street has an acceptable delay and LOS for all conditions during the AM peak hour, but they are unacceptable for the westbound movements in all conditions during the Midday and PM peak hours. The southbound lane configuration will be impacted by the road diet and it is an unsignalized intersection. The Road Diet Mitigation 2038 condition shows the exacerbation of westbound traffic from the Background 2038 condition, but the simulation does not show there to be any queuing issues. The volume is small from that approach as well. Table 20 shows the capacity analysis for Hamilton Street and Pearl Street (movements with LOS E or F are in yellow).

Table 20: Hamilton Street and Pearl Street Capacity Analysis

Intersection	Synchro Node	Approach	Movement	Existing		Background 2022		Background 2038		Road Diet 2038		Road Diet Mitigation 2038	
				Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
Hamilton St & Pearl St	9001	AM Peak Hour											
		EB	RT	10.2	B	10.2	B	10.5	B	11.9	B	11.9	B
			Approach	10.2	B	10.2	B	10.5	B	11.9	B	11.9	B
		WB	LT	11.1	B	11.2	B	11.6	B	13.3	B	13.3	B
			LT/TH	14.9	B	15.1	C	16.5	C	17.0	C	17.0	C
			Approach	13.4	B	13.5	B	14.6	B	15.5	C	15.5	C
		SB	TH/RT	Free Flow						N/A			
			TH	N/A						Free Flow			
			RT										
			Approach	Free Flow									
		Intersection		1.0	A	1.0	A	1.0	A	1.1	A	1.1	A
		Midday Peak Hour											
		EB	RT	11.2	B	11.4	B	11.8	B	14.5	B	14.5	B
			Approach	11.2	B	11.4	B	11.8	B	14.5	B	14.5	B
		WB	LT	14.6	B	15.9	C	16.2	C	22.0	C	22.0	C
			LT/TH	49.9	E	55.5	F	99.8	F	100.4	F	100.4	F
			Approach	37.5	E	41.2	E	70.4	F	72.9	F	72.9	F
		SB	TH/RT	Free Flow						N/A			
			TH	N/A						Free Flow			
			RT										
			Approach	Free Flow									
		Intersection		6.7	A	7.3	A	12.3	B	12.8	B	12.8	B
		PM Peak Hour											
		EB	RT	14.4	B	14.7	B	15.9	C	25.1	D	25.1	D
			Approach	14.4	B	14.7	B	15.9	C	25.1	D	25.1	D
		WB	LT	18.2	C	18.8	C	21.4	C	44.8	E	44.8	E
			LT/TH	192.8	F	232.2	F	455.2	F	491.9	F	491.9	F
			Approach	136.8	F	163.7	F	316.5	F	348.9	F	348.9	F
		SB	TH/RT	Free Flow						N/A			
			TH	N/A						Free Flow			
			RT										
			Approach	Free Flow									
		Intersection		9.0	A	10.8	B	20.6	C	22.8	C	22.8	C

Hamilton Street and Ferris Street Capacity Analysis (Node 9002)

The intersection of Hamilton Street and Ferris Street has an acceptable delay and LOS for all conditions during the AM and Midday peak hours, but they are unacceptable for various movements in the road diet conditions during the PM peak hour. The southbound lane configuration will be impacted by the road diet and it is an unsignalized intersection. The Road Diet Mitigation 2038 condition shows eastbound and westbound traffic worsening from the Background 2038 condition, but the simulation does not show there to be any queuing issues. The volume is small from those approaches as well. Table 21 shows the capacity analysis for Hamilton Street and Ferris Street (movements with LOS E and F are in yellow).

Table 21: Hamilton Street and Ferris Street Capacity Analysis

Intersection	Synchro Node	Approach	Movement	Existing		Background 2022		Background 2038		Road Diet 2038		Road Diet Mitigation 2038	
				Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
Hamilton St & Ferris St	9002	AM Peak Hour											
		EB	TH/RT	11.2	B	11.2	B	11.6	B	11.2	B	11.3	B
			Approach	11.2	B	11.2	B	11.6	B	11.2	B	11.3	B
		WB	LT/TH	13.1	B	13.2	B	13.7	B	13.2	B	13.4	B
			Approach	13.1	B	13.2	B	13.7	B	13.2	B	13.4	B
		SB	LT	Free Flow						N/A			
			TH/RT										
			LT/TH/RT	N/A						Free Flow			
			Approach	Free Flow									
		Intersection		2.2	A	2.2	A	2.3	A	2.4	A	2.4	A
		Midday Peak Hour											
		EB	TH/RT	13.4	B	13.6	B	14.6	B	16.2	C	16.8	C
			Approach	13.4	B	13.6	B	14.6	B	16.2	C	16.8	C
		WB	LT/TH	13.2	B	13.2	B	14.1	B	17.5	C	19.2	C
			Approach	13.2	B	13.2	B	14.1	B	17.5	C	19.2	C
		SB	LT	Free Flow						N/A			
			TH/RT										
			LT/TH/RT	N/A						Free Flow			
			Approach	Free Flow									
		Intersection		1.8	A	1.8	A	1.9	A	2.4	A	2.5	A
		PM Peak Hour											
		EB	TH/RT	17.7	C	18.3	C	20.6	C	46.8	E	40.7	E
			Approach	17.7	C	18.3	C	20.6	C	46.8	E	40.7	E
		WB	LT/TH	18.5	C	19.2	C	22.4	C	78.1	F	50.5	F
			Approach	18.5	C	19.2	C	22.4	C	78.1	F	50.5	F
		SB	LT	Free Flow						N/A			
			TH/RT										
			LT/TH/RT	N/A						Free Flow			
			Approach	Free Flow									
		Intersection		2.2	A	2.2	A	2.5	A	7.0	A	5.3	A

Huron Street and Ferris Street Capacity Analysis (Node 9003)

The intersection of Huron Street and Ferris Street has an acceptable delay and LOS for all conditions. The northbound lane configuration will be impacted by the road diet and it is an unsignalized intersection. Table 22 shows the capacity analysis for Huron Street and Ferris Street.

Table 22: Huron Street and Ferris Street Capacity Analysis

Intersection	Synchro Node	Approach	Movement	Existing		Background 2022		Background 2038		Road Diet 2038		Road Diet Mitigation 2038	
				Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
Huron St & Ferris St	9003	AM Peak Hour											
		EB	LT	11.6	B	11.6	B	11.4	B	13.0	B	13.0	B
			Approach	11.6	B	11.6	B	11.4	B	13.0	B	13.0	B
		NB	LT/TH	Free Flow									
			Approach										
		Intersection		0.5	A	0.5	A	0.6	A	0.6	A	0.6	A
		Midday Peak Hour											
		EB	LT	11.8	B	11.8	B	11.9	B	12.9	B	12.9	B
			Approach	11.8	B	11.8	B	11.9	B	12.9	B	12.9	B
		NB	LT/TH	Free Flow									
			Approach										
		Intersection		0.9	A	0.9	A	0.9	A	1.0	A	1.0	A
		PM Peak Hour											
		EB	LT	12.5	B	12.6	B	12.7	B	15.4	C	15.4	C
			Approach	12.5	B	12.6	B	12.7	B	15.4	C	15.4	C
		NB	LT/TH	Free Flow									
			Approach										
		Intersection		0.6	A	0.6	A	0.6	A	0.8	A	0.8	A

Huron Street and Pearl Street Capacity Analysis (Node 9004)

The intersection of Huron Street and Pearl Street has all free flow traffic. No lane configuration changes by the road diet are being proposed and it is an unsignalized intersection.

Section 9 - Access Management and Sight Distance Review

The access management standards for MDOT, including their Geometric Design Guidance Document, GEO-650-D, PAVE-955-B, PAVE-962-A, and Sight Distance Guidelines, were reviewed. The following design guidelines have been followed regarding the access management and sight distance of the proposed road diet:

- Added on-street parking zone markings with at least a 20-foot minimum clearance from the parking stall to any adjacent intersection or driveway.
- No curbs are being moved except for the curb in the southeast quadrant at the intersection of Hamilton Street and Harriet/Spring Street.
- Added bike lanes include a buffer, green Methyl Methacrylate (MMA) in conflict areas, signage (R3-17), and yield lines approaching crosswalks.
- Special emphasis crosswalks will replace all typical crosswalks at signalized intersections and added at unsignalized intersections subject to further analysis being performed to determine if additional pedestrian treatments are required.
- Green MMA and a bus legend will be added in front of all transit stops that conflict with the bike lane.
- The loading zone along the east side of Huron Street between Ferris Street and Michigan Avenue will be maintained.

None of the added design features associated with the road diet are anticipated to cause any access management or sight distance issues.

Section 10 - Safety Analysis

A traffic safety analysis was prepared for applicable roadway segments within the study area which were identified based on proposed modifications per this traffic study. The limits of each segment were based on geographic and operational characteristics unique to each segment. The roadway segments analyzed include the following:

- ≡ Washtenaw Avenue – Normal Street to Ballard Street
- ≡ Hamilton Street – Pearl Street to Michigan Avenue
- ≡ Hamilton Street – Michigan Avenue to Ferris Street
- ≡ Hamilton Street – Ferris Street to Harriet Street
- ≡ Huron Street – Harriet Street to Ferris Street
- ≡ Huron Street – Pearl Street to Cross Street

Three years of traffic crash data between 2016 and 2018 was obtained from the Traffic Improvement Association's Traffic Crash Analysis Tool (TCAT). TCAT is an online search tool for traffic crashes in Michigan. Obtained crashes were reviewed for roadway segments. Deer related crashes were omitted from the analysis due to the element of randomness associated with these types of crashes.

Traffic crashes were analyzed for crash type and severity. Severity classifications of crashes include fatal, injury type A, injury type B, injury type C, or property damage only (PDO). The severity of a crash is determined by the most severe injury present in the crash. Injury type A refers to an incapacitating injury that prevents a person from walking, driving, or continuing normal activities which he or she could perform prior to the crash. Injury type B is described as any injury that is evident at the scene of the crash, but the injury is not fatal or incapacitating. Injury type C refers to an injury reported by an occupant, but not visible to the officer completing the crash report. In a PDO crash, no injuries result from the crash.

Overall Conditions

A summary of the crash severity and crash types for 2016 to 2018 study crashes is presented in Table 23 and Table 24, respectively.

Table 23: Study Segment Crashes by Crash Severity 2016 – 2018

Crash Severity	2016	2017	2018	Total	Percent
Fatal	0	1	0	1	1%
A-Injury	2	0	0	2	1%
B-Injury	2	2	1	5	4%
C-Injury	9	3	3	15	10%
PDO	46	36	36	118	84%
Total	59	42	40	141	100%

Table 24: Study Segment Crashes by Crash Type 2016 – 2018

Crash Type	2016	2017	2018	Total	Percent
Single Motor Vehicle	5	2	4	11	8%
Head-On	1	0	0	1	1%
Angle	12	4	6	22	16%
Rear-End	24	21	20	65	46%
Sideswipe-Same	13	15	10	38	27%
Backing	1	0	0	1	1%
Other	3	0	0	3	1%
Total	59	42	40	141	100%

The data illustrates that 141 total crashes occurred in the study segments between 2016 to 2018 in which 84% were PDO crashes. One fatal and two injury type A crashes were reported during this time period. In terms of crash types, rear-end crashes comprised the predominant number of crashes with 46% of all crashes, followed by sideswipe-same crashes with 27%.

Highway Safety Manual Analysis

The Highway Safety Manual (HSM) is a resource manual that provides safety knowledge and tools in a useful form to facilitate improved decision making based on safety performance. The HSM provides a predictive method for estimating expected average crash frequency, crash severity, and crash types of a network, facility, or individual site. Chapter 12 specifically describes the predictive method for urban and suburban arterials. These methods have been adapted by MDOT to develop a set of HSM spreadsheets calibrated to local conditions to facilitate the implementation of the predictive method.

An HSM analysis was conducted to assess the safety implications for the conversion of the Washtenaw Avenue, Hamilton Street, and Huron Street corridors from a three-lane, one-way cross section to a two-lane, one-way cross section. These modifications include the introduction of a bike lane on Hamilton and Huron Streets and parallel parking on Washtenaw Avenue with a small segment on Hamilton Street between Michigan Avenue and Ferris Street. Special emphasis crosswalks have also been added at all intersections along the study segments subject to further analysis being performed at unsignalized intersections to determine if additional pedestrian treatments are required.

It should be noted given the lack of any observed non-motorized user (pedestrian and bicycle) crashes, crash modification factors (CMF) for bike lanes and special emphasis crosswalks were not used in the HSM analysis. This avoids significantly optimistic and possibly unreliable results in the total number of crashes as these types of treatments are only associated with non-motorized crashes. Despite this omission, safety benefits are expected for non-motorized users along the study segments due to the addition of a bike lane and special emphasis crosswalks.

The results of the HSM analysis indicate probable safety improvements along the study segments resulting from an existing three-lane, one-way cross section to a modified two-lane, one-way cross section. The total crash rates along all the study segments are predicted to be reduced by at least two crashes per mile per year and the fatal and injury crash rates are predicted to be reduced by at least half. The results of the HSM analysis are shown in Table 25 and additional information is provided in Appendix N.

Table 25: HSM Analysis Summary

Study Segments	Primary Treatment	Predicted Total Crash Rate (crashes/mile/year)		Predicted Fatal & Injury Crash Rate (crashes/mile/year)	
		Existing	Modified	Existing	Modified
Washtenaw - Normal to Ballard	3-Lane to 2-Lane	4.04	1.56	0.86	0.36
Hamilton - Pearl to Michigan		6.10	2.35	1.30	0.55
Hamilton - Michigan to Ferris		5.58	2.18	1.15	0.48
Hamilton - Ferris to Harriet		3.99	1.56	0.83	0.34
Huron - Harriet to Ferris		4.62	1.80	0.96	0.40
Huron - Pearl to Cross		6.33	2.47	1.32	0.55

Section 11 - Conclusions and Recommendations

HRC has analyzed the feasibility of a road diet in the City of Ypsilanti on the major roadways through the downtown area. The major roadway segments analyzed within the study area include Washtenaw Avenue, Hamilton Street, Huron Street, and Michigan Avenue. Except for Michigan Avenue, the City has desired to reduce these roadways from three travel lanes to two by replacing a travel lane with either a six-foot bike lane with a buffer or on-street parking. The City indicated there is no need for a road diet concept on Michigan Avenue since on-street parking already exists on both sides of the boulevard.

The focus of this study was the capacity analysis of the roadway segments. The study reviewed the existing and various background and road diet conditions to determine if the road diet has any adverse impacts on the roadway network. Through signal optimization and adding detection at various intersections as indicated in the models though, it was determined the road diet will not have any significant negative impacts on the roadway network.

The study also reviewed if the road diet had any adverse impacts on access management and sight distances and performed an HSM analysis. None of the added design features associated with the road diet are anticipated to cause any issues and the results from the HSM analysis predicts a reduction in total crash rate along all study segments by at least two crashes per mile per year. Fatal and injury crash rates are also predicted to be reduced by at least one half.

The findings from this study show it will be feasible to convert these roadway segments using a road diet if the following recommendations are met:

1. Optimize the signal timings (adjust splits and/or offsets) and/or add detection to change the signal operation to fully actuated for the following impacted intersections:
 - a. Optimize signal timings
 - i. Hamilton Street and Michigan Avenue
 - ii. Huron Street and Cross Street
 - iii. Huron Street and Michigan Avenue
 - iv. Michigan Avenue and Washington Street
 - v. Huron Street and Harriet/Spring Street
 - vi. Hamilton Street and Harriet Street
 - b. Add detection for fully actuated signal
 - i. Hamilton Street and Michigan Avenue
 - ii. Hamilton Street and Harriet Street
2. Add all signage and pavement markings associated with the road diet as indicated on the complete set of conceptual plans (Appendix F). Green MMA should be used at all conflict areas including bus stops and right-turns at unsignalized intersections.
3. Along eastbound Washtenaw Avenue approaching Normal Street, change the shared left-through lane to a left-turn lane drop. The northernmost travel lane downstream of the intersection will then be converted into on-street parking.

4. Along southbound Hamilton Street approaching Pearl Street, change the shared right-through lane to a right-turn lane drop. The westernmost travel lane downstream of the intersection will then be converted into a bike lane with a buffer.
5. Along northbound Huron Street approaching Harriet/Spring Street, remove the dedicated right-turn lane and change the easternmost through lane to a right-turn lane drop. The easternmost travel lane downstream of the intersection will then be converted into a bike lane with a buffer.

It should be noted again, however, the analysis along Hamilton Street south of Harriet Street is not included in this study and can be found in WATS's Huron I-94 Non-Motorized Crossing Report dated December 2014. Anything included in that area in this study is for reference purposes only.

The goal of this study has been achieved by providing thorough details about traffic safety and operations to show the existing roadway network with future traffic will accommodate the proposed road diet. The road diet also provides several advantages that include the following benefits:

- Improve mobility for bicyclists on Hamilton and Huron Streets by adding bike lanes
- Promote better land use by adding 24 on-street parking spaces on Washtenaw Avenue and five on Hamilton Street between Ferris Street and Michigan Avenue
- Improve pedestrian safety by removing at least 12 feet of travel lane width at every impacted intersection
- Encourage lower vehicle speeds by replacing a travel lane with either a bike lane with a buffer or on-street parking
- Reduce the predicted crashes per mile per year by reducing the number of travel lanes from three to two

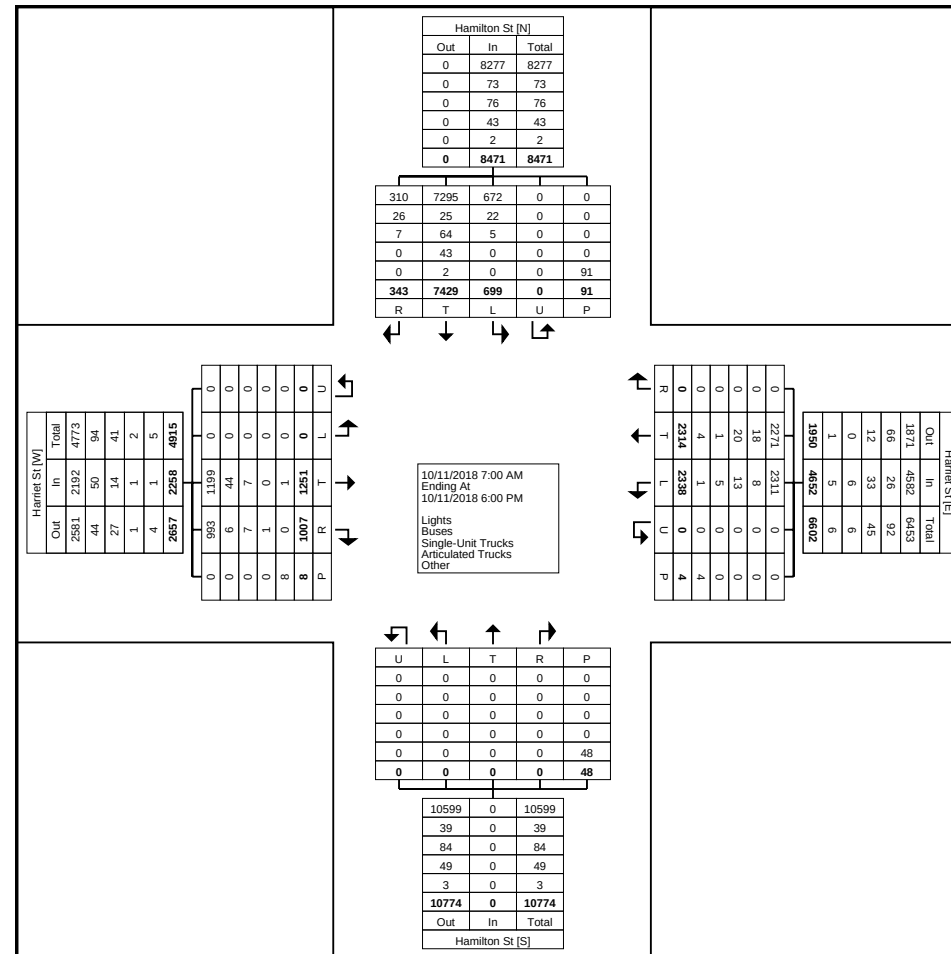
With the added benefits and the road diet not having any significant negative impacts on the existing roadway network, HRC recommends the road diet to be applied to the 2022 MDOT Rehabilitation Project.

Appendix A
Turning Movement Count Sheets

Turning Movement Data

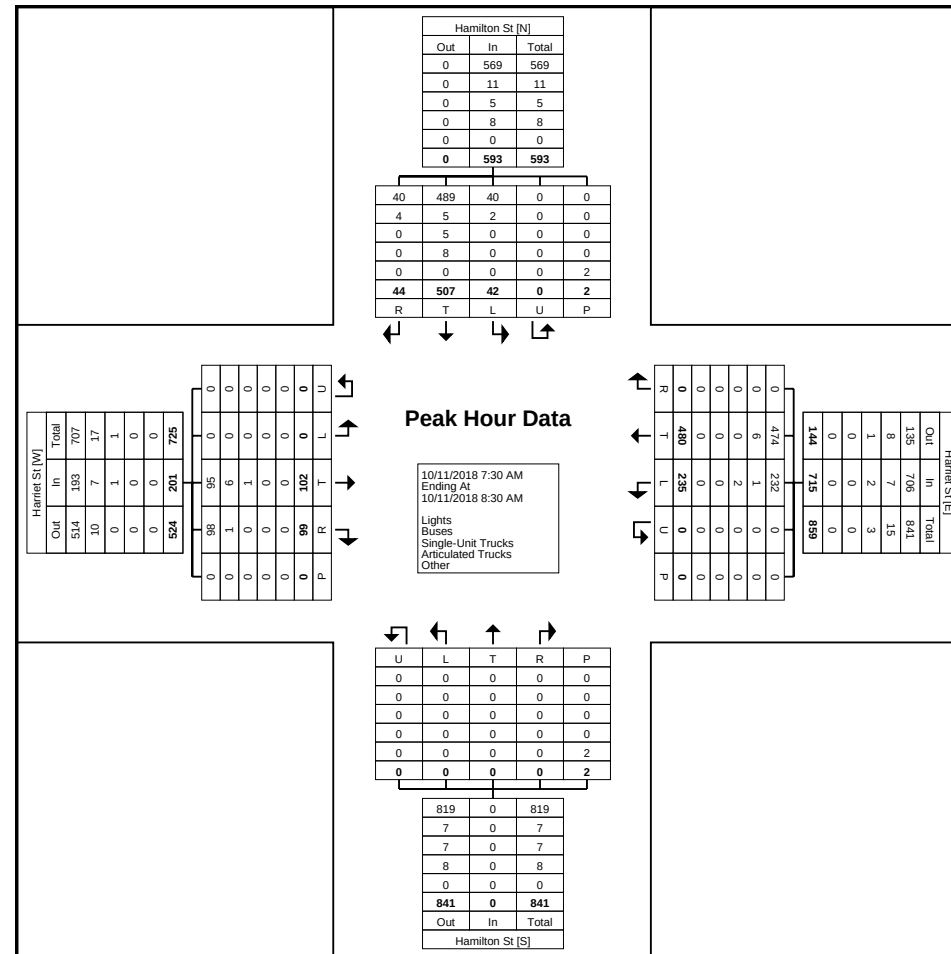
Start Time	Harriet St Westbound						Harriet St Eastbound						Hamilton St Southbound						Hamilton St Northbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:00 AM	87	31	0	0	0	118	0	10	28	0	0	38	14	117	3	0	0	134	0	0	0	0	0	0	290
7:15 AM	89	87	0	0	0	176	0	17	23	0	0	40	7	151	3	0	0	161	0	0	0	0	0	0	377
7:30 AM	67	116	0	0	0	183	0	21	16	0	0	37	5	127	4	0	0	136	0	0	0	0	0	0	356
7:45 AM	55	121	0	0	0	176	0	18	26	0	0	44	8	144	7	0	0	159	0	0	0	0	1	0	379
Hourly Total	298	355	0	0	0	653	0	66	93	0	0	159	34	539	17	0	0	590	0	0	0	0	1	0	1402
8:00 AM	57	122	0	0	0	179	0	27	25	0	0	52	21	123	11	0	1	155	0	0	0	0	0	0	386
8:15 AM	56	121	0	0	0	177	0	36	32	0	0	68	8	113	22	0	1	143	0	0	0	0	1	0	388
8:30 AM	48	90	0	0	1	138	0	38	22	0	0	60	6	123	14	0	0	143	0	0	0	0	0	0	341
8:45 AM	53	75	0	0	0	128	0	44	25	0	0	69	13	106	13	0	1	132	0	0	0	0	2	0	329
Hourly Total	214	408	0	0	1	622	0	145	104	0	0	249	48	465	60	0	3	573	0	0	0	0	3	0	1444
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 AM	42	45	0	0	0	87	0	20	19	0	0	39	14	167	10	0	4	191	0	0	0	0	0	0	317
11:15 AM	48	56	0	0	1	104	0	44	19	0	0	63	19	163	13	0	4	195	0	0	0	0	2	0	362
11:30 AM	72	39	0	0	0	111	0	25	22	0	0	47	20	169	10	0	5	199	0	0	0	0	0	0	357
11:45 AM	56	41	0	0	0	97	0	45	25	0	1	70	18	181	12	0	5	211	0	0	0	0	0	0	378
Hourly Total	218	181	0	0	1	399	0	134	85	0	1	219	71	680	45	0	18	796	0	0	0	0	2	0	1414
12:00 PM	53	51	0	0	0	104	0	30	37	0	0	67	15	188	6	0	4	209	0	0	0	0	1	0	380
12:15 PM	81	49	0	0	0	130	0	33	29	0	4	62	20	223	15	0	8	258	0	0	0	0	0	0	450
12:30 PM	66	56	0	0	0	122	0	28	18	0	0	46	23	242	7	0	2	272	0	0	0	0	4	0	440
12:45 PM	55	59	0	0	0	114	0	28	23	0	0	51	16	188	8	0	4	212	0	0	0	0	1	0	377
Hourly Total	255	215	0	0	0	470	0	119	107	0	4	226	74	841	36	0	18	951	0	0	0	0	6	0	1647
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00 PM	64	67	0	0	0	131	0	37	39	0	0	76	26	286	12	0	1	324	0	0	0	0	2	0	531
2:15 PM	81	65	0	0	0	146	0	42	32	0	0	74	22	253	8	0	1	283	0	0	0	0	0	0	503
2:30 PM	84	70	0	0	1	154	0	38	29	0	1	67	19	232	11	0	2	262	0	0	0	0	1	0	483
2:45 PM	79	67	0	0	0	146	0	40	44	0	0	84	21	251	9	0	1	281	0	0	0	0	6	0	511
Hourly Total	308	269	0	0	1	577	0	157	144	0	1	301	88	1022	40	0	5	1150	0	0	0	0	9	0	2028
3:00 PM	82	84	0	0	0	166	0	47	33	0	0	80	20	252	12	0	0	284	0	0	0	0	1	0	530
3:15 PM	90	75	0	0	0	165	0	58	51	0	0	109	31	335	15	0	0	381	0	0	0	0	0	0	655
3:30 PM	101	90	0	0	0	191	0	49	39	0	0	88	35	355	17	0	7	407	0	0	0	0	0	0	686
3:45 PM	77	76	0	0	0	153	0	62	41	0	0	103	22	310	9	0	7	341	0	0	0	0	1	0	597
Hourly Total	350	325	0	0	0	675	0	216	164	0	0	380	108	1252	53	0	14	1413	0	0	0	0	2	0	2468
4:00 PM	97	69	0	0	0	166	0	57	47	0	0	104	30	334	13	0	2	377	0	0	0	0	3	0	647
4:15 PM	76	72	0	0	0	148	0	49	43	0	0	92	38	285	16	0	4	339	0	0	0	0	1	0	579
4:30 PM	97	60	0	0	0	157	0	38	38	0	0	76	24	326	12	0	10	362	0	0	0	0	4	0	595
4:45 PM	74	74	0	0	0	148	0	66	33	0	1	99	46	364	14	0	5	424	0	0	0	0	13	0	671
Hourly Total	344	275	0	0	0	619	0	210	161	0	1	371	138	1309	55	0	21	1502	0	0	0	0	21	0	2492

5:00 PM	120	79	0	0	0	199	0	54	51	0	1	105	29	366	3	0	6	398	0	0	0	0	1	0	702
5:15 PM	84	72	0	0	1	156	0	47	40	0	0	87	48	366	8	0	1	422	0	0	0	0	0	0	665
5:30 PM	83	64	0	0	0	147	0	50	32	0	0	82	31	336	13	0	0	380	0	0	0	0	0	0	609
5:45 PM	64	71	0	0	0	135	0	53	26	0	0	79	30	253	13	0	5	296	0	0	0	0	3	0	510
Hourly Total	351	286	0	0	1	637	0	204	149	0	1	353	138	1321	37	0	12	1496	0	0	0	0	4	0	2486
Grand Total	2338	2314	0	0	4	4652	0	1251	1007	0	8	2258	699	7429	343	0	91	8471	0	0	0	0	48	0	15381
Approach %	50.3	49.7	0.0	0.0	-	-	0.0	55.4	44.6	0.0	-	-	8.3	87.7	4.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	-
Total %	15.2	15.0	0.0	0.0	-	30.2	0.0	8.1	6.5	0.0	-	14.7	4.5	48.3	2.2	0.0	-	55.1	0.0	0.0	0.0	0.0	-	0.0	-
Lights	2311	2271	0	0	-	4582	0	1199	993	0	-	2192	672	7295	310	0	-	8277	0	0	0	0	-	0	15051
% Lights	98.8	98.1	-	-	-	98.5	-	95.8	98.6	-	-	97.1	96.1	98.2	90.4	-	-	97.7	-	-	-	-	-	-	97.9
Buses	8	18	0	0	-	26	0	44	6	0	-	50	22	25	26	0	-	73	0	0	0	0	-	0	149
% Buses	0.3	0.8	-	-	-	0.6	-	3.5	0.6	-	-	2.2	3.1	0.3	7.6	-	-	0.9	-	-	-	-	-	-	1.0
Single-Unit Trucks	13	20	0	0	-	33	0	7	7	0	-	14	5	64	7	0	-	76	0	0	0	0	-	0	123
% Single-Unit Trucks	0.6	0.9	-	-	-	0.7	-	0.6	0.7	-	-	0.6	0.7	0.9	2.0	-	-	0.9	-	-	-	-	-	-	0.8
Articulated Trucks	5	1	0	0	-	6	0	0	1	0	-	1	0	43	0	0	-	43	0	0	0	0	-	0	50
% Articulated Trucks	0.2	0.0	-	-	-	0.1	-	0.0	0.1	-	-	0.0	0.0	0.6	0.0	-	-	0.5	-	-	-	-	-	-	0.3
Bicycles on Road	1	4	0	0	-	5	0	1	0	0	-	1	0	2	0	0	-	2	0	0	0	0	-	0	8
% Bicycles on Road	0.0	0.2	-	-	-	0.1	-	0.1	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	-	-	-	-	-	-	0.1
Bicycles on Crosswalk	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	16	-	-	-	-	0	-	-	-
% Bicycles on Crosswalk	-	-	-	-	25.0	-	-	-	-	-	0.0	-	-	-	-	-	17.6	-	-	-	-	0.0	-	-	-
Pedestrians	-	-	-	-	3	-	-	-	-	-	8	-	-	-	-	-	75	-	-	-	-	48	-	-	-
% Pedestrians	-	-	-	-	75.0	-	-	-	-	-	100.0	-	-	-	-	-	82.4	-	-	-	-	100.0	-	-	-



Turning Movement Peak Hour Data (7:30 AM)

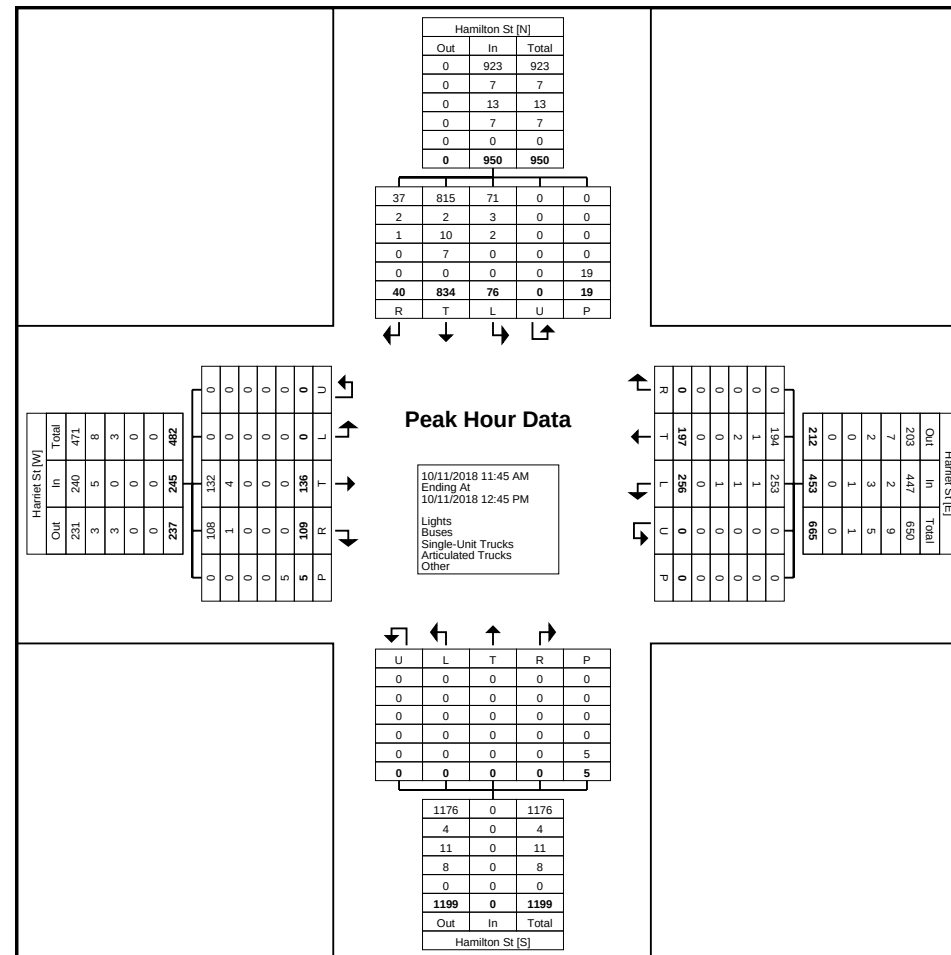
Start Time	Harriet St Westbound						Harriet St Eastbound						Hamilton St Southbound						Hamilton St Northbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:30 AM	67	116	0	0	0	183	0	21	16	0	0	37	5	127	4	0	0	136	0	0	0	0	0	0	356
7:45 AM	55	121	0	0	0	176	0	18	26	0	0	44	8	144	7	0	0	159	0	0	0	0	1	0	379
8:00 AM	57	122	0	0	0	179	0	27	25	0	0	52	21	123	11	0	1	155	0	0	0	0	0	0	386
8:15 AM	56	121	0	0	0	177	0	36	32	0	0	68	8	113	22	0	1	143	0	0	0	0	1	0	388
Total	235	480	0	0	0	715	0	102	99	0	0	201	42	507	44	0	2	593	0	0	0	0	2	0	1509
Approach %	32.9	67.1	0.0	0.0	-	-	0.0	50.7	49.3	0.0	-	-	7.1	85.5	7.4	0.0	-	-	0.0	0.0	0.0	0.0	-	-	-
Total %	15.6	31.8	0.0	0.0	-	47.4	0.0	6.8	6.6	0.0	-	13.3	2.8	33.6	2.9	0.0	-	39.3	0.0	0.0	0.0	0.0	-	0.0	-
PHF	0.877	0.984	0.000	0.000	-	0.977	0.000	0.708	0.773	0.000	-	0.739	0.500	0.880	0.500	0.000	-	0.932	0.000	0.000	0.000	0.000	-	0.000	0.972
Lights	232	474	0	0	-	706	0	95	98	0	-	193	40	489	40	0	-	569	0	0	0	0	-	0	1468
% Lights	98.7	98.8	-	-	-	98.7	-	93.1	99.0	-	-	96.0	95.2	96.4	90.9	-	-	96.0	-	-	-	-	-	-	97.3
Buses	1	6	0	0	-	7	0	6	1	0	-	7	2	5	4	0	-	11	0	0	0	0	-	0	25
% Buses	0.4	1.3	-	-	-	1.0	-	5.9	1.0	-	-	3.5	4.8	1.0	9.1	-	-	1.9	-	-	-	-	-	-	1.7
Single-Unit Trucks	2	0	0	0	-	2	0	1	0	0	-	1	0	5	0	0	-	5	0	0	0	0	-	0	8
% Single-Unit Trucks	0.9	0.0	-	-	-	0.3	-	1.0	0.0	-	-	0.5	0.0	1.0	0.0	-	-	0.8	-	-	-	-	-	-	0.5
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	8	0	0	-	8	0	0	0	0	-	0	8
% Articulated Trucks	0.0	0.0	-	-	-	0.0	-	0.0	0.0	-	-	0.0	0.0	1.6	0.0	-	-	1.3	-	-	-	-	-	-	0.5
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	-	-	-	0.0	-	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	-	-	-	-	-	-	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	0	-	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	0.0	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	2	-	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	100.0	-	-	-



Turning Movement Peak Hour Data Plot (7:30 AM)

Turning Movement Peak Hour Data (11:45 AM)

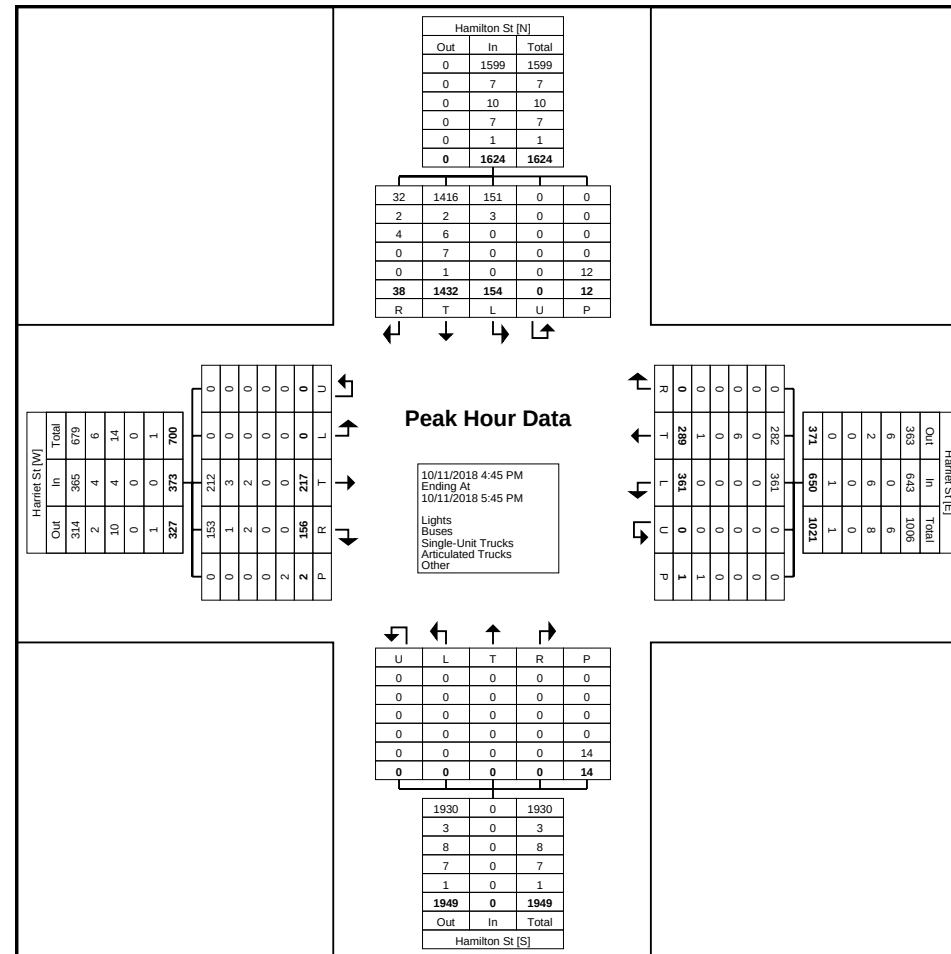
Start Time	Harriet St Westbound						Harriet St Eastbound						Hamilton St Southbound						Hamilton St Northbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
11:45 AM	56	41	0	0	0	97	0	45	25	0	1	70	18	181	12	0	5	211	0	0	0	0	0	0	378
12:00 PM	53	51	0	0	0	104	0	30	37	0	0	67	15	188	6	0	4	209	0	0	0	0	1	0	380
12:15 PM	81	49	0	0	0	130	0	33	29	0	4	62	20	223	15	0	8	258	0	0	0	0	0	0	450
12:30 PM	66	56	0	0	0	122	0	28	18	0	0	46	23	242	7	0	2	272	0	0	0	0	4	0	440
Total	256	197	0	0	0	453	0	136	109	0	5	245	76	834	40	0	19	950	0	0	0	0	5	0	1648
Approach %	56.5	43.5	0.0	0.0	-	-	0.0	55.5	44.5	0.0	-	-	8.0	87.8	4.2	0.0	-	-	0.0	0.0	0.0	0.0	-	-	-
Total %	15.5	12.0	0.0	0.0	-	27.5	0.0	8.3	6.6	0.0	-	14.9	4.6	50.6	2.4	0.0	-	57.6	0.0	0.0	0.0	0.0	-	0.0	-
PHF	0.790	0.879	0.000	0.000	-	0.871	0.000	0.756	0.736	0.000	-	0.875	0.826	0.862	0.667	0.000	-	0.873	0.000	0.000	0.000	0.000	-	0.000	0.916
Lights	253	194	0	0	-	447	0	132	108	0	-	240	71	815	37	0	-	923	0	0	0	0	-	0	1610
% Lights	98.8	98.5	-	-	-	98.7	-	97.1	99.1	-	-	98.0	93.4	97.7	92.5	-	-	97.2	-	-	-	-	-	-	97.7
Buses	1	1	0	0	-	2	0	4	1	0	-	5	3	2	2	0	-	7	0	0	0	0	-	0	14
% Buses	0.4	0.5	-	-	-	0.4	-	2.9	0.9	-	-	2.0	3.9	0.2	5.0	-	-	0.7	-	-	-	-	-	-	0.8
Single-Unit Trucks	1	2	0	0	-	3	0	0	0	0	-	0	2	10	1	0	-	13	0	0	0	0	-	0	16
% Single-Unit Trucks	0.4	1.0	-	-	-	0.7	-	0.0	0.0	-	-	0.0	2.6	1.2	2.5	-	-	1.4	-	-	-	-	-	-	1.0
Articulated Trucks	1	0	0	0	-	1	0	0	0	0	-	0	0	7	0	0	-	7	0	0	0	0	-	0	8
% Articulated Trucks	0.4	0.0	-	-	-	0.2	-	0.0	0.0	-	-	0.0	0.0	0.8	0.0	-	-	0.7	-	-	-	-	-	-	0.5
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	-	-	-	0.0	-	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	-	-	-	-	-	-	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	5.3	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	5	-	-	-	-	-	18	-	-	-	-	-	5	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	94.7	-	-	-	-	-	100.0	-	-



Turning Movement Peak Hour Data Plot (11:45 AM)

Turning Movement Peak Hour Data (4:45 PM)

Start Time	Harriet St Westbound						Harriet St Eastbound						Hamilton St Southbound						Hamilton St Northbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
4:45 PM	74	74	0	0	0	148	0	66	33	0	1	99	46	364	14	0	5	424	0	0	0	0	13	0	671
5:00 PM	120	79	0	0	0	199	0	54	51	0	1	105	29	366	3	0	6	398	0	0	0	0	1	0	702
5:15 PM	84	72	0	0	1	156	0	47	40	0	0	87	48	366	8	0	1	422	0	0	0	0	0	0	665
5:30 PM	83	64	0	0	0	147	0	50	32	0	0	82	31	336	13	0	0	380	0	0	0	0	0	0	609
Total	361	289	0	0	1	650	0	217	156	0	2	373	154	1432	38	0	12	1624	0	0	0	0	14	0	2647
Approach %	55.5	44.5	0.0	0.0	-	-	0.0	58.2	41.8	0.0	-	-	9.5	88.2	2.3	0.0	-	-	0.0	0.0	0.0	0.0	-	-	-
Total %	13.6	10.9	0.0	0.0	-	24.6	0.0	8.2	5.9	0.0	-	14.1	5.8	54.1	1.4	0.0	-	61.4	0.0	0.0	0.0	0.0	-	0.0	-
PHF	0.752	0.915	0.000	0.000	-	0.817	0.000	0.822	0.765	0.000	-	0.888	0.802	0.978	0.679	0.000	-	0.958	0.000	0.000	0.000	0.000	-	0.000	0.943
Lights	361	282	0	0	-	643	0	212	153	0	-	365	151	1416	32	0	-	1599	0	0	0	0	-	0	2607
% Lights	100.0	97.6	-	-	-	98.9	-	97.7	98.1	-	-	97.9	98.1	98.9	84.2	-	-	98.5	-	-	-	-	-	-	98.5
Buses	0	0	0	0	-	0	0	3	1	0	-	4	3	2	2	0	-	7	0	0	0	0	-	0	11
% Buses	0.0	0.0	-	-	-	0.0	-	1.4	0.6	-	-	1.1	1.9	0.1	5.3	-	-	0.4	-	-	-	-	-	-	0.4
Single-Unit Trucks	0	6	0	0	-	6	0	2	2	0	-	4	0	6	4	0	-	10	0	0	0	0	-	0	20
% Single-Unit Trucks	0.0	2.1	-	-	-	0.9	-	0.9	1.3	-	-	1.1	0.0	0.4	10.5	-	-	0.6	-	-	-	-	-	-	0.8
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	7	0	0	-	7	0	0	0	0	-	0	7
% Articulated Trucks	0.0	0.0	-	-	-	0.0	-	0.0	0.0	-	-	0.0	0.0	0.5	0.0	-	-	0.4	-	-	-	-	-	-	0.3
Bicycles on Road	0	1	0	0	-	1	0	0	0	0	-	0	0	1	0	0	-	1	0	0	0	0	-	0	2
% Bicycles on Road	0.0	0.3	-	-	-	0.2	-	0.0	0.0	-	-	0.0	0.0	0.1	0.0	-	-	0.1	-	-	-	-	-	-	0.1
Bicycles on Crosswalk	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	100.0	-	-	-	-	-	0.0	-	-	-	-	-	8.3	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	11	-	-	-	-	-	14	-	-
% Pedestrians	-	-	-	-	0.0	-	-	-	-	-	100.0	-	-	-	-	-	91.7	-	-	-	-	-	100.0	-	-

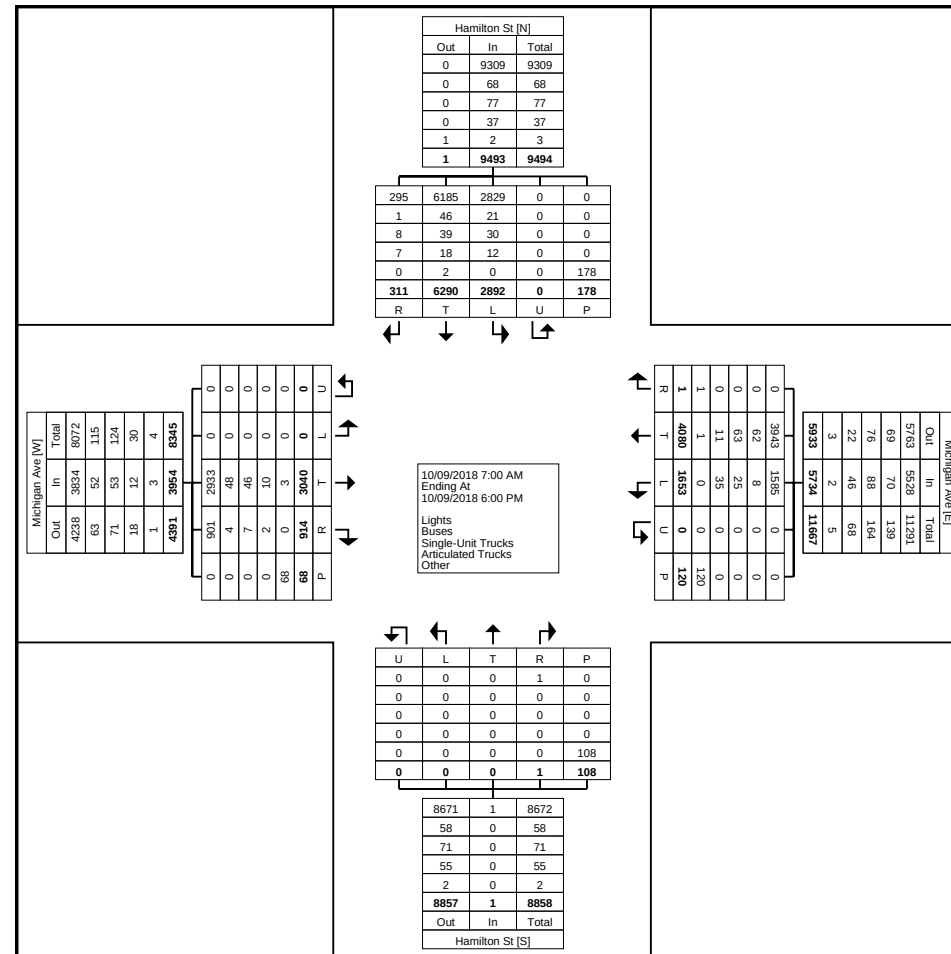


Turning Movement Peak Hour Data Plot (4:45 PM)

Turning Movement Data

Start Time	Michigan Ave Westbound						Michigan Ave Eastbound						Hamilton St Southbound						Hamilton St Northbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:00 AM	22	90	0	0	1	112	0	43	12	0	2	55	35	102	2	0	0	139	0	0	0	0	0	0	306
7:15 AM	42	149	0	0	1	191	0	46	12	0	0	58	27	103	5	0	1	135	0	0	0	0	0	0	384
7:30 AM	28	212	0	0	0	240	0	67	19	0	1	86	41	100	8	0	2	149	0	0	0	0	3	0	475
7:45 AM	37	180	0	0	2	217	0	79	25	0	2	104	36	120	8	0	1	164	0	0	0	0	1	0	485
Hourly Total	129	631	0	0	4	760	0	235	68	0	5	303	139	425	23	0	4	587	0	0	0	0	4	0	1650
8:00 AM	25	141	0	0	2	166	0	59	15	0	1	74	58	113	14	0	0	185	0	0	0	0	2	0	425
8:15 AM	50	126	0	0	1	176	0	70	17	0	2	87	53	112	8	0	3	173	0	0	0	0	0	0	436
8:30 AM	35	142	0	0	0	177	0	79	22	0	3	101	69	113	10	0	1	192	0	0	0	0	4	0	470
8:45 AM	36	141	0	0	3	177	0	70	21	0	3	91	63	129	6	0	1	198	0	0	0	0	6	0	466
Hourly Total	146	550	0	0	6	696	0	278	75	0	9	353	243	467	38	0	5	748	0	0	0	0	12	0	1797
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 AM	47	87	0	0	14	134	0	78	26	0	2	104	93	171	14	0	12	278	0	0	0	0	2	0	516
11:15 AM	47	104	0	0	9	151	0	91	32	0	5	123	97	132	10	0	23	239	0	0	0	0	4	0	513
11:30 AM	55	111	0	0	6	166	0	88	17	0	2	105	56	120	7	0	11	183	0	0	0	0	4	0	454
11:45 AM	48	117	0	0	3	165	0	84	24	0	0	108	66	119	10	0	1	195	0	0	0	0	5	0	468
Hourly Total	197	419	0	0	32	616	0	341	99	0	9	440	312	542	41	0	47	895	0	0	0	0	15	0	1951
12:00 PM	42	109	0	0	3	151	0	93	23	0	4	116	85	185	2	0	6	272	0	0	0	0	9	0	539
12:15 PM	47	118	0	0	10	165	0	89	29	0	5	118	93	195	9	0	23	297	0	0	0	0	7	0	580
12:30 PM	46	108	1	0	6	155	0	100	23	0	3	123	95	194	18	0	8	307	0	0	0	0	8	0	585
12:45 PM	47	112	0	0	5	159	0	97	27	0	1	124	87	163	11	0	8	261	0	0	0	0	3	0	544
Hourly Total	182	447	1	0	24	630	0	379	102	0	13	481	360	737	40	0	45	1137	0	0	0	0	27	0	2248
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00 PM	51	115	0	0	8	166	0	93	28	0	1	121	108	265	16	0	5	389	0	0	0	0	0	0	676
2:15 PM	60	134	0	0	11	194	0	93	34	0	0	127	116	217	10	0	12	343	0	0	0	0	2	0	664
2:30 PM	50	151	0	0	2	201	0	107	42	0	1	149	70	207	14	0	3	291	0	0	0	0	3	0	641
2:45 PM	56	113	0	0	6	169	0	109	35	0	0	144	105	185	6	0	3	296	0	0	0	0	7	0	609
Hourly Total	217	513	0	0	27	730	0	402	139	0	2	541	399	874	46	0	23	1319	0	0	0	0	12	0	2590
3:00 PM	54	134	0	0	3	188	0	87	27	0	3	114	100	259	13	0	8	372	0	0	0	0	4	0	674
3:15 PM	63	130	0	0	6	193	0	117	32	0	3	149	125	279	9	0	2	413	0	0	1	0	4	1	756
3:30 PM	75	128	0	0	4	203	0	140	43	0	4	183	132	314	10	0	5	456	0	0	0	0	4	0	842
3:45 PM	66	142	0	0	1	208	0	134	48	0	0	182	128	234	8	0	6	370	0	0	0	0	2	0	760
Hourly Total	258	534	0	0	14	792	0	478	150	0	10	628	485	1086	40	0	21	1611	0	0	1	0	14	1	3032
4:00 PM	64	116	0	0	1	180	0	111	28	0	1	139	112	256	16	0	5	384	0	0	0	0	5	0	703
4:15 PM	49	110	0	0	1	159	0	111	46	0	6	157	99	255	8	0	6	362	0	0	0	0	2	0	678
4:30 PM	70	125	0	0	0	195	0	138	31	0	1	169	107	248	8	0	2	363	0	0	0	0	4	0	727
4:45 PM	74	108	0	0	5	182	0	93	30	0	1	123	130	267	8	0	6	405	0	0	0	0	2	0	710
Hourly Total	257	459	0	0	7	716	0	453	135	0	9	588	448	1026	40	0	19	1514	0	0	0	0	13	0	2818

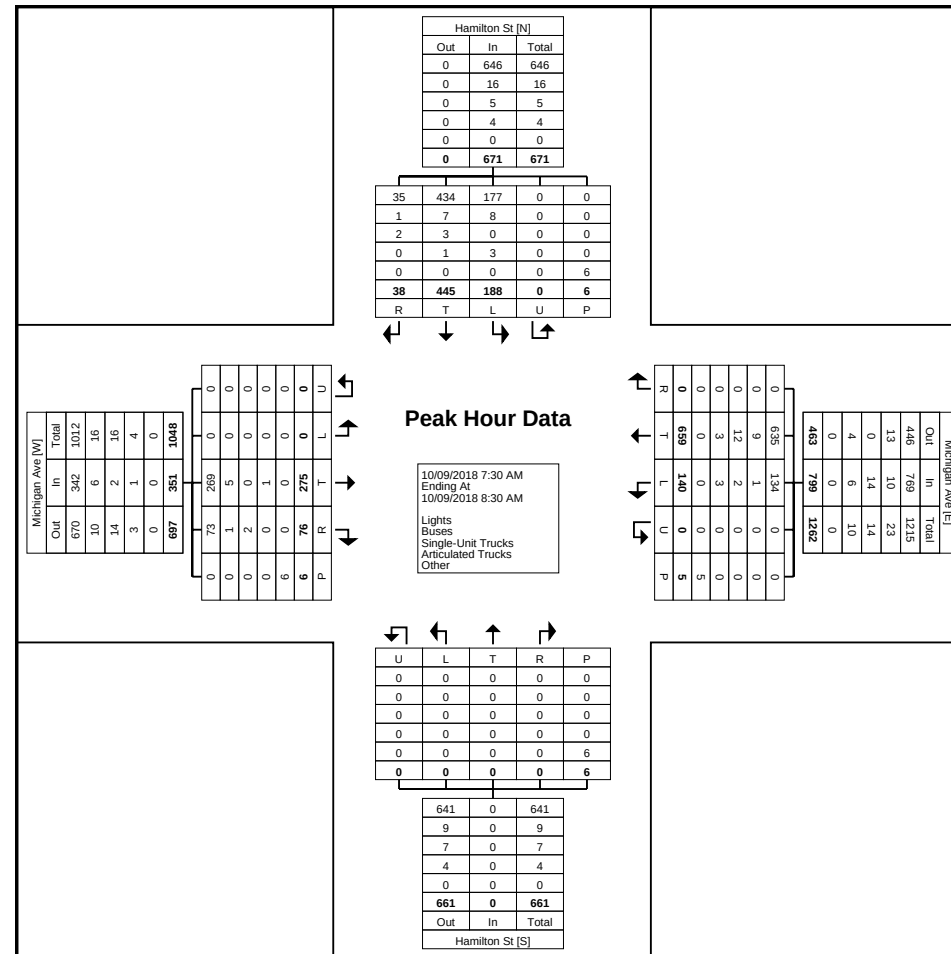
5:00 PM	65	146	0	0	3	211	0	109	33	0	4	142	122	341	14	0	4	477	0	0	0	0	3	0	830
5:15 PM	74	133	0	0	0	207	0	126	34	0	0	160	129	320	8	0	5	457	0	0	0	0	4	0	824
5:30 PM	65	127	0	0	2	192	0	129	33	0	4	162	137	240	8	0	3	385	0	0	0	0	3	0	739
5:45 PM	63	121	0	0	1	184	0	110	46	0	3	156	118	232	13	0	2	363	0	0	0	0	1	0	703
Hourly Total	267	527	0	0	6	794	0	474	146	0	11	620	506	1133	43	0	14	1682	0	0	0	0	11	0	3096
Grand Total	1653	4080	1	0	120	5734	0	3040	914	0	68	3954	2892	6290	311	0	178	9493	0	0	1	0	108	1	19182
Approach %	28.8	71.2	0.0	0.0	-	-	0.0	76.9	23.1	0.0	-	-	30.5	66.3	3.3	0.0	-	-	0.0	0.0	100.0	0.0	-	-	-
Total %	8.6	21.3	0.0	0.0	-	29.9	0.0	15.8	4.8	0.0	-	20.6	15.1	32.8	1.6	0.0	-	49.5	0.0	0.0	0.0	0.0	-	0.0	-
Lights	1585	3943	0	0	-	5528	0	2933	901	0	-	3834	2829	6185	295	0	-	9309	0	0	1	0	-	1	18672
% Lights	95.9	96.6	0.0	-	-	96.4	-	96.5	98.6	-	-	97.0	97.8	98.3	94.9	-	-	98.1	-	-	100.0	-	-	100.0	97.3
Buses	8	62	0	0	-	70	0	48	4	0	-	52	21	46	1	0	-	68	0	0	0	0	-	0	190
% Buses	0.5	1.5	0.0	-	-	1.2	-	1.6	0.4	-	-	1.3	0.7	0.7	0.3	-	-	0.7	-	-	0.0	-	-	0.0	1.0
Single-Unit Trucks	25	63	0	0	-	88	0	46	7	0	-	53	30	39	8	0	-	77	0	0	0	0	-	0	218
% Single-Unit Trucks	1.5	1.5	0.0	-	-	1.5	-	1.5	0.8	-	-	1.3	1.0	0.6	2.6	-	-	0.8	-	-	0.0	-	-	0.0	1.1
Articulated Trucks	35	11	0	0	-	46	0	10	2	0	-	12	12	18	7	0	-	37	0	0	0	0	-	0	95
% Articulated Trucks	2.1	0.3	0.0	-	-	0.8	-	0.3	0.2	-	-	0.3	0.4	0.3	2.3	-	-	0.4	-	-	0.0	-	-	0.0	0.5
Bicycles on Road	0	1	1	0	-	2	0	3	0	0	-	3	0	2	0	0	-	2	0	0	0	0	-	0	7
% Bicycles on Road	0.0	0.0	100.0	-	-	0.0	-	0.1	0.0	-	-	0.1	0.0	0.0	0.0	-	-	0.0	-	-	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	5	-	-	-	-	-	3	-	-	-	-	-	1	-	-	-	-	-	8	-	-
% Bicycles on Crosswalk	-	-	-	-	4.2	-	-	-	-	-	4.4	-	-	-	-	-	0.6	-	-	-	-	-	7.4	-	-
Pedestrians	-	-	-	-	115	-	-	-	-	-	65	-	-	-	-	-	177	-	-	-	-	-	100	-	-
% Pedestrians	-	-	-	-	95.8	-	-	-	-	-	95.6	-	-	-	-	-	99.4	-	-	-	-	-	92.6	-	-



Turning Movement Data Plot

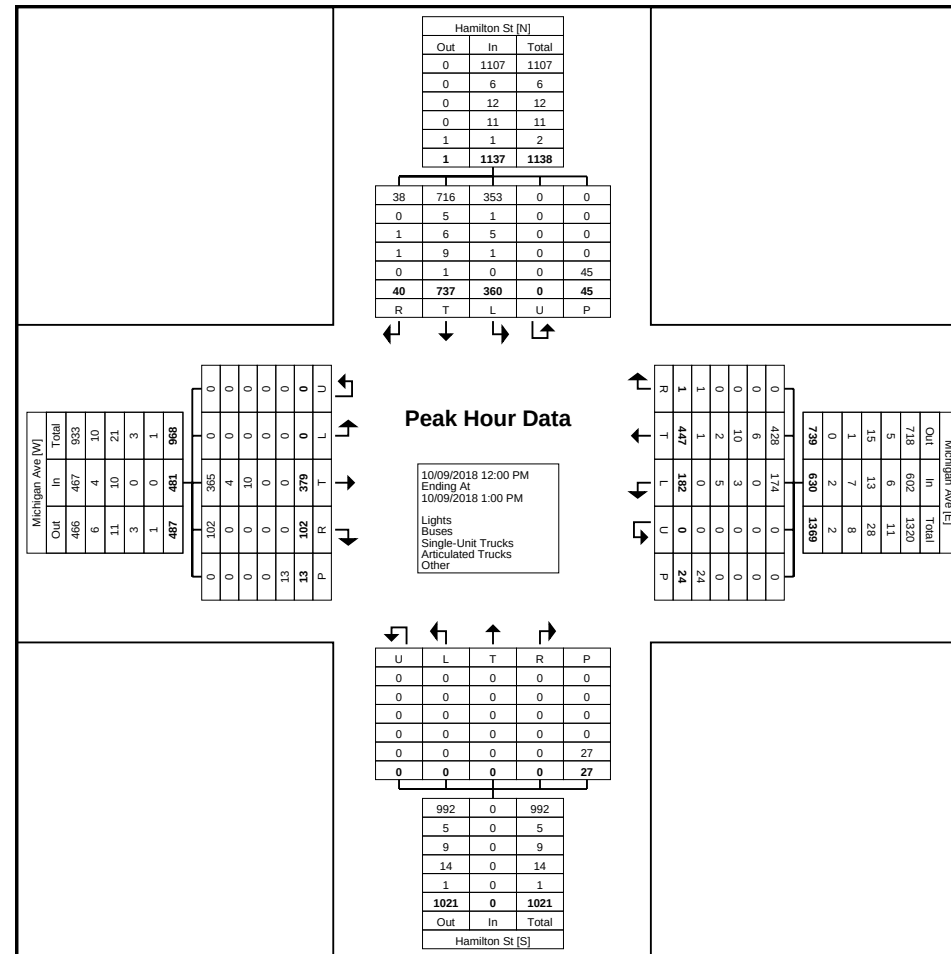
Turning Movement Peak Hour Data (7:30 AM)

Start Time	Michigan Ave Westbound						Michigan Ave Eastbound						Hamilton St Southbound						Hamilton St Northbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:30 AM	28	212	0	0	0	240	0	67	19	0	1	86	41	100	8	0	2	149	0	0	0	0	3	0	475
7:45 AM	37	180	0	0	2	217	0	79	25	0	2	104	36	120	8	0	1	164	0	0	0	0	1	0	485
8:00 AM	25	141	0	0	2	166	0	59	15	0	1	74	58	113	14	0	0	185	0	0	0	0	2	0	425
8:15 AM	50	126	0	0	1	176	0	70	17	0	2	87	53	112	8	0	3	173	0	0	0	0	0	0	436
Total	140	659	0	0	5	799	0	275	76	0	6	351	188	445	38	0	6	671	0	0	0	0	6	0	1821
Approach %	17.5	82.5	0.0	0.0	-	-	0.0	78.3	21.7	0.0	-	-	28.0	66.3	5.7	0.0	-	-	0.0	0.0	0.0	0.0	-	-	-
Total %	7.7	36.2	0.0	0.0	-	43.9	0.0	15.1	4.2	0.0	-	19.3	10.3	24.4	2.1	0.0	-	36.8	0.0	0.0	0.0	0.0	-	0.0	-
PHF	0.700	0.777	0.000	0.000	-	0.832	0.000	0.870	0.760	0.000	-	0.844	0.810	0.927	0.679	0.000	-	0.907	0.000	0.000	0.000	0.000	-	0.000	0.939
Lights	134	635	0	0	-	769	0	269	73	0	-	342	177	434	35	0	-	646	0	0	0	0	-	0	1757
% Lights	95.7	96.4	-	-	-	96.2	-	97.8	96.1	-	-	97.4	94.1	97.5	92.1	-	-	96.3	-	-	-	-	-	-	96.5
Buses	1	9	0	0	-	10	0	5	1	0	-	6	8	7	1	0	-	16	0	0	0	0	-	0	32
% Buses	0.7	1.4	-	-	-	1.3	-	1.8	1.3	-	-	1.7	4.3	1.6	2.6	-	-	2.4	-	-	-	-	-	-	1.8
Single-Unit Trucks	2	12	0	0	-	14	0	0	2	0	-	2	0	3	2	0	-	5	0	0	0	0	-	0	21
% Single-Unit Trucks	1.4	1.8	-	-	-	1.8	-	0.0	2.6	-	-	0.6	0.0	0.7	5.3	-	-	0.7	-	-	-	-	-	-	1.2
Articulated Trucks	3	3	0	0	-	6	0	1	0	0	-	1	3	1	0	0	-	4	0	0	0	0	-	0	11
% Articulated Trucks	2.1	0.5	-	-	-	0.8	-	0.4	0.0	-	-	0.3	1.6	0.2	0.0	-	-	0.6	-	-	-	-	-	-	0.6
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	-	-	-	0.0	-	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	-	-	-	-	-	-	0.0
Bicycles on Crosswalk	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	0	-	-	-
% Bicycles on Crosswalk	-	-	-	-	20.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	0.0	-	-	-
Pedestrians	-	-	-	-	4	-	-	-	-	-	6	-	-	-	-	-	6	-	-	-	-	6	-	-	-
% Pedestrians	-	-	-	-	80.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	100.0	-	-	-



Turning Movement Peak Hour Data (12:00 PM)

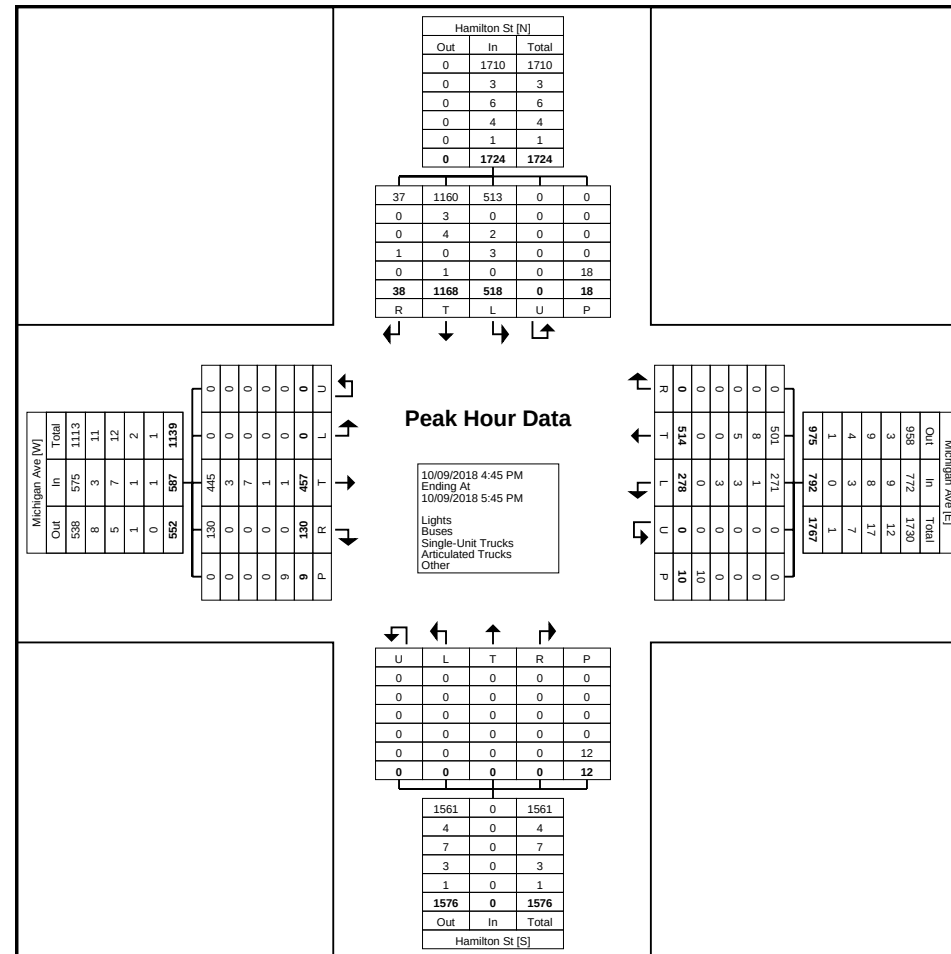
Start Time	Michigan Ave Westbound						Michigan Ave Eastbound						Hamilton St Southbound						Hamilton St Northbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
12:00 PM	42	109	0	0	3	151	0	93	23	0	4	116	85	185	2	0	6	272	0	0	0	0	9	0	539
12:15 PM	47	118	0	0	10	165	0	89	29	0	5	118	93	195	9	0	23	297	0	0	0	0	7	0	580
12:30 PM	46	108	1	0	6	155	0	100	23	0	3	123	95	194	18	0	8	307	0	0	0	0	8	0	585
12:45 PM	47	112	0	0	5	159	0	97	27	0	1	124	87	163	11	0	8	261	0	0	0	0	3	0	544
Total	182	447	1	0	24	630	0	379	102	0	13	481	360	737	40	0	45	1137	0	0	0	0	27	0	2248
Approach %	28.9	71.0	0.2	0.0	-	-	0.0	78.8	21.2	0.0	-	-	31.7	64.8	3.5	0.0	-	-	0.0	0.0	0.0	0.0	-	-	-
Total %	8.1	19.9	0.0	0.0	-	28.0	0.0	16.9	4.5	0.0	-	21.4	16.0	32.8	1.8	0.0	-	50.6	0.0	0.0	0.0	0.0	-	0.0	-
PHF	0.968	0.947	0.250	0.000	-	0.955	0.000	0.948	0.879	0.000	-	0.970	0.947	0.945	0.556	0.000	-	0.926	0.000	0.000	0.000	0.000	-	0.000	0.961
Lights	174	428	0	0	-	602	0	365	102	0	-	467	353	716	38	0	-	1107	0	0	0	0	-	0	2176
% Lights	95.6	95.7	0.0	-	-	95.6	-	96.3	100.0	-	-	97.1	98.1	97.2	95.0	-	-	97.4	-	-	-	-	-	-	96.8
Buses	0	6	0	0	-	6	0	4	0	0	-	4	1	5	0	0	-	6	0	0	0	0	-	0	16
% Buses	0.0	1.3	0.0	-	-	1.0	-	1.1	0.0	-	-	0.8	0.3	0.7	0.0	-	-	0.5	-	-	-	-	-	-	0.7
Single-Unit Trucks	3	10	0	0	-	13	0	10	0	0	-	10	5	6	1	0	-	12	0	0	0	0	-	0	35
% Single-Unit Trucks	1.6	2.2	0.0	-	-	2.1	-	2.6	0.0	-	-	2.1	1.4	0.8	2.5	-	-	1.1	-	-	-	-	-	-	1.6
Articulated Trucks	5	2	0	0	-	7	0	0	0	0	-	0	1	9	1	0	-	11	0	0	0	0	-	0	18
% Articulated Trucks	2.7	0.4	0.0	-	-	1.1	-	0.0	0.0	-	-	0.0	0.3	1.2	2.5	-	-	1.0	-	-	-	-	-	-	0.8
Bicycles on Road	0	1	1	0	-	2	0	0	0	0	-	0	0	1	0	0	-	1	0	0	0	0	-	0	3
% Bicycles on Road	0.0	0.2	100.0	-	-	0.3	-	0.0	0.0	-	-	0.0	0.0	0.1	0.0	-	-	0.1	-	-	-	-	-	-	0.1
Bicycles on Crosswalk	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	2	-	-
% Bicycles on Crosswalk	-	-	-	-	4.2	-	-	-	-	-	7.7	-	-	-	-	-	0.0	-	-	-	-	-	7.4	-	-
Pedestrians	-	-	-	-	23	-	-	-	-	-	12	-	-	-	-	-	45	-	-	-	-	-	25	-	-
% Pedestrians	-	-	-	-	95.8	-	-	-	-	-	92.3	-	-	-	-	-	100.0	-	-	-	-	-	92.6	-	-



Turning Movement Peak Hour Data Plot (12:00 PM)

Turning Movement Peak Hour Data (4:45 PM)

Start Time	Michigan Ave Westbound						Michigan Ave Eastbound						Hamilton St Southbound						Hamilton St Northbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
4:45 PM	74	108	0	0	5	182	0	93	30	0	1	123	130	267	8	0	6	405	0	0	0	0	2	0	710
5:00 PM	65	146	0	0	3	211	0	109	33	0	4	142	122	341	14	0	4	477	0	0	0	0	3	0	830
5:15 PM	74	133	0	0	0	207	0	126	34	0	0	160	129	320	8	0	5	457	0	0	0	0	4	0	824
5:30 PM	65	127	0	0	2	192	0	129	33	0	4	162	137	240	8	0	3	385	0	0	0	0	3	0	739
Total	278	514	0	0	10	792	0	457	130	0	9	587	518	1168	38	0	18	1724	0	0	0	0	12	0	3103
Approach %	35.1	64.9	0.0	0.0	-	-	0.0	77.9	22.1	0.0	-	-	30.0	67.7	2.2	0.0	-	-	0.0	0.0	0.0	0.0	-	-	-
Total %	9.0	16.6	0.0	0.0	-	25.5	0.0	14.7	4.2	0.0	-	18.9	16.7	37.6	1.2	0.0	-	55.6	0.0	0.0	0.0	0.0	-	0.0	-
PHF	0.939	0.880	0.000	0.000	-	0.938	0.000	0.886	0.956	0.000	-	0.906	0.945	0.856	0.679	0.000	-	0.904	0.000	0.000	0.000	0.000	-	0.000	0.935
Lights	271	501	0	0	-	772	0	445	130	0	-	575	513	1160	37	0	-	1710	0	0	0	0	-	0	3057
% Lights	97.5	97.5	-	-	-	97.5	-	97.4	100.0	-	-	98.0	99.0	99.3	97.4	-	-	99.2	-	-	-	-	-	-	98.5
Buses	1	8	0	0	-	9	0	3	0	0	-	3	0	3	0	0	-	3	0	0	0	0	-	0	15
% Buses	0.4	1.6	-	-	-	1.1	-	0.7	0.0	-	-	0.5	0.0	0.3	0.0	-	-	0.2	-	-	-	-	-	-	0.5
Single-Unit Trucks	3	5	0	0	-	8	0	7	0	0	-	7	2	4	0	0	-	6	0	0	0	0	-	0	21
% Single-Unit Trucks	1.1	1.0	-	-	-	1.0	-	1.5	0.0	-	-	1.2	0.4	0.3	0.0	-	-	0.3	-	-	-	-	-	-	0.7
Articulated Trucks	3	0	0	0	-	3	0	1	0	0	-	1	3	0	1	0	-	4	0	0	0	0	-	0	8
% Articulated Trucks	1.1	0.0	-	-	-	0.4	-	0.2	0.0	-	-	0.2	0.6	0.0	2.6	-	-	0.2	-	-	-	-	-	-	0.3
Bicycles on Road	0	0	0	0	-	0	0	1	0	0	-	1	0	1	0	0	-	1	0	0	0	0	-	0	2
% Bicycles on Road	0.0	0.0	-	-	-	0.0	-	0.2	0.0	-	-	0.2	0.0	0.1	0.0	-	-	0.1	-	-	-	-	-	-	0.1
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	1	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	11.1	-	-	-	-	-	0.0	-	-	-	-	-	8.3	-	-
Pedestrians	-	-	-	-	10	-	-	-	-	-	8	-	-	-	-	-	18	-	-	-	-	-	11	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	88.9	-	-	-	-	-	100.0	-	-	-	-	-	91.7	-	-

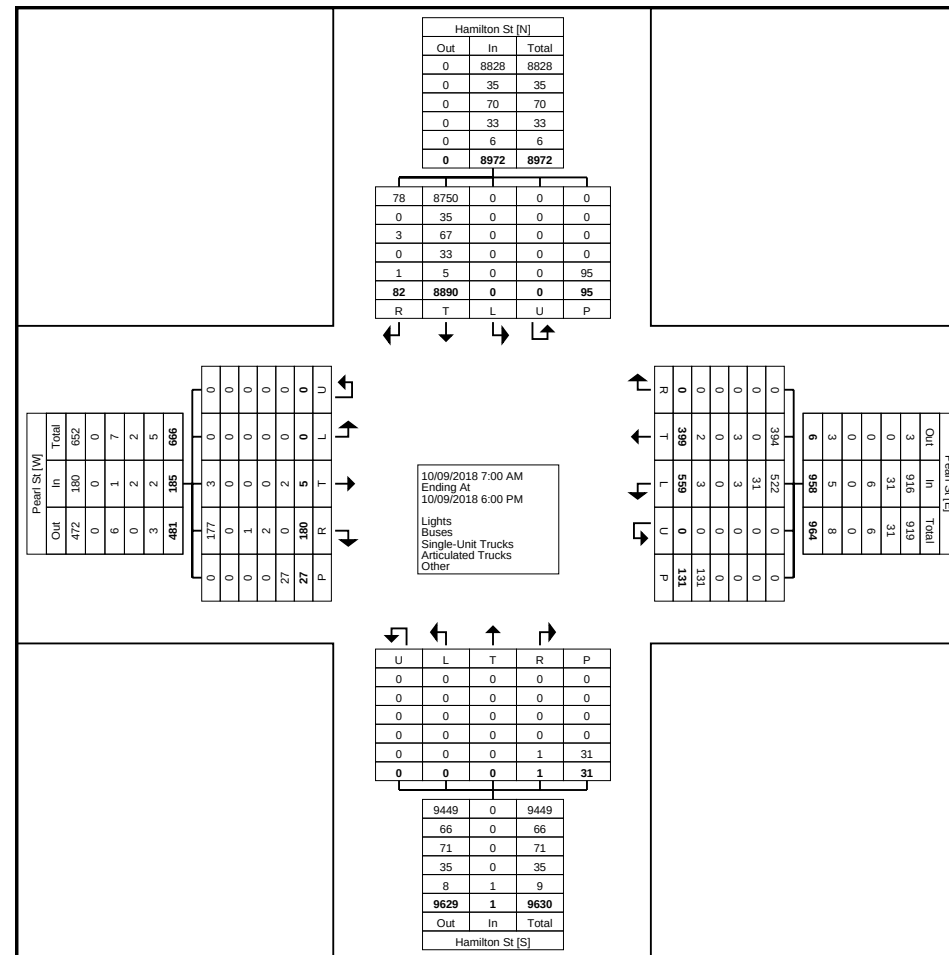


Turning Movement Peak Hour Data Plot (4:45 PM)

Turning Movement Data

Start Time	Pearl St Westbound						Pearl St Eastbound						Hamilton St Southbound						Hamilton St Northbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:00 AM	3	1	0	0	0	4	0	0	3	0	0	3	0	138	2	0	2	140	0	0	0	0	0	0	147
7:15 AM	6	2	0	0	0	8	0	0	4	0	0	4	0	123	2	0	1	125	0	0	0	0	0	0	137
7:30 AM	3	8	0	0	0	11	0	0	8	0	1	8	0	144	3	0	1	147	0	0	0	0	0	0	166
7:45 AM	6	8	0	0	1	14	0	0	6	0	0	6	0	164	4	0	2	168	0	0	0	0	1	0	188
Hourly Total	18	19	0	0	1	37	0	0	21	0	1	21	0	569	11	0	6	580	0	0	0	0	1	0	638
8:00 AM	3	5	0	0	0	8	0	0	6	0	0	6	0	167	2	0	1	169	0	0	0	0	0	0	183
8:15 AM	4	3	0	0	3	7	0	0	3	0	1	3	0	165	2	0	1	167	0	0	0	0	0	0	177
8:30 AM	5	1	0	0	2	6	0	0	4	0	0	4	0	184	1	0	4	185	0	0	0	0	0	0	195
8:45 AM	6	3	0	0	2	9	0	0	8	0	0	8	0	194	1	0	1	195	0	0	0	0	0	0	212
Hourly Total	18	12	0	0	7	30	0	0	21	0	1	21	0	710	6	0	7	716	0	0	0	0	0	0	767
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 AM	32	9	0	0	11	41	0	1	7	0	0	8	0	233	4	0	4	237	0	0	0	0	0	0	286
11:15 AM	28	33	0	0	18	61	0	1	4	0	2	5	0	193	3	0	8	196	0	0	0	0	3	0	262
11:30 AM	12	4	0	0	4	16	0	0	2	0	2	2	0	165	1	0	1	166	0	0	0	0	2	0	184
11:45 AM	11	13	0	0	5	24	0	1	6	0	1	7	0	183	3	0	1	186	0	0	0	0	0	0	217
Hourly Total	83	59	0	0	38	142	0	3	19	0	5	22	0	774	11	0	14	785	0	0	0	0	5	0	949
12:00 PM	13	7	0	0	4	20	0	0	5	0	0	5	0	236	7	0	0	243	0	0	1	0	3	1	269
12:15 PM	25	19	0	0	5	44	0	0	3	0	0	3	0	282	3	0	1	285	0	0	0	0	1	0	332
12:30 PM	33	28	0	0	8	61	0	0	4	0	0	4	0	265	3	0	4	268	0	0	0	0	2	0	333
12:45 PM	25	32	0	0	5	57	0	0	9	0	0	9	0	230	2	0	5	232	0	0	0	0	3	0	298
Hourly Total	96	86	0	0	22	182	0	0	21	0	0	21	0	1013	15	0	10	1028	0	0	1	0	9	1	1232
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00 PM	35	17	0	0	10	52	0	0	5	0	2	5	0	353	5	0	5	358	0	0	0	0	0	0	415
2:15 PM	42	18	0	0	12	60	0	0	8	0	3	8	0	291	3	0	6	294	0	0	0	0	0	0	362
2:30 PM	11	12	0	0	5	23	0	0	8	0	0	8	0	280	0	0	0	280	0	0	0	0	1	0	311
2:45 PM	24	17	0	0	0	41	0	0	10	0	1	10	0	265	0	0	7	265	0	0	0	0	2	0	316
Hourly Total	112	64	0	0	27	176	0	0	31	0	6	31	0	1189	8	0	18	1197	0	0	0	0	3	0	1404
3:00 PM	30	17	0	0	5	47	0	0	3	0	5	3	0	341	6	0	1	347	0	0	0	0	3	0	397
3:15 PM	23	13	0	0	4	36	0	0	5	0	1	5	0	416	0	0	4	416	0	0	0	0	0	0	457
3:30 PM	34	22	0	0	5	56	0	0	6	0	0	6	0	431	1	0	6	432	0	0	0	0	3	0	494
3:45 PM	40	21	0	0	9	61	0	0	6	0	0	6	0	313	2	0	1	315	0	0	0	0	0	0	382
Hourly Total	127	73	0	0	23	200	0	0	20	0	6	20	0	1501	9	0	12	1510	0	0	0	0	6	0	1730
4:00 PM	16	11	0	0	4	27	0	0	5	0	0	5	0	363	3	0	4	366	0	0	0	0	1	0	398
4:15 PM	12	9	0	0	5	21	0	0	6	0	1	6	0	377	3	0	3	380	0	0	0	0	1	0	407
4:30 PM	13	6	0	0	1	19	0	0	7	0	1	7	0	357	1	0	2	358	0	0	0	0	2	0	384
4:45 PM	18	15	0	0	2	33	0	0	9	0	2	9	0	420	4	0	3	424	0	0	0	0	2	0	466
Hourly Total	59	41	0	0	12	100	0	0	27	0	4	27	0	1517	11	0	12	1528	0	0	0	0	6	0	1655

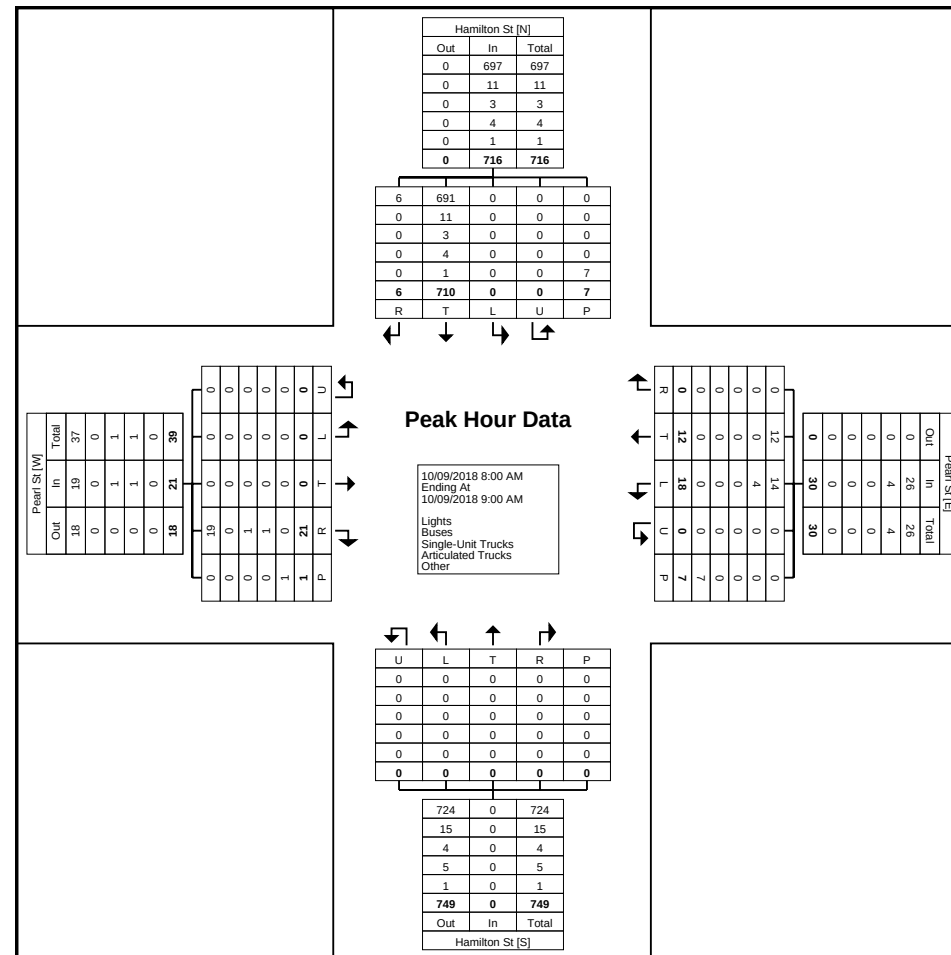
5:00 PM	13	12	0	0	0	25	0	0	5	0	1	5	0	470	2	0	8	472	0	0	0	0	1	0	502
5:15 PM	12	14	0	0	1	26	0	0	2	0	1	2	0	426	3	0	1	429	0	0	0	0	0	0	457
5:30 PM	7	13	0	0	0	20	0	1	9	0	2	10	0	402	3	0	6	405	0	0	0	0	0	0	435
5:45 PM	14	6	0	0	0	20	0	1	4	0	0	5	0	319	3	0	1	322	0	0	0	0	0	0	347
Hourly Total	46	45	0	0	1	91	0	2	20	0	4	22	0	1617	11	0	16	1628	0	0	0	0	1	0	1741
Grand Total	559	399	0	0	131	958	0	5	180	0	27	185	0	8890	82	0	95	8972	0	0	1	0	31	1	10116
Approach %	58.4	41.6	0.0	0.0	-	-	0.0	2.7	97.3	0.0	-	-	0.0	99.1	0.9	0.0	-	-	0.0	0.0	100.0	0.0	-	-	-
Total %	5.5	3.9	0.0	0.0	-	9.5	0.0	0.0	1.8	0.0	-	1.8	0.0	87.9	0.8	0.0	-	88.7	0.0	0.0	0.0	0.0	-	0.0	-
Lights	522	394	0	0	-	916	0	3	177	0	-	180	0	8750	78	0	-	8828	0	0	0	0	-	0	9924
% Lights	93.4	98.7	-	-	-	95.6	-	60.0	98.3	-	-	97.3	-	98.4	95.1	-	-	98.4	-	-	0.0	-	-	0.0	98.1
Buses	31	0	0	0	-	31	0	0	0	0	-	0	0	35	0	0	-	35	0	0	0	0	-	0	66
% Buses	5.5	0.0	-	-	-	3.2	-	0.0	0.0	-	-	0.0	-	0.4	0.0	-	-	0.4	-	-	0.0	-	-	0.0	0.7
Single-Unit Trucks	3	3	0	0	-	6	0	0	1	0	-	1	0	67	3	0	-	70	0	0	0	0	-	0	77
% Single-Unit Trucks	0.5	0.8	-	-	-	0.6	-	0.0	0.6	-	-	0.5	-	0.8	3.7	-	-	0.8	-	-	0.0	-	-	0.0	0.8
Articulated Trucks	0	0	0	0	-	0	0	0	2	0	-	2	0	33	0	0	-	33	0	0	0	0	-	0	35
% Articulated Trucks	0.0	0.0	-	-	-	0.0	-	0.0	1.1	-	-	1.1	-	0.4	0.0	-	-	0.4	-	-	0.0	-	-	0.0	0.3
Bicycles on Road	3	2	0	0	-	5	0	2	0	0	-	2	0	5	1	0	-	6	0	0	1	0	-	1	14
% Bicycles on Road	0.5	0.5	-	-	-	0.5	-	40.0	0.0	-	-	1.1	-	0.1	1.2	-	-	0.1	-	-	100.0	-	-	100.0	0.1
Bicycles on Crosswalk	-	-	-	-	4	-	-	-	-	-	1	-	-	-	-	-	8	-	-	-	-	2	-	-	
% Bicycles on Crosswalk	-	-	-	-	3.1	-	-	-	-	-	3.7	-	-	-	-	-	8.4	-	-	-	-	6.5	-	-	
Pedestrians	-	-	-	-	127	-	-	-	-	-	26	-	-	-	-	-	87	-	-	-	-	29	-	-	
% Pedestrians	-	-	-	-	96.9	-	-	-	-	-	96.3	-	-	-	-	-	91.6	-	-	-	-	93.5	-	-	



Turning Movement Data Plot

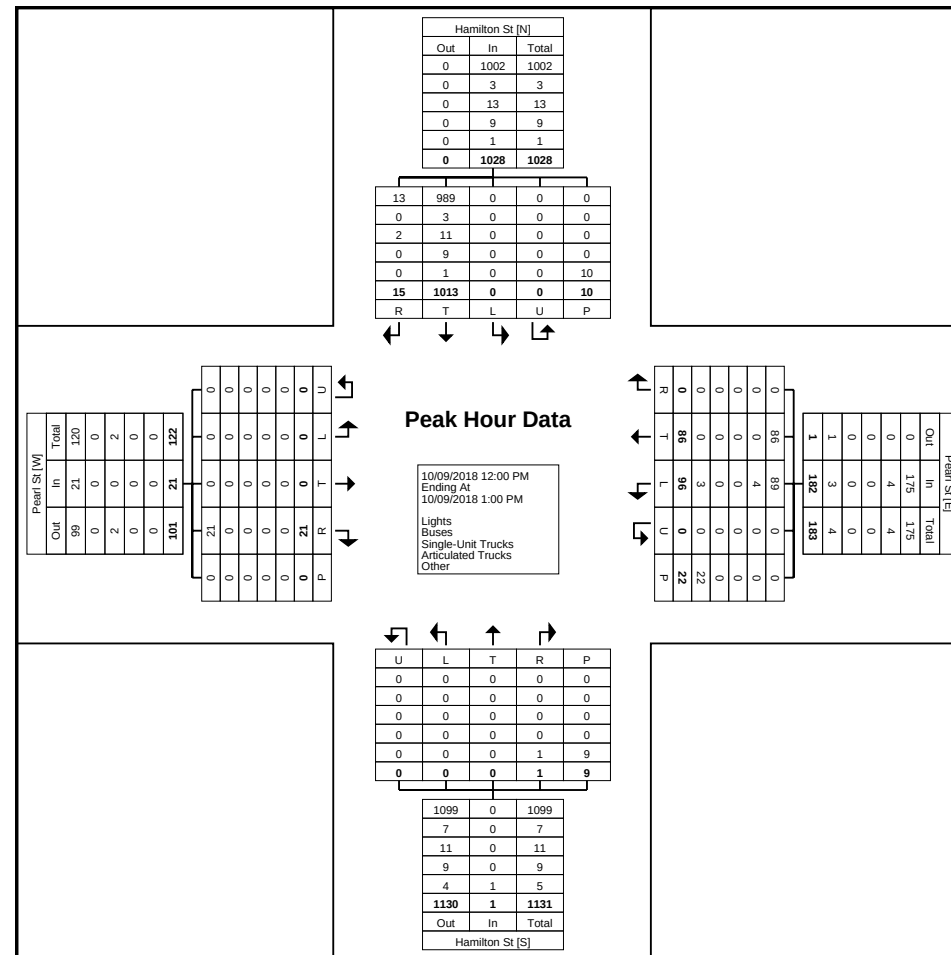
Turning Movement Peak Hour Data (8:00 AM)

Start Time	Pearl St Westbound						Pearl St Eastbound						Hamilton St Southbound						Hamilton St Northbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
8:00 AM	3	5	0	0	0	8	0	0	6	0	0	6	0	167	2	0	1	169	0	0	0	0	0	0	183
8:15 AM	4	3	0	0	3	7	0	0	3	0	1	3	0	165	2	0	1	167	0	0	0	0	0	0	177
8:30 AM	5	1	0	0	2	6	0	0	4	0	0	4	0	184	1	0	4	185	0	0	0	0	0	0	195
8:45 AM	6	3	0	0	2	9	0	0	8	0	0	8	0	194	1	0	1	195	0	0	0	0	0	0	212
Total	18	12	0	0	7	30	0	0	21	0	1	21	0	710	6	0	7	716	0	0	0	0	0	0	767
Approach %	60.0	40.0	0.0	0.0	-	-	0.0	0.0	100.0	0.0	-	-	0.0	99.2	0.8	0.0	-	-	0.0	0.0	0.0	0.0	-	-	-
Total %	2.3	1.6	0.0	0.0	-	3.9	0.0	0.0	2.7	0.0	-	2.7	0.0	92.6	0.8	0.0	-	93.4	0.0	0.0	0.0	0.0	-	0.0	-
PHF	0.750	0.600	0.000	0.000	-	0.833	0.000	0.000	0.656	0.000	-	0.656	0.000	0.915	0.750	0.000	-	0.918	0.000	0.000	0.000	0.000	-	0.000	0.904
Lights	14	12	0	0	-	26	0	0	19	0	-	19	0	691	6	0	-	697	0	0	0	0	-	0	742
% Lights	77.8	100.0	-	-	-	86.7	-	-	90.5	-	-	90.5	-	97.3	100.0	-	-	97.3	-	-	-	-	-	-	96.7
Buses	4	0	0	0	-	4	0	0	0	0	-	0	0	11	0	0	-	11	0	0	0	0	-	0	15
% Buses	22.2	0.0	-	-	-	13.3	-	-	0.0	-	-	0.0	-	1.5	0.0	-	-	1.5	-	-	-	-	-	-	2.0
Single-Unit Trucks	0	0	0	0	-	0	0	0	1	0	-	1	0	3	0	0	-	3	0	0	0	0	-	0	4
% Single-Unit Trucks	0.0	0.0	-	-	-	0.0	-	-	4.8	-	-	4.8	-	0.4	0.0	-	-	0.4	-	-	-	-	-	-	0.5
Articulated Trucks	0	0	0	0	-	0	0	0	1	0	-	1	0	4	0	0	-	4	0	0	0	0	-	0	5
% Articulated Trucks	0.0	0.0	-	-	-	0.0	-	-	4.8	-	-	4.8	-	0.6	0.0	-	-	0.6	-	-	-	-	-	-	0.7
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	0	0	0	0	-	0	1
% Bicycles on Road	0.0	0.0	-	-	-	0.0	-	-	0.0	-	-	0.0	-	0.1	0.0	-	-	0.1	-	-	-	-	-	-	0.1
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	0	-	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	7	-	-	-	-	-	1	-	-	-	-	-	7	-	-	-	-	0	-	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-



Turning Movement Peak Hour Data (12:00 PM)

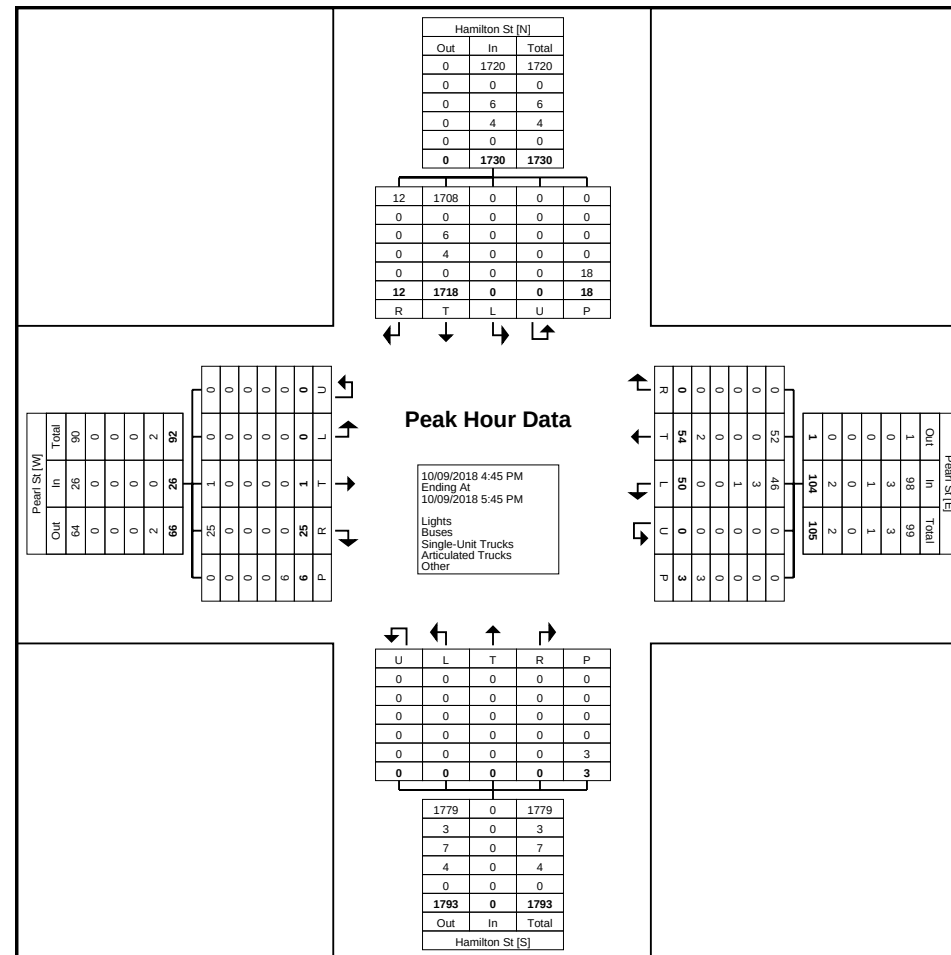
Start Time	Pearl St Westbound						Pearl St Eastbound						Hamilton St Southbound						Hamilton St Northbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
12:00 PM	13	7	0	0	4	20	0	0	5	0	0	5	0	236	7	0	0	243	0	0	1	0	3	1	269
12:15 PM	25	19	0	0	5	44	0	0	3	0	0	3	0	282	3	0	1	285	0	0	0	0	1	0	332
12:30 PM	33	28	0	0	8	61	0	0	4	0	0	4	0	265	3	0	4	268	0	0	0	0	2	0	333
12:45 PM	25	32	0	0	5	57	0	0	9	0	0	9	0	230	2	0	5	232	0	0	0	0	3	0	298
Total	96	86	0	0	22	182	0	0	21	0	0	21	0	1013	15	0	10	1028	0	0	1	0	9	1	1232
Approach %	52.7	47.3	0.0	0.0	-	-	0.0	0.0	100.0	0.0	-	-	0.0	98.5	1.5	0.0	-	-	0.0	0.0	100.0	0.0	-	-	-
Total %	7.8	7.0	0.0	0.0	-	14.8	0.0	0.0	1.7	0.0	-	1.7	0.0	82.2	1.2	0.0	-	83.4	0.0	0.0	0.1	0.0	-	0.1	-
PHF	0.727	0.672	0.000	0.000	-	0.746	0.000	0.000	0.583	0.000	-	0.583	0.000	0.898	0.536	0.000	-	0.902	0.000	0.000	0.250	0.000	-	0.250	0.925
Lights	89	86	0	0	-	175	0	0	21	0	-	21	0	989	13	0	-	1002	0	0	0	0	-	0	1198
% Lights	92.7	100.0	-	-	-	96.2	-	-	100.0	-	-	100.0	-	97.6	86.7	-	-	97.5	-	-	0.0	-	-	0.0	97.2
Buses	4	0	0	0	-	4	0	0	0	0	-	0	0	3	0	0	-	3	0	0	0	0	-	0	7
% Buses	4.2	0.0	-	-	-	2.2	-	-	0.0	-	-	0.0	-	0.3	0.0	-	-	0.3	-	-	0.0	-	-	0.0	0.6
Single-Unit Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	11	2	0	-	13	0	0	0	0	-	0	13
% Single-Unit Trucks	0.0	0.0	-	-	-	0.0	-	-	0.0	-	-	0.0	-	1.1	13.3	-	-	1.3	-	-	0.0	-	-	0.0	1.1
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	9	0	0	-	9	0	0	0	0	-	0	9
% Articulated Trucks	0.0	0.0	-	-	-	0.0	-	-	0.0	-	-	0.0	-	0.9	0.0	-	-	0.9	-	-	0.0	-	-	0.0	0.7
Bicycles on Road	3	0	0	0	-	3	0	0	0	0	-	0	0	1	0	0	-	1	0	0	1	0	-	1	5
% Bicycles on Road	3.1	0.0	-	-	-	1.6	-	-	0.0	-	-	0.0	-	0.1	0.0	-	-	0.1	-	-	100.0	-	-	100.0	0.4
Bicycles on Crosswalk	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-
% Bicycles on Crosswalk	-	-	-	-	4.5	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	11.1	-	-
Pedestrians	-	-	-	-	21	-	-	-	-	-	0	-	-	-	-	-	10	-	-	-	-	-	8	-	-
% Pedestrians	-	-	-	-	95.5	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	88.9	-	-



Turning Movement Peak Hour Data Plot (12:00 PM)

Turning Movement Peak Hour Data (4:45 PM)

Start Time	Pearl St Westbound						Pearl St Eastbound						Hamilton St Southbound						Hamilton St Northbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
4:45 PM	18	15	0	0	2	33	0	0	9	0	2	9	0	420	4	0	3	424	0	0	0	0	2	0	466
5:00 PM	13	12	0	0	0	25	0	0	5	0	1	5	0	470	2	0	8	472	0	0	0	0	1	0	502
5:15 PM	12	14	0	0	1	26	0	0	2	0	1	2	0	426	3	0	1	429	0	0	0	0	0	0	457
5:30 PM	7	13	0	0	0	20	0	1	9	0	2	10	0	402	3	0	6	405	0	0	0	0	0	0	435
Total	50	54	0	0	3	104	0	1	25	0	6	26	0	1718	12	0	18	1730	0	0	0	0	3	0	1860
Approach %	48.1	51.9	0.0	0.0	-	-	0.0	3.8	96.2	0.0	-	-	0.0	99.3	0.7	0.0	-	-	0.0	0.0	0.0	0.0	-	-	-
Total %	2.7	2.9	0.0	0.0	-	5.6	0.0	0.1	1.3	0.0	-	1.4	0.0	92.4	0.6	0.0	-	93.0	0.0	0.0	0.0	0.0	-	0.0	-
PHF	0.694	0.900	0.000	0.000	-	0.788	0.000	0.250	0.694	0.000	-	0.650	0.000	0.914	0.750	0.000	-	0.916	0.000	0.000	0.000	0.000	-	0.000	0.926
Lights	46	52	0	0	-	98	0	1	25	0	-	26	0	1708	12	0	-	1720	0	0	0	0	-	0	1844
% Lights	92.0	96.3	-	-	-	94.2	-	100.0	100.0	-	-	100.0	-	99.4	100.0	-	-	99.4	-	-	-	-	-	-	99.1
Buses	3	0	0	0	-	3	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	3
% Buses	6.0	0.0	-	-	-	2.9	-	0.0	0.0	-	-	0.0	-	0.0	0.0	-	-	0.0	-	-	-	-	-	-	0.2
Single-Unit Trucks	1	0	0	0	-	1	0	0	0	0	-	0	0	6	0	0	-	6	0	0	0	0	-	0	7
% Single-Unit Trucks	2.0	0.0	-	-	-	1.0	-	0.0	0.0	-	-	0.0	-	0.3	0.0	-	-	0.3	-	-	-	-	-	-	0.4
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	4	0	0	-	4	0	0	0	0	-	0	4
% Articulated Trucks	0.0	0.0	-	-	-	0.0	-	0.0	0.0	-	-	0.0	-	0.2	0.0	-	-	0.2	-	-	-	-	-	-	0.2
Bicycles on Road	0	2	0	0	-	2	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	2
% Bicycles on Road	0.0	3.7	-	-	-	1.9	-	0.0	0.0	-	-	0.0	-	0.0	0.0	-	-	0.0	-	-	-	-	-	-	0.1
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	5.6	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	3	-	-	-	-	-	6	-	-	-	-	-	17	-	-	-	-	-	3	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	94.4	-	-	-	-	-	100.0	-	-

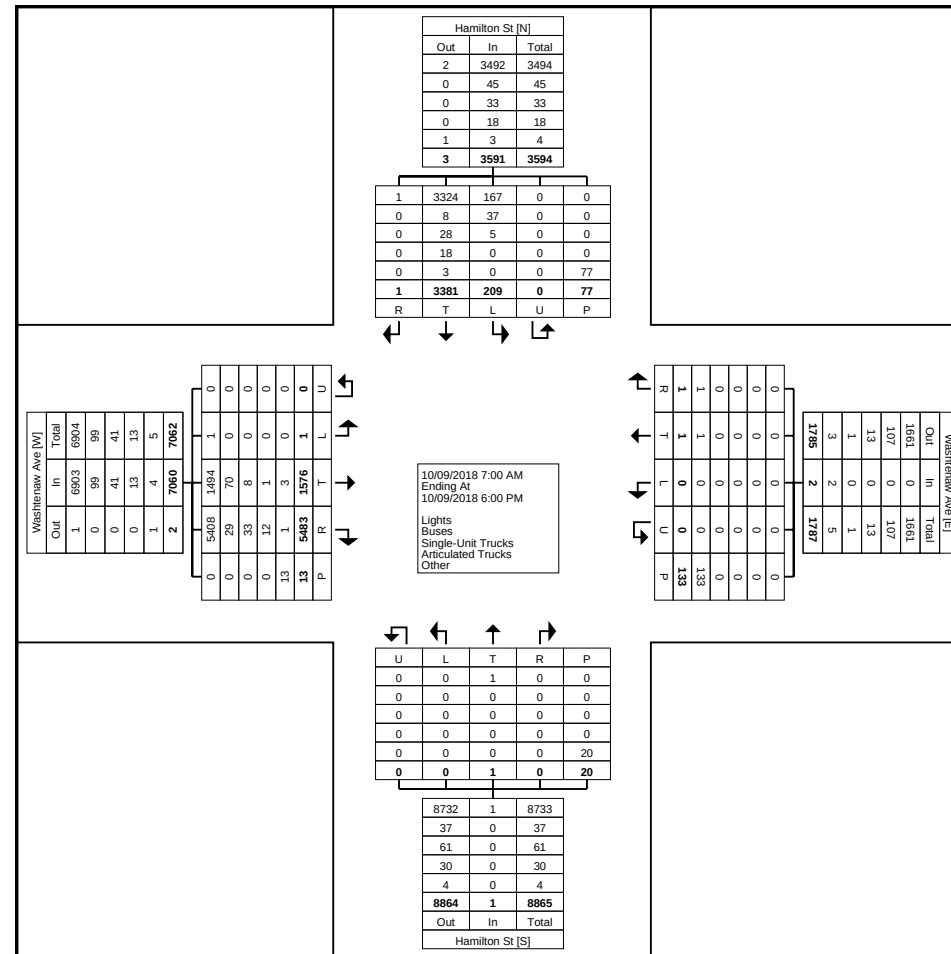


Turning Movement Peak Hour Data Plot (4:45 PM)

Turning Movement Data

Start Time	Washtenaw Ave Westbound						Washtenaw Ave Eastbound						Hamilton St Southbound						Hamilton St Northbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:00 AM	0	0	0	0	0	0	0	10	86	0	0	96	3	57	0	0	0	60	0	0	0	0	0	0	156
7:15 AM	0	0	0	0	0	0	0	22	59	0	0	81	1	64	0	0	1	65	0	0	0	0	0	0	146
7:30 AM	0	0	0	0	2	0	0	18	85	0	0	103	2	61	0	0	3	63	0	0	0	0	0	0	166
7:45 AM	0	0	0	0	0	0	0	28	100	0	1	128	4	73	0	0	0	77	0	0	0	0	1	0	205
Hourly Total	0	0	0	0	2	0	0	78	330	0	1	408	10	255	0	0	4	265	0	0	0	0	1	0	673
8:00 AM	0	0	0	0	0	0	0	27	104	0	0	131	10	60	0	0	1	70	0	0	0	0	0	0	201
8:15 AM	0	0	0	0	1	0	0	35	113	0	0	148	6	50	0	0	1	56	0	0	0	0	1	0	204
8:30 AM	0	0	0	0	1	0	0	17	118	0	0	135	7	67	0	0	0	74	0	0	0	0	0	0	209
8:45 AM	0	0	0	0	1	0	0	27	135	0	0	162	3	66	0	0	1	69	0	0	0	0	1	0	231
Hourly Total	0	0	0	0	3	0	0	106	470	0	0	576	26	243	0	0	3	269	0	0	0	0	2	0	845
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 AM	0	0	0	0	9	0	0	45	144	0	1	189	9	92	0	0	1	101	0	0	0	0	1	0	290
11:15 AM	0	1	0	0	14	1	0	49	131	0	0	180	10	62	0	0	4	72	0	0	0	0	2	0	253
11:30 AM	0	0	0	0	6	0	0	42	113	0	1	155	5	57	0	0	3	62	0	0	0	0	1	0	217
11:45 AM	0	0	0	0	5	0	0	38	127	0	2	165	5	62	0	0	1	67	0	0	0	0	1	0	232
Hourly Total	0	1	0	0	34	1	0	174	515	0	4	689	29	273	0	0	9	302	0	0	0	0	5	0	992
12:00 PM	0	0	0	0	2	0	0	37	142	0	0	179	7	96	0	0	4	103	0	0	0	0	1	0	282
12:15 PM	0	0	0	0	7	0	0	53	180	0	0	233	12	106	0	0	3	118	0	0	0	0	1	0	351
12:30 PM	0	0	0	0	2	0	0	39	161	0	0	200	5	100	0	0	2	105	0	1	0	0	1	1	306
12:45 PM	0	0	0	0	6	0	1	39	136	0	0	176	4	93	1	0	2	98	0	0	0	0	1	0	274
Hourly Total	0	0	0	0	17	0	1	168	619	0	0	788	28	395	1	0	11	424	0	1	0	0	4	1	1213
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00 PM	0	0	0	0	8	0	0	51	209	0	1	260	15	140	0	0	7	155	0	0	0	0	0	0	415
2:15 PM	0	0	0	0	9	0	0	45	183	0	1	228	9	105	0	0	2	114	0	0	0	0	0	0	342
2:30 PM	0	0	0	0	5	0	0	49	153	0	0	202	4	117	0	0	1	121	0	0	0	0	0	0	323
2:45 PM	0	0	1	0	0	1	0	50	167	0	1	217	5	96	0	0	0	101	0	0	0	0	1	0	319
Hourly Total	0	0	1	0	22	1	0	195	712	0	3	907	33	458	0	0	10	491	0	0	0	0	1	0	1399
3:00 PM	0	0	0	0	4	0	0	60	216	0	0	276	8	132	0	0	1	140	0	0	0	0	0	0	416
3:15 PM	0	0	0	0	7	0	0	56	239	0	0	295	10	166	0	0	2	176	0	0	0	0	1	0	471
3:30 PM	0	0	0	0	4	0	0	69	251	0	3	320	4	171	0	0	1	175	0	0	0	0	4	0	495
3:45 PM	0	0	0	0	10	0	0	64	197	0	1	261	5	115	0	0	5	120	0	0	0	0	0	0	381
Hourly Total	0	0	0	0	25	0	0	249	903	0	4	1152	27	584	0	0	9	611	0	0	0	0	5	0	1763
4:00 PM	0	0	0	0	4	0	0	53	212	0	0	265	6	152	0	0	3	158	0	0	0	0	0	0	423
4:15 PM	0	0	0	0	5	0	0	76	226	0	0	302	6	136	0	0	1	142	0	0	0	0	0	0	444
4:30 PM	0	0	0	0	4	0	0	60	223	0	0	283	6	128	0	0	7	134	0	0	0	0	0	0	417
4:45 PM	0	0	0	0	5	0	0	80	267	0	1	347	8	162	0	0	8	170	0	0	0	0	1	0	517
Hourly Total	0	0	0	0	18	0	0	269	928	0	1	1197	26	578	0	0	19	604	0	0	0	0	1	0	1801

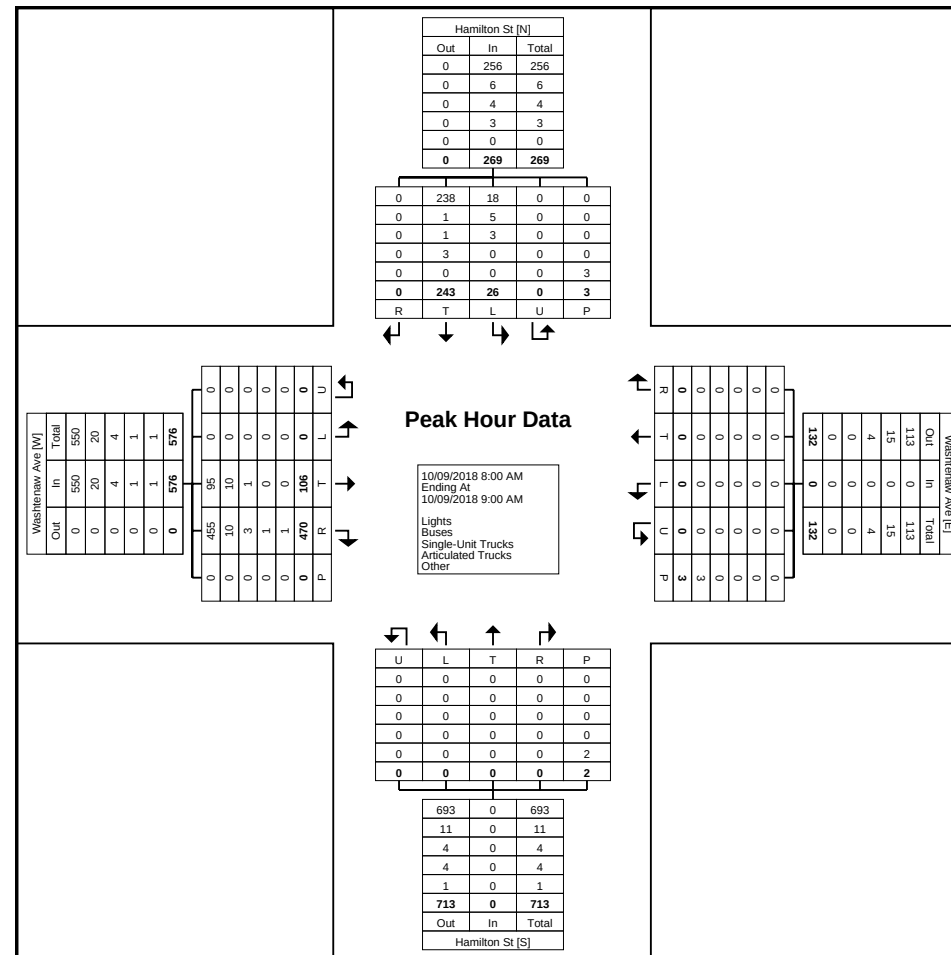
5:00 PM	0	0	0	0	7	0	0	82	284	0	0	366	10	187	0	0	5	197	0	0	0	0	0	0	563
5:15 PM	0	0	0	0	3	0	0	94	253	0	0	347	4	154	0	0	3	158	0	0	0	0	0	0	505
5:30 PM	0	0	0	0	0	0	0	86	256	0	0	342	8	138	0	0	2	146	0	0	0	0	1	0	488
5:45 PM	0	0	0	0	2	0	0	75	213	0	0	288	8	116	0	0	2	124	0	0	0	0	0	0	412
Hourly Total	0	0	0	0	12	0	0	337	1006	0	0	1343	30	595	0	0	12	625	0	0	0	0	1	0	1968
Grand Total	0	1	1	0	133	2	1	1576	5483	0	13	7060	209	3381	1	0	77	3591	0	1	0	0	20	1	10654
Approach %	0.0	50.0	50.0	0.0	-	-	0.0	22.3	77.7	0.0	-	-	5.8	94.2	0.0	0.0	-	-	0.0	100.0	0.0	0.0	-	-	-
Total %	0.0	0.0	0.0	0.0	-	0.0	0.0	14.8	51.5	0.0	-	66.3	2.0	31.7	0.0	0.0	-	33.7	0.0	0.0	0.0	0.0	-	0.0	-
Lights	0	0	0	0	-	0	1	1494	5408	0	-	6903	167	3324	1	0	-	3492	0	1	0	0	-	1	10396
% Lights	-	0.0	0.0	-	-	0.0	100.0	94.8	98.6	-	-	97.8	79.9	98.3	100.0	-	-	97.2	-	100.0	-	-	-	100.0	97.6
Buses	0	0	0	0	-	0	0	70	29	0	-	99	37	8	0	0	-	45	0	0	0	0	-	0	144
% Buses	-	0.0	0.0	-	-	0.0	0.0	4.4	0.5	-	-	1.4	17.7	0.2	0.0	-	-	1.3	-	0.0	-	-	-	0.0	1.4
Single-Unit Trucks	0	0	0	0	-	0	0	8	33	0	-	41	5	28	0	0	-	33	0	0	0	0	-	0	74
% Single-Unit Trucks	-	0.0	0.0	-	-	0.0	0.0	0.5	0.6	-	-	0.6	2.4	0.8	0.0	-	-	0.9	-	0.0	-	-	-	0.0	0.7
Articulated Trucks	0	0	0	0	-	0	0	1	12	0	-	13	0	18	0	0	-	18	0	0	0	0	-	0	31
% Articulated Trucks	-	0.0	0.0	-	-	0.0	0.0	0.1	0.2	-	-	0.2	0.0	0.5	0.0	-	-	0.5	-	0.0	-	-	-	0.0	0.3
Bicycles on Road	0	1	1	0	-	2	0	3	1	0	-	4	0	3	0	0	-	3	0	0	0	0	-	0	9
% Bicycles on Road	-	100.0	100.0	-	-	100.0	0.0	0.2	0.0	-	-	0.1	0.0	0.1	0.0	-	-	0.1	-	0.0	-	-	-	0.0	0.1
Bicycles on Crosswalk	-	-	-	-	7	-	-	-	-	-	1	-	-	-	-	-	10	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	5.3	-	-	-	-	-	7.7	-	-	-	-	-	13.0	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	126	-	-	-	-	-	12	-	-	-	-	-	67	-	-	-	-	-	20	-	-
% Pedestrians	-	-	-	-	94.7	-	-	-	-	-	92.3	-	-	-	-	-	87.0	-	-	-	-	-	100.0	-	-



Turning Movement Data Plot

Turning Movement Peak Hour Data (8:00 AM)

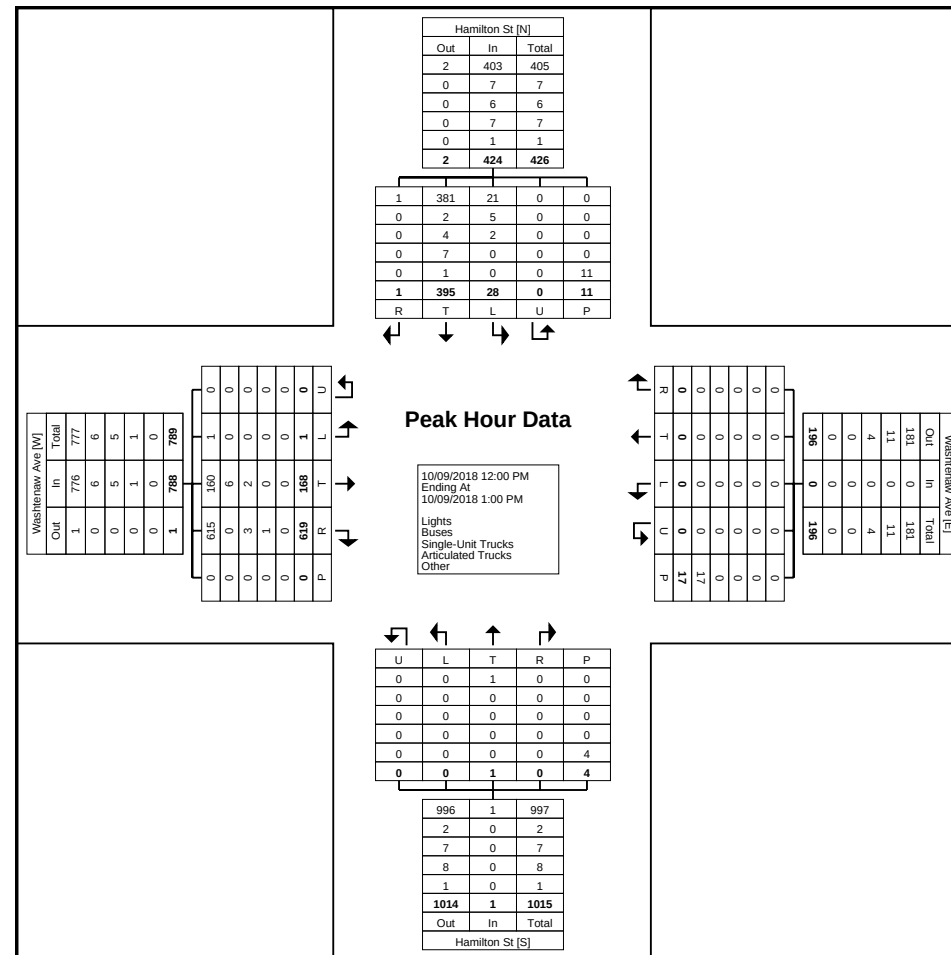
Start Time	Washtenaw Ave Westbound						Washtenaw Ave Eastbound						Hamilton St Southbound						Hamilton St Northbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
8:00 AM	0	0	0	0	0	0	0	27	104	0	0	131	10	60	0	0	1	70	0	0	0	0	0	0	201
8:15 AM	0	0	0	0	1	0	0	35	113	0	0	148	6	50	0	0	1	56	0	0	0	0	1	0	204
8:30 AM	0	0	0	0	1	0	0	17	118	0	0	135	7	67	0	0	0	74	0	0	0	0	0	0	209
8:45 AM	0	0	0	0	1	0	0	27	135	0	0	162	3	66	0	0	1	69	0	0	0	0	1	0	231
Total	0	0	0	0	3	0	0	106	470	0	0	576	26	243	0	0	3	269	0	0	0	0	2	0	845
Approach %	0.0	0.0	0.0	0.0	-	-	0.0	18.4	81.6	0.0	-	-	9.7	90.3	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	-
Total %	0.0	0.0	0.0	0.0	-	0.0	0.0	12.5	55.6	0.0	-	68.2	3.1	28.8	0.0	0.0	-	31.8	0.0	0.0	0.0	0.0	-	0.0	-
PHF	0.000	0.000	0.000	0.000	-	0.000	0.000	0.757	0.870	0.000	-	0.889	0.650	0.907	0.000	0.000	-	0.909	0.000	0.000	0.000	0.000	-	0.000	0.915
Lights	0	0	0	0	-	0	0	95	455	0	-	550	18	238	0	0	-	256	0	0	0	0	-	0	806
% Lights	-	-	-	-	-	-	-	89.6	96.8	-	-	95.5	69.2	97.9	-	-	-	95.2	-	-	-	-	-	-	95.4
Buses	0	0	0	0	-	0	0	10	10	0	-	20	5	1	0	0	-	6	0	0	0	0	-	0	26
% Buses	-	-	-	-	-	-	-	9.4	2.1	-	-	3.5	19.2	0.4	-	-	-	2.2	-	-	-	-	-	-	3.1
Single-Unit Trucks	0	0	0	0	-	0	0	1	3	0	-	4	3	1	0	0	-	4	0	0	0	0	-	0	8
% Single-Unit Trucks	-	-	-	-	-	-	-	0.9	0.6	-	-	0.7	11.5	0.4	-	-	-	1.5	-	-	-	-	-	-	0.9
Articulated Trucks	0	0	0	0	-	0	0	0	1	0	-	1	0	3	0	0	-	3	0	0	0	0	-	0	4
% Articulated Trucks	-	-	-	-	-	-	-	0.0	0.2	-	-	0.2	0.0	1.2	-	-	-	1.1	-	-	-	-	-	-	0.5
Bicycles on Road	0	0	0	0	-	0	0	0	1	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	1
% Bicycles on Road	-	-	-	-	-	-	-	0.0	0.2	-	-	0.2	0.0	0.0	-	-	-	0.0	-	-	-	-	-	-	0.1
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	33.3	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	3	-	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	2	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	66.7	-	-	-	-	-	100.0	-	-



Turning Movement Peak Hour Data Plot (8:00 AM)

Turning Movement Peak Hour Data (12:00 PM)

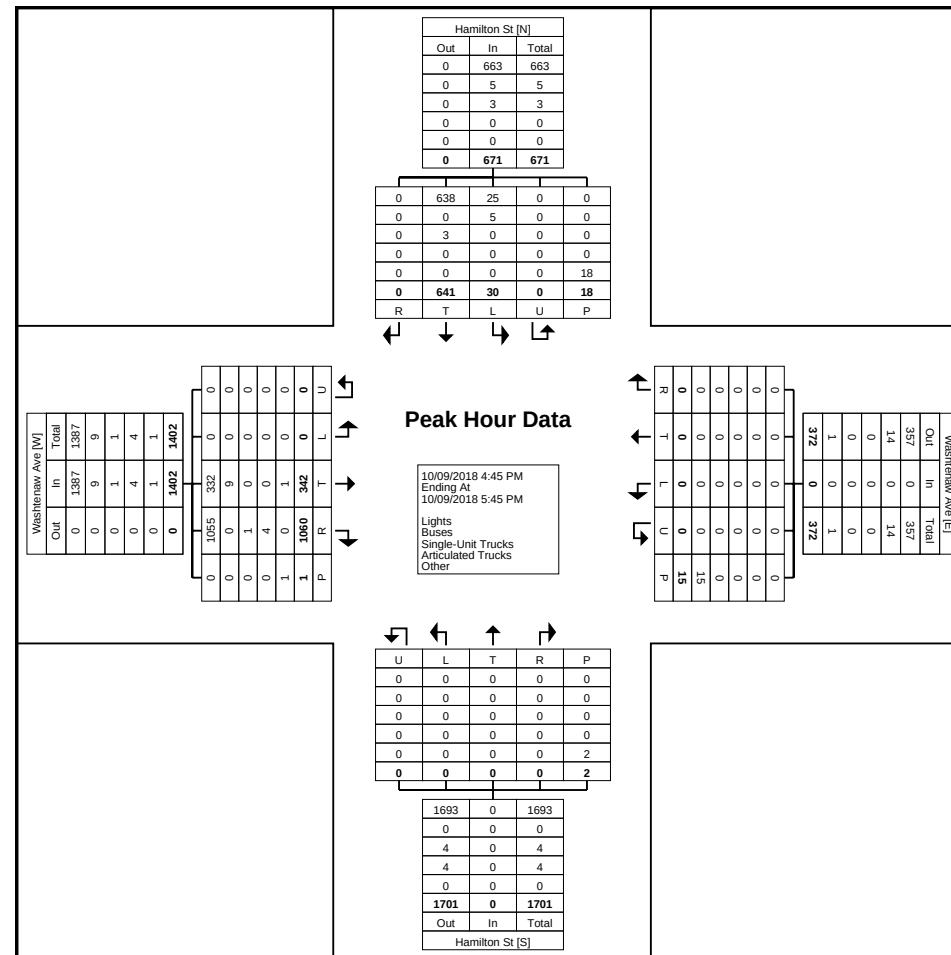
Start Time	Washtenaw Ave Westbound						Washtenaw Ave Eastbound						Hamilton St Southbound						Hamilton St Northbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
12:00 PM	0	0	0	0	2	0	0	37	142	0	0	179	7	96	0	0	4	103	0	0	0	0	1	0	282
12:15 PM	0	0	0	0	7	0	0	53	180	0	0	233	12	106	0	0	3	118	0	0	0	0	1	0	351
12:30 PM	0	0	0	0	2	0	0	39	161	0	0	200	5	100	0	0	2	105	0	1	0	0	1	1	306
12:45 PM	0	0	0	0	6	0	1	39	136	0	0	176	4	93	1	0	2	98	0	0	0	0	1	0	274
Total	0	0	0	0	17	0	1	168	619	0	0	788	28	395	1	0	11	424	0	1	0	0	4	1	1213
Approach %	0.0	0.0	0.0	0.0	-	-	0.1	21.3	78.6	0.0	-	-	6.6	93.2	0.2	0.0	-	-	0.0	100.0	0.0	0.0	-	-	-
Total %	0.0	0.0	0.0	0.0	-	0.0	0.1	13.8	51.0	0.0	-	65.0	2.3	32.6	0.1	0.0	-	35.0	0.0	0.1	0.0	0.0	-	0.1	-
PHF	0.000	0.000	0.000	0.000	-	0.000	0.250	0.792	0.860	0.000	-	0.845	0.583	0.932	0.250	0.000	-	0.898	0.000	0.250	0.000	0.000	-	0.250	0.864
Lights	0	0	0	0	-	0	1	160	615	0	-	776	21	381	1	0	-	403	0	1	0	0	-	1	1180
% Lights	-	-	-	-	-	-	100.0	95.2	99.4	-	-	98.5	75.0	96.5	100.0	-	-	95.0	-	100.0	-	-	-	100.0	97.3
Buses	0	0	0	0	-	0	0	6	0	0	-	6	5	2	0	0	-	7	0	0	0	0	-	0	13
% Buses	-	-	-	-	-	-	0.0	3.6	0.0	-	-	0.8	17.9	0.5	0.0	-	-	1.7	-	0.0	-	-	-	0.0	1.1
Single-Unit Trucks	0	0	0	0	-	0	0	2	3	0	-	5	2	4	0	0	-	6	0	0	0	0	-	0	11
% Single-Unit Trucks	-	-	-	-	-	-	0.0	1.2	0.5	-	-	0.6	7.1	1.0	0.0	-	-	1.4	-	0.0	-	-	-	0.0	0.9
Articulated Trucks	0	0	0	0	-	0	0	0	1	0	-	1	0	7	0	0	-	7	0	0	0	0	-	0	8
% Articulated Trucks	-	-	-	-	-	-	0.0	0.0	0.2	-	-	0.1	0.0	1.8	0.0	-	-	1.7	-	0.0	-	-	-	0.0	0.7
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	0	0	0	0	-	0	1
% Bicycles on Road	-	-	-	-	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.3	0.0	-	-	0.2	-	0.0	-	-	-	0.0	0.1
Bicycles on Crosswalk	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	11.8	-	-	-	-	-	-	-	-	-	-	-	18.2	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	15	-	-	-	-	-	0	-	-	-	-	-	9	-	-	-	-	-	4	-	-
% Pedestrians	-	-	-	-	88.2	-	-	-	-	-	-	-	-	-	-	-	81.8	-	-	-	-	-	100.0	-	-



Turning Movement Peak Hour Data Plot (12:00 PM)

Turning Movement Peak Hour Data (4:45 PM)

Start Time	Washtenaw Ave Westbound						Washtenaw Ave Eastbound						Hamilton St Southbound						Hamilton St Northbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
4:45 PM	0	0	0	0	5	0	0	80	267	0	1	347	8	162	0	0	8	170	0	0	0	0	1	0	517
5:00 PM	0	0	0	0	7	0	0	82	284	0	0	366	10	187	0	0	5	197	0	0	0	0	0	0	563
5:15 PM	0	0	0	0	3	0	0	94	253	0	0	347	4	154	0	0	3	158	0	0	0	0	0	0	505
5:30 PM	0	0	0	0	0	0	0	86	256	0	0	342	8	138	0	0	2	146	0	0	0	0	1	0	488
Total	0	0	0	0	15	0	0	342	1060	0	1	1402	30	641	0	0	18	671	0	0	0	0	2	0	2073
Approach %	0.0	0.0	0.0	0.0	-	-	0.0	24.4	75.6	0.0	-	-	4.5	95.5	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	-
Total %	0.0	0.0	0.0	0.0	-	0.0	0.0	16.5	51.1	0.0	-	67.6	1.4	30.9	0.0	0.0	-	32.4	0.0	0.0	0.0	0.0	-	0.0	-
PHF	0.000	0.000	0.000	0.000	-	0.000	0.000	0.910	0.933	0.000	-	0.958	0.750	0.857	0.000	0.000	-	0.852	0.000	0.000	0.000	0.000	-	0.000	0.921
Lights	0	0	0	0	-	0	0	332	1055	0	-	1387	25	638	0	0	-	663	0	0	0	0	-	0	2050
% Lights	-	-	-	-	-	-	-	97.1	99.5	-	-	98.9	83.3	99.5	-	-	-	98.8	-	-	-	-	-	-	98.9
Buses	0	0	0	0	-	0	0	9	0	0	-	9	5	0	0	0	-	5	0	0	0	0	-	0	14
% Buses	-	-	-	-	-	-	-	2.6	0.0	-	-	0.6	16.7	0.0	-	-	-	0.7	-	-	-	-	-	-	0.7
Single-Unit Trucks	0	0	0	0	-	0	0	0	1	0	-	1	0	3	0	0	-	3	0	0	0	0	-	0	4
% Single-Unit Trucks	-	-	-	-	-	-	-	0.0	0.1	-	-	0.1	0.0	0.5	-	-	-	0.4	-	-	-	-	-	-	0.2
Articulated Trucks	0	0	0	0	-	0	0	0	4	0	-	4	0	0	0	0	-	0	0	0	0	0	-	0	4
% Articulated Trucks	-	-	-	-	-	-	-	0.0	0.4	-	-	0.3	0.0	0.0	-	-	-	0.0	-	-	-	-	-	-	0.2
Bicycles on Road	0	0	0	0	-	0	0	1	0	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	1
% Bicycles on Road	-	-	-	-	-	-	-	0.3	0.0	-	-	0.1	0.0	0.0	-	-	-	0.0	-	-	-	-	-	-	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	5.6	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	15	-	-	-	-	-	1	-	-	-	-	-	17	-	-	-	-	-	2	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	94.4	-	-	-	-	-	100.0	-	-

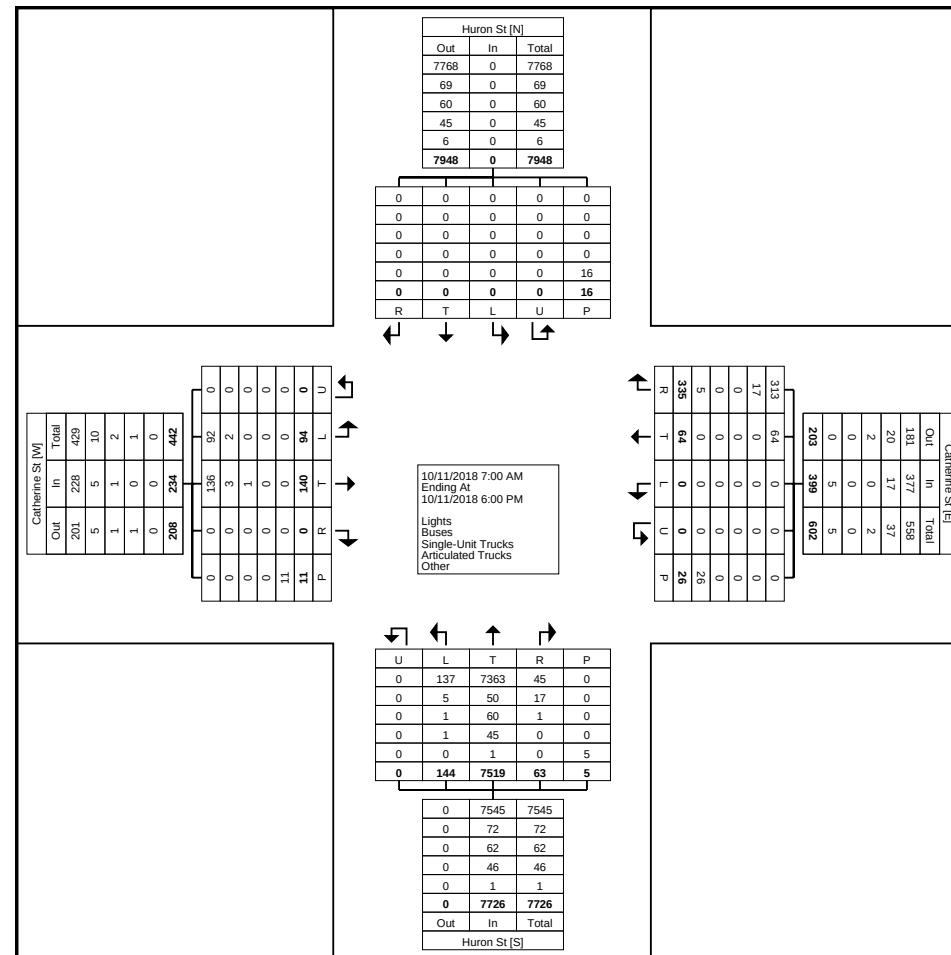


Turning Movement Peak Hour Data Plot (4:45 PM)

Turning Movement Data

Start Time	Catherine St Westbound						Catherine St Eastbound						Huron St Southbound						Huron St Northbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:00 AM	0	1	21	0	1	22	1	2	0	0	1	3	0	0	0	0	0	0	0	182	1	0	2	183	208
7:15 AM	0	0	22	0	0	22	1	0	0	0	0	1	0	0	0	0	0	0	0	332	1	0	0	333	356
7:30 AM	0	6	14	0	1	20	1	0	0	0	0	1	0	0	0	0	0	0	17	357	4	0	0	378	399
7:45 AM	0	10	4	0	1	14	1	3	0	0	0	4	0	0	0	0	0	0	20	319	8	0	0	347	365
Hourly Total	0	17	61	0	3	78	4	5	0	0	1	9	0	0	0	0	0	0	37	1190	14	0	2	1241	1328
8:00 AM	0	6	16	0	0	22	0	6	0	0	1	6	0	0	0	0	1	0	26	313	4	0	0	343	371
8:15 AM	0	4	8	0	0	12	6	0	0	0	0	6	0	0	0	0	0	0	17	332	1	0	0	350	368
8:30 AM	0	0	10	0	1	10	1	1	0	0	0	2	0	0	0	0	1	0	7	336	2	0	0	345	357
8:45 AM	0	2	7	0	2	9	0	1	0	0	0	1	0	0	0	0	0	0	9	329	1	0	1	339	349
Hourly Total	0	12	41	0	3	53	7	8	0	0	1	15	0	0	0	0	2	0	59	1310	8	0	1	1377	1445
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 AM	0	2	12	0	1	14	5	3	0	0	2	8	0	0	0	0	0	0	2	151	1	0	1	154	176
11:15 AM	0	1	4	0	0	5	2	5	0	0	0	7	0	0	0	0	0	0	2	168	2	0	0	172	184
11:30 AM	0	0	6	0	1	6	1	3	0	0	0	4	0	0	0	0	1	0	2	187	2	0	0	191	201
11:45 AM	0	0	14	0	1	14	7	6	0	0	2	13	0	0	0	0	2	0	7	216	1	0	0	224	251
Hourly Total	0	3	36	0	3	39	15	17	0	0	4	32	0	0	0	0	3	0	13	722	6	0	1	741	812
12:00 PM	0	1	13	0	0	14	3	6	0	0	0	9	0	0	0	0	3	0	2	238	1	0	0	241	264
12:15 PM	0	0	10	0	0	10	2	2	0	0	1	4	0	0	0	0	0	0	0	200	2	0	0	202	216
12:30 PM	0	0	11	0	0	11	0	4	0	0	0	4	0	0	0	0	0	0	0	205	3	0	0	208	223
12:45 PM	0	0	11	0	0	11	7	1	0	0	0	8	0	0	0	0	1	0	1	193	1	0	0	195	214
Hourly Total	0	1	45	0	0	46	12	13	0	0	1	25	0	0	0	0	4	0	3	836	7	0	0	846	917
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00 PM	0	3	11	0	2	14	2	7	0	0	0	9	0	0	0	0	1	0	1	157	2	0	0	160	183
2:15 PM	0	2	11	0	1	13	6	6	0	0	0	12	0	0	0	0	1	0	1	189	1	0	0	191	216
2:30 PM	0	1	12	0	1	13	2	6	0	0	1	8	0	0	0	0	1	0	1	178	3	0	0	182	203
2:45 PM	0	3	8	0	1	11	7	5	0	0	0	12	0	0	0	0	0	0	1	206	1	0	0	208	231
Hourly Total	0	9	42	0	5	51	17	24	0	0	1	41	0	0	0	0	3	0	4	730	7	0	0	741	833
3:00 PM	0	1	8	0	1	9	3	7	0	0	0	10	0	0	0	0	0	0	2	194	4	0	0	200	219
3:15 PM	0	5	7	0	2	12	5	5	0	0	0	10	0	0	0	0	0	0	6	217	1	0	0	224	246
3:30 PM	0	0	12	0	2	12	3	3	0	0	0	6	0	0	0	0	1	0	2	219	2	0	0	223	241
3:45 PM	0	2	7	0	0	9	5	6	0	0	0	11	0	0	0	0	0	0	4	237	1	0	0	242	262
Hourly Total	0	8	34	0	5	42	16	21	0	0	0	37	0	0	0	0	1	0	14	867	8	0	0	889	968
4:00 PM	0	3	10	0	1	13	0	8	0	0	1	8	0	0	0	0	1	0	4	191	2	0	0	197	218
4:15 PM	0	1	7	0	0	8	2	3	0	0	0	5	0	0	0	0	0	0	1	199	2	0	0	202	215
4:30 PM	0	0	8	0	1	8	5	3	0	0	0	8	0	0	0	0	0	0	3	237	1	0	0	241	257
4:45 PM	0	2	11	0	0	13	1	10	0	0	0	11	0	0	0	0	1	0	0	276	0	0	0	276	300
Hourly Total	0	6	36	0	2	42	8	24	0	0	1	32	0	0	0	0	2	0	8	903	5	0	0	916	990

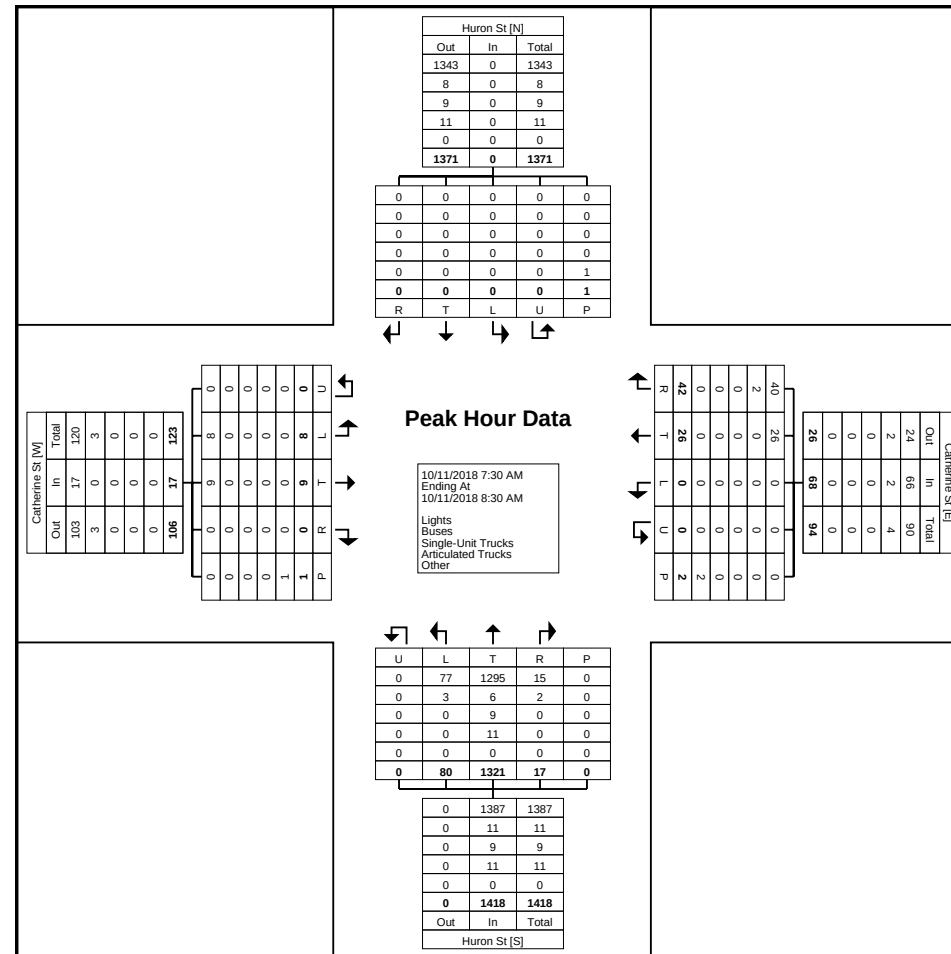
5:00 PM	0	1	9	0	4	10	4	4	0	0	1	8	0	0	0	0	0	0	0	240	4	0	0	244	262
5:15 PM	0	5	11	0	0	16	4	9	0	0	0	13	0	0	0	0	0	0	1	218	1	0	0	220	249
5:30 PM	0	1	7	0	0	8	5	9	0	0	0	14	0	0	0	0	1	0	3	229	2	0	0	234	256
5:45 PM	0	1	13	0	1	14	2	6	0	0	1	8	0	0	0	0	0	0	2	274	1	0	1	277	299
Hourly Total	0	8	40	0	5	48	15	28	0	0	2	43	0	0	0	0	1	0	6	961	8	0	1	975	1066
Grand Total	0	64	335	0	26	399	94	140	0	0	11	234	0	0	0	0	16	0	144	7519	63	0	5	7726	8359
Approach %	0.0	16.0	84.0	0.0	-	-	40.2	59.8	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	1.9	97.3	0.8	0.0	-	-	-
Total %	0.0	0.8	4.0	0.0	-	4.8	1.1	1.7	0.0	0.0	-	2.8	0.0	0.0	0.0	0.0	-	0.0	1.7	90.0	0.8	0.0	-	92.4	-
Lights	0	64	313	0	-	377	92	136	0	0	-	228	0	0	0	0	-	0	137	7363	45	0	-	7545	8150
% Lights	-	100.0	93.4	-	-	94.5	97.9	97.1	-	-	-	97.4	-	-	-	-	-	-	95.1	97.9	71.4	-	-	97.7	97.5
Buses	0	0	17	0	-	17	2	3	0	0	-	5	0	0	0	0	-	0	5	50	17	0	-	72	94
% Buses	-	0.0	5.1	-	-	4.3	2.1	2.1	-	-	-	2.1	-	-	-	-	-	-	3.5	0.7	27.0	-	-	0.9	1.1
Single-Unit Trucks	0	0	0	0	-	0	0	1	0	0	-	1	0	0	0	0	-	0	1	60	1	0	-	62	63
% Single-Unit Trucks	-	0.0	0.0	-	-	0.0	0.0	0.7	-	-	-	0.4	-	-	-	-	-	-	0.7	0.8	1.6	-	-	0.8	0.8
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	1	45	0	0	-	46	46
% Articulated Trucks	-	0.0	0.0	-	-	0.0	0.0	0.0	-	-	-	0.0	-	-	-	-	-	-	0.7	0.6	0.0	-	-	0.6	0.6
Bicycles on Road	0	0	5	0	-	5	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	6
% Bicycles on Road	-	0.0	1.5	-	-	1.3	0.0	0.0	-	-	-	0.0	-	-	-	-	-	-	0.0	0.0	0.0	-	-	0.0	0.1
Bicycles on Crosswalk	-	-	-	-	4	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	15.4	-	-	-	-	-	9.1	-	-	-	-	-	6.3	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	22	-	-	-	-	-	10	-	-	-	-	-	15	-	-	-	-	-	5	-	-
% Pedestrians	-	-	-	-	84.6	-	-	-	-	-	90.9	-	-	-	-	-	93.8	-	-	-	-	-	100.0	-	-



Turning Movement Data Plot

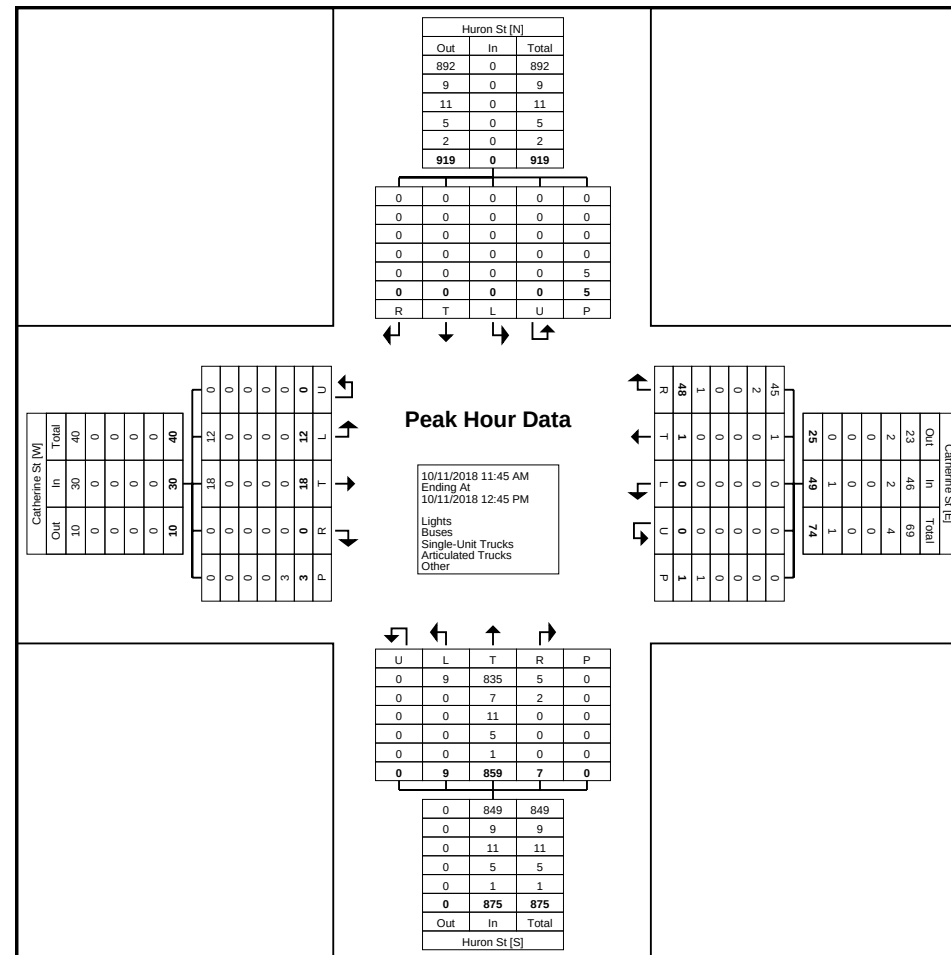
Turning Movement Peak Hour Data (7:30 AM)

Start Time	Catherine St Westbound						Catherine St Eastbound						Huron St Southbound						Huron St Northbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:30 AM	0	6	14	0	1	20	1	0	0	0	0	1	0	0	0	0	0	0	17	357	4	0	0	378	399
7:45 AM	0	10	4	0	1	14	1	3	0	0	0	4	0	0	0	0	0	0	20	319	8	0	0	347	365
8:00 AM	0	6	16	0	0	22	0	6	0	0	1	6	0	0	0	0	1	0	26	313	4	0	0	343	371
8:15 AM	0	4	8	0	0	12	6	0	0	0	0	6	0	0	0	0	0	0	17	332	1	0	0	350	368
Total	0	26	42	0	2	68	8	9	0	0	1	17	0	0	0	0	1	0	80	1321	17	0	0	1418	1503
Approach %	0.0	38.2	61.8	0.0	-	-	47.1	52.9	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	5.6	93.2	1.2	0.0	-	-	-
Total %	0.0	1.7	2.8	0.0	-	4.5	0.5	0.6	0.0	0.0	-	1.1	0.0	0.0	0.0	0.0	-	0.0	5.3	87.9	1.1	0.0	-	94.3	-
PHF	0.000	0.650	0.656	0.000	-	0.773	0.333	0.375	0.000	0.000	-	0.708	0.000	0.000	0.000	0.000	-	0.000	0.769	0.925	0.531	0.000	-	0.938	0.942
Lights	0	26	40	0	-	66	8	9	0	0	-	17	0	0	0	0	-	0	77	1295	15	0	-	1387	1470
% Lights	-	100.0	95.2	-	-	97.1	100.0	100.0	-	-	-	100.0	-	-	-	-	-	-	96.3	98.0	88.2	-	-	97.8	97.8
Buses	0	0	2	0	-	2	0	0	0	0	-	0	0	0	0	0	-	0	3	6	2	0	-	11	13
% Buses	-	0.0	4.8	-	-	2.9	0.0	0.0	-	-	-	0.0	-	-	-	-	-	-	3.8	0.5	11.8	-	-	0.8	0.9
Single-Unit Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	9	0	0	-	9	9
% Single-Unit Trucks	-	0.0	0.0	-	-	0.0	0.0	0.0	-	-	-	0.0	-	-	-	-	-	-	0.0	0.7	0.0	-	-	0.6	0.6
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	11	0	0	-	11	11
% Articulated Trucks	-	0.0	0.0	-	-	0.0	0.0	0.0	-	-	-	0.0	-	-	-	-	-	-	0.0	0.8	0.0	-	-	0.8	0.7
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	-	0.0	0.0	-	-	0.0	0.0	0.0	-	-	-	0.0	-	-	-	-	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	2	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-



Turning Movement Peak Hour Data (11:45 AM)

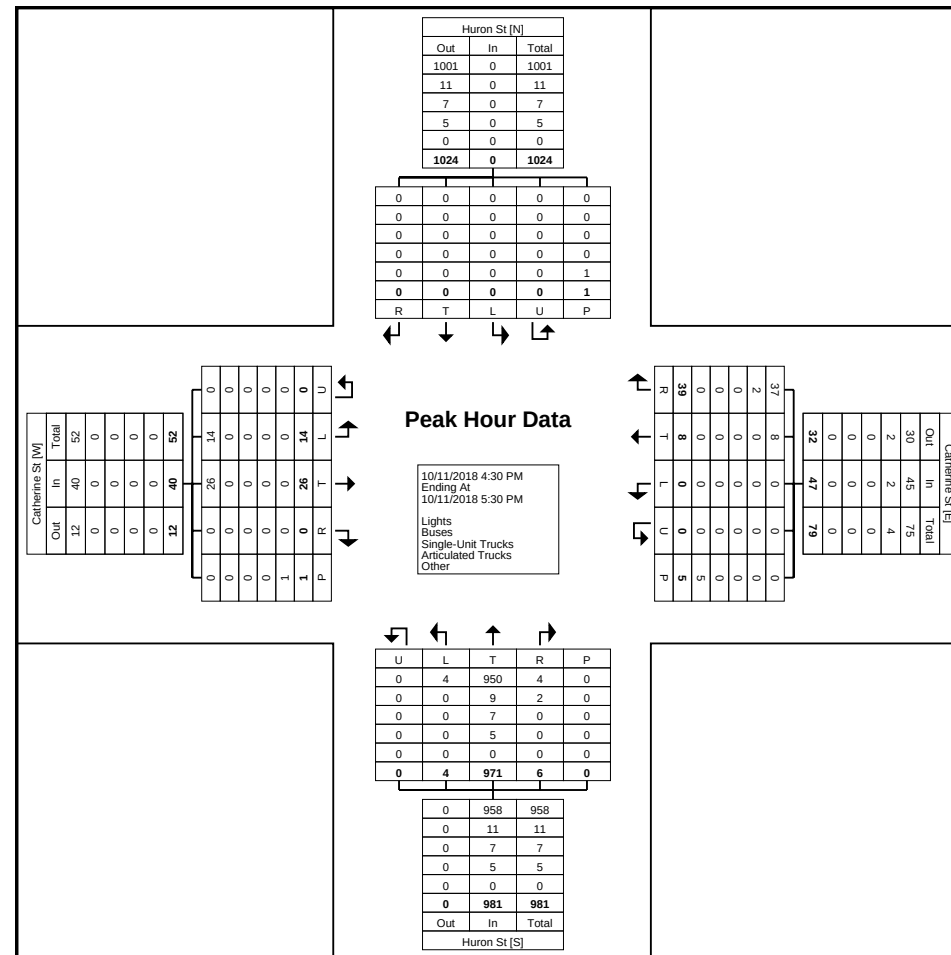
Start Time	Catherine St Westbound						Catherine St Eastbound						Huron St Southbound						Huron St Northbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
11:45 AM	0	0	14	0	1	14	7	6	0	0	2	13	0	0	0	0	2	0	7	216	1	0	0	224	251
12:00 PM	0	1	13	0	0	14	3	6	0	0	0	9	0	0	0	0	3	0	2	238	1	0	0	241	264
12:15 PM	0	0	10	0	0	10	2	2	0	0	1	4	0	0	0	0	0	0	0	200	2	0	0	202	216
12:30 PM	0	0	11	0	0	11	0	4	0	0	0	4	0	0	0	0	0	0	0	205	3	0	0	208	223
Total	0	1	48	0	1	49	12	18	0	0	3	30	0	0	0	0	5	0	9	859	7	0	0	875	954
Approach %	0.0	2.0	98.0	0.0	-	-	40.0	60.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	1.0	98.2	0.8	0.0	-	-	-
Total %	0.0	0.1	5.0	0.0	-	5.1	1.3	1.9	0.0	0.0	-	3.1	0.0	0.0	0.0	0.0	-	0.0	0.9	90.0	0.7	0.0	-	91.7	-
PHF	0.000	0.250	0.857	0.000	-	0.875	0.429	0.750	0.000	0.000	-	0.577	0.000	0.000	0.000	0.000	-	0.000	0.321	0.902	0.583	0.000	-	0.908	0.903
Lights	0	1	45	0	-	46	12	18	0	0	-	30	0	0	0	0	-	0	9	835	5	0	-	849	925
% Lights	-	100.0	93.8	-	-	93.9	100.0	100.0	-	-	-	100.0	-	-	-	-	-	-	100.0	97.2	71.4	-	-	97.0	97.0
Buses	0	0	2	0	-	2	0	0	0	0	-	0	0	0	0	0	-	0	0	7	2	0	-	9	11
% Buses	-	0.0	4.2	-	-	4.1	0.0	0.0	-	-	-	0.0	-	-	-	-	-	-	0.0	0.8	28.6	-	-	1.0	1.2
Single-Unit Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	11	0	0	-	11	11
% Single-Unit Trucks	-	0.0	0.0	-	-	0.0	0.0	0.0	-	-	-	0.0	-	-	-	-	-	-	0.0	1.3	0.0	-	-	1.3	1.2
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	5	0	0	-	5	5
% Articulated Trucks	-	0.0	0.0	-	-	0.0	0.0	0.0	-	-	-	0.0	-	-	-	-	-	-	0.0	0.6	0.0	-	-	0.6	0.5
Bicycles on Road	0	0	1	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	2
% Bicycles on Road	-	0.0	2.1	-	-	2.0	0.0	0.0	-	-	-	0.0	-	-	-	-	-	-	0.0	0.1	0.0	-	-	0.1	0.2
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	20.0	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	1	-	-	-	-	-	3	-	-	-	-	-	4	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	80.0	-	-	-	-	-	-	-	-



Turning Movement Peak Hour Data Plot (11:45 AM)

Turning Movement Peak Hour Data (4:30 PM)

Start Time	Catherine St Westbound						Catherine St Eastbound						Huron St Southbound						Huron St Northbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
4:30 PM	0	0	8	0	1	8	5	3	0	0	0	8	0	0	0	0	0	0	3	237	1	0	0	241	257
4:45 PM	0	2	11	0	0	13	1	10	0	0	0	11	0	0	0	0	1	0	0	276	0	0	0	276	300
5:00 PM	0	1	9	0	4	10	4	4	0	0	1	8	0	0	0	0	0	0	0	240	4	0	0	244	262
5:15 PM	0	5	11	0	0	16	4	9	0	0	0	13	0	0	0	0	0	0	1	218	1	0	0	220	249
Total	0	8	39	0	5	47	14	26	0	0	1	40	0	0	0	0	1	0	4	971	6	0	0	981	1068
Approach %	0.0	17.0	83.0	0.0	-	-	35.0	65.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.4	99.0	0.6	0.0	-	-	-
Total %	0.0	0.7	3.7	0.0	-	4.4	1.3	2.4	0.0	0.0	-	3.7	0.0	0.0	0.0	0.0	-	0.0	0.4	90.9	0.6	0.0	-	91.9	-
PHF	0.000	0.400	0.886	0.000	-	0.734	0.700	0.650	0.000	0.000	-	0.769	0.000	0.000	0.000	0.000	-	0.000	0.333	0.880	0.375	0.000	-	0.889	0.890
Lights	0	8	37	0	-	45	14	26	0	0	-	40	0	0	0	0	-	0	4	950	4	0	-	958	1043
% Lights	-	100.0	94.9	-	-	95.7	100.0	100.0	-	-	-	100.0	-	-	-	-	-	-	100.0	97.8	66.7	-	-	97.7	97.7
Buses	0	0	2	0	-	2	0	0	0	0	-	0	0	0	0	0	-	0	0	9	2	0	-	11	13
% Buses	-	0.0	5.1	-	-	4.3	0.0	0.0	-	-	-	0.0	-	-	-	-	-	-	0.0	0.9	33.3	-	-	1.1	1.2
Single-Unit Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	7	0	0	-	7	7
% Single-Unit Trucks	-	0.0	0.0	-	-	0.0	0.0	0.0	-	-	-	0.0	-	-	-	-	-	-	0.0	0.7	0.0	-	-	0.7	0.7
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	5	0	0	-	5	5
% Articulated Trucks	-	0.0	0.0	-	-	0.0	0.0	0.0	-	-	-	0.0	-	-	-	-	-	-	0.0	0.5	0.0	-	-	0.5	0.5
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	-	0.0	0.0	-	-	0.0	0.0	0.0	-	-	-	0.0	-	-	-	-	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	5	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-

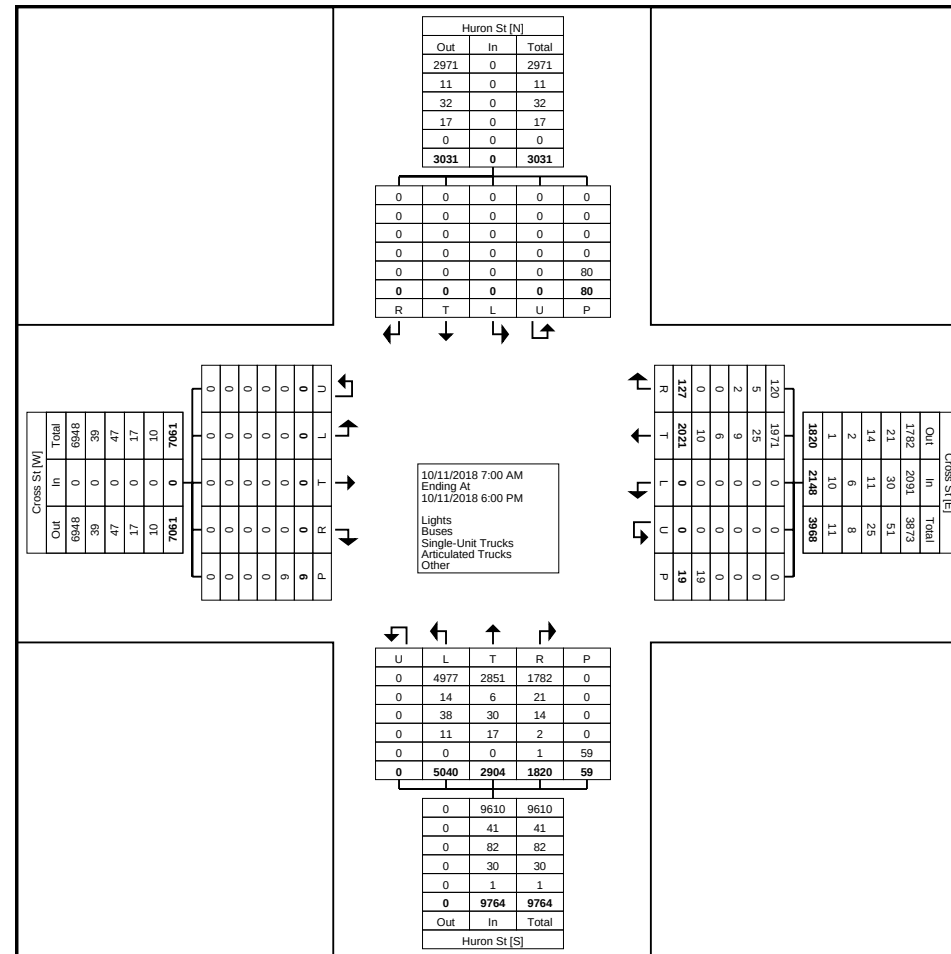


Turning Movement Peak Hour Data Plot (4:30 PM)

Turning Movement Data

Start Time	Cross St Westbound						Cross St Eastbound						Huron St Southbound						Huron St Northbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:00 AM	0	48	3	0	0	51	0	0	0	0	0	0	0	0	0	0	0	0	164	71	14	0	0	249	300
7:15 AM	0	75	3	0	0	78	0	0	0	0	0	0	0	0	0	0	1	0	245	112	24	0	2	381	459
7:30 AM	0	117	11	0	1	128	0	0	0	0	0	0	0	0	0	0	5	0	292	142	24	0	0	458	586
7:45 AM	0	131	5	0	0	136	0	0	0	0	0	0	0	0	0	0	4	0	274	138	37	0	1	449	585
Hourly Total	0	371	22	0	1	393	0	0	0	0	0	0	0	0	0	0	10	0	975	463	99	0	3	1537	1930
8:00 AM	0	85	7	0	0	92	0	0	0	0	0	0	0	0	0	0	1	0	249	126	32	0	0	407	499
8:15 AM	0	80	3	0	2	83	0	0	0	0	0	0	0	0	0	0	1	0	252	116	38	0	1	406	489
8:30 AM	0	88	9	0	0	97	0	0	0	0	0	0	0	0	0	0	0	0	260	160	29	0	0	449	546
8:45 AM	0	74	9	0	0	83	0	0	0	0	0	0	0	0	0	0	4	0	231	144	34	0	0	409	492
Hourly Total	0	327	28	0	2	355	0	0	0	0	0	0	0	0	0	0	6	0	992	546	133	0	1	1671	2026
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 AM	0	47	3	0	1	50	0	0	0	0	0	0	0	0	0	0	0	0	91	53	56	0	2	200	250
11:15 AM	0	44	0	0	0	44	0	0	0	0	0	0	0	0	0	0	1	0	116	67	43	0	3	226	270
11:30 AM	0	44	2	0	1	46	0	0	0	0	0	0	0	0	0	0	2	0	120	74	50	0	2	244	290
11:45 AM	0	64	1	0	0	65	0	0	0	0	0	0	0	0	0	0	0	0	126	82	52	0	1	260	325
Hourly Total	0	199	6	0	2	205	0	0	0	0	0	0	0	0	0	0	3	0	453	276	201	0	8	930	1135
12:00 PM	0	51	3	0	1	54	0	0	0	0	0	0	0	0	0	0	2	0	149	83	58	0	0	290	344
12:15 PM	0	43	4	0	0	47	0	0	0	0	0	0	0	0	0	0	7	0	136	97	54	0	2	287	334
12:30 PM	0	47	4	0	0	51	0	0	0	0	2	0	0	0	0	0	0	0	129	85	46	0	2	260	311
12:45 PM	0	52	3	0	0	55	0	0	0	0	0	0	0	0	0	0	1	0	120	64	45	0	1	229	284
Hourly Total	0	193	14	0	1	207	0	0	0	0	2	0	0	0	0	0	10	0	534	329	203	0	5	1066	1273
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00 PM	0	49	4	0	2	53	0	0	0	0	0	0	0	0	0	0	0	0	105	76	45	0	0	226	279
2:15 PM	0	58	3	0	0	61	0	0	0	0	1	0	0	0	0	0	1	0	109	67	52	0	0	228	289
2:30 PM	0	57	3	0	1	60	0	0	0	0	1	0	0	0	0	0	0	0	121	57	49	0	3	227	287
2:45 PM	0	44	2	0	0	46	0	0	0	0	1	0	0	0	0	0	3	0	124	64	63	0	2	251	297
Hourly Total	0	208	12	0	3	220	0	0	0	0	3	0	0	0	0	0	4	0	459	264	209	0	5	932	1152
3:00 PM	0	56	4	0	1	60	0	0	0	0	0	0	0	0	0	0	0	0	125	71	68	0	2	264	324
3:15 PM	0	51	6	0	0	57	0	0	0	0	0	0	0	0	0	0	1	0	134	103	76	0	2	313	370
3:30 PM	0	78	4	0	3	82	0	0	0	0	0	0	0	0	0	0	9	0	129	83	66	0	5	278	360
3:45 PM	0	56	1	0	1	57	0	0	0	0	0	0	0	0	0	0	5	0	144	64	82	0	1	290	347
Hourly Total	0	241	15	0	5	256	0	0	0	0	0	0	0	0	0	0	15	0	532	321	292	0	10	1145	1401
4:00 PM	0	33	5	0	0	38	0	0	0	0	0	0	0	0	0	0	2	0	125	85	87	0	2	297	335
4:15 PM	0	67	6	0	0	73	0	0	0	0	0	0	0	0	0	0	4	0	108	77	86	0	5	271	344
4:30 PM	0	62	1	0	2	63	0	0	0	0	0	0	0	0	0	0	5	0	145	80	70	0	1	295	358
4:45 PM	0	71	6	0	0	77	0	0	0	0	2	0	0	0	0	0	6	0	150	93	84	0	5	327	404
Hourly Total	0	233	18	0	2	251	0	0	0	0	2	0	0	0	0	0	17	0	528	335	327	0	13	1190	1441

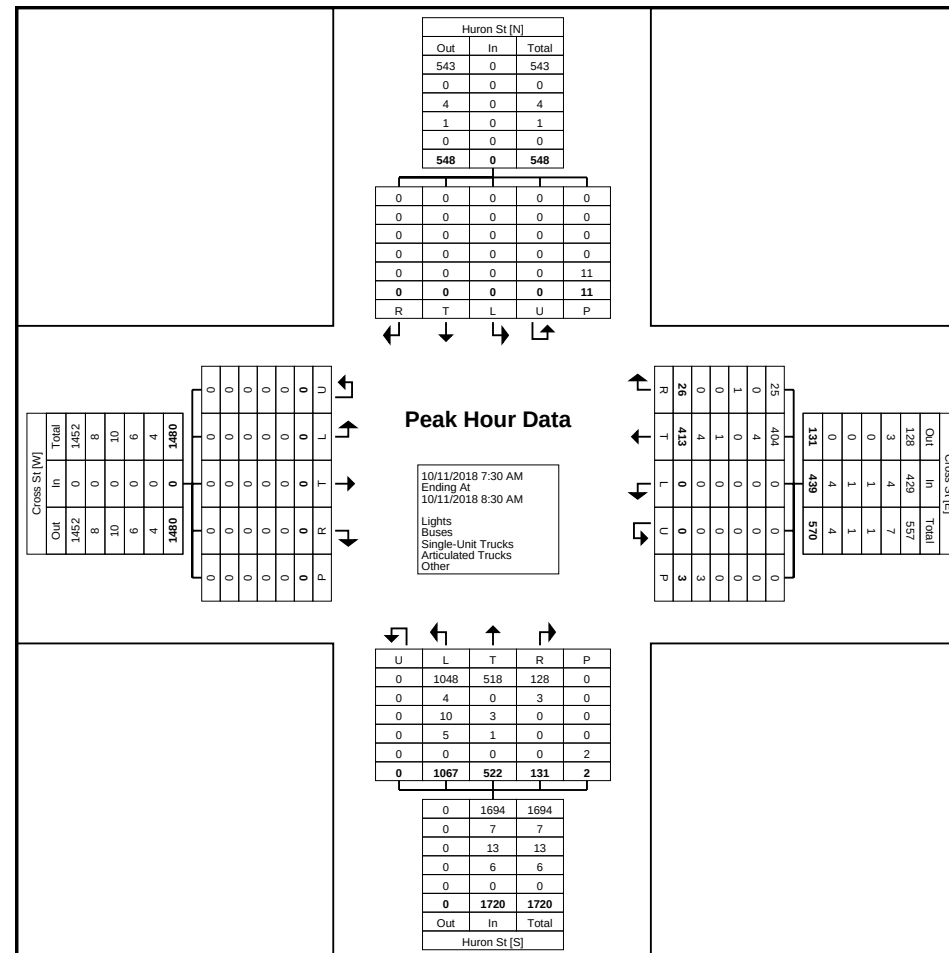
5:00 PM	0	70	1	0	1	71	0	0	0	0	0	0	0	0	0	7	0	138	107	99	0	2	344	415
5:15 PM	0	62	4	0	0	66	0	0	0	0	1	0	0	0	0	2	0	166	93	87	0	8	346	412
5:30 PM	0	50	5	0	2	55	0	0	0	0	1	0	0	0	0	4	0	120	94	93	0	2	307	362
5:45 PM	0	67	2	0	0	69	0	0	0	0	0	0	0	0	0	2	0	143	76	77	0	2	296	365
Hourly Total	0	249	12	0	3	261	0	0	0	0	2	0	0	0	0	15	0	567	370	356	0	14	1293	1554
Grand Total	0	2021	127	0	19	2148	0	0	0	0	9	0	0	0	0	80	0	5040	2904	1820	0	59	9764	11912
Approach %	0.0	94.1	5.9	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	51.6	29.7	18.6	0.0	-	-	-
Total %	0.0	17.0	1.1	0.0	-	18.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	42.3	24.4	15.3	0.0	-	82.0	-
Lights	0	1971	120	0	-	2091	0	0	0	0	-	0	0	0	0	-	0	4977	2851	1782	0	-	9610	11701
% Lights	-	97.5	94.5	-	-	97.3	-	-	-	-	-	-	-	-	-	-	-	98.8	98.2	97.9	-	-	98.4	98.2
Buses	0	25	5	0	-	30	0	0	0	0	-	0	0	0	0	-	0	14	6	21	0	-	41	71
% Buses	-	1.2	3.9	-	-	1.4	-	-	-	-	-	-	-	-	-	-	-	0.3	0.2	1.2	-	-	0.4	0.6
Single-Unit Trucks	0	9	2	0	-	11	0	0	0	0	-	0	0	0	0	-	0	38	30	14	0	-	82	93
% Single-Unit Trucks	-	0.4	1.6	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-	0.8	1.0	0.8	-	-	0.8	0.8
Articulated Trucks	0	6	0	0	-	6	0	0	0	0	-	0	0	0	0	-	0	11	17	2	0	-	30	36
% Articulated Trucks	-	0.3	0.0	-	-	0.3	-	-	-	-	-	-	-	-	-	-	-	0.2	0.6	0.1	-	-	0.3	0.3
Bicycles on Road	0	10	0	0	-	10	0	0	0	0	-	0	0	0	0	-	0	0	0	1	0	-	1	11
% Bicycles on Road	-	0.5	0.0	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-	0.0	0.0	0.1	-	-	0.0	0.1
Bicycles on Crosswalk	-	-	-	-	2	-	-	-	-	-	1	-	-	-	-	6	-	-	-	-	2	-	-	-
% Bicycles on Crosswalk	-	-	-	-	10.5	-	-	-	-	-	11.1	-	-	-	-	7.5	-	-	-	-	3.4	-	-	-
Pedestrians	-	-	-	-	17	-	-	-	-	-	8	-	-	-	-	74	-	-	-	-	57	-	-	-
% Pedestrians	-	-	-	-	89.5	-	-	-	-	-	88.9	-	-	-	-	92.5	-	-	-	-	96.6	-	-	-



Turning Movement Data Plot

Turning Movement Peak Hour Data (7:30 AM)

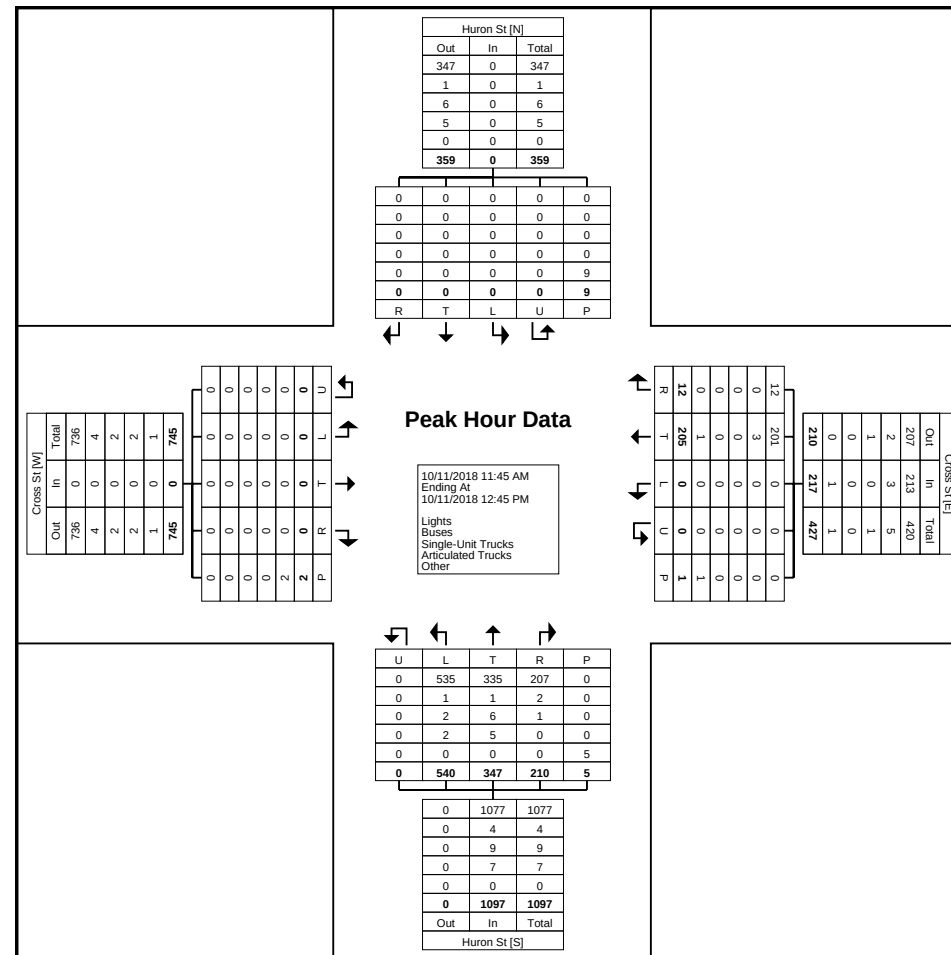
Start Time	Cross St Westbound						Cross St Eastbound						Huron St Southbound						Huron St Northbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:30 AM	0	117	11	0	1	128	0	0	0	0	0	0	0	0	0	0	5	0	292	142	24	0	0	458	586
7:45 AM	0	131	5	0	0	136	0	0	0	0	0	0	0	0	0	0	4	0	274	138	37	0	1	449	585
8:00 AM	0	85	7	0	0	92	0	0	0	0	0	0	0	0	0	0	1	0	249	126	32	0	0	407	499
8:15 AM	0	80	3	0	2	83	0	0	0	0	0	0	0	0	0	0	1	0	252	116	38	0	1	406	489
Total	0	413	26	0	3	439	0	0	0	0	0	0	0	0	0	0	11	0	1067	522	131	0	2	1720	2159
Approach %	0.0	94.1	5.9	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	62.0	30.3	7.6	0.0	-	-	-
Total %	0.0	19.1	1.2	0.0	-	20.3	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.0	49.4	24.2	6.1	0.0	-	79.7	-
PHF	0.000	0.788	0.591	0.000	-	0.807	0.000	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	-	0.000	0.914	0.919	0.862	0.000	-	0.939	0.921
Lights	0	404	25	0	-	429	0	0	0	0	-	0	0	0	0	0	-	0	1048	518	128	0	-	1694	2123
% Lights	-	97.8	96.2	-	-	97.7	-	-	-	-	-	-	-	-	-	-	-	-	98.2	99.2	97.7	-	-	98.5	98.3
Buses	0	4	0	0	-	4	0	0	0	0	-	0	0	0	0	0	-	0	4	0	3	0	-	7	11
% Buses	-	1.0	0.0	-	-	0.9	-	-	-	-	-	-	-	-	-	-	-	-	0.4	0.0	2.3	-	-	0.4	0.5
Single-Unit Trucks	0	0	1	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	10	3	0	0	-	13	14
% Single-Unit Trucks	-	0.0	3.8	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-	-	0.9	0.6	0.0	-	-	0.8	0.6
Articulated Trucks	0	1	0	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	5	1	0	0	-	6	7
% Articulated Trucks	-	0.2	0.0	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-	-	0.5	0.2	0.0	-	-	0.3	0.3
Bicycles on Road	0	4	0	0	-	4	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	4
% Bicycles on Road	-	1.0	0.0	-	-	0.9	-	-	-	-	-	-	-	-	-	-	-	-	0.0	0.0	0.0	-	-	0.0	0.2
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	3	-	-	-	-	-	0	-	-	-	-	-	11	-	-	-	-	-	2	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-



Turning Movement Peak Hour Data Plot (7:30 AM)

Turning Movement Peak Hour Data (11:45 AM)

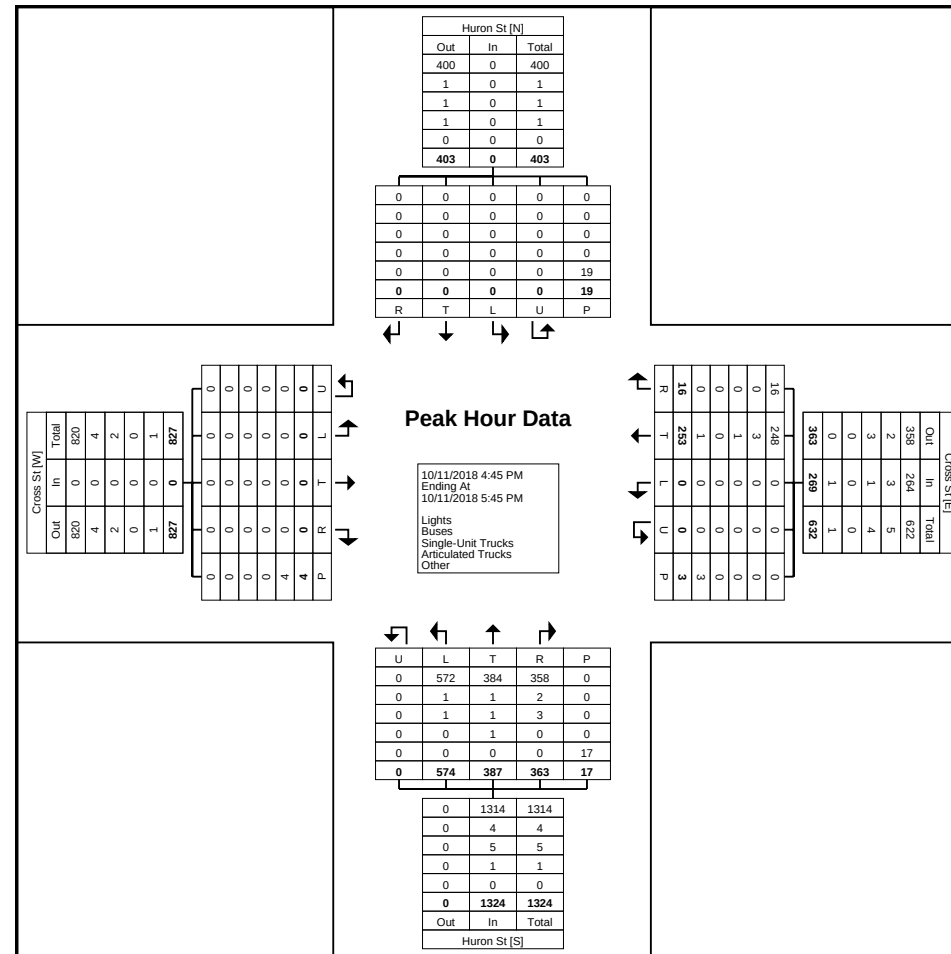
Start Time	Cross St Westbound						Cross St Eastbound						Huron St Southbound						Huron St Northbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
11:45 AM	0	64	1	0	0	65	0	0	0	0	0	0	0	0	0	0	0	0	126	82	52	0	1	260	325
12:00 PM	0	51	3	0	1	54	0	0	0	0	0	0	0	0	0	0	2	0	149	83	58	0	0	290	344
12:15 PM	0	43	4	0	0	47	0	0	0	0	0	0	0	0	0	0	7	0	136	97	54	0	2	287	334
12:30 PM	0	47	4	0	0	51	0	0	0	0	2	0	0	0	0	0	0	0	129	85	46	0	2	260	311
Total	0	205	12	0	1	217	0	0	0	0	2	0	0	0	0	0	9	0	540	347	210	0	5	1097	1314
Approach %	0.0	94.5	5.5	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	49.2	31.6	19.1	0.0	-	-	-
Total %	0.0	15.6	0.9	0.0	-	16.5	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.0	41.1	26.4	16.0	0.0	-	83.5	-
PHF	0.000	0.801	0.750	0.000	-	0.835	0.000	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	-	0.000	0.906	0.894	0.905	0.000	-	0.946	0.955
Lights	0	201	12	0	-	213	0	0	0	0	-	0	0	0	0	0	-	0	535	335	207	0	-	1077	1290
% Lights	-	98.0	100.0	-	-	98.2	-	-	-	-	-	-	-	-	-	-	-	-	99.1	96.5	98.6	-	-	98.2	98.2
Buses	0	3	0	0	-	3	0	0	0	0	-	0	0	0	0	0	-	0	1	1	2	0	-	4	7
% Buses	-	1.5	0.0	-	-	1.4	-	-	-	-	-	-	-	-	-	-	-	-	0.2	0.3	1.0	-	-	0.4	0.5
Single-Unit Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	2	6	1	0	-	9	9
% Single-Unit Trucks	-	0.0	0.0	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	0.4	1.7	0.5	-	-	0.8	0.7
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	2	5	0	0	-	7	7
% Articulated Trucks	-	0.0	0.0	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	0.4	1.4	0.0	-	-	0.6	0.5
Bicycles on Road	0	1	0	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	1
% Bicycles on Road	-	0.5	0.0	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-	-	0.0	0.0	0.0	-	-	0.0	0.1
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	1	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	11.1	-	-	-	-	-	20.0	-	-
Pedestrians	-	-	-	-	1	-	-	-	-	-	2	-	-	-	-	-	8	-	-	-	-	-	4	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	88.9	-	-	-	-	-	80.0	-	-



Turning Movement Peak Hour Data Plot (11:45 AM)

Turning Movement Peak Hour Data (4:45 PM)

Start Time	Cross St Westbound						Cross St Eastbound						Huron St Southbound						Huron St Northbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
4:45 PM	0	71	6	0	0	77	0	0	0	0	2	0	0	0	0	0	6	0	150	93	84	0	5	327	404
5:00 PM	0	70	1	0	1	71	0	0	0	0	0	0	0	0	0	0	7	0	138	107	99	0	2	344	415
5:15 PM	0	62	4	0	0	66	0	0	0	0	1	0	0	0	0	0	2	0	166	93	87	0	8	346	412
5:30 PM	0	50	5	0	2	55	0	0	0	0	1	0	0	0	0	0	4	0	120	94	93	0	2	307	362
Total	0	253	16	0	3	269	0	0	0	0	4	0	0	0	0	0	19	0	574	387	363	0	17	1324	1593
Approach %	0.0	94.1	5.9	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	43.4	29.2	27.4	0.0	-	-	-
Total %	0.0	15.9	1.0	0.0	-	16.9	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.0	36.0	24.3	22.8	0.0	-	83.1	-
PHF	0.000	0.891	0.667	0.000	-	0.873	0.000	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	-	0.000	0.864	0.904	0.917	0.000	-	0.957	0.960
Lights	0	248	16	0	-	264	0	0	0	0	-	0	0	0	0	0	-	0	572	384	358	0	-	1314	1578
% Lights	-	98.0	100.0	-	-	98.1	-	-	-	-	-	-	-	-	-	-	-	-	99.7	99.2	98.6	-	-	99.2	99.1
Buses	0	3	0	0	-	3	0	0	0	0	-	0	0	0	0	0	-	0	1	1	2	0	-	4	7
% Buses	-	1.2	0.0	-	-	1.1	-	-	-	-	-	-	-	-	-	-	-	-	0.2	0.3	0.6	-	-	0.3	0.4
Single-Unit Trucks	0	1	0	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	1	1	3	0	-	5	6
% Single-Unit Trucks	-	0.4	0.0	-	-	0.4	-	-	-	-	-	-	-	-	-	-	-	-	0.2	0.3	0.8	-	-	0.4	0.4
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	1
% Articulated Trucks	-	0.0	0.0	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	0.0	0.3	0.0	-	-	0.1	0.1
Bicycles on Road	0	1	0	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	1
% Bicycles on Road	-	0.4	0.0	-	-	0.4	-	-	-	-	-	-	-	-	-	-	-	-	0.0	0.0	0.0	-	-	0.0	0.1
Bicycles on Crosswalk	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	2	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	33.3	-	-	-	-	-	25.0	-	-	-	-	-	10.5	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	2	-	-	-	-	-	3	-	-	-	-	-	17	-	-	-	-	-	17	-	-
% Pedestrians	-	-	-	-	66.7	-	-	-	-	-	75.0	-	-	-	-	-	89.5	-	-	-	-	-	100.0	-	-

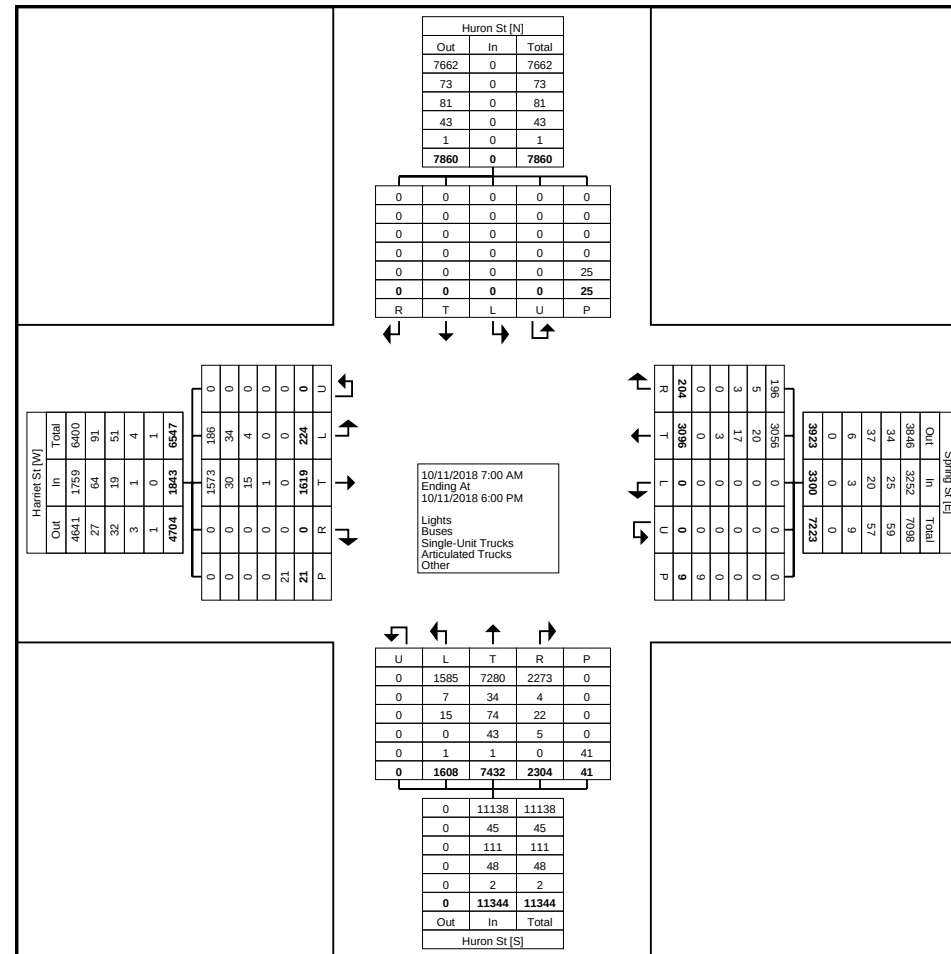


Turning Movement Peak Hour Data Plot (4:45 PM)

Turning Movement Data

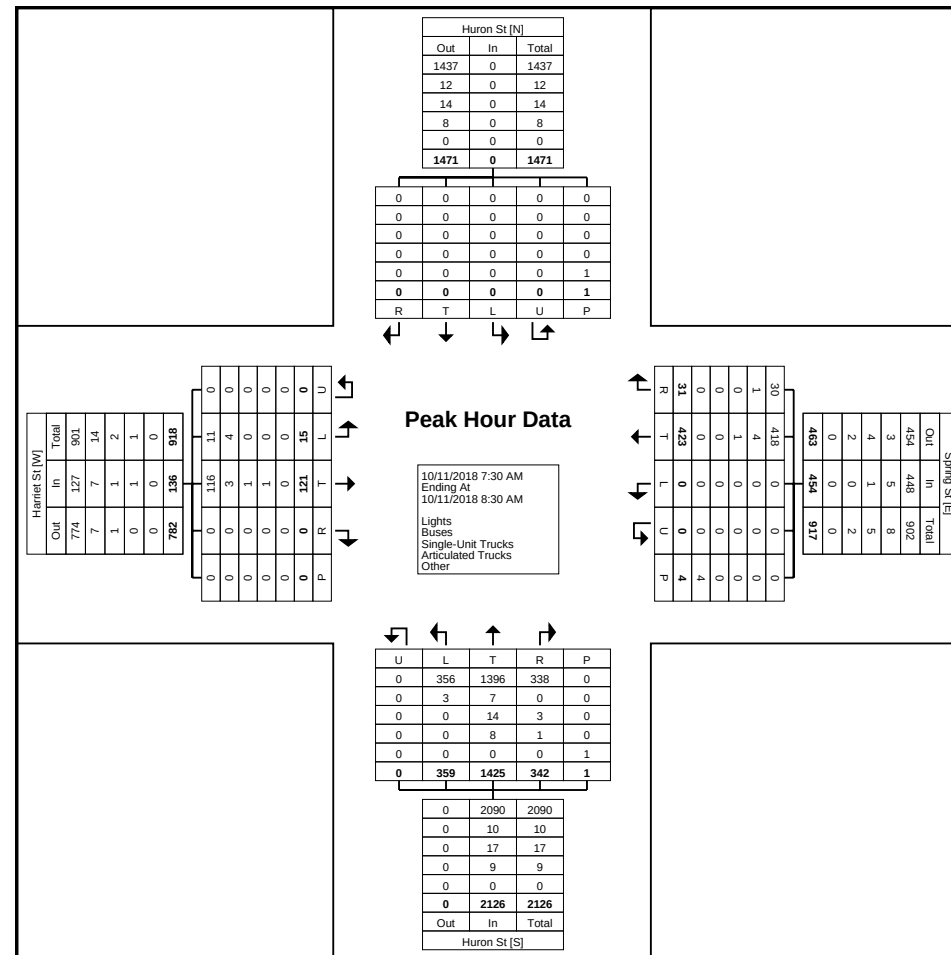
Start Time	Spring St Westbound						Harriet St Eastbound						Huron St Southbound						Huron St Northbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:00 AM	0	103	5	0	0	108	3	22	0	0	0	25	0	0	0	0	1	0	23	174	46	0	0	243	376
7:15 AM	0	125	6	0	0	131	2	20	0	0	0	22	0	0	0	0	1	0	46	334	52	0	1	432	585
7:30 AM	0	117	13	0	2	130	3	23	0	0	0	26	0	0	0	0	0	0	77	419	58	0	0	554	710
7:45 AM	0	115	5	0	2	120	2	18	0	0	0	20	0	0	0	0	0	0	101	363	113	0	1	577	717
Hourly Total	0	460	29	0	4	489	10	83	0	0	0	93	0	0	0	0	2	0	247	1290	269	0	2	1806	2388
8:00 AM	0	106	5	0	0	111	6	44	0	0	0	50	0	0	0	0	1	0	95	312	77	0	0	484	645
8:15 AM	0	85	8	0	0	93	4	36	0	0	0	40	0	0	0	0	0	0	86	331	94	0	0	511	644
8:30 AM	0	86	4	0	0	90	5	37	0	0	0	42	0	0	0	0	1	0	56	336	74	0	0	466	598
8:45 AM	0	78	5	0	0	83	7	47	0	0	2	54	0	0	0	0	1	0	65	319	68	0	4	452	589
Hourly Total	0	355	22	0	0	377	22	164	0	0	2	186	0	0	0	0	3	0	302	1298	313	0	4	1913	2476
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 AM	0	61	4	0	0	65	7	32	0	0	2	39	0	0	0	0	4	0	23	140	48	0	2	211	315
11:15 AM	0	61	5	0	0	66	12	46	0	0	5	58	0	0	0	0	0	0	36	171	48	0	3	255	379
11:30 AM	0	92	8	0	0	100	7	42	0	0	1	49	0	0	0	0	1	0	20	184	50	0	2	254	403
11:45 AM	0	75	4	0	1	79	10	48	0	0	1	58	0	0	0	0	0	0	35	181	59	0	1	275	412
Hourly Total	0	289	21	0	1	310	36	168	0	0	9	204	0	0	0	0	5	0	114	676	205	0	8	995	1509
12:00 PM	0	70	10	0	0	80	6	39	0	0	1	45	0	0	0	0	0	0	41	217	48	0	2	306	431
12:15 PM	0	71	5	0	0	76	12	46	0	0	0	58	0	0	0	0	0	0	43	206	58	0	0	307	441
12:30 PM	0	74	7	0	0	81	11	37	0	0	0	48	0	0	0	0	5	0	49	197	58	0	0	304	433
12:45 PM	0	78	8	0	0	86	4	37	0	0	0	41	0	0	0	0	1	0	44	171	66	0	0	281	408
Hourly Total	0	293	30	0	0	323	33	159	0	0	1	192	0	0	0	0	6	0	177	791	230	0	2	1198	1713
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00 PM	0	82	6	0	0	88	7	56	0	0	0	63	0	0	0	0	1	0	46	156	60	0	3	262	413
2:15 PM	0	95	6	0	0	101	10	53	0	0	0	63	0	0	0	0	0	0	47	183	77	0	1	307	471
2:30 PM	0	107	2	0	0	109	6	41	0	0	1	47	0	0	0	0	0	0	47	173	62	0	0	282	438
2:45 PM	0	98	3	0	2	101	7	50	0	0	2	57	0	0	0	0	1	0	42	196	71	0	7	309	467
Hourly Total	0	382	17	0	2	399	30	200	0	0	3	230	0	0	0	0	2	0	182	708	270	0	11	1160	1789
3:00 PM	0	114	7	0	0	121	7	51	0	0	0	58	0	0	0	0	0	0	54	190	95	0	1	339	518
3:15 PM	0	118	4	0	0	122	11	76	0	0	1	87	0	0	0	0	2	0	52	218	94	0	1	364	573
3:30 PM	0	118	10	0	0	128	5	73	0	0	0	78	0	0	0	0	0	0	64	216	98	0	0	378	584
3:45 PM	0	107	11	0	0	118	5	79	0	0	1	84	0	0	0	0	3	0	44	215	92	0	1	351	553
Hourly Total	0	457	32	0	0	489	28	279	0	0	2	307	0	0	0	0	5	0	214	839	379	0	3	1432	2228
4:00 PM	0	113	4	0	1	117	10	68	0	0	0	78	0	0	0	0	0	0	51	194	75	0	1	320	515
4:15 PM	0	98	3	0	0	101	9	74	0	0	0	83	0	0	0	0	0	0	54	209	82	0	2	345	529
4:30 PM	0	111	5	0	1	116	10	50	0	0	0	60	0	0	0	0	0	0	33	226	67	0	2	326	502
4:45 PM	0	110	11	0	0	121	7	93	0	0	0	100	0	0	0	0	2	0	45	248	81	0	5	374	595
Hourly Total	0	432	23	0	2	455	36	285	0	0	0	321	0	0	0	0	2	0	183	877	305	0	10	1365	2141

5:00 PM	0	129	9	0	0	138	6	64	0	0	3	70	0	0	0	0	0	0	57	231	87	0	0	375	583	
5:15 PM	0	106	5	0	0	111	7	79	0	0	0	86	0	0	0	0	0	0	42	236	90	0	0	368	565	
5:30 PM	0	97	10	0	0	107	11	63	0	0	0	74	0	0	0	0	0	0	43	221	83	0	0	347	528	
5:45 PM	0	96	6	0	0	102	5	75	0	0	1	80	0	0	0	0	0	0	47	265	73	0	1	385	567	
Hourly Total	0	428	30	0	0	458	29	281	0	0	4	310	0	0	0	0	0	0	189	953	333	0	1	1475	2243	
Grand Total	0	3096	204	0	9	3300	224	1619	0	0	21	1843	0	0	0	0	25	0	1608	7432	2304	0	41	11344	16487	
Approach %	0.0	93.8	6.2	0.0	-	-	12.2	87.8	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	14.2	65.5	20.3	0.0	-	-	-	
Total %	0.0	18.8	1.2	0.0	-	20.0	1.4	9.8	0.0	0.0	-	11.2	0.0	0.0	0.0	0.0	-	0.0	9.8	45.1	14.0	0.0	-	-	68.8	-
Lights	0	3056	196	0	-	3252	186	1573	0	0	-	1759	0	0	0	0	-	0	1585	7280	2273	0	-	-	11138	16149
% Lights	-	98.7	96.1	-	-	98.5	83.0	97.2	-	-	-	95.4	-	-	-	-	-	-	98.6	98.0	98.7	-	-	-	98.2	97.9
Buses	0	20	5	0	-	25	34	30	0	0	-	64	0	0	0	0	-	0	7	34	4	0	-	-	45	134
% Buses	-	0.6	2.5	-	-	0.8	15.2	1.9	-	-	-	3.5	-	-	-	-	-	-	0.4	0.5	0.2	-	-	-	0.4	0.8
Single-Unit Trucks	0	17	3	0	-	20	4	15	0	0	-	19	0	0	0	0	-	0	15	74	22	0	-	-	111	150
% Single-Unit Trucks	-	0.5	1.5	-	-	0.6	1.8	0.9	-	-	-	1.0	-	-	-	-	-	-	0.9	1.0	1.0	-	-	-	1.0	0.9
Articulated Trucks	0	3	0	0	-	3	0	1	0	0	-	1	0	0	0	0	-	0	0	43	5	0	-	-	48	52
% Articulated Trucks	-	0.1	0.0	-	-	0.1	0.0	0.1	-	-	-	0.1	-	-	-	-	-	-	0.0	0.6	0.2	-	-	-	0.4	0.3
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	1	1	0	0	-	-	2	2
% Bicycles on Road	-	0.0	0.0	-	-	0.0	0.0	0.0	-	-	-	0.0	-	-	-	-	-	-	0.1	0.0	0.0	-	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-	-	2	-	-	-
% Bicycles on Crosswalk	-	-	-	-	22.2	-	-	-	-	-	0.0	-	-	-	-	0.0	-	-	-	-	-	-	4.9	-	-	-
Pedestrians	-	-	-	-	7	-	-	-	-	-	21	-	-	-	-	25	-	-	-	-	-	-	39	-	-	-
% Pedestrians	-	-	-	-	77.8	-	-	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	-	-	95.1	-	-	-



Turning Movement Peak Hour Data (7:30 AM)

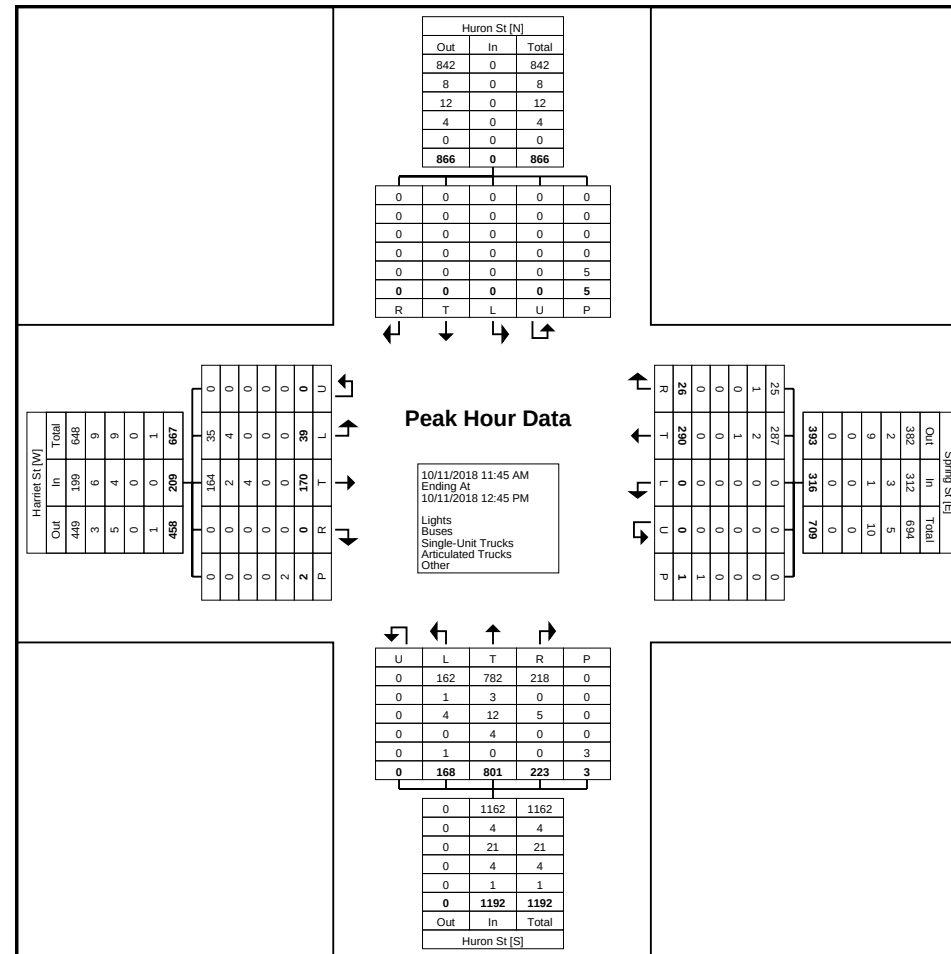
Start Time	Spring St Westbound						Harriet St Eastbound						Huron St Southbound						Huron St Northbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:30 AM	0	117	13	0	2	130	3	23	0	0	0	26	0	0	0	0	0	0	77	419	58	0	0	554	710
7:45 AM	0	115	5	0	2	120	2	18	0	0	0	20	0	0	0	0	0	0	101	363	113	0	1	577	717
8:00 AM	0	106	5	0	0	111	6	44	0	0	0	50	0	0	0	0	1	0	95	312	77	0	0	484	645
8:15 AM	0	85	8	0	0	93	4	36	0	0	0	40	0	0	0	0	0	0	86	331	94	0	0	511	644
Total	0	423	31	0	4	454	15	121	0	0	0	136	0	0	0	0	1	0	359	1425	342	0	1	2126	2716
Approach %	0.0	93.2	6.8	0.0	-	-	11.0	89.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	16.9	67.0	16.1	0.0	-	-	-
Total %	0.0	15.6	1.1	0.0	-	16.7	0.6	4.5	0.0	0.0	-	5.0	0.0	0.0	0.0	0.0	-	0.0	13.2	52.5	12.6	0.0	-	78.3	-
PHF	0.000	0.904	0.596	0.000	-	0.873	0.625	0.688	0.000	0.000	-	0.680	0.000	0.000	0.000	0.000	-	0.000	0.889	0.850	0.757	0.000	-	0.921	0.947
Lights	0	418	30	0	-	448	11	116	0	0	-	127	0	0	0	0	-	0	356	1396	338	0	-	2090	2665
% Lights	-	98.8	96.8	-	-	98.7	73.3	95.9	-	-	-	93.4	-	-	-	-	-	-	99.2	98.0	98.8	-	-	98.3	98.1
Buses	0	4	1	0	-	5	4	3	0	0	-	7	0	0	0	0	-	0	3	7	0	0	-	10	22
% Buses	-	0.9	3.2	-	-	1.1	26.7	2.5	-	-	-	5.1	-	-	-	-	-	-	0.8	0.5	0.0	-	-	0.5	0.8
Single-Unit Trucks	0	1	0	0	-	1	0	1	0	0	-	1	0	0	0	0	-	0	0	14	3	0	-	17	19
% Single-Unit Trucks	-	0.2	0.0	-	-	0.2	0.0	0.8	-	-	-	0.7	-	-	-	-	-	-	0.0	1.0	0.9	-	-	0.8	0.7
Articulated Trucks	0	0	0	0	-	0	0	1	0	0	-	1	0	0	0	0	-	0	0	8	1	0	-	9	10
% Articulated Trucks	-	0.0	0.0	-	-	0.0	0.0	0.8	-	-	-	0.7	-	-	-	-	-	-	0.0	0.6	0.3	-	-	0.4	0.4
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	-	0.0	0.0	-	-	0.0	0.0	0.0	-	-	-	0.0	-	-	-	-	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	4	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-



Turning Movement Peak Hour Data Plot (7:30 AM)

Turning Movement Peak Hour Data (11:45 AM)

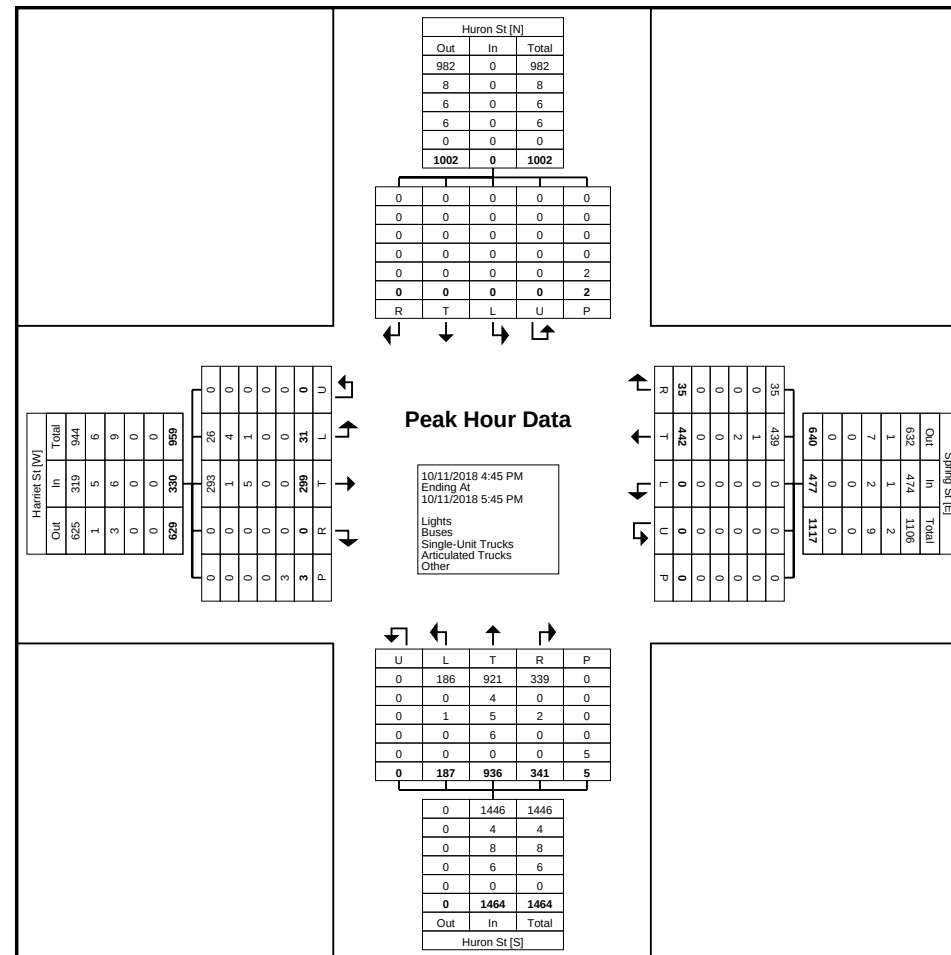
Start Time	Spring St Westbound						Harriet St Eastbound						Huron St Southbound						Huron St Northbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
11:45 AM	0	75	4	0	1	79	10	48	0	0	1	58	0	0	0	0	0	0	35	181	59	0	1	275	412
12:00 PM	0	70	10	0	0	80	6	39	0	0	1	45	0	0	0	0	0	0	41	217	48	0	2	306	431
12:15 PM	0	71	5	0	0	76	12	46	0	0	0	58	0	0	0	0	0	0	43	206	58	0	0	307	441
12:30 PM	0	74	7	0	0	81	11	37	0	0	0	48	0	0	0	0	5	0	49	197	58	0	0	304	433
Total	0	290	26	0	1	316	39	170	0	0	2	209	0	0	0	0	5	0	168	801	223	0	3	1192	1717
Approach %	0.0	91.8	8.2	0.0	-	-	18.7	81.3	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	14.1	67.2	18.7	0.0	-	-	-
Total %	0.0	16.9	1.5	0.0	-	18.4	2.3	9.9	0.0	0.0	-	12.2	0.0	0.0	0.0	0.0	-	0.0	9.8	46.7	13.0	0.0	-	69.4	-
PHF	0.000	0.967	0.650	0.000	-	0.975	0.813	0.885	0.000	0.000	-	0.901	0.000	0.000	0.000	0.000	-	0.000	0.857	0.923	0.945	0.000	-	0.971	0.973
Lights	0	287	25	0	-	312	35	164	0	0	-	199	0	0	0	0	-	0	162	782	218	0	-	1162	1673
% Lights	-	99.0	96.2	-	-	98.7	89.7	96.5	-	-	-	95.2	-	-	-	-	-	-	96.4	97.6	97.8	-	-	97.5	97.4
Buses	0	2	1	0	-	3	4	2	0	0	-	6	0	0	0	0	-	0	1	3	0	0	-	4	13
% Buses	-	0.7	3.8	-	-	0.9	10.3	1.2	-	-	-	2.9	-	-	-	-	-	-	0.6	0.4	0.0	-	-	0.3	0.8
Single-Unit Trucks	0	1	0	0	-	1	0	4	0	0	-	4	0	0	0	0	-	0	4	12	5	0	-	21	26
% Single-Unit Trucks	-	0.3	0.0	-	-	0.3	0.0	2.4	-	-	-	1.9	-	-	-	-	-	-	2.4	1.5	2.2	-	-	1.8	1.5
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	4	0	0	-	4	4
% Articulated Trucks	-	0.0	0.0	-	-	0.0	0.0	0.0	-	-	-	0.0	-	-	-	-	-	-	0.0	0.5	0.0	-	-	0.3	0.2
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	1	0	0	0	-	1	1
% Bicycles on Road	-	0.0	0.0	-	-	0.0	0.0	0.0	-	-	-	0.0	-	-	-	-	-	-	0.6	0.0	0.0	-	-	0.1	0.1
Bicycles on Crosswalk	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	100.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	5	-	-	-	-	-	3	-	-
% Pedestrians	-	-	-	-	0.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-



Turning Movement Peak Hour Data Plot (11:45 AM)

Turning Movement Peak Hour Data (4:45 PM)

Start Time	Spring St Westbound						Harriet St Eastbound						Huron St Southbound						Huron St Northbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
4:45 PM	0	110	11	0	0	121	7	93	0	0	0	100	0	0	0	0	2	0	45	248	81	0	5	374	595
5:00 PM	0	129	9	0	0	138	6	64	0	0	3	70	0	0	0	0	0	0	57	231	87	0	0	375	583
5:15 PM	0	106	5	0	0	111	7	79	0	0	0	86	0	0	0	0	0	0	42	236	90	0	0	368	565
5:30 PM	0	97	10	0	0	107	11	63	0	0	0	74	0	0	0	0	0	0	43	221	83	0	0	347	528
Total	0	442	35	0	0	477	31	299	0	0	3	330	0	0	0	0	2	0	187	936	341	0	5	1464	2271
Approach %	0.0	92.7	7.3	0.0	-	-	9.4	90.6	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	12.8	63.9	23.3	0.0	-	-	-
Total %	0.0	19.5	1.5	0.0	-	21.0	1.4	13.2	0.0	0.0	-	14.5	0.0	0.0	0.0	0.0	-	0.0	8.2	41.2	15.0	0.0	-	64.5	-
PHF	0.000	0.857	0.795	0.000	-	0.864	0.705	0.804	0.000	0.000	-	0.825	0.000	0.000	0.000	0.000	-	0.000	0.820	0.944	0.947	0.000	-	0.976	0.954
Lights	0	439	35	0	-	474	26	293	0	0	-	319	0	0	0	0	-	0	186	921	339	0	-	1446	2239
% Lights	-	99.3	100.0	-	-	99.4	83.9	98.0	-	-	-	96.7	-	-	-	-	-	-	99.5	98.4	99.4	-	-	98.8	98.6
Buses	0	1	0	0	-	1	4	1	0	0	-	5	0	0	0	0	-	0	0	4	0	0	-	4	10
% Buses	-	0.2	0.0	-	-	0.2	12.9	0.3	-	-	-	1.5	-	-	-	-	-	-	0.0	0.4	0.0	-	-	0.3	0.4
Single-Unit Trucks	0	2	0	0	-	2	1	5	0	0	-	6	0	0	0	0	-	0	1	5	2	0	-	8	16
% Single-Unit Trucks	-	0.5	0.0	-	-	0.4	3.2	1.7	-	-	-	1.8	-	-	-	-	-	-	0.5	0.5	0.6	-	-	0.5	0.7
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	6	0	0	-	6	6
% Articulated Trucks	-	0.0	0.0	-	-	0.0	0.0	0.0	-	-	-	0.0	-	-	-	-	-	-	0.0	0.6	0.0	-	-	0.4	0.3
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	-	0.0	0.0	-	-	0.0	0.0	0.0	-	-	-	0.0	-	-	-	-	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	20.0	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	3	-	-	-	-	-	2	-	-	-	-	-	4	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	80.0	-	-

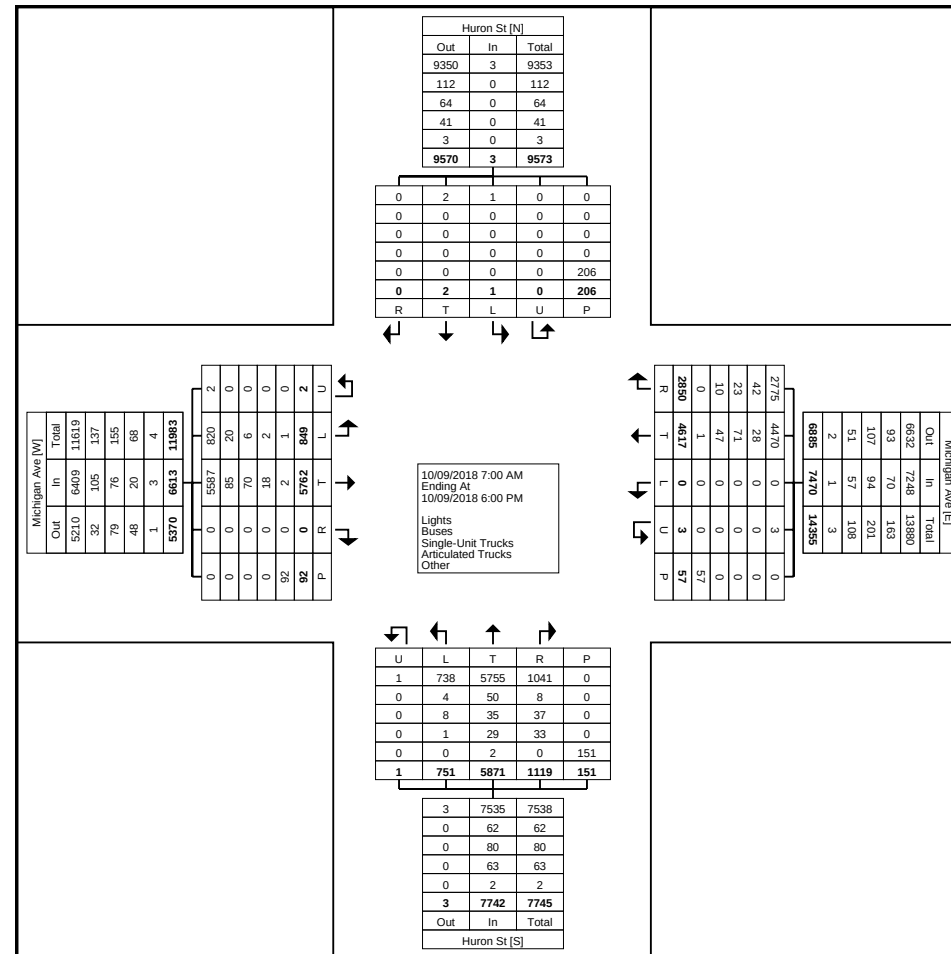


Turning Movement Peak Hour Data Plot (4:45 PM)

Turning Movement Data

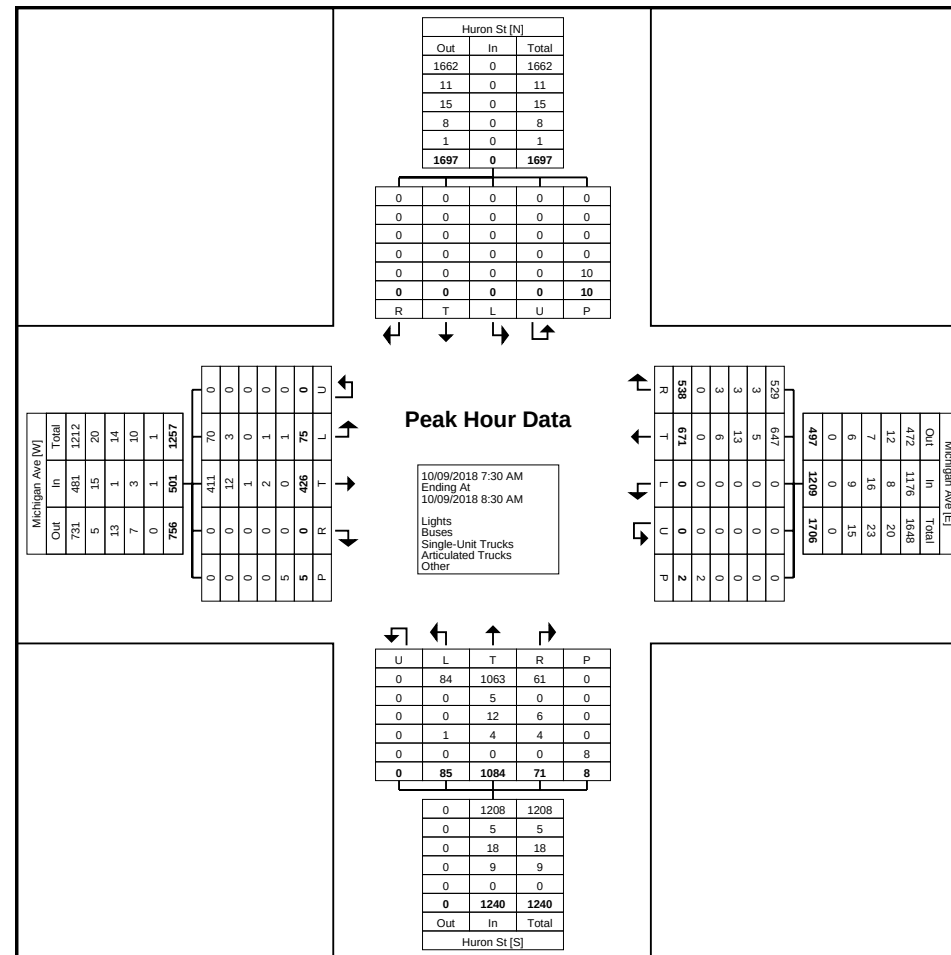
Start Time	Michigan Ave Westbound						Michigan Ave Eastbound						Huron St Southbound						Huron St Northbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:00 AM	0	103	78	0	0	181	6	78	0	0	1	84	0	0	0	0	4	0	19	163	15	0	1	197	462
7:15 AM	0	157	95	0	0	252	6	67	0	0	0	73	0	0	0	0	4	0	28	245	29	0	0	302	627
7:30 AM	0	194	146	0	1	340	13	101	0	0	0	114	0	0	0	0	1	0	29	285	8	0	0	322	776
7:45 AM	0	182	145	0	0	327	26	105	0	0	2	131	0	0	0	0	2	0	20	267	12	0	4	299	757
Hourly Total	0	636	464	0	1	1100	51	351	0	0	3	402	0	0	0	0	11	0	96	960	64	0	5	1120	2622
8:00 AM	0	138	119	0	1	257	17	104	0	0	1	121	0	0	0	0	3	0	16	267	22	0	2	305	683
8:15 AM	0	157	128	0	0	285	19	116	0	0	2	135	0	0	0	0	4	0	20	265	29	0	2	314	734
8:30 AM	0	159	154	0	2	313	25	133	0	0	2	158	0	0	0	0	4	0	25	268	11	0	3	304	775
8:45 AM	0	127	124	0	1	251	32	122	0	0	2	154	0	0	0	0	3	0	13	246	25	0	0	284	689
Hourly Total	0	581	525	0	4	1106	93	475	0	0	7	568	0	0	0	0	14	0	74	1046	87	0	7	1207	2881
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 AM	0	106	55	0	2	161	24	142	0	0	0	166	0	0	0	0	15	0	24	129	26	1	1	180	507
11:15 AM	0	119	77	0	5	196	28	159	0	0	4	187	0	0	0	0	4	0	27	126	39	0	3	192	575
11:30 AM	0	139	73	0	1	212	26	144	0	0	1	170	0	0	0	0	3	0	25	152	23	0	5	200	582
11:45 AM	0	132	70	0	2	202	20	157	0	0	3	177	0	0	0	0	8	0	23	140	32	0	2	195	574
Hourly Total	0	496	275	0	10	771	98	602	0	0	8	700	0	0	0	0	30	0	99	547	120	1	11	767	2238
12:00 PM	0	116	77	0	5	193	23	172	0	0	1	195	0	0	0	0	5	0	22	174	44	0	11	240	628
12:15 PM	0	129	90	0	1	219	20	164	0	1	8	185	0	0	0	0	15	0	32	179	36	0	4	247	651
12:30 PM	0	123	89	0	1	212	33	182	0	0	2	215	0	0	0	0	5	0	21	124	30	0	5	175	602
12:45 PM	0	138	63	0	0	201	37	164	0	1	3	202	0	0	0	0	19	0	20	130	38	0	13	188	591
Hourly Total	0	506	319	0	7	825	113	682	0	2	14	797	0	0	0	0	44	0	95	607	148	0	33	850	2472
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00 PM	0	134	69	0	0	203	18	197	0	0	7	215	0	0	0	0	4	0	16	139	28	0	8	183	601
2:15 PM	0	164	68	0	3	232	38	184	0	0	1	222	0	0	0	0	4	0	21	128	27	0	9	176	630
2:30 PM	0	150	74	0	5	224	15	187	0	0	2	202	0	0	0	0	3	0	18	135	30	0	6	183	609
2:45 PM	0	116	71	2	2	189	28	229	0	0	6	257	0	0	0	0	3	0	22	141	52	0	8	215	661
Hourly Total	0	564	282	2	10	848	99	797	0	0	16	896	0	0	0	0	14	0	77	543	137	0	31	757	2501
3:00 PM	0	142	74	0	3	216	17	189	0	0	7	206	0	0	0	0	6	0	27	164	47	0	6	238	660
3:15 PM	0	156	106	0	2	262	37	234	0	0	0	271	0	1	0	0	4	1	18	189	47	0	12	254	788
3:30 PM	0	149	66	0	2	215	34	312	0	0	2	346	0	0	0	0	6	0	20	164	54	0	5	238	799
3:45 PM	0	169	76	0	1	245	43	252	0	0	4	295	0	0	0	0	8	0	28	208	39	0	4	275	815
Hourly Total	0	616	322	0	8	938	131	987	0	0	13	1118	0	1	0	0	24	1	93	725	187	0	27	1005	3062
4:00 PM	0	133	69	0	0	202	30	208	0	0	4	238	0	0	0	0	4	0	17	179	40	0	11	236	676
4:15 PM	0	131	76	0	1	207	30	215	0	0	3	245	0	0	0	0	11	0	23	152	51	0	3	226	678
4:30 PM	0	161	86	0	1	247	29	252	0	0	3	281	0	0	0	0	12	0	24	176	48	0	2	248	776
4:45 PM	0	141	70	0	2	211	25	219	0	0	2	244	0	1	0	0	5	1	28	193	48	0	2	269	725
Hourly Total	0	566	301	0	4	867	114	894	0	0	12	1008	0	1	0	0	32	1	92	700	187	0	18	979	2855

5:00 PM	0	164	89	0	3	253	34	253	0	0	6	287	0	0	0	0	2	0	31	215	42	0	5	288	828
5:15 PM	0	166	105	0	2	271	37	244	0	0	1	281	0	0	0	0	16	0	28	164	62	0	5	254	806
5:30 PM	0	170	87	1	2	258	43	255	0	0	1	298	0	0	0	0	3	0	30	170	41	0	1	241	797
5:45 PM	0	152	81	0	6	233	36	222	0	0	11	258	1	0	0	0	16	1	36	194	44	0	8	274	766
Hourly Total	0	652	362	1	13	1015	150	974	0	0	19	1124	1	0	0	0	37	1	125	743	189	0	19	1057	3197
Grand Total	0	4617	2850	3	57	7470	849	5762	0	2	92	6613	1	2	0	0	206	3	751	5871	1119	1	151	7742	21828
Approach %	0.0	61.8	38.2	0.0	-	-	12.8	87.1	0.0	0.0	-	-	33.3	66.7	0.0	0.0	-	-	9.7	75.8	14.5	0.0	-	-	-
Total %	0.0	21.2	13.1	0.0	-	34.2	3.9	26.4	0.0	0.0	-	30.3	0.0	0.0	0.0	0.0	-	0.0	3.4	26.9	5.1	0.0	-	35.5	-
Lights	0	4470	2775	3	-	7248	820	5587	0	2	-	6409	1	2	0	0	-	3	738	5755	1041	1	-	7535	21195
% Lights	-	96.8	97.4	100.0	-	97.0	96.6	97.0	-	100.0	-	96.9	100.0	100.0	-	-	-	100.0	98.3	98.0	93.0	100.0	-	97.3	97.1
Buses	0	28	42	0	-	70	20	85	0	0	-	105	0	0	0	0	-	0	4	50	8	0	-	62	237
% Buses	-	0.6	1.5	0.0	-	0.9	2.4	1.5	-	0.0	-	1.6	0.0	0.0	-	-	-	0.0	0.5	0.9	0.7	0.0	-	0.8	1.1
Single-Unit Trucks	0	71	23	0	-	94	6	70	0	0	-	76	0	0	0	0	-	0	8	35	37	0	-	80	250
% Single-Unit Trucks	-	1.5	0.8	0.0	-	1.3	0.7	1.2	-	0.0	-	1.1	0.0	0.0	-	-	-	0.0	1.1	0.6	3.3	0.0	-	1.0	1.1
Articulated Trucks	0	47	10	0	-	57	2	18	0	0	-	20	0	0	0	0	-	0	1	29	33	0	-	63	140
% Articulated Trucks	-	1.0	0.4	0.0	-	0.8	0.2	0.3	-	0.0	-	0.3	0.0	0.0	-	-	-	0.0	0.1	0.5	2.9	0.0	-	0.8	0.6
Bicycles on Road	0	1	0	0	-	1	1	2	0	0	-	3	0	0	0	0	-	0	0	2	0	0	-	2	6
% Bicycles on Road	-	0.0	0.0	0.0	-	0.0	0.1	0.0	-	0.0	-	0.0	0.0	0.0	-	-	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	1	-	-	-	-	-	5	-	-	-	-	-	5	-	-	-	-	-	8	-	-
% Bicycles on Crosswalk	-	-	-	-	1.8	-	-	-	-	-	5.4	-	-	-	-	-	2.4	-	-	-	-	-	5.3	-	-
Pedestrians	-	-	-	-	56	-	-	-	-	-	87	-	-	-	-	-	201	-	-	-	-	-	143	-	-
% Pedestrians	-	-	-	-	98.2	-	-	-	-	-	94.6	-	-	-	-	-	97.6	-	-	-	-	-	94.7	-	-



Turning Movement Peak Hour Data (7:30 AM)

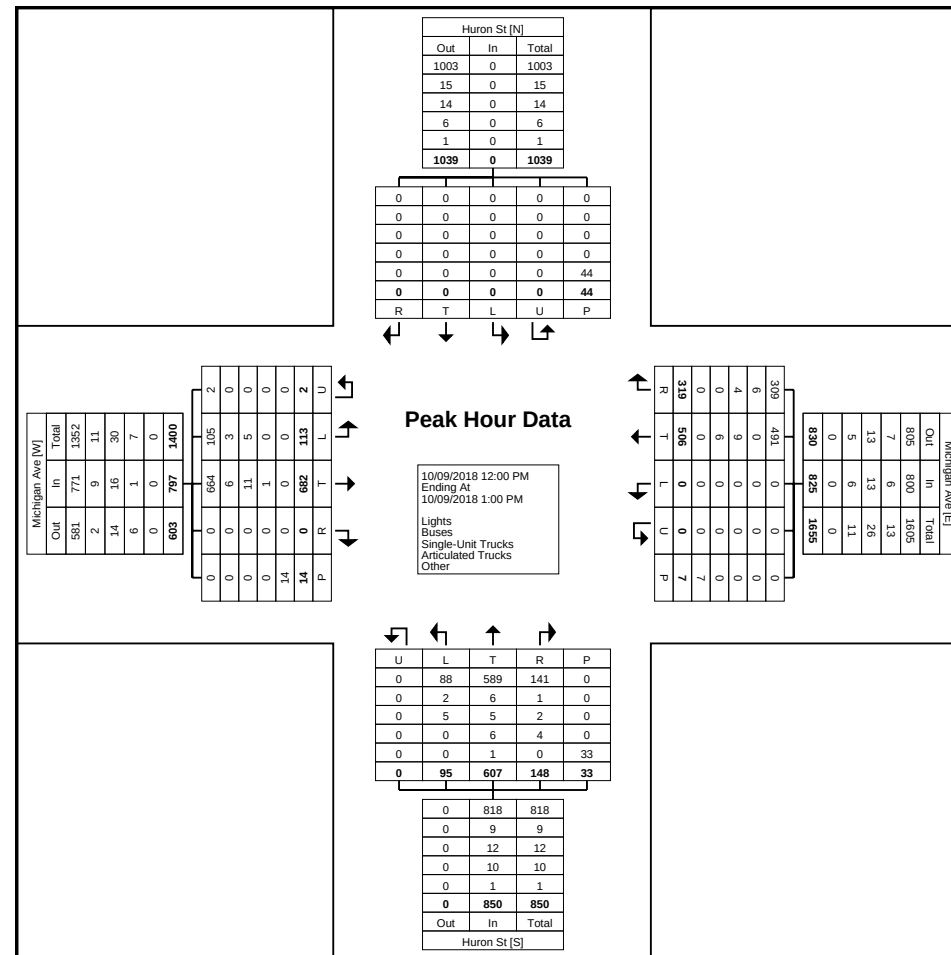
Start Time	Michigan Ave Westbound						Michigan Ave Eastbound						Huron St Southbound						Huron St Northbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:30 AM	0	194	146	0	1	340	13	101	0	0	0	114	0	0	0	0	1	0	29	285	8	0	0	322	776
7:45 AM	0	182	145	0	0	327	26	105	0	0	2	131	0	0	0	0	2	0	20	267	12	0	4	299	757
8:00 AM	0	138	119	0	1	257	17	104	0	0	1	121	0	0	0	0	3	0	16	267	22	0	2	305	683
8:15 AM	0	157	128	0	0	285	19	116	0	0	2	135	0	0	0	0	4	0	20	265	29	0	2	314	734
Total	0	671	538	0	2	1209	75	426	0	0	5	501	0	0	0	0	10	0	85	1084	71	0	8	1240	2950
Approach %	0.0	55.5	44.5	0.0	-	-	15.0	85.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	6.9	87.4	5.7	0.0	-	-	-
Total %	0.0	22.7	18.2	0.0	-	41.0	2.5	14.4	0.0	0.0	-	17.0	0.0	0.0	0.0	0.0	-	0.0	2.9	36.7	2.4	0.0	-	42.0	-
PHF	0.000	0.865	0.921	0.000	-	0.889	0.721	0.918	0.000	0.000	-	0.928	0.000	0.000	0.000	0.000	-	0.000	0.733	0.951	0.612	0.000	-	0.963	0.950
Lights	0	647	529	0	-	1176	70	411	0	0	-	481	0	0	0	0	-	0	84	1063	61	0	-	1208	2865
% Lights	-	96.4	98.3	-	-	97.3	93.3	96.5	-	-	-	96.0	-	-	-	-	-	-	98.8	98.1	85.9	-	-	97.4	97.1
Buses	0	5	3	0	-	8	3	12	0	0	-	15	0	0	0	0	-	0	0	5	0	0	-	5	28
% Buses	-	0.7	0.6	-	-	0.7	4.0	2.8	-	-	-	3.0	-	-	-	-	-	-	0.0	0.5	0.0	-	-	0.4	0.9
Single-Unit Trucks	0	13	3	0	-	16	0	1	0	0	-	1	0	0	0	0	-	0	0	12	6	0	-	18	35
% Single-Unit Trucks	-	1.9	0.6	-	-	1.3	0.0	0.2	-	-	-	0.2	-	-	-	-	-	-	0.0	1.1	8.5	-	-	1.5	1.2
Articulated Trucks	0	6	3	0	-	9	1	2	0	0	-	3	0	0	0	0	-	0	1	4	4	0	-	9	21
% Articulated Trucks	-	0.9	0.6	-	-	0.7	1.3	0.5	-	-	-	0.6	-	-	-	-	-	-	1.2	0.4	5.6	-	-	0.7	0.7
Bicycles on Road	0	0	0	0	-	0	1	0	0	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	1
% Bicycles on Road	-	0.0	0.0	-	-	0.0	1.3	0.0	-	-	-	0.2	-	-	-	-	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	3	-	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	30.0	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	2	-	-	-	-	-	5	-	-	-	-	7	-	-	-	-	-	-	8	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	70.0	-	-	-	-	-	-	100.0	-	-



Turning Movement Peak Hour Data Plot (7:30 AM)

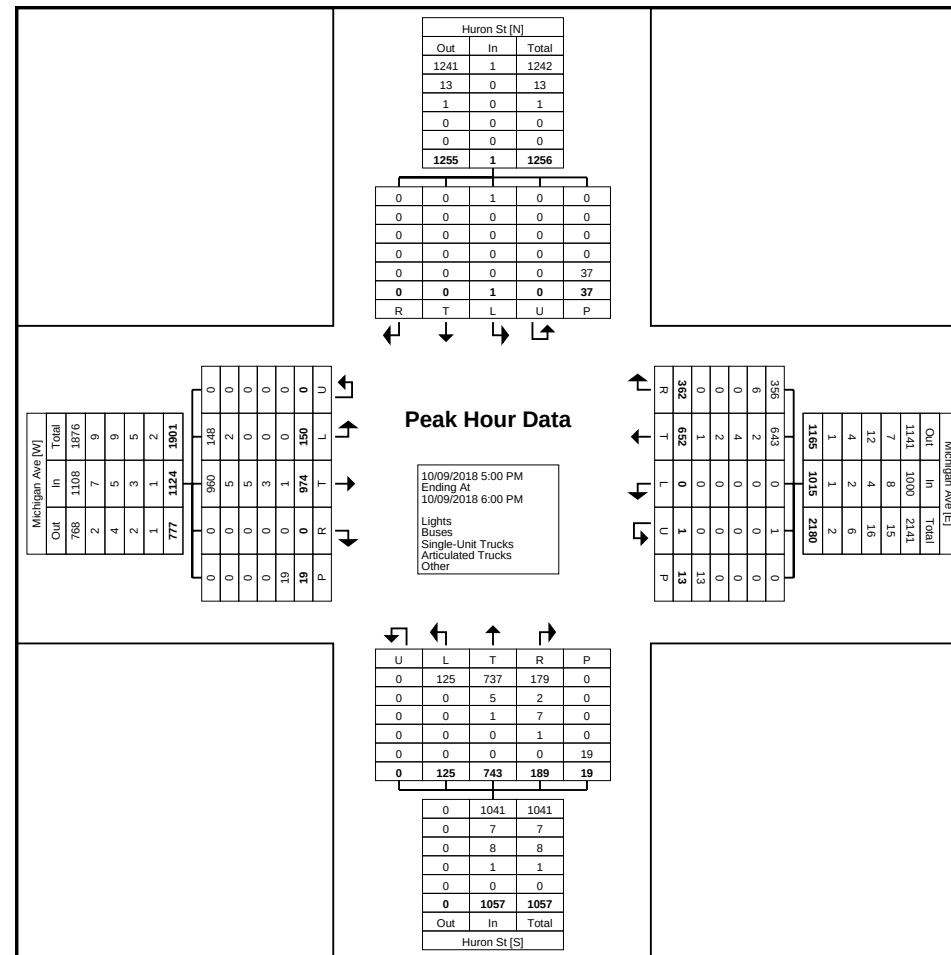
Turning Movement Peak Hour Data (12:00 PM)

Start Time	Michigan Ave Westbound						Michigan Ave Eastbound						Huron St Southbound						Huron St Northbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
12:00 PM	0	116	77	0	5	193	23	172	0	0	1	195	0	0	0	0	5	0	22	174	44	0	11	240	628
12:15 PM	0	129	90	0	1	219	20	164	0	1	8	185	0	0	0	0	15	0	32	179	36	0	4	247	651
12:30 PM	0	123	89	0	1	212	33	182	0	0	2	215	0	0	0	0	5	0	21	124	30	0	5	175	602
12:45 PM	0	138	63	0	0	201	37	164	0	1	3	202	0	0	0	0	19	0	20	130	38	0	13	188	591
Total	0	506	319	0	7	825	113	682	0	2	14	797	0	0	0	0	44	0	95	607	148	0	33	850	2472
Approach %	0.0	61.3	38.7	0.0	-	-	14.2	85.6	0.0	0.3	-	-	0.0	0.0	0.0	0.0	-	-	11.2	71.4	17.4	0.0	-	-	-
Total %	0.0	20.5	12.9	0.0	-	33.4	4.6	27.6	0.0	0.1	-	32.2	0.0	0.0	0.0	0.0	-	0.0	3.8	24.6	6.0	0.0	-	34.4	-
PHF	0.000	0.917	0.886	0.000	-	0.942	0.764	0.937	0.000	0.500	-	0.927	0.000	0.000	0.000	0.000	-	0.000	0.742	0.848	0.841	0.000	-	0.860	0.949
Lights	0	491	309	0	-	800	105	664	0	2	-	771	0	0	0	0	-	0	88	589	141	0	-	818	2389
% Lights	-	97.0	96.9	-	-	97.0	92.9	97.4	-	100.0	-	96.7	-	-	-	-	-	-	92.6	97.0	95.3	-	-	96.2	96.6
Buses	0	0	6	0	-	6	3	6	0	0	-	9	0	0	0	0	-	0	2	6	1	0	-	9	24
% Buses	-	0.0	1.9	-	-	0.7	2.7	0.9	-	0.0	-	1.1	-	-	-	-	-	-	2.1	1.0	0.7	-	-	1.1	1.0
Single-Unit Trucks	0	9	4	0	-	13	5	11	0	0	-	16	0	0	0	0	-	0	5	5	2	0	-	12	41
% Single-Unit Trucks	-	1.8	1.3	-	-	1.6	4.4	1.6	-	0.0	-	2.0	-	-	-	-	-	-	5.3	0.8	1.4	-	-	1.4	1.7
Articulated Trucks	0	6	0	0	-	6	0	1	0	0	-	1	0	0	0	0	-	0	0	6	4	0	-	10	17
% Articulated Trucks	-	1.2	0.0	-	-	0.7	0.0	0.1	-	0.0	-	0.1	-	-	-	-	-	-	0.0	1.0	2.7	-	-	1.2	0.7
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	1
% Bicycles on Road	-	0.0	0.0	-	-	0.0	0.0	0.0	-	0.0	-	0.0	-	-	-	-	-	-	0.0	0.2	0.0	-	-	0.1	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	4	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	14.3	-	-	-	-	-	0.0	-	-	-	-	-	12.1	-	-
Pedestrians	-	-	-	-	7	-	-	-	-	-	12	-	-	-	-	-	44	-	-	-	-	-	29	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	85.7	-	-	-	-	-	100.0	-	-	-	-	-	87.9	-	-



Turning Movement Peak Hour Data (5:00 PM)

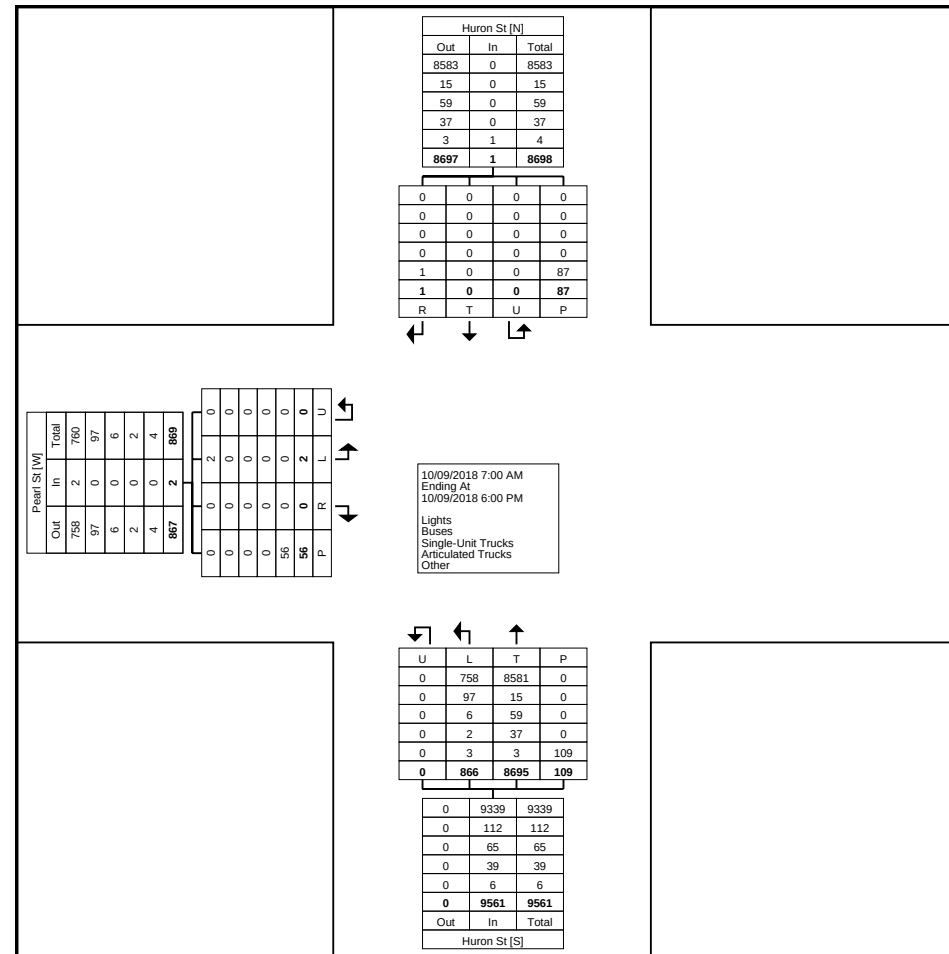
Start Time	Michigan Ave Westbound						Michigan Ave Eastbound						Huron St Southbound						Huron St Northbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
5:00 PM	0	164	89	0	3	253	34	253	0	0	6	287	0	0	0	0	2	0	31	215	42	0	5	288	828
5:15 PM	0	166	105	0	2	271	37	244	0	0	1	281	0	0	0	0	16	0	28	164	62	0	5	254	806
5:30 PM	0	170	87	1	2	258	43	255	0	0	1	298	0	0	0	0	3	0	30	170	41	0	1	241	797
5:45 PM	0	152	81	0	6	233	36	222	0	0	11	258	1	0	0	0	16	1	36	194	44	0	8	274	766
Total	0	652	362	1	13	1015	150	974	0	0	19	1124	1	0	0	0	37	1	125	743	189	0	19	1057	3197
Approach %	0.0	64.2	35.7	0.1	-	-	13.3	86.7	0.0	0.0	-	-	100.0	0.0	0.0	0.0	-	-	11.8	70.3	17.9	0.0	-	-	-
Total %	0.0	20.4	11.3	0.0	-	31.7	4.7	30.5	0.0	0.0	-	35.2	0.0	0.0	0.0	0.0	-	0.0	3.9	23.2	5.9	0.0	-	33.1	-
PHF	0.000	0.959	0.862	0.250	-	0.936	0.872	0.955	0.000	0.000	-	0.943	0.250	0.000	0.000	0.000	-	0.250	0.868	0.864	0.762	0.000	-	0.918	0.965
Lights	0	643	356	1	-	1000	148	960	0	0	-	1108	1	0	0	0	-	1	125	737	179	0	-	1041	3150
% Lights	-	98.6	98.3	100.0	-	98.5	98.7	98.6	-	-	-	98.6	100.0	-	-	-	-	100.0	100.0	99.2	94.7	-	-	98.5	98.5
Buses	0	2	6	0	-	8	2	5	0	0	-	7	0	0	0	0	-	0	0	5	2	0	-	7	22
% Buses	-	0.3	1.7	0.0	-	0.8	1.3	0.5	-	-	-	0.6	0.0	-	-	-	-	0.0	0.0	0.7	1.1	-	-	0.7	0.7
Single-Unit Trucks	0	4	0	0	-	4	0	5	0	0	-	5	0	0	0	0	-	0	0	1	7	0	-	8	17
% Single-Unit Trucks	-	0.6	0.0	0.0	-	0.4	0.0	0.5	-	-	-	0.4	0.0	-	-	-	-	0.0	0.0	0.1	3.7	-	-	0.8	0.5
Articulated Trucks	0	2	0	0	-	2	0	3	0	0	-	3	0	0	0	0	-	0	0	0	1	0	-	1	6
% Articulated Trucks	-	0.3	0.0	0.0	-	0.2	0.0	0.3	-	-	-	0.3	0.0	-	-	-	-	0.0	0.0	0.0	0.5	-	-	0.1	0.2
Bicycles on Road	0	1	0	0	-	1	0	1	0	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	2
% Bicycles on Road	-	0.2	0.0	0.0	-	0.1	0.0	0.1	-	-	-	0.1	0.0	-	-	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.1
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	5.3	-	-
Pedestrians	-	-	-	-	13	-	-	-	-	-	19	-	-	-	-	-	37	-	-	-	-	-	18	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	94.7	-	-



Turning Movement Data

Start Time	Pearl St Eastbound					Huron St Southbound					Huron St Northbound					Int. Total
	Left	Right	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	
7:00 AM	0	0	0	0	0	0	0	0	0	0	12	232	0	0	244	244
7:15 AM	0	0	0	2	0	0	0	0	0	0	11	337	0	0	348	348
7:30 AM	0	0	0	0	0	0	0	0	2	0	13	435	0	1	448	448
7:45 AM	0	0	0	0	0	0	0	0	0	0	18	438	0	2	456	456
Hourly Total	0	0	0	2	0	0	0	0	2	0	54	1442	0	3	1496	1496
8:00 AM	0	0	0	0	0	0	0	0	6	0	20	383	0	5	403	403
8:15 AM	0	0	0	1	0	0	0	0	2	0	22	395	0	3	417	417
8:30 AM	0	0	0	1	0	0	0	0	0	0	28	422	0	0	450	450
8:45 AM	0	0	0	1	0	0	0	0	2	0	24	387	0	2	411	411
Hourly Total	0	0	0	3	0	0	0	0	10	0	94	1587	0	10	1681	1681
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 AM	0	0	0	2	0	0	0	0	4	0	24	177	0	7	201	201
11:15 AM	0	0	0	2	0	0	0	0	0	0	35	200	0	3	235	235
11:30 AM	0	0	0	0	0	0	0	0	7	0	18	219	0	4	237	237
11:45 AM	1	0	0	2	1	0	0	0	0	0	30	204	0	2	234	235
Hourly Total	1	0	0	6	1	0	0	0	11	0	107	800	0	16	907	908
12:00 PM	1	0	0	2	1	0	0	0	0	0	21	250	0	0	271	272
12:15 PM	0	0	0	3	0	0	0	0	0	0	23	274	0	3	297	297
12:30 PM	0	0	0	1	0	0	0	0	4	0	34	206	0	2	240	240
12:45 PM	0	0	0	1	0	0	0	0	1	0	44	191	0	4	235	235
Hourly Total	1	0	0	7	1	0	0	0	5	0	122	921	0	9	1043	1044
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00 PM	0	0	0	0	0	0	0	0	0	0	30	180	0	1	210	210
2:15 PM	0	0	0	4	0	0	0	0	3	0	24	219	0	1	243	243
2:30 PM	0	0	0	0	0	0	0	0	0	0	26	209	0	3	235	235
2:45 PM	0	0	0	4	0	0	0	0	1	0	31	217	0	3	248	248
Hourly Total	0	0	0	8	0	0	0	0	4	0	111	825	0	8	936	936
3:00 PM	0	0	0	1	0	0	0	0	4	0	25	227	0	5	252	252
3:15 PM	0	0	0	1	0	0	0	0	4	0	33	295	0	3	328	328
3:30 PM	0	0	0	1	0	0	0	0	1	0	23	243	0	6	266	266
3:45 PM	0	0	0	6	0	0	0	0	4	0	36	270	0	8	306	306
Hourly Total	0	0	0	9	0	0	0	0	13	0	117	1035	0	22	1152	1152
4:00 PM	0	0	0	4	0	0	0	0	5	0	29	246	0	5	275	275
4:15 PM	0	0	0	2	0	0	0	0	6	0	31	229	0	3	260	260
4:30 PM	0	0	0	3	0	0	0	0	3	0	32	264	0	3	296	296
4:45 PM	0	0	0	4	0	0	0	0	3	0	30	246	0	3	276	276
Hourly Total	0	0	0	13	0	0	0	0	17	0	122	985	0	14	1107	1107
5:00 PM	0	0	0	4	0	0	1	0	2	1	39	312	0	5	351	352

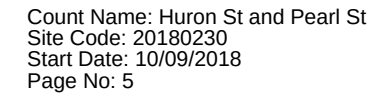
5:15 PM	0	0	0	2	0	0	0	0	7	0	31	272	0	7	303	303
5:30 PM	0	0	0	0	0	0	0	0	1	0	21	265	0	4	286	286
5:45 PM	0	0	0	2	0	0	0	0	15	0	48	251	0	11	299	299
Hourly Total	0	0	0	8	0	0	1	0	25	1	139	1100	0	27	1239	1240
Grand Total	2	0	0	56	2	0	1	0	87	1	866	8695	0	109	9561	9564
Approach %	100.0	0.0	0.0	-	-	0.0	100.0	0.0	-	-	9.1	90.9	0.0	-	-	-
Total %	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	9.1	90.9	0.0	-	100.0	-
Lights	2	0	0	-	2	0	0	0	-	0	758	8581	0	-	9339	9341
% Lights	100.0	-	-	-	100.0	-	0.0	-	-	0.0	87.5	98.7	-	-	97.7	97.7
Buses	0	0	0	-	0	0	0	0	-	0	97	15	0	-	112	112
% Buses	0.0	-	-	-	0.0	-	0.0	-	-	0.0	11.2	0.2	-	-	1.2	1.2
Single-Unit Trucks	0	0	0	-	0	0	0	0	-	0	6	59	0	-	65	65
% Single-Unit Trucks	0.0	-	-	-	0.0	-	0.0	-	-	0.0	0.7	0.7	-	-	0.7	0.7
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	2	37	0	-	39	39
% Articulated Trucks	0.0	-	-	-	0.0	-	0.0	-	-	0.0	0.2	0.4	-	-	0.4	0.4
Bicycles on Road	0	0	0	-	0	0	1	0	-	1	3	3	0	-	6	7
% Bicycles on Road	0.0	-	-	-	0.0	-	100.0	-	-	100.0	0.3	0.0	-	-	0.1	0.1
Bicycles on Crosswalk	-	-	-	5	-	-	-	-	4	-	-	-	-	7	-	-
% Bicycles on Crosswalk	-	-	-	8.9	-	-	-	-	4.6	-	-	-	-	6.4	-	-
Pedestrians	-	-	-	51	-	-	-	-	83	-	-	-	-	102	-	-
% Pedestrians	-	-	-	91.1	-	-	-	-	95.4	-	-	-	-	93.6	-	-



Turning Movement Data Plot

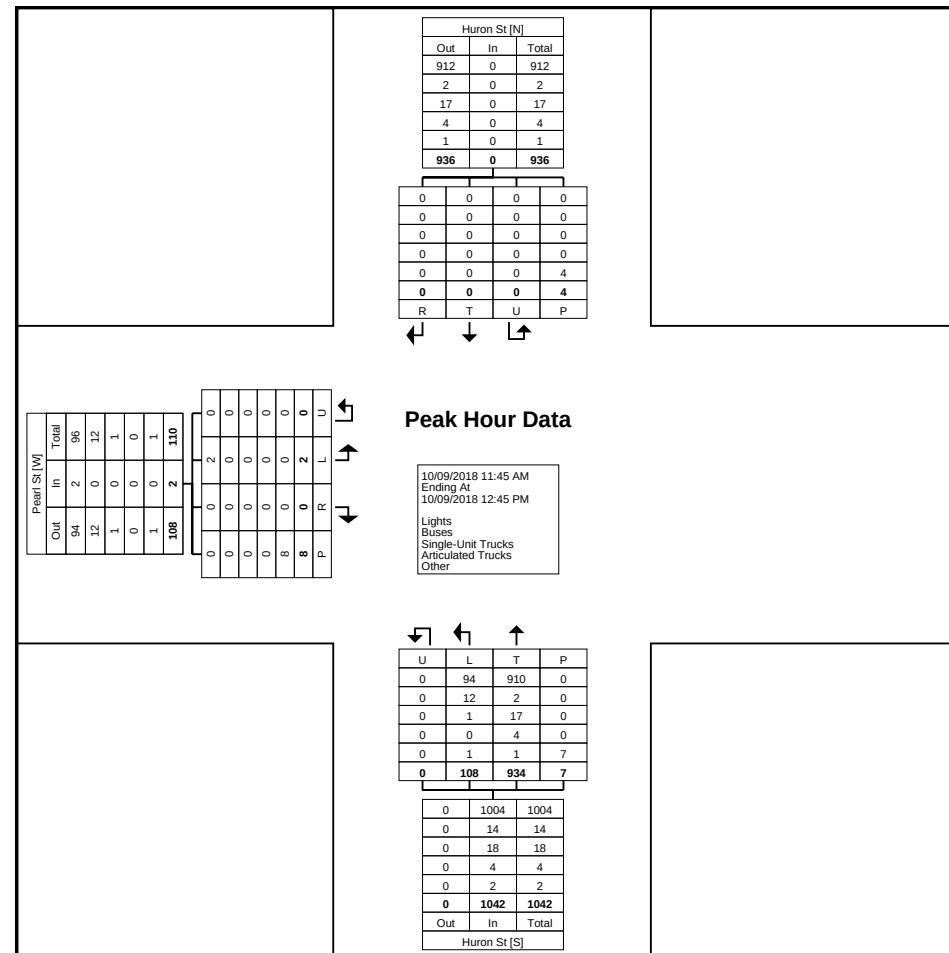
Turning Movement Peak Hour Data (7:45 AM)

Start Time	Pearl St Eastbound					Huron St Southbound					Huron St Northbound					Int. Total
	Left	Right	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	
7:45 AM	0	0	0	0	0	0	0	0	0	0	18	438	0	2	456	456
8:00 AM	0	0	0	0	0	0	0	0	6	0	20	383	0	5	403	403
8:15 AM	0	0	0	1	0	0	0	0	2	0	22	395	0	3	417	417
8:30 AM	0	0	0	1	0	0	0	0	0	0	28	422	0	0	450	450
Total	0	0	0	2	0	0	0	0	8	0	88	1638	0	10	1726	1726
Approach %	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	5.1	94.9	0.0	-	-	-
Total %	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	5.1	94.9	0.0	-	100.0	-
PHF	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	-	0.000	0.786	0.935	0.000	-	0.946	0.946
Lights	0	0	0	-	0	0	0	0	-	0	73	1613	0	-	1686	1686
% Lights	-	-	-	-	-	-	-	-	-	-	83.0	98.5	-	-	97.7	97.7
Buses	0	0	0	-	0	0	0	0	-	0	12	3	0	-	15	15
% Buses	-	-	-	-	-	-	-	-	-	-	13.6	0.2	-	-	0.9	0.9
Single-Unit Trucks	0	0	0	-	0	0	0	0	-	0	2	16	0	-	18	18
% Single-Unit Trucks	-	-	-	-	-	-	-	-	-	-	2.3	1.0	-	-	1.0	1.0
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	1	6	0	-	7	7
% Articulated Trucks	-	-	-	-	-	-	-	-	-	-	1.1	0.4	-	-	0.4	0.4
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	-	-	-	-	-	-	-	-	-	-	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	1	-	-	-	-	1	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	12.5	-	-	-	-	10.0	-	-
Pedestrians	-	-	-	2	-	-	-	-	7	-	-	-	-	9	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	87.5	-	-	-	-	90.0	-	-



Turning Movement Peak Hour Data (11:45 AM)

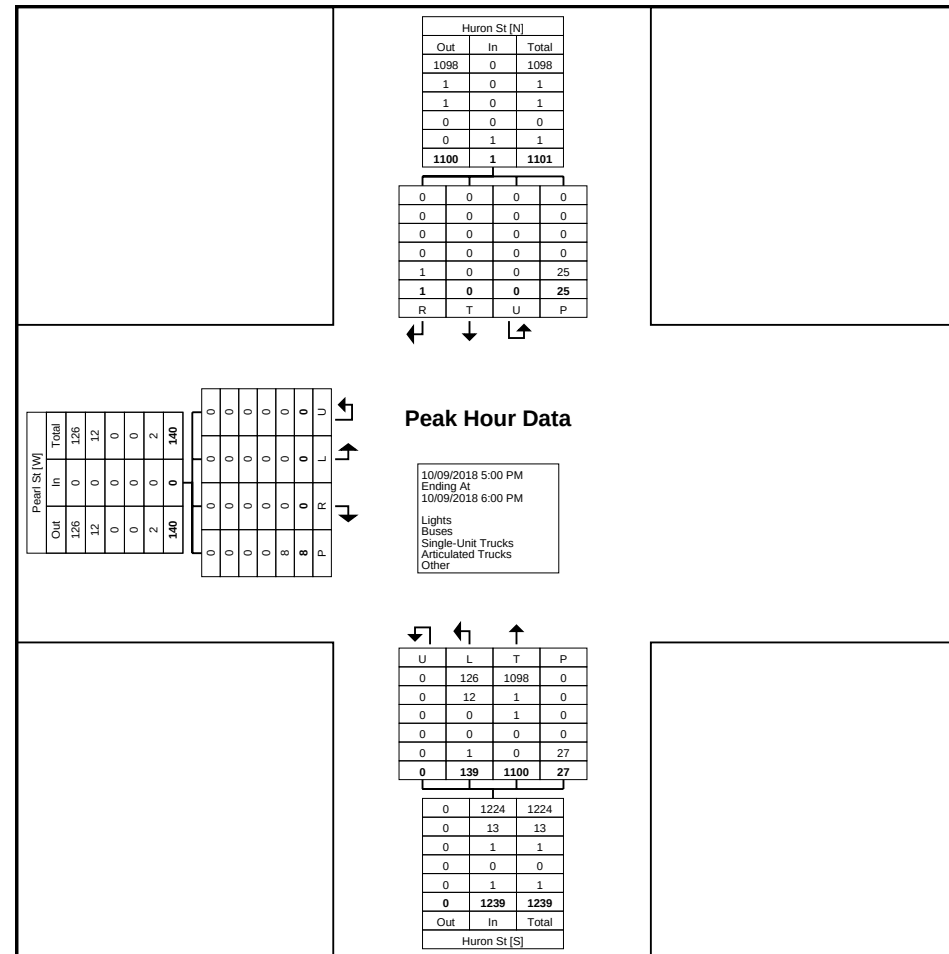
Start Time	Pearl St Eastbound					Huron St Southbound					Huron St Northbound					Int. Total
	Left	Right	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	
11:45 AM	1	0	0	2	1	0	0	0	0	0	30	204	0	2	234	235
12:00 PM	1	0	0	2	1	0	0	0	0	0	21	250	0	0	271	272
12:15 PM	0	0	0	3	0	0	0	0	0	0	23	274	0	3	297	297
12:30 PM	0	0	0	1	0	0	0	0	4	0	34	206	0	2	240	240
Total	2	0	0	8	2	0	0	0	4	0	108	934	0	7	1042	1044
Approach %	100.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	10.4	89.6	0.0	-	-	-
Total %	0.2	0.0	0.0	-	0.2	0.0	0.0	0.0	-	0.0	10.3	89.5	0.0	-	99.8	-
PHF	0.500	0.000	0.000	-	0.500	0.000	0.000	0.000	-	0.000	0.794	0.852	0.000	-	0.877	0.879
Lights	2	0	0	-	2	0	0	0	-	0	94	910	0	-	1004	1006
% Lights	100.0	-	-	-	100.0	-	-	-	-	-	87.0	97.4	-	-	96.4	96.4
Buses	0	0	0	-	0	0	0	0	-	0	12	2	0	-	14	14
% Buses	0.0	-	-	-	0.0	-	-	-	-	-	11.1	0.2	-	-	1.3	1.3
Single-Unit Trucks	0	0	0	-	0	0	0	0	-	0	1	17	0	-	18	18
% Single-Unit Trucks	0.0	-	-	-	0.0	-	-	-	-	-	0.9	1.8	-	-	1.7	1.7
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	0	4	0	-	4	4
% Articulated Trucks	0.0	-	-	-	0.0	-	-	-	-	-	0.0	0.4	-	-	0.4	0.4
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	1	1	0	-	2	2
% Bicycles on Road	0.0	-	-	-	0.0	-	-	-	-	-	0.9	0.1	-	-	0.2	0.2
Bicycles on Crosswalk	-	-	-	1	-	-	-	-	1	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	12.5	-	-	-	-	25.0	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	7	-	-	-	-	3	-	-	-	-	7	-	-
% Pedestrians	-	-	-	87.5	-	-	-	-	75.0	-	-	-	-	100.0	-	-



Turning Movement Peak Hour Data Plot (11:45 AM)

Turning Movement Peak Hour Data (5:00 PM)

Start Time	Pearl St Eastbound					Huron St Southbound					Huron St Northbound					Int. Total
	Left	Right	U-Turn	Peds	App. Total	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	U-Turn	Peds	App. Total	
5:00 PM	0	0	0	4	0	0	1	0	2	1	39	312	0	5	351	352
5:15 PM	0	0	0	2	0	0	0	0	7	0	31	272	0	7	303	303
5:30 PM	0	0	0	0	0	0	0	0	1	0	21	265	0	4	286	286
5:45 PM	0	0	0	2	0	0	0	0	15	0	48	251	0	11	299	299
Total	0	0	0	8	0	0	1	0	25	1	139	1100	0	27	1239	1240
Approach %	0.0	0.0	0.0	-	-	0.0	100.0	0.0	-	-	11.2	88.8	0.0	-	-	-
Total %	0.0	0.0	0.0	-	0.0	0.0	0.1	0.0	-	0.1	11.2	88.7	0.0	-	99.9	-
PHF	0.000	0.000	0.000	-	0.000	0.000	0.250	0.000	-	0.250	0.724	0.881	0.000	-	0.882	0.881
Lights	0	0	0	-	0	0	0	0	-	0	126	1098	0	-	1224	1224
% Lights	-	-	-	-	-	-	0.0	-	-	0.0	90.6	99.8	-	-	98.8	98.7
Buses	0	0	0	-	0	0	0	0	-	0	12	1	0	-	13	13
% Buses	-	-	-	-	-	-	0.0	-	-	0.0	8.6	0.1	-	-	1.0	1.0
Single-Unit Trucks	0	0	0	-	0	0	0	0	-	0	0	1	0	-	1	1
% Single-Unit Trucks	-	-	-	-	-	-	0.0	-	-	0.0	0.0	0.1	-	-	0.1	0.1
Articulated Trucks	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Articulated Trucks	-	-	-	-	-	-	0.0	-	-	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Road	0	0	0	-	0	0	1	0	-	1	1	0	0	-	1	2
% Bicycles on Road	-	-	-	-	-	-	100.0	-	-	100.0	0.7	0.0	-	-	0.1	0.2
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	0.0	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	8	-	-	-	-	25	-	-	-	-	27	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	100.0	-	-

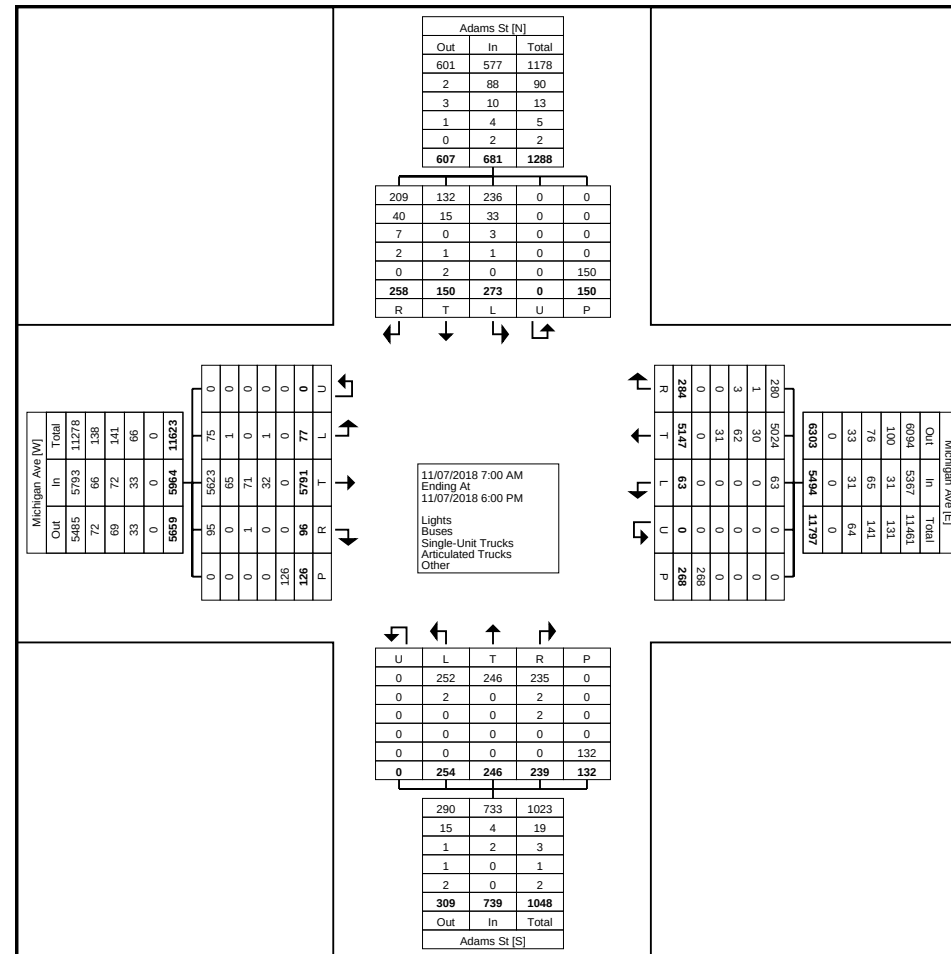


Turning Movement Peak Hour Data Plot (5:00 PM)

Turning Movement Data

Start Time	Michigan Ave Westbound						Michigan Ave Eastbound						Adams St Southbound						Adams St Northbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:00 AM	0	136	2	0	1	138	0	78	0	0	1	78	2	3	6	0	0	11	6	2	0	0	0	8	235
7:15 AM	0	183	1	0	1	184	0	89	2	0	2	91	2	1	4	0	3	7	7	4	3	0	0	14	296
7:30 AM	0	204	5	0	2	209	0	130	2	0	0	132	6	2	3	0	1	11	14	5	4	0	2	23	375
7:45 AM	1	211	7	0	6	219	1	126	4	0	1	131	2	1	6	0	1	9	18	22	2	0	2	42	401
Hourly Total	1	734	15	0	10	750	1	423	8	0	4	432	12	7	19	0	5	38	45	33	9	0	4	87	1307
8:00 AM	0	170	11	0	3	181	0	131	0	0	1	131	8	4	4	0	3	16	7	9	5	0	1	21	349
8:15 AM	0	163	6	0	1	169	1	142	0	0	1	143	4	3	5	0	1	12	4	3	0	0	3	7	331
8:30 AM	2	154	9	0	3	165	0	128	6	0	4	134	11	2	7	0	2	20	4	11	1	0	1	16	335
8:45 AM	1	145	9	0	2	155	0	129	3	0	2	132	4	3	4	0	2	11	9	12	3	0	2	24	322
Hourly Total	3	632	35	0	9	670	1	530	9	0	8	540	27	12	20	0	8	59	24	35	9	0	7	68	1337
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 AM	5	115	17	0	8	137	11	139	4	0	2	154	6	4	7	0	5	17	12	7	8	0	2	27	335
11:15 AM	3	117	21	0	13	141	7	160	2	0	10	169	10	5	5	0	12	20	9	7	10	0	12	26	356
11:30 AM	7	144	15	0	11	166	2	130	2	0	4	134	8	6	6	0	7	20	3	7	8	0	5	18	338
11:45 AM	6	139	8	0	7	153	6	148	1	0	8	155	7	1	5	0	7	13	4	4	8	0	9	16	337
Hourly Total	21	515	61	0	39	597	26	577	9	0	24	612	31	16	23	0	31	70	28	25	34	0	28	87	1366
12:00 PM	1	142	8	0	9	151	3	156	2	0	3	161	5	7	10	0	4	22	9	13	12	0	6	34	368
12:15 PM	6	121	10	0	8	137	2	185	5	0	6	192	7	4	6	0	2	17	4	8	11	0	3	23	369
12:30 PM	3	131	9	0	10	143	7	162	3	0	8	172	12	6	4	0	6	22	19	9	11	0	11	39	376
12:45 PM	4	152	12	0	12	168	7	184	1	0	9	192	8	3	14	0	6	25	5	6	11	0	4	22	407
Hourly Total	14	546	39	0	39	599	19	687	11	0	26	717	32	20	34	0	18	86	37	36	45	0	24	118	1520
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00 PM	2	148	16	0	13	166	8	186	1	0	6	195	16	8	12	0	5	36	5	8	5	0	7	18	415
2:15 PM	3	161	9	0	19	173	4	171	3	0	4	178	7	2	11	0	8	20	6	9	5	0	4	20	391
2:30 PM	1	178	12	0	7	191	4	167	4	0	8	175	8	4	7	0	3	19	14	5	6	0	4	25	410
2:45 PM	4	168	3	0	8	175	2	173	4	0	4	179	11	7	11	0	3	29	6	8	10	0	10	24	407
Hourly Total	10	655	40	0	47	705	18	697	12	0	22	727	42	21	41	0	19	104	31	30	26	0	25	87	1623
3:00 PM	1	178	5	0	5	184	0	216	2	0	2	218	7	6	10	0	7	23	6	7	10	0	3	23	448
3:15 PM	2	161	6	0	10	169	0	227	9	0	5	236	8	3	13	0	2	24	12	3	7	0	0	22	451
3:30 PM	1	193	12	0	4	206	0	246	6	0	5	252	9	4	17	0	5	30	6	4	10	0	5	20	508
3:45 PM	1	176	10	0	9	187	1	265	5	0	6	271	9	10	12	0	7	31	13	11	9	0	3	33	522
Hourly Total	5	708	33	0	28	746	1	954	22	0	18	977	33	23	52	0	21	108	37	25	36	0	11	98	1929
4:00 PM	0	171	7	0	14	178	0	212	5	0	4	217	12	5	11	0	9	28	10	6	11	0	6	27	450
4:15 PM	0	157	12	0	18	169	2	225	4	0	3	231	8	6	5	0	7	19	13	8	11	0	6	32	451
4:30 PM	1	165	7	0	8	173	3	243	6	0	2	252	19	6	3	0	3	28	8	10	18	0	1	36	489
4:45 PM	2	170	10	0	8	182	0	237	1	0	2	238	5	3	11	0	10	19	7	9	13	0	4	29	468
Hourly Total	3	663	36	0	48	702	5	917	16	0	11	938	44	20	30	0	29	94	38	33	53	0	17	124	1858

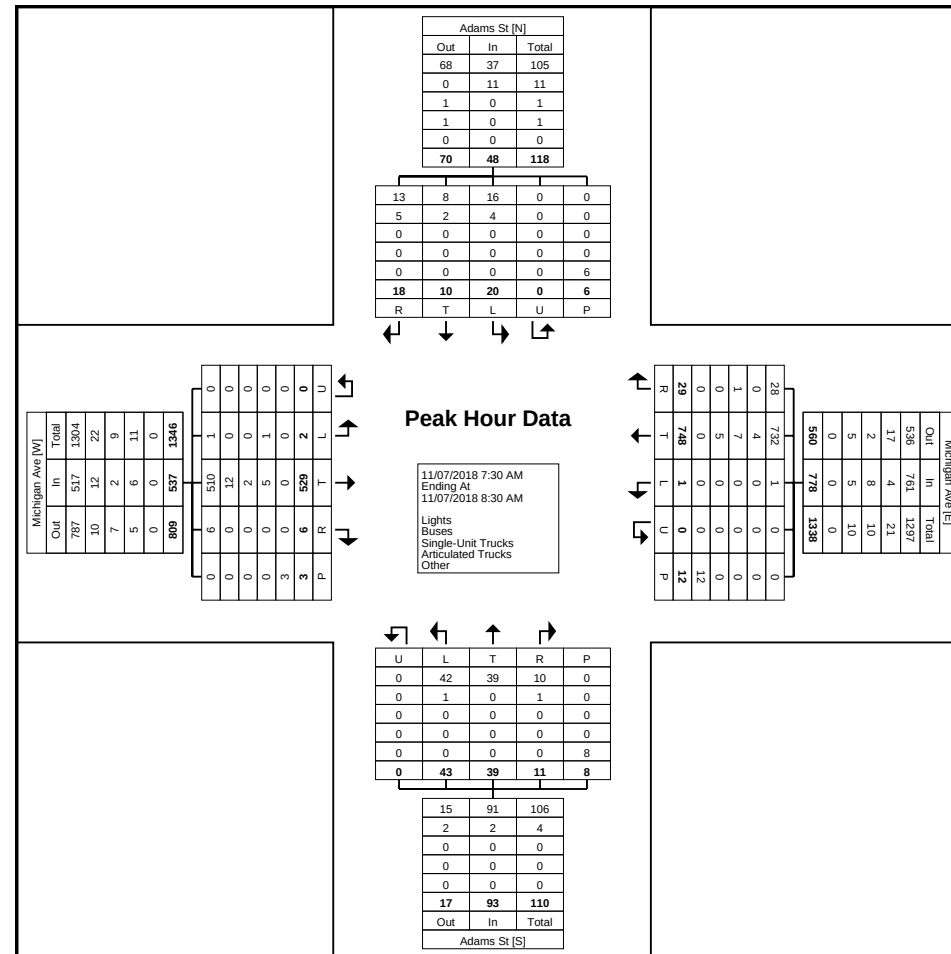
5:00 PM	2	169	4	0	10	175	1	270	2	0	5	273	13	13	12	0	5	38	5	12	13	0	3	30	516
5:15 PM	2	178	5	0	13	185	1	267	2	0	2	270	17	4	6	0	3	27	1	6	7	0	1	14	496
5:30 PM	1	194	10	0	11	205	0	249	4	0	4	253	16	8	9	0	2	33	4	5	3	0	6	12	503
5:45 PM	1	153	6	0	14	160	4	220	1	0	2	225	6	6	12	0	9	24	4	6	4	0	6	14	423
Hourly Total	6	694	25	0	48	725	6	1006	9	0	13	1021	52	31	39	0	19	122	14	29	27	0	16	70	1938
Grand Total	63	5147	284	0	268	5494	77	5791	96	0	126	5964	273	150	258	0	150	681	254	246	239	0	132	739	12878
Approach %	1.1	93.7	5.2	0.0	-	-	1.3	97.1	1.6	0.0	-	-	40.1	22.0	37.9	0.0	-	-	34.4	33.3	32.3	0.0	-	-	-
Total %	0.5	40.0	2.2	0.0	-	42.7	0.6	45.0	0.7	0.0	-	46.3	2.1	1.2	2.0	0.0	-	5.3	2.0	1.9	1.9	0.0	-	5.7	-
Lights	63	5024	280	0	-	5367	75	5623	95	0	-	5793	236	132	209	0	-	577	252	246	235	0	-	733	12470
% Lights	100.0	97.6	98.6	-	-	97.7	97.4	97.1	99.0	-	-	97.1	86.4	88.0	81.0	-	-	84.7	99.2	100.0	98.3	-	-	99.2	96.8
Buses	0	30	1	0	-	31	1	65	0	0	-	66	33	15	40	0	-	88	2	0	2	0	-	4	189
% Buses	0.0	0.6	0.4	-	-	0.6	1.3	1.1	0.0	-	-	1.1	12.1	10.0	15.5	-	-	12.9	0.8	0.0	0.8	-	-	0.5	1.5
Single-Unit Trucks	0	62	3	0	-	65	0	71	1	0	-	72	3	0	7	0	-	10	0	0	2	0	-	2	149
% Single-Unit Trucks	0.0	1.2	1.1	-	-	1.2	0.0	1.2	1.0	-	-	1.2	1.1	0.0	2.7	-	-	1.5	0.0	0.0	0.8	-	-	0.3	1.2
Articulated Trucks	0	31	0	0	-	31	1	32	0	0	-	33	1	1	2	0	-	4	0	0	0	0	-	0	68
% Articulated Trucks	0.0	0.6	0.0	-	-	0.6	1.3	0.6	0.0	-	-	0.6	0.4	0.7	0.8	-	-	0.6	0.0	0.0	0.0	-	-	0.0	0.5
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	2	0	0	-	2	0	0	0	0	-	0	2
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	1.3	0.0	-	-	0.3	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	3	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	5	-	-
% Bicycles on Crosswalk	-	-	-	-	1.1	-	-	-	-	-	0.0	-	-	-	-	-	0.7	-	-	-	-	-	3.8	-	-
Pedestrians	-	-	-	-	265	-	-	-	-	-	126	-	-	-	-	-	149	-	-	-	-	-	127	-	-
% Pedestrians	-	-	-	-	98.9	-	-	-	-	-	100.0	-	-	-	-	-	99.3	-	-	-	-	-	96.2	-	-



Turning Movement Data Plot

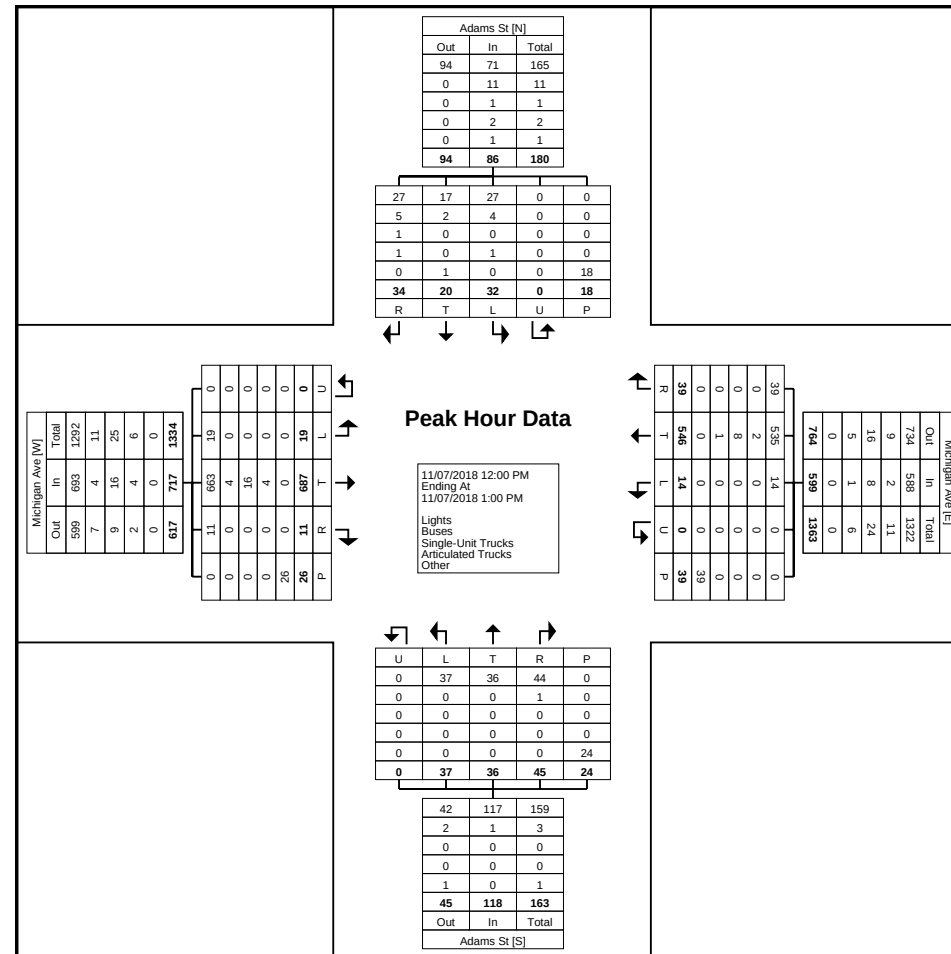
Turning Movement Peak Hour Data (7:30 AM)

Start Time	Michigan Ave Westbound						Michigan Ave Eastbound						Adams St Southbound						Adams St Northbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:30 AM	0	204	5	0	2	209	0	130	2	0	0	132	6	2	3	0	1	11	14	5	4	0	2	23	375
7:45 AM	1	211	7	0	6	219	1	126	4	0	1	131	2	1	6	0	1	9	18	22	2	0	2	42	401
8:00 AM	0	170	11	0	3	181	0	131	0	0	1	131	8	4	4	0	3	16	7	9	5	0	1	21	349
8:15 AM	0	163	6	0	1	169	1	142	0	0	1	143	4	3	5	0	1	12	4	3	0	0	3	7	331
Total	1	748	29	0	12	778	2	529	6	0	3	537	20	10	18	0	6	48	43	39	11	0	8	93	1456
Approach %	0.1	96.1	3.7	0.0	-	-	0.4	98.5	1.1	0.0	-	-	41.7	20.8	37.5	0.0	-	-	46.2	41.9	11.8	0.0	-	-	-
Total %	0.1	51.4	2.0	0.0	-	53.4	0.1	36.3	0.4	0.0	-	36.9	1.4	0.7	1.2	0.0	-	3.3	3.0	2.7	0.8	0.0	-	6.4	-
PHF	0.250	0.886	0.659	0.000	-	0.888	0.500	0.931	0.375	0.000	-	0.939	0.625	0.625	0.750	0.000	-	0.750	0.597	0.443	0.550	0.000	-	0.554	0.908
Lights	1	732	28	0	-	761	1	510	6	0	-	517	16	8	13	0	-	37	42	39	10	0	-	91	1406
% Lights	100.0	97.9	96.6	-	-	97.8	50.0	96.4	100.0	-	-	96.3	80.0	80.0	72.2	-	-	77.1	97.7	100.0	90.9	-	-	97.8	96.6
Buses	0	4	0	0	-	4	0	12	0	0	-	12	4	2	5	0	-	11	1	0	1	0	-	2	29
% Buses	0.0	0.5	0.0	-	-	0.5	0.0	2.3	0.0	-	-	2.2	20.0	20.0	27.8	-	-	22.9	2.3	0.0	9.1	-	-	2.2	2.0
Single-Unit Trucks	0	7	1	0	-	8	0	2	0	0	-	2	0	0	0	0	-	0	0	0	0	0	-	0	10
% Single-Unit Trucks	0.0	0.9	3.4	-	-	1.0	0.0	0.4	0.0	-	-	0.4	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.7
Articulated Trucks	0	5	0	0	-	5	1	5	0	0	-	6	0	0	0	0	-	0	0	0	0	0	-	0	11
% Articulated Trucks	0.0	0.7	0.0	-	-	0.6	50.0	0.9	0.0	-	-	1.1	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.8
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	12	-	-	-	-	-	3	-	-	-	-	-	6	-	-	-	-	-	8	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-



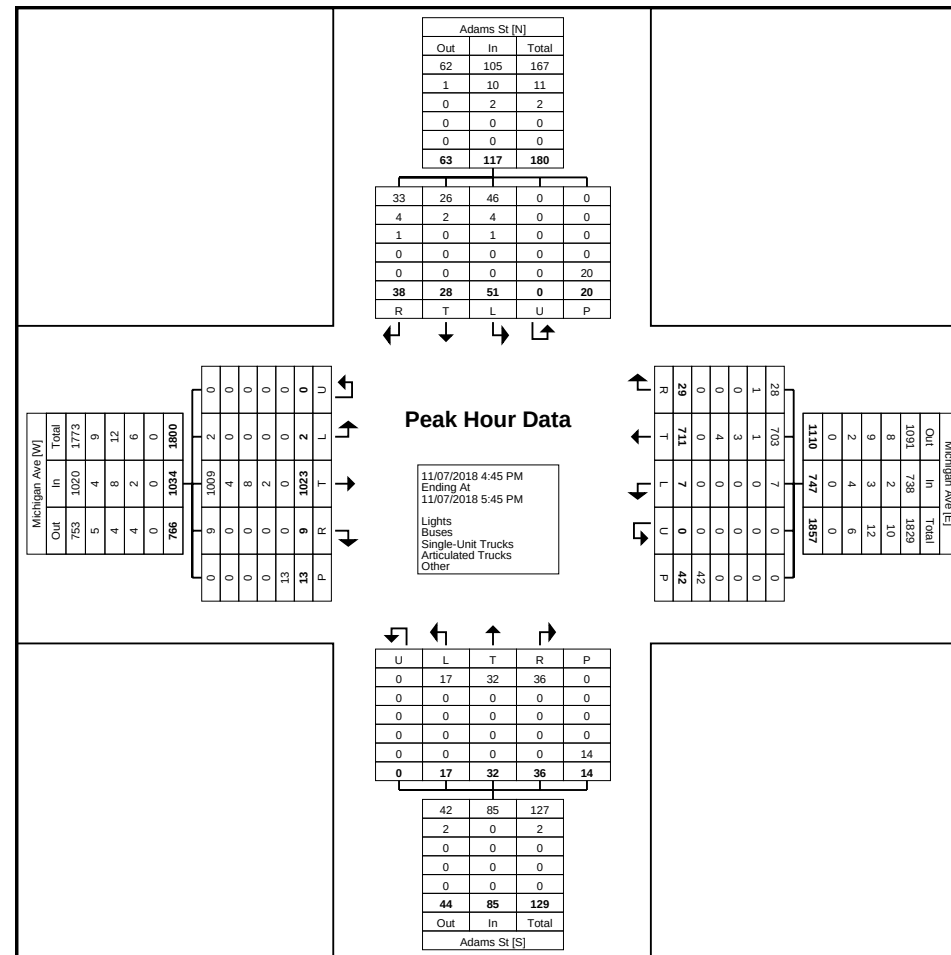
Turning Movement Peak Hour Data (12:00 PM)

Start Time	Michigan Ave Westbound						Michigan Ave Eastbound						Adams St Southbound						Adams St Northbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
12:00 PM	1	142	8	0	9	151	3	156	2	0	3	161	5	7	10	0	4	22	9	13	12	0	6	34	368
12:15 PM	6	121	10	0	8	137	2	185	5	0	6	192	7	4	6	0	2	17	4	8	11	0	3	23	369
12:30 PM	3	131	9	0	10	143	7	162	3	0	8	172	12	6	4	0	6	22	19	9	11	0	11	39	376
12:45 PM	4	152	12	0	12	168	7	184	1	0	9	192	8	3	14	0	6	25	5	6	11	0	4	22	407
Total	14	546	39	0	39	599	19	687	11	0	26	717	32	20	34	0	18	86	37	36	45	0	24	118	1520
Approach %	2.3	91.2	6.5	0.0	-	-	2.6	95.8	1.5	0.0	-	-	37.2	23.3	39.5	0.0	-	-	31.4	30.5	38.1	0.0	-	-	-
Total %	0.9	35.9	2.6	0.0	-	39.4	1.3	45.2	0.7	0.0	-	47.2	2.1	1.3	2.2	0.0	-	5.7	2.4	2.4	3.0	0.0	-	7.8	-
PHF	0.583	0.898	0.813	0.000	-	0.891	0.679	0.928	0.550	0.000	-	0.934	0.667	0.714	0.607	0.000	-	0.860	0.487	0.692	0.938	0.000	-	0.756	0.934
Lights	14	535	39	0	-	588	19	663	11	0	-	693	27	17	27	0	-	71	37	36	44	0	-	117	1469
% Lights	100.0	98.0	100.0	-	-	98.2	100.0	96.5	100.0	-	-	96.7	84.4	85.0	79.4	-	-	82.6	100.0	100.0	97.8	-	-	99.2	96.6
Buses	0	2	0	0	-	2	0	4	0	0	-	4	4	2	5	0	-	11	0	0	1	0	-	1	18
% Buses	0.0	0.4	0.0	-	-	0.3	0.0	0.6	0.0	-	-	0.6	12.5	10.0	14.7	-	-	12.8	0.0	0.0	2.2	-	-	0.8	1.2
Single-Unit Trucks	0	8	0	0	-	8	0	16	0	0	-	16	0	0	1	0	-	1	0	0	0	0	-	0	25
% Single-Unit Trucks	0.0	1.5	0.0	-	-	1.3	0.0	2.3	0.0	-	-	2.2	0.0	0.0	2.9	-	-	1.2	0.0	0.0	0.0	-	-	0.0	1.6
Articulated Trucks	0	1	0	0	-	1	0	4	0	0	-	4	1	0	1	0	-	2	0	0	0	0	-	0	7
% Articulated Trucks	0.0	0.2	0.0	-	-	0.2	0.0	0.6	0.0	-	-	0.6	3.1	0.0	2.9	-	-	2.3	0.0	0.0	0.0	-	-	0.0	0.5
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	0	0	0	0	-	0	1
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	5.0	0.0	-	-	1.2	0.0	0.0	0.0	-	-	0.0	0.1
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	2	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	8.3	-	-
Pedestrians	-	-	-	-	39	-	-	-	-	-	26	-	-	-	-	-	18	-	-	-	-	-	22	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	91.7	-	-



Turning Movement Peak Hour Data (4:45 PM)

Start Time	Michigan Ave Westbound						Michigan Ave Eastbound						Adams St Southbound						Adams St Northbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
4:45 PM	2	170	10	0	8	182	0	237	1	0	2	238	5	3	11	0	10	19	7	9	13	0	4	29	468
5:00 PM	2	169	4	0	10	175	1	270	2	0	5	273	13	13	12	0	5	38	5	12	13	0	3	30	516
5:15 PM	2	178	5	0	13	185	1	267	2	0	2	270	17	4	6	0	3	27	1	6	7	0	1	14	496
5:30 PM	1	194	10	0	11	205	0	249	4	0	4	253	16	8	9	0	2	33	4	5	3	0	6	12	503
Total	7	711	29	0	42	747	2	1023	9	0	13	1034	51	28	38	0	20	117	17	32	36	0	14	85	1983
Approach %	0.9	95.2	3.9	0.0	-	-	0.2	98.9	0.9	0.0	-	-	43.6	23.9	32.5	0.0	-	-	20.0	37.6	42.4	0.0	-	-	-
Total %	0.4	35.9	1.5	0.0	-	37.7	0.1	51.6	0.5	0.0	-	52.1	2.6	1.4	1.9	0.0	-	5.9	0.9	1.6	1.8	0.0	-	4.3	-
PHF	0.875	0.916	0.725	0.000	-	0.911	0.500	0.947	0.563	0.000	-	0.947	0.750	0.538	0.792	0.000	-	0.770	0.607	0.667	0.692	0.000	-	0.708	0.961
Lights	7	703	28	0	-	738	2	1009	9	0	-	1020	46	26	33	0	-	105	17	32	36	0	-	85	1948
% Lights	100.0	98.9	96.6	-	-	98.8	100.0	98.6	100.0	-	-	98.6	90.2	92.9	86.8	-	-	89.7	100.0	100.0	100.0	-	-	100.0	98.2
Buses	0	1	1	0	-	2	0	4	0	0	-	4	4	2	4	0	-	10	0	0	0	0	-	0	16
% Buses	0.0	0.1	3.4	-	-	0.3	0.0	0.4	0.0	-	-	0.4	7.8	7.1	10.5	-	-	8.5	0.0	0.0	0.0	-	-	0.0	0.8
Single-Unit Trucks	0	3	0	0	-	3	0	8	0	0	-	8	1	0	1	0	-	2	0	0	0	0	-	0	13
% Single-Unit Trucks	0.0	0.4	0.0	-	-	0.4	0.0	0.8	0.0	-	-	0.8	2.0	0.0	2.6	-	-	1.7	0.0	0.0	0.0	-	-	0.0	0.7
Articulated Trucks	0	4	0	0	-	4	0	2	0	0	-	2	0	0	0	0	-	0	0	0	0	0	-	0	6
% Articulated Trucks	0.0	0.6	0.0	-	-	0.5	0.0	0.2	0.0	-	-	0.2	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.3
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	2.4	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	41	-	-	-	-	-	13	-	-	-	-	-	20	-	-	-	-	-	14	-	-
% Pedestrians	-	-	-	-	97.6	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-

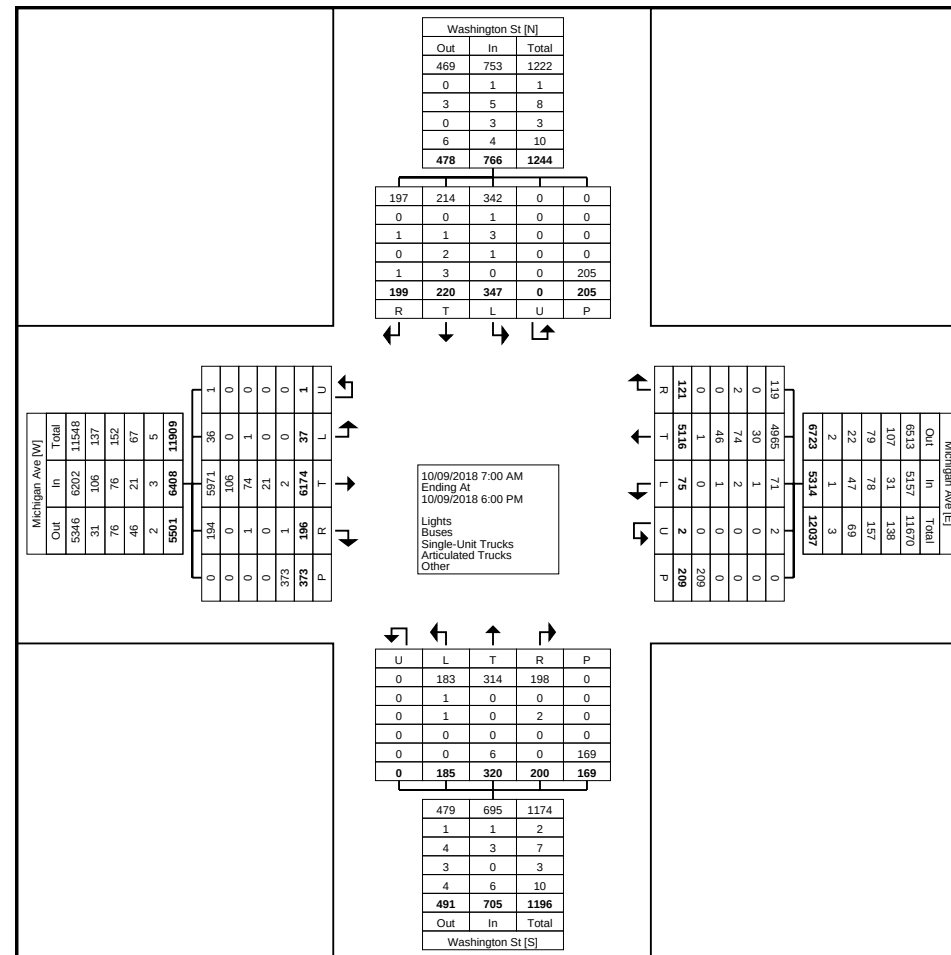


Turning Movement Peak Hour Data Plot (4:45 PM)

Turning Movement Data

Start Time	Michigan Ave Westbound						Michigan Ave Eastbound						Washington St Southbound						Washington St Northbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:00 AM	0	120	1	0	0	121	0	85	1	0	1	86	1	2	0	0	3	3	0	0	0	0	1	0	210
7:15 AM	0	179	0	0	1	179	0	73	0	0	0	73	1	2	5	0	3	8	0	3	1	0	0	4	264
7:30 AM	1	209	0	0	0	210	0	111	0	0	0	111	1	1	3	0	3	5	11	23	6	0	1	40	366
7:45 AM	1	186	3	0	1	190	0	121	1	0	8	122	6	0	2	0	3	8	22	36	6	0	1	64	384
Hourly Total	2	694	4	0	2	700	0	390	2	0	9	392	9	5	10	0	12	24	33	62	13	0	3	108	1224
8:00 AM	0	159	1	0	2	160	0	121	3	0	4	124	2	2	4	0	2	8	8	18	4	0	2	30	322
8:15 AM	0	176	5	0	1	181	0	133	4	0	4	137	3	1	2	0	3	6	4	5	2	0	0	11	335
8:30 AM	0	175	5	0	5	180	0	153	4	0	6	157	3	2	1	0	2	6	6	29	10	0	0	45	388
8:45 AM	0	144	2	0	0	146	0	138	5	0	4	143	7	2	4	0	1	13	16	32	10	0	3	58	360
Hourly Total	0	654	13	0	8	667	0	545	16	0	18	561	15	7	11	0	8	33	34	84	26	0	5	144	1405
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 AM	5	124	1	0	5	130	4	161	2	0	9	167	15	5	8	0	21	28	3	4	3	0	2	10	335
11:15 AM	1	134	4	0	7	139	1	174	2	0	14	177	8	12	6	0	8	26	3	6	5	0	5	14	356
11:30 AM	2	153	3	0	1	158	2	162	5	0	8	169	9	11	4	0	3	24	8	3	5	0	6	16	367
11:45 AM	2	147	7	0	7	156	3	156	8	0	10	167	12	10	7	0	5	29	4	6	6	0	3	16	368
Hourly Total	10	558	15	0	20	583	10	653	17	0	41	680	44	38	25	0	37	107	18	19	19	0	16	56	1426
12:00 PM	3	133	6	0	11	142	2	181	8	0	15	191	7	11	5	0	7	23	8	6	10	0	11	24	380
12:15 PM	9	144	6	0	8	159	2	180	7	0	11	189	13	8	6	0	9	27	4	9	5	0	4	18	393
12:30 PM	4	134	3	1	9	142	5	208	10	0	6	223	10	7	6	0	6	23	5	7	5	0	7	17	405
12:45 PM	8	148	4	0	15	160	3	180	10	0	14	193	9	5	12	0	10	26	1	8	10	0	8	19	398
Hourly Total	24	559	19	1	43	603	12	749	35	0	46	796	39	31	29	0	32	99	18	30	30	0	30	78	1576
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00 PM	3	142	3	0	10	148	4	202	3	0	11	209	13	12	12	0	10	37	5	8	1	0	10	14	408
2:15 PM	9	173	5	0	13	187	4	211	7	0	8	222	12	4	5	0	7	21	3	7	3	0	4	13	443
2:30 PM	8	171	2	0	16	181	1	194	5	0	22	200	10	5	6	0	8	21	4	6	4	0	5	14	416
2:45 PM	3	141	2	0	3	146	0	226	8	0	18	234	13	7	6	0	9	26	6	11	10	0	9	27	433
Hourly Total	23	627	12	0	42	662	9	833	23	0	59	865	48	28	29	0	34	105	18	32	18	0	28	68	1700
3:00 PM	2	152	2	0	9	156	0	195	7	0	18	202	6	19	9	0	8	34	5	5	5	0	9	15	407
3:15 PM	3	155	6	0	3	164	1	259	7	0	10	267	10	9	7	0	5	26	5	5	9	0	9	19	476
3:30 PM	1	160	4	0	13	165	0	304	7	0	13	311	18	8	8	0	3	34	7	9	15	0	8	31	541
3:45 PM	3	178	4	1	10	186	0	279	8	0	14	287	17	8	3	0	5	28	8	14	5	0	5	27	528
Hourly Total	9	645	16	1	35	671	1	1037	29	0	55	1067	51	44	27	0	21	122	25	33	34	0	31	92	1952
4:00 PM	1	143	2	0	6	146	1	217	9	0	22	227	17	15	9	0	8	41	7	7	4	0	9	18	432
4:15 PM	0	146	4	0	7	150	1	228	5	0	15	234	13	11	6	0	8	30	5	1	5	0	3	11	425
4:30 PM	2	182	4	0	6	188	1	256	6	1	18	264	17	3	9	0	4	29	3	9	8	0	2	20	501
4:45 PM	0	158	5	0	12	163	0	230	5	0	14	235	13	10	7	0	6	30	9	8	9	0	11	26	454
Hourly Total	3	629	15	0	31	647	3	931	25	1	69	960	60	39	31	0	26	130	24	25	26	0	25	75	1812

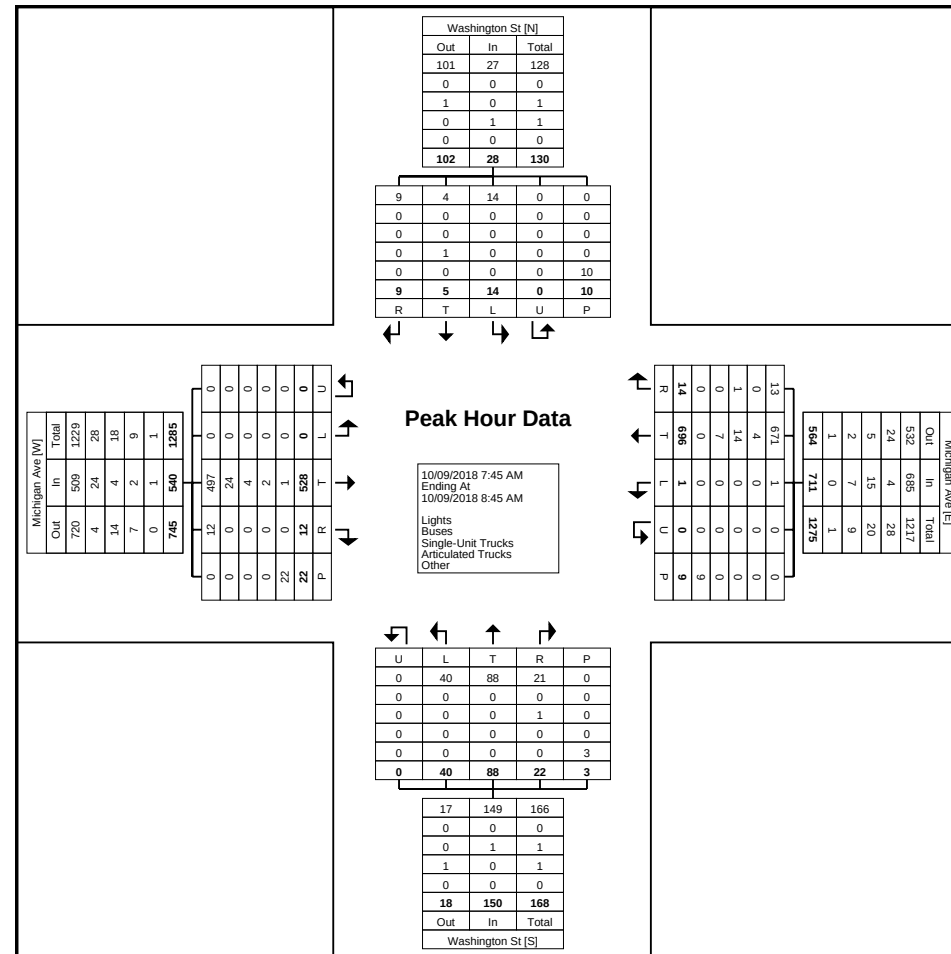
5:00 PM	0	190	5	0	5	195	0	255	9	0	24	264	21	11	10	0	4	42	4	13	14	0	10	31	532
5:15 PM	2	189	7	0	10	198	0	263	16	0	22	279	23	4	11	0	8	38	6	6	6	0	4	18	533
5:30 PM	1	191	10	0	7	202	2	275	16	0	12	293	21	9	8	0	6	38	1	7	8	0	7	16	549
5:45 PM	1	180	5	0	6	186	0	243	8	0	18	251	16	4	8	0	17	28	4	9	6	0	10	19	484
Hourly Total	4	750	27	0	28	781	2	1036	49	0	76	1087	81	28	37	0	35	146	15	35	34	0	31	84	2098
Grand Total	75	5116	121	2	209	5314	37	6174	196	1	373	6408	347	220	199	0	205	766	185	320	200	0	169	705	13193
Approach %	1.4	96.3	2.3	0.0	-	-	0.6	96.3	3.1	0.0	-	-	45.3	28.7	26.0	0.0	-	-	26.2	45.4	28.4	0.0	-	-	-
Total %	0.6	38.8	0.9	0.0	-	40.3	0.3	46.8	1.5	0.0	-	48.6	2.6	1.7	1.5	0.0	-	5.8	1.4	2.4	1.5	0.0	-	5.3	-
Lights	71	4965	119	2	-	5157	36	5971	194	1	-	6202	342	214	197	0	-	753	183	314	198	0	-	695	12807
% Lights	94.7	97.0	98.3	100.0	-	97.0	97.3	96.7	99.0	100.0	-	96.8	98.6	97.3	99.0	-	-	98.3	98.9	98.1	99.0	-	-	98.6	97.1
Buses	1	30	0	0	-	31	0	106	0	0	-	106	1	0	0	0	-	1	1	0	0	0	-	1	139
% Buses	1.3	0.6	0.0	0.0	-	0.6	0.0	1.7	0.0	0.0	-	1.7	0.3	0.0	0.0	-	-	0.1	0.5	0.0	0.0	-	-	0.1	1.1
Single-Unit Trucks	2	74	2	0	-	78	1	74	1	0	-	76	3	1	1	0	-	5	1	0	2	0	-	3	162
% Single-Unit Trucks	2.7	1.4	1.7	0.0	-	1.5	2.7	1.2	0.5	0.0	-	1.2	0.9	0.5	0.5	-	-	0.7	0.5	0.0	1.0	-	-	0.4	1.2
Articulated Trucks	1	46	0	0	-	47	0	21	0	0	-	21	1	2	0	0	-	3	0	0	0	0	-	0	71
% Articulated Trucks	1.3	0.9	0.0	0.0	-	0.9	0.0	0.3	0.0	0.0	-	0.3	0.3	0.9	0.0	-	-	0.4	0.0	0.0	0.0	-	-	0.0	0.5
Bicycles on Road	0	1	0	0	-	1	0	2	1	0	-	3	0	3	1	0	-	4	0	6	0	0	-	6	14
% Bicycles on Road	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.5	0.0	-	0.0	0.0	1.4	0.5	-	-	0.5	0.0	1.9	0.0	-	-	0.9	0.1
Bicycles on Crosswalk	-	-	-	-	11	-	-	-	-	-	16	-	-	-	-	-	6	-	-	-	-	-	8	-	-
% Bicycles on Crosswalk	-	-	-	-	5.3	-	-	-	-	-	4.3	-	-	-	-	-	2.9	-	-	-	-	-	4.7	-	-
Pedestrians	-	-	-	-	198	-	-	-	-	-	357	-	-	-	-	-	199	-	-	-	-	-	161	-	-
% Pedestrians	-	-	-	-	94.7	-	-	-	-	-	95.7	-	-	-	-	-	97.1	-	-	-	-	-	95.3	-	-



Turning Movement Data Plot

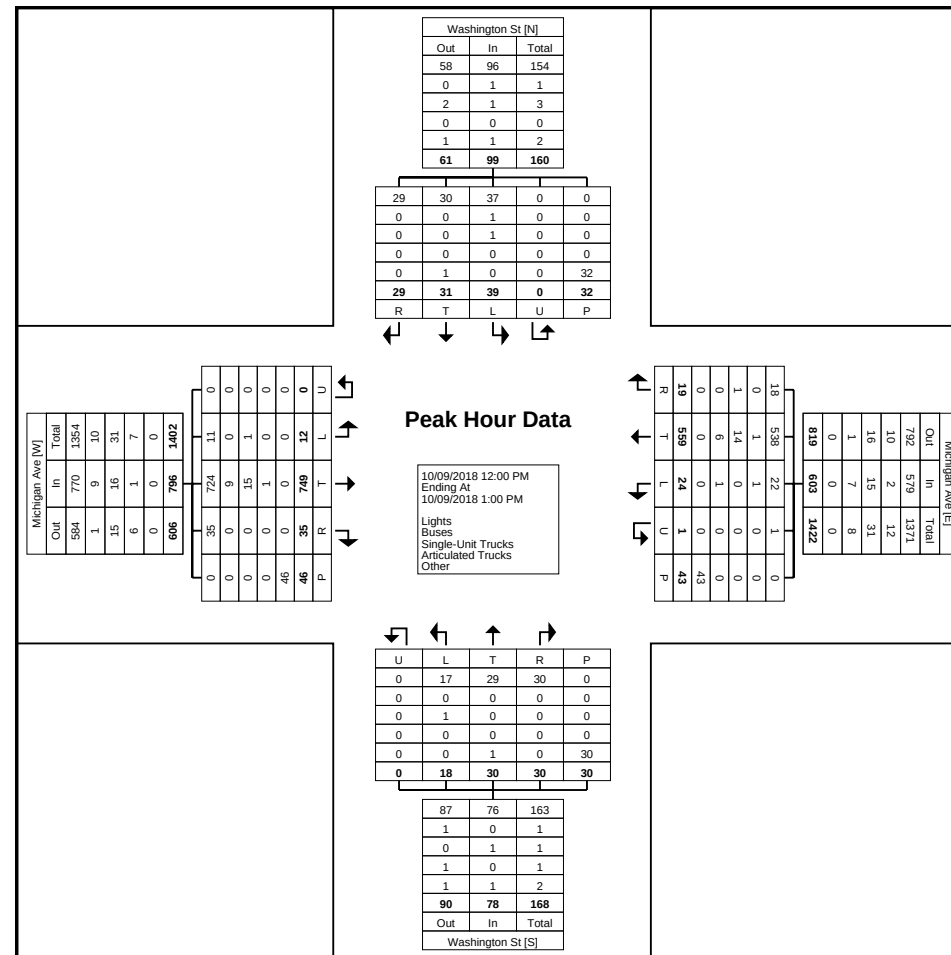
Turning Movement Peak Hour Data (7:45 AM)

Start Time	Michigan Ave Westbound						Michigan Ave Eastbound						Washington St Southbound						Washington St Northbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:45 AM	1	186	3	0	1	190	0	121	1	0	8	122	6	0	2	0	3	8	22	36	6	0	1	64	384
8:00 AM	0	159	1	0	2	160	0	121	3	0	4	124	2	2	4	0	2	8	8	18	4	0	2	30	322
8:15 AM	0	176	5	0	1	181	0	133	4	0	4	137	3	1	2	0	3	6	4	5	2	0	0	11	335
8:30 AM	0	175	5	0	5	180	0	153	4	0	6	157	3	2	1	0	2	6	6	29	10	0	0	45	388
Total	1	696	14	0	9	711	0	528	12	0	22	540	14	5	9	0	10	28	40	88	22	0	3	150	1429
Approach %	0.1	97.9	2.0	0.0	-	-	0.0	97.8	2.2	0.0	-	-	50.0	17.9	32.1	0.0	-	-	26.7	58.7	14.7	0.0	-	-	-
Total %	0.1	48.7	1.0	0.0	-	49.8	0.0	36.9	0.8	0.0	-	37.8	1.0	0.3	0.6	0.0	-	2.0	2.8	6.2	1.5	0.0	-	10.5	-
PHF	0.250	0.935	0.700	0.000	-	0.936	0.000	0.863	0.750	0.000	-	0.860	0.583	0.625	0.563	0.000	-	0.875	0.455	0.611	0.550	0.000	-	0.586	0.921
Lights	1	671	13	0	-	685	0	497	12	0	-	509	14	4	9	0	-	27	40	88	21	0	-	149	1370
% Lights	100.0	96.4	92.9	-	-	96.3	-	94.1	100.0	-	-	94.3	100.0	80.0	100.0	-	-	96.4	100.0	100.0	95.5	-	-	99.3	95.9
Buses	0	4	0	0	-	4	0	24	0	0	-	24	0	0	0	0	-	0	0	0	0	0	-	0	28
% Buses	0.0	0.6	0.0	-	-	0.6	-	4.5	0.0	-	-	4.4	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	2.0
Single-Unit Trucks	0	14	1	0	-	15	0	4	0	0	-	4	0	0	0	0	-	0	0	0	1	0	-	1	20
% Single-Unit Trucks	0.0	2.0	7.1	-	-	2.1	-	0.8	0.0	-	-	0.7	0.0	0.0	0.0	-	-	0.0	0.0	0.0	4.5	-	-	0.7	1.4
Articulated Trucks	0	7	0	0	-	7	0	2	0	0	-	2	0	1	0	0	-	1	0	0	0	0	-	0	10
% Articulated Trucks	0.0	1.0	0.0	-	-	1.0	-	0.4	0.0	-	-	0.4	0.0	20.0	0.0	-	-	3.6	0.0	0.0	0.0	-	-	0.0	0.7
Bicycles on Road	0	0	0	0	-	0	0	1	0	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	1
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	-	0.2	0.0	-	-	0.2	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.1
Bicycles on Crosswalk	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-
% Bicycles on Crosswalk	-	-	-	-	22.2	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	33.3	-	-
Pedestrians	-	-	-	-	7	-	-	-	-	-	22	-	-	-	-	-	10	-	-	-	-	-	2	-	-
% Pedestrians	-	-	-	-	77.8	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	66.7	-	-



Turning Movement Peak Hour Data (12:00 PM)

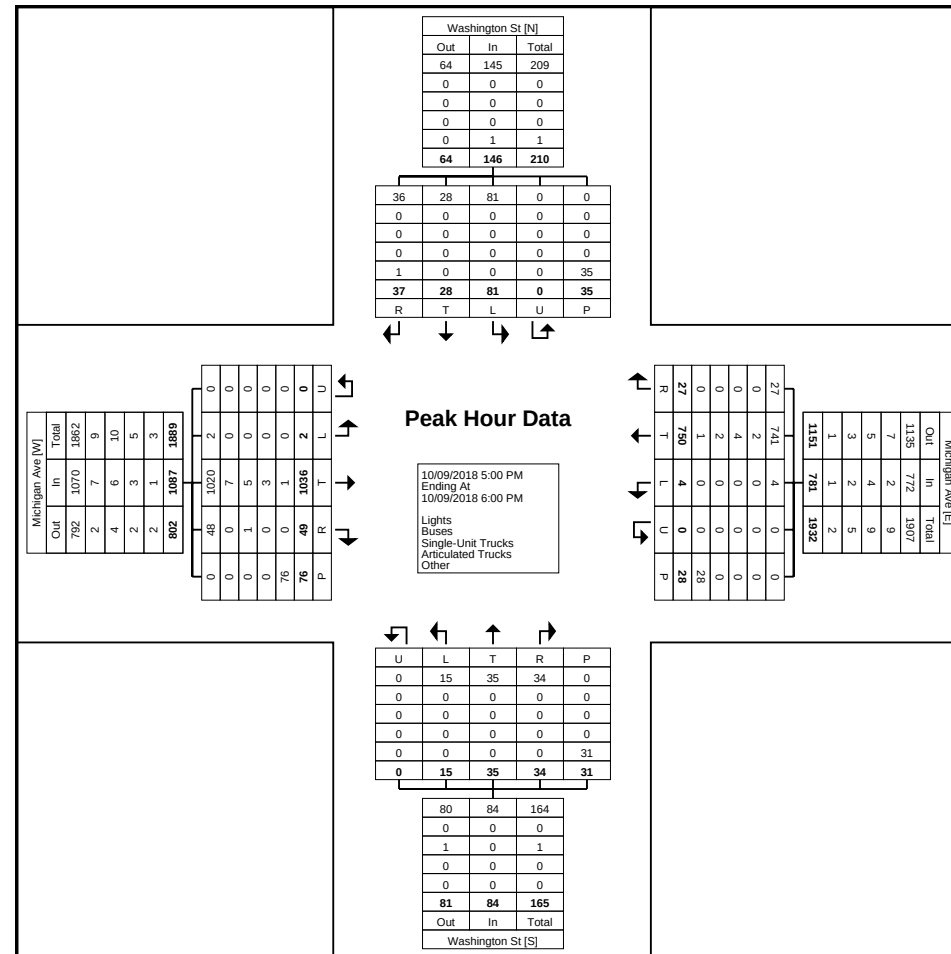
Start Time	Michigan Ave Westbound						Michigan Ave Eastbound						Washington St Southbound						Washington St Northbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
12:00 PM	3	133	6	0	11	142	2	181	8	0	15	191	7	11	5	0	7	23	8	6	10	0	11	24	380
12:15 PM	9	144	6	0	8	159	2	180	7	0	11	189	13	8	6	0	9	27	4	9	5	0	4	18	393
12:30 PM	4	134	3	1	9	142	5	208	10	0	6	223	10	7	6	0	6	23	5	7	5	0	7	17	405
12:45 PM	8	148	4	0	15	160	3	180	10	0	14	193	9	5	12	0	10	26	1	8	10	0	8	19	398
Total	24	559	19	1	43	603	12	749	35	0	46	796	39	31	29	0	32	99	18	30	30	0	30	78	1576
Approach %	4.0	92.7	3.2	0.2	-	-	1.5	94.1	4.4	0.0	-	-	39.4	31.3	29.3	0.0	-	-	23.1	38.5	38.5	0.0	-	-	-
Total %	1.5	35.5	1.2	0.1	-	38.3	0.8	47.5	2.2	0.0	-	50.5	2.5	2.0	1.8	0.0	-	6.3	1.1	1.9	1.9	0.0	-	4.9	-
PHF	0.667	0.944	0.792	0.250	-	0.942	0.600	0.900	0.875	0.000	-	0.892	0.750	0.705	0.604	0.000	-	0.917	0.563	0.833	0.750	0.000	-	0.813	0.973
Lights	22	538	18	1	-	579	11	724	35	0	-	770	37	30	29	0	-	96	17	29	30	0	-	76	1521
% Lights	91.7	96.2	94.7	100.0	-	96.0	91.7	96.7	100.0	-	-	96.7	94.9	96.8	100.0	-	-	97.0	94.4	96.7	100.0	-	-	97.4	96.5
Buses	1	1	0	0	-	2	0	9	0	0	-	9	1	0	0	0	-	1	0	0	0	0	-	0	12
% Buses	4.2	0.2	0.0	0.0	-	0.3	0.0	1.2	0.0	-	-	1.1	2.6	0.0	0.0	-	-	1.0	0.0	0.0	0.0	-	-	0.0	0.8
Single-Unit Trucks	0	14	1	0	-	15	1	15	0	0	-	16	1	0	0	0	-	1	1	0	0	0	-	1	33
% Single-Unit Trucks	0.0	2.5	5.3	0.0	-	2.5	8.3	2.0	0.0	-	-	2.0	2.6	0.0	0.0	-	-	1.0	5.6	0.0	0.0	-	-	1.3	2.1
Articulated Trucks	1	6	0	0	-	7	0	1	0	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	8
% Articulated Trucks	4.2	1.1	0.0	0.0	-	1.2	0.0	0.1	0.0	-	-	0.1	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.5
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	0	1	0	0	-	1	2
% Bicycles on Road	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	3.2	0.0	-	-	1.0	0.0	3.3	0.0	-	-	1.3	0.1
Bicycles on Crosswalk	-	-	-	-	4	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	9.3	-	-	-	-	-	2.2	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	39	-	-	-	-	-	45	-	-	-	-	-	32	-	-	-	-	-	30	-	-
% Pedestrians	-	-	-	-	90.7	-	-	-	-	-	97.8	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-



Turning Movement Peak Hour Data Plot (12:00 PM)

Turning Movement Peak Hour Data (5:00 PM)

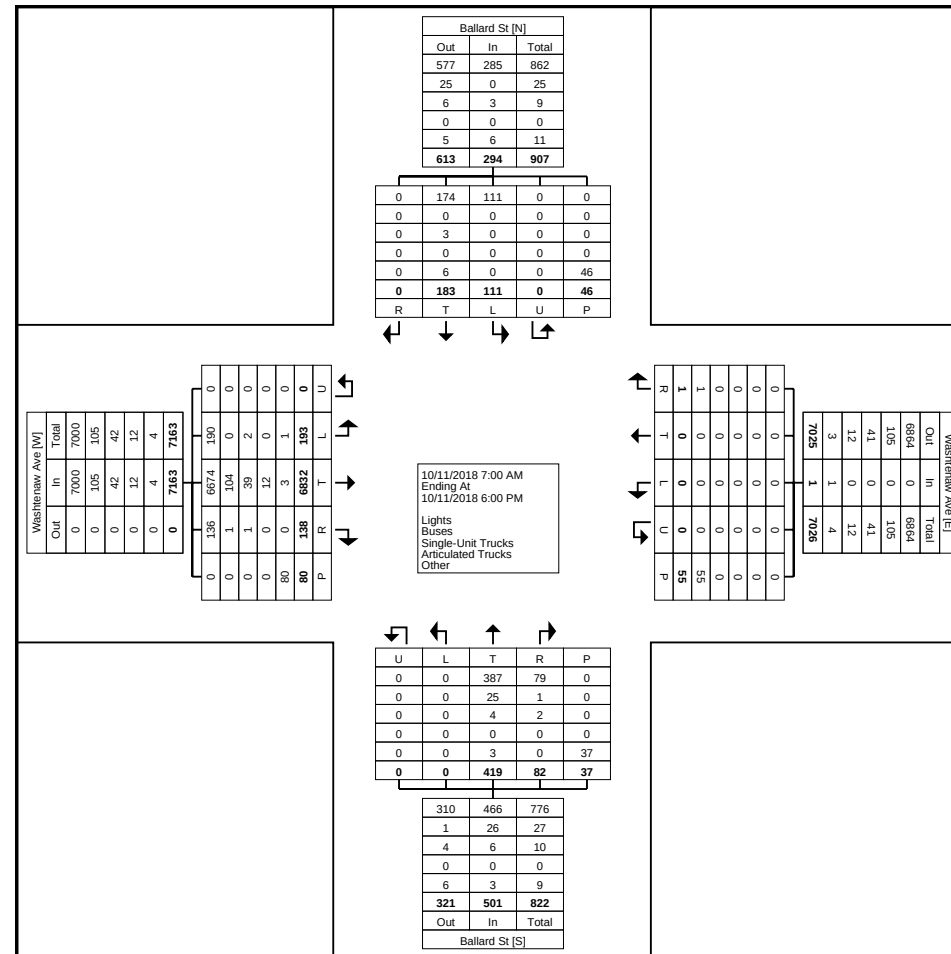
Start Time	Michigan Ave Westbound						Michigan Ave Eastbound						Washington St Southbound						Washington St Northbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
5:00 PM	0	190	5	0	5	195	0	255	9	0	24	264	21	11	10	0	4	42	4	13	14	0	10	31	532
5:15 PM	2	189	7	0	10	198	0	263	16	0	22	279	23	4	11	0	8	38	6	6	6	0	4	18	533
5:30 PM	1	191	10	0	7	202	2	275	16	0	12	293	21	9	8	0	6	38	1	7	8	0	7	16	549
5:45 PM	1	180	5	0	6	186	0	243	8	0	18	251	16	4	8	0	17	28	4	9	6	0	10	19	484
Total	4	750	27	0	28	781	2	1036	49	0	76	1087	81	28	37	0	35	146	15	35	34	0	31	84	2098
Approach %	0.5	96.0	3.5	0.0	-	-	0.2	95.3	4.5	0.0	-	-	55.5	19.2	25.3	0.0	-	-	17.9	41.7	40.5	0.0	-	-	-
Total %	0.2	35.7	1.3	0.0	-	37.2	0.1	49.4	2.3	0.0	-	51.8	3.9	1.3	1.8	0.0	-	7.0	0.7	1.7	1.6	0.0	-	4.0	-
PHF	0.500	0.982	0.675	0.000	-	0.967	0.250	0.942	0.766	0.000	-	0.927	0.880	0.636	0.841	0.000	-	0.869	0.625	0.673	0.607	0.000	-	0.677	0.955
Lights	4	741	27	0	-	772	2	1020	48	0	-	1070	81	28	36	0	-	145	15	35	34	0	-	84	2071
% Lights	100.0	98.8	100.0	-	-	98.8	100.0	98.5	98.0	-	-	98.4	100.0	100.0	97.3	-	-	99.3	100.0	100.0	100.0	-	-	100.0	98.7
Buses	0	2	0	0	-	2	0	7	0	0	-	7	0	0	0	0	-	0	0	0	0	0	-	0	9
% Buses	0.0	0.3	0.0	-	-	0.3	0.0	0.7	0.0	-	-	0.6	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.4
Single-Unit Trucks	0	4	0	0	-	4	0	5	1	0	-	6	0	0	0	0	-	0	0	0	0	0	-	0	10
% Single-Unit Trucks	0.0	0.5	0.0	-	-	0.5	0.0	0.5	2.0	-	-	0.6	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.5
Articulated Trucks	0	2	0	0	-	2	0	3	0	0	-	3	0	0	0	0	-	0	0	0	0	0	-	0	5
% Articulated Trucks	0.0	0.3	0.0	-	-	0.3	0.0	0.3	0.0	-	-	0.3	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.2
Bicycles on Road	0	1	0	0	-	1	0	1	0	0	-	1	0	0	1	0	-	1	0	0	0	0	-	0	3
% Bicycles on Road	0.0	0.1	0.0	-	-	0.1	0.0	0.1	0.0	-	-	0.1	0.0	0.0	2.7	-	-	0.7	0.0	0.0	0.0	-	-	0.0	0.1
Bicycles on Crosswalk	-	-	-	-	1	-	-	-	-	-	4	-	-	-	-	-	0	-	-	-	-	-	1	-	-
% Bicycles on Crosswalk	-	-	-	-	3.6	-	-	-	-	-	5.3	-	-	-	-	-	0.0	-	-	-	-	-	3.2	-	-
Pedestrians	-	-	-	-	27	-	-	-	-	-	72	-	-	-	-	-	35	-	-	-	-	-	30	-	-
% Pedestrians	-	-	-	-	96.4	-	-	-	-	-	94.7	-	-	-	-	-	100.0	-	-	-	-	-	96.8	-	-



Turning Movement Data

Start Time	Washtenaw Ave Westbound						Washtenaw Ave Eastbound						Ballard St Southbound						Ballard St Northbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:00 AM	0	0	0	0	0	0	2	84	0	0	0	86	1	3	0	0	0	4	0	4	0	0	0	4	94
7:15 AM	0	0	0	0	1	0	5	74	1	0	1	80	1	2	0	0	3	3	0	4	1	0	0	5	88
7:30 AM	0	0	0	0	0	0	5	94	0	0	1	99	1	1	0	0	0	2	0	6	0	0	0	6	107
7:45 AM	0	0	0	0	1	0	3	123	1	0	1	127	1	3	0	0	1	4	0	9	3	0	2	12	143
Hourly Total	0	0	0	0	2	0	15	375	2	0	3	392	4	9	0	0	4	13	0	23	4	0	2	27	432
8:00 AM	0	0	0	0	1	0	1	142	2	0	2	145	1	6	0	0	0	7	0	13	2	0	0	15	167
8:15 AM	0	0	0	0	5	0	7	116	3	0	0	126	2	6	0	0	0	8	0	8	4	0	1	12	146
8:30 AM	0	0	0	0	1	0	4	118	0	0	0	122	2	5	0	0	1	7	0	8	1	0	0	9	138
8:45 AM	0	0	0	0	2	0	3	147	1	0	1	151	4	3	0	0	1	7	0	7	1	0	0	8	166
Hourly Total	0	0	0	0	9	0	15	523	6	0	3	544	9	20	0	0	2	29	0	36	8	0	1	44	617
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 AM	0	0	1	0	4	1	3	164	3	0	1	170	2	5	0	0	2	7	0	9	1	0	0	10	188
11:15 AM	0	0	0	0	1	0	3	155	3	0	1	161	4	3	0	0	1	7	0	26	3	0	1	29	197
11:30 AM	0	0	0	0	0	0	9	160	2	0	4	171	2	6	0	0	1	8	0	11	3	0	0	14	193
11:45 AM	0	0	0	0	1	0	13	177	3	0	3	193	4	3	0	0	0	7	0	8	2	0	2	10	210
Hourly Total	0	0	1	0	6	1	28	656	11	0	9	695	12	17	0	0	4	29	0	54	9	0	3	63	788
12:00 PM	0	0	0	0	2	0	3	171	8	0	1	182	5	5	0	0	0	10	0	19	7	0	0	26	218
12:15 PM	0	0	0	0	4	0	5	202	2	0	3	209	2	4	0	0	2	6	0	9	3	0	3	12	227
12:30 PM	0	0	0	0	1	0	6	206	10	0	3	222	2	7	0	0	2	9	0	28	1	0	2	29	260
12:45 PM	0	0	0	0	1	0	5	158	2	0	1	165	6	9	0	0	7	15	0	29	4	0	2	33	213
Hourly Total	0	0	0	0	8	0	19	737	22	0	8	778	15	25	0	0	11	40	0	85	15	0	7	100	918
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00 PM	0	0	0	0	2	0	8	242	5	0	3	255	5	5	0	0	3	10	0	19	1	0	0	20	285
2:15 PM	0	0	0	0	4	0	12	203	5	0	4	220	3	1	0	0	1	4	0	16	1	0	1	17	241
2:30 PM	0	0	0	0	3	0	7	202	5	0	2	214	3	5	0	0	0	8	0	10	5	0	1	15	237
2:45 PM	0	0	0	0	0	0	4	221	5	0	6	230	3	5	0	0	1	8	0	14	1	0	2	15	253
Hourly Total	0	0	0	0	9	0	31	868	20	0	15	919	14	16	0	0	5	30	0	59	8	0	4	67	1016
3:00 PM	0	0	0	0	5	0	8	260	4	0	2	272	6	7	0	0	3	13	0	7	3	0	2	10	295
3:15 PM	0	0	0	0	1	0	6	291	9	0	3	306	5	7	0	0	1	12	0	19	0	0	4	19	337
3:30 PM	0	0	0	0	1	0	6	304	6	0	4	316	9	10	0	0	1	19	0	21	4	0	0	25	360
3:45 PM	0	0	0	0	3	0	9	258	5	0	2	272	7	7	0	0	4	14	0	15	4	0	5	19	305
Hourly Total	0	0	0	0	10	0	29	1113	24	0	11	1166	27	31	0	0	9	58	0	62	11	0	11	73	1297
4:00 PM	0	0	0	0	1	0	6	319	8	0	4	333	1	3	0	0	1	4	0	16	8	0	1	24	361
4:15 PM	0	0	0	0	0	0	5	305	7	0	2	317	4	5	0	0	1	9	0	13	0	0	1	13	339
4:30 PM	0	0	0	0	1	0	6	312	4	0	6	322	6	10	0	0	0	16	0	13	2	0	2	15	353
4:45 PM	0	0	0	0	3	0	7	356	6	0	8	369	3	8	0	0	4	11	0	14	5	0	1	19	399
Hourly Total	0	0	0	0	5	0	24	1292	25	0	20	1341	14	26	0	0	6	40	0	56	15	0	5	71	1452

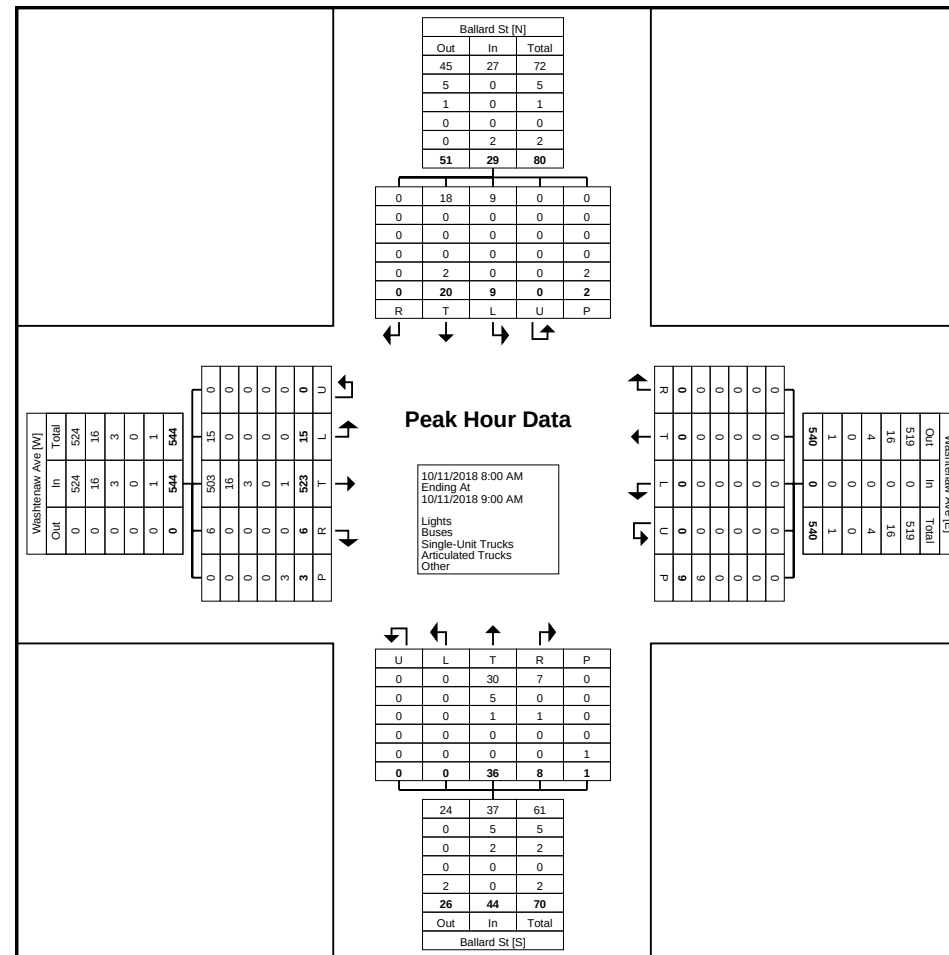
5:00 PM	0	0	0	0	2	0	8	338	11	0	2	357	3	16	0	0	0	19	0	11	4	0	2	15	391
5:15 PM	0	0	0	0	2	0	10	365	7	0	2	382	4	5	0	0	3	9	0	14	3	0	1	17	408
5:30 PM	0	0	0	0	1	0	8	280	6	0	6	294	7	7	0	0	1	14	0	11	2	0	1	13	321
5:45 PM	0	0	0	0	1	0	6	285	4	0	1	295	2	11	0	0	1	13	0	8	3	0	0	11	319
Hourly Total	0	0	0	0	6	0	32	1268	28	0	11	1328	16	39	0	0	5	55	0	44	12	0	4	56	1439
Grand Total	0	0	1	0	55	1	193	6832	138	0	80	7163	111	183	0	0	46	294	0	419	82	0	37	501	7959
Approach %	0.0	0.0	100.0	0.0	-	-	2.7	95.4	1.9	0.0	-	-	37.8	62.2	0.0	0.0	-	-	0.0	83.6	16.4	0.0	-	-	-
Total %	0.0	0.0	0.0	0.0	-	0.0	2.4	85.8	1.7	0.0	-	90.0	1.4	2.3	0.0	0.0	-	3.7	0.0	5.3	1.0	0.0	-	6.3	-
Lights	0	0	0	0	-	0	190	6674	136	0	-	7000	111	174	0	0	-	285	0	387	79	0	-	466	7751
% Lights	-	-	0.0	-	-	0.0	98.4	97.7	98.6	-	-	97.7	100.0	95.1	-	-	-	96.9	-	92.4	96.3	-	-	93.0	97.4
Buses	0	0	0	0	-	0	0	104	1	0	-	105	0	0	0	0	-	0	0	25	1	0	-	26	131
% Buses	-	-	0.0	-	-	0.0	0.0	1.5	0.7	-	-	1.5	0.0	0.0	-	-	-	0.0	-	6.0	1.2	-	-	5.2	1.6
Single-Unit Trucks	0	0	0	0	-	0	2	39	1	0	-	42	0	3	0	0	-	3	0	4	2	0	-	6	51
% Single-Unit Trucks	-	-	0.0	-	-	0.0	1.0	0.6	0.7	-	-	0.6	0.0	1.6	-	-	-	1.0	-	1.0	2.4	-	-	1.2	0.6
Articulated Trucks	0	0	0	0	-	0	0	12	0	0	-	12	0	0	0	0	-	0	0	0	0	0	-	0	12
% Articulated Trucks	-	-	0.0	-	-	0.0	0.0	0.2	0.0	-	-	0.2	0.0	0.0	-	-	-	0.0	-	0.0	0.0	-	-	0.0	0.2
Bicycles on Road	0	0	1	0	-	1	1	3	0	0	-	4	0	6	0	0	-	6	0	3	0	0	-	3	14
% Bicycles on Road	-	-	100.0	-	-	100.0	0.5	0.0	0.0	-	-	0.1	0.0	3.3	-	-	-	2.0	-	0.7	0.0	-	-	0.6	0.2
Bicycles on Crosswalk	-	-	-	-	9	-	-	-	-	-	4	-	-	-	-	-	2	-	-	-	-	-	3	-	-
% Bicycles on Crosswalk	-	-	-	-	16.4	-	-	-	-	-	5.0	-	-	-	-	-	4.3	-	-	-	-	-	8.1	-	-
Pedestrians	-	-	-	-	46	-	-	-	-	-	76	-	-	-	-	-	44	-	-	-	-	-	34	-	-
% Pedestrians	-	-	-	-	83.6	-	-	-	-	-	95.0	-	-	-	-	-	95.7	-	-	-	-	-	91.9	-	-



Turning Movement Data Plot

Turning Movement Peak Hour Data (8:00 AM)

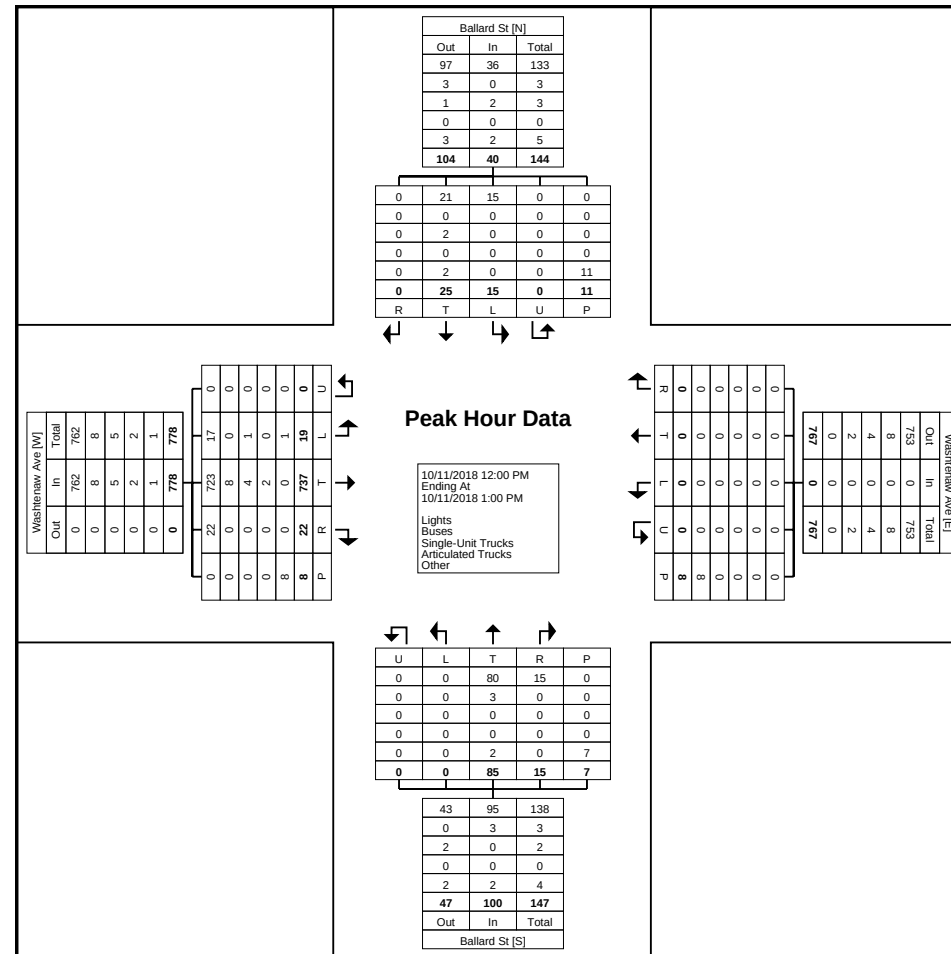
Start Time	Washtenaw Ave Westbound						Washtenaw Ave Eastbound						Ballard St Southbound						Ballard St Northbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
8:00 AM	0	0	0	0	1	0	1	142	2	0	2	145	1	6	0	0	0	7	0	13	2	0	0	15	167
8:15 AM	0	0	0	0	5	0	7	116	3	0	0	126	2	6	0	0	0	8	0	8	4	0	1	12	146
8:30 AM	0	0	0	0	1	0	4	118	0	0	0	122	2	5	0	0	1	7	0	8	1	0	0	9	138
8:45 AM	0	0	0	0	2	0	3	147	1	0	1	151	4	3	0	0	1	7	0	7	1	0	0	8	166
Total	0	0	0	0	9	0	15	523	6	0	3	544	9	20	0	0	2	29	0	36	8	0	1	44	617
Approach %	0.0	0.0	0.0	0.0	-	-	2.8	96.1	1.1	0.0	-	-	31.0	69.0	0.0	0.0	-	-	0.0	81.8	18.2	0.0	-	-	-
Total %	0.0	0.0	0.0	0.0	-	0.0	2.4	84.8	1.0	0.0	-	88.2	1.5	3.2	0.0	0.0	-	4.7	0.0	5.8	1.3	0.0	-	7.1	-
PHF	0.000	0.000	0.000	0.000	-	0.000	0.536	0.889	0.500	0.000	-	0.901	0.563	0.833	0.000	0.000	-	0.906	0.000	0.692	0.500	0.000	-	0.733	0.924
Lights	0	0	0	0	-	0	15	503	6	0	-	524	9	18	0	0	-	27	0	30	7	0	-	37	588
% Lights	-	-	-	-	-	-	100.0	96.2	100.0	-	-	96.3	100.0	90.0	-	-	-	93.1	-	83.3	87.5	-	-	84.1	95.3
Buses	0	0	0	0	-	0	0	16	0	0	-	16	0	0	0	0	-	0	0	5	0	0	-	5	21
% Buses	-	-	-	-	-	-	0.0	3.1	0.0	-	-	2.9	0.0	0.0	-	-	-	0.0	-	13.9	0.0	-	-	11.4	3.4
Single-Unit Trucks	0	0	0	0	-	0	0	3	0	0	-	3	0	0	0	0	-	0	0	1	1	0	-	2	5
% Single-Unit Trucks	-	-	-	-	-	-	0.0	0.6	0.0	-	-	0.6	0.0	0.0	-	-	-	0.0	-	2.8	12.5	-	-	4.5	0.8
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Articulated Trucks	-	-	-	-	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	-	0.0	-	0.0	0.0	-	-	0.0	0.0
Bicycles on Road	0	0	0	0	-	0	0	1	0	0	-	1	0	2	0	0	-	2	0	0	0	0	-	0	3
% Bicycles on Road	-	-	-	-	-	-	0.0	0.2	0.0	-	-	0.2	0.0	10.0	-	-	-	6.9	-	0.0	0.0	-	-	0.0	0.5
Bicycles on Crosswalk	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	11.1	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	8	-	-	-	-	-	3	-	-	-	-	-	2	-	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	88.9	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-



Turning Movement Peak Hour Data Plot (8:00 AM)

Turning Movement Peak Hour Data (12:00 PM)

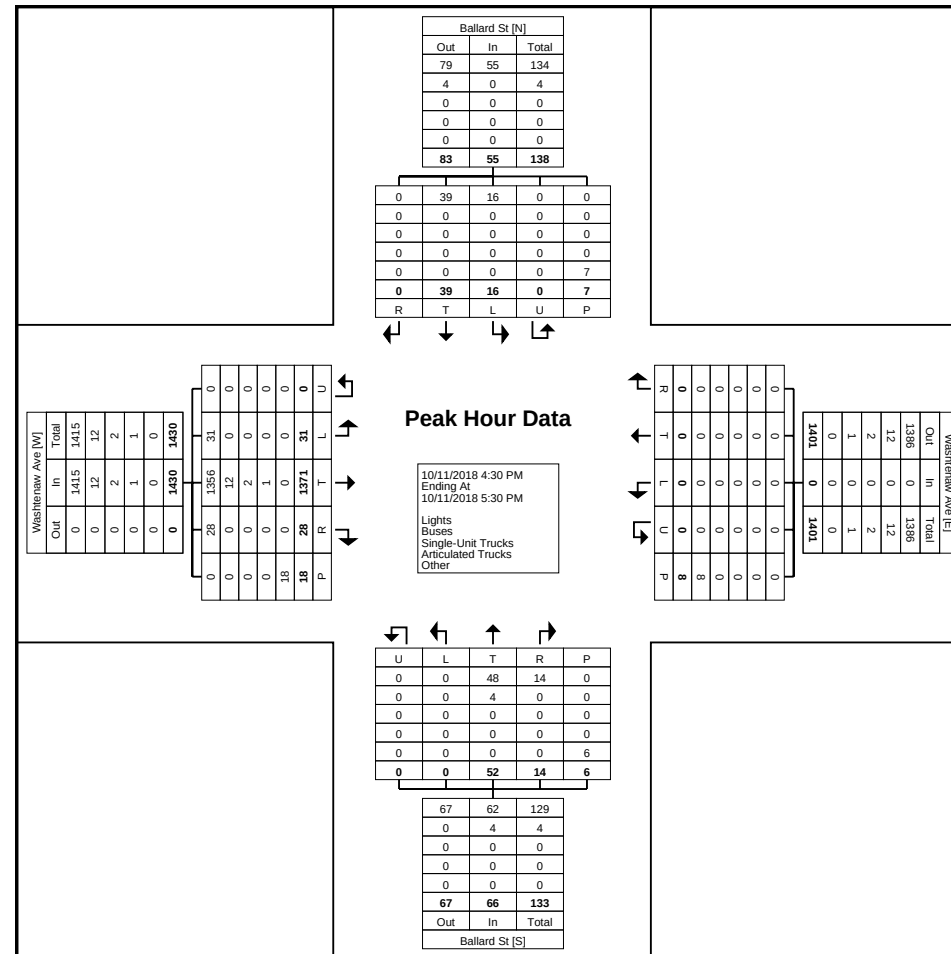
Start Time	Washtenaw Ave Westbound						Washtenaw Ave Eastbound						Ballard St Southbound						Ballard St Northbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
12:00 PM	0	0	0	0	2	0	3	171	8	0	1	182	5	5	0	0	0	10	0	19	7	0	0	26	218
12:15 PM	0	0	0	0	4	0	5	202	2	0	3	209	2	4	0	0	2	6	0	9	3	0	3	12	227
12:30 PM	0	0	0	0	1	0	6	206	10	0	3	222	2	7	0	0	2	9	0	28	1	0	2	29	260
12:45 PM	0	0	0	0	1	0	5	158	2	0	1	165	6	9	0	0	7	15	0	29	4	0	2	33	213
Total	0	0	0	0	8	0	19	737	22	0	8	778	15	25	0	0	11	40	0	85	15	0	7	100	918
Approach %	0.0	0.0	0.0	0.0	-	-	2.4	94.7	2.8	0.0	-	-	37.5	62.5	0.0	0.0	-	-	0.0	85.0	15.0	0.0	-	-	-
Total %	0.0	0.0	0.0	0.0	-	0.0	2.1	80.3	2.4	0.0	-	84.7	1.6	2.7	0.0	0.0	-	4.4	0.0	9.3	1.6	0.0	-	10.9	-
PHF	0.000	0.000	0.000	0.000	-	0.000	0.792	0.894	0.550	0.000	-	0.876	0.625	0.694	0.000	0.000	-	0.667	0.000	0.733	0.536	0.000	-	0.758	0.883
Lights	0	0	0	0	-	0	17	723	22	0	-	762	15	21	0	0	-	36	0	80	15	0	-	95	893
% Lights	-	-	-	-	-	-	89.5	98.1	100.0	-	-	97.9	100.0	84.0	-	-	-	90.0	-	94.1	100.0	-	-	95.0	97.3
Buses	0	0	0	0	-	0	0	8	0	0	-	8	0	0	0	0	-	0	0	3	0	0	-	3	11
% Buses	-	-	-	-	-	-	0.0	1.1	0.0	-	-	1.0	0.0	0.0	-	-	-	0.0	-	3.5	0.0	-	-	3.0	1.2
Single-Unit Trucks	0	0	0	0	-	0	1	4	0	0	-	5	0	2	0	0	-	2	0	0	0	0	-	0	7
% Single-Unit Trucks	-	-	-	-	-	-	5.3	0.5	0.0	-	-	0.6	0.0	8.0	-	-	-	5.0	-	0.0	0.0	-	-	0.0	0.8
Articulated Trucks	0	0	0	0	-	0	0	2	0	0	-	2	0	0	0	0	-	0	0	0	0	0	-	0	2
% Articulated Trucks	-	-	-	-	-	-	0.0	0.3	0.0	-	-	0.3	0.0	0.0	-	-	-	0.0	-	0.0	0.0	-	-	0.0	0.2
Bicycles on Road	0	0	0	0	-	0	1	0	0	0	-	1	0	2	0	0	-	2	0	2	0	0	-	2	5
% Bicycles on Road	-	-	-	-	-	-	5.3	0.0	0.0	-	-	0.1	0.0	8.0	-	-	-	5.0	-	2.4	0.0	-	-	2.0	0.5
Bicycles on Crosswalk	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-
% Bicycles on Crosswalk	-	-	-	-	12.5	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	14.3	-	-
Pedestrians	-	-	-	-	7	-	-	-	-	-	8	-	-	-	-	-	11	-	-	-	-	-	6	-	-
% Pedestrians	-	-	-	-	87.5	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	85.7	-	-



Turning Movement Peak Hour Data Plot (12:00 PM)

Turning Movement Peak Hour Data (4:30 PM)

Start Time	Washtenaw Ave Westbound						Washtenaw Ave Eastbound						Ballard St Southbound						Ballard St Northbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
4:30 PM	0	0	0	0	1	0	6	312	4	0	6	322	6	10	0	0	0	16	0	13	2	0	2	15	353
4:45 PM	0	0	0	0	3	0	7	356	6	0	8	369	3	8	0	0	4	11	0	14	5	0	1	19	399
5:00 PM	0	0	0	0	2	0	8	338	11	0	2	357	3	16	0	0	0	19	0	11	4	0	2	15	391
5:15 PM	0	0	0	0	2	0	10	365	7	0	2	382	4	5	0	0	3	9	0	14	3	0	1	17	408
Total	0	0	0	0	8	0	31	1371	28	0	18	1430	16	39	0	0	7	55	0	52	14	0	6	66	1551
Approach %	0.0	0.0	0.0	0.0	-	-	2.2	95.9	2.0	0.0	-	-	29.1	70.9	0.0	0.0	-	-	0.0	78.8	21.2	0.0	-	-	-
Total %	0.0	0.0	0.0	0.0	-	0.0	2.0	88.4	1.8	0.0	-	92.2	1.0	2.5	0.0	0.0	-	3.5	0.0	3.4	0.9	0.0	-	4.3	-
PHF	0.000	0.000	0.000	0.000	-	0.000	0.775	0.939	0.636	0.000	-	0.936	0.667	0.609	0.000	0.000	-	0.724	0.000	0.929	0.700	0.000	-	0.868	0.950
Lights	0	0	0	0	-	0	31	1356	28	0	-	1415	16	39	0	0	-	55	0	48	14	0	-	62	1532
% Lights	-	-	-	-	-	-	100.0	98.9	100.0	-	-	99.0	100.0	100.0	-	-	-	100.0	-	92.3	100.0	-	-	93.9	98.8
Buses	0	0	0	0	-	0	0	12	0	0	-	12	0	0	0	0	-	0	0	4	0	0	-	4	16
% Buses	-	-	-	-	-	-	0.0	0.9	0.0	-	-	0.8	0.0	0.0	-	-	-	0.0	-	7.7	0.0	-	-	6.1	1.0
Single-Unit Trucks	0	0	0	0	-	0	0	2	0	0	-	2	0	0	0	0	-	0	0	0	0	0	-	0	2
% Single-Unit Trucks	-	-	-	-	-	-	0.0	0.1	0.0	-	-	0.1	0.0	0.0	-	-	-	0.0	-	0.0	0.0	-	-	0.0	0.1
Articulated Trucks	0	0	0	0	-	0	0	1	0	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	1
% Articulated Trucks	-	-	-	-	-	-	0.0	0.1	0.0	-	-	0.1	0.0	0.0	-	-	-	0.0	-	0.0	0.0	-	-	0.0	0.1
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	-	-	-	-	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	-	0.0	-	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	2	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	25.0	-	-	-	-	-	5.6	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	6	-	-	-	-	-	17	-	-	-	-	-	7	-	-	-	-	-	6	-	-
% Pedestrians	-	-	-	-	75.0	-	-	-	-	-	94.4	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-

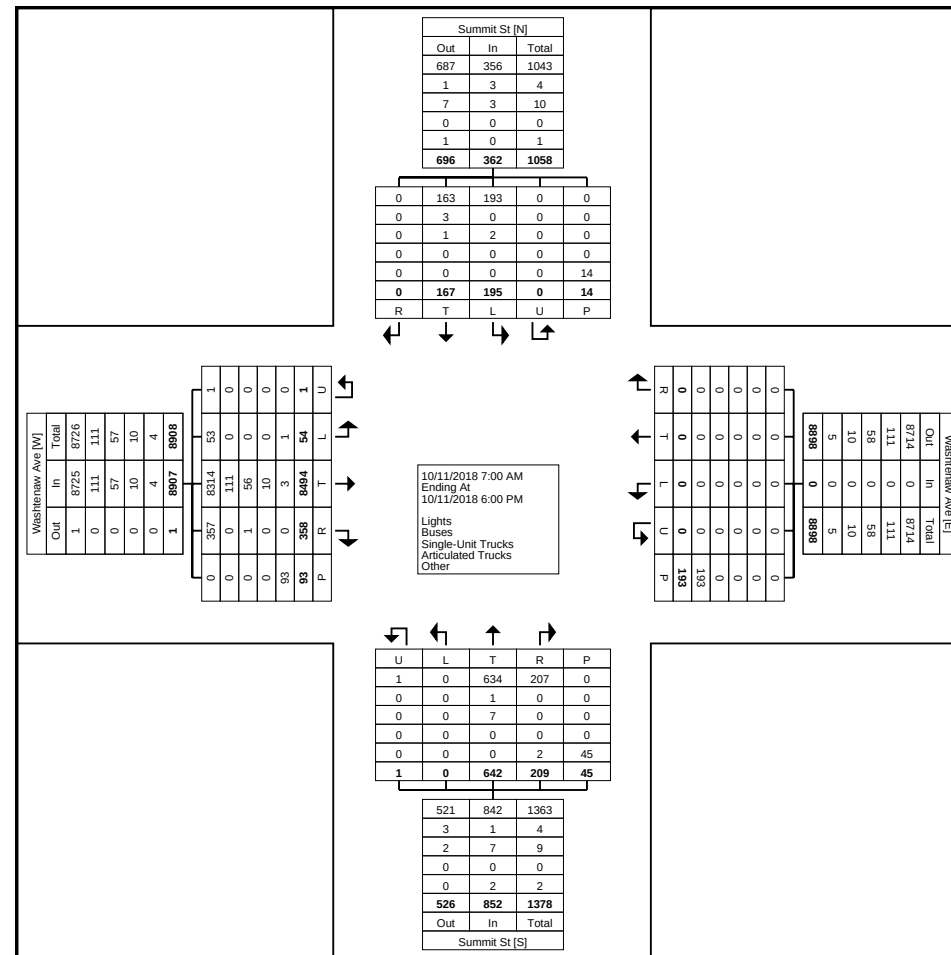


Turning Movement Peak Hour Data Plot (4:30 PM)

Turning Movement Data

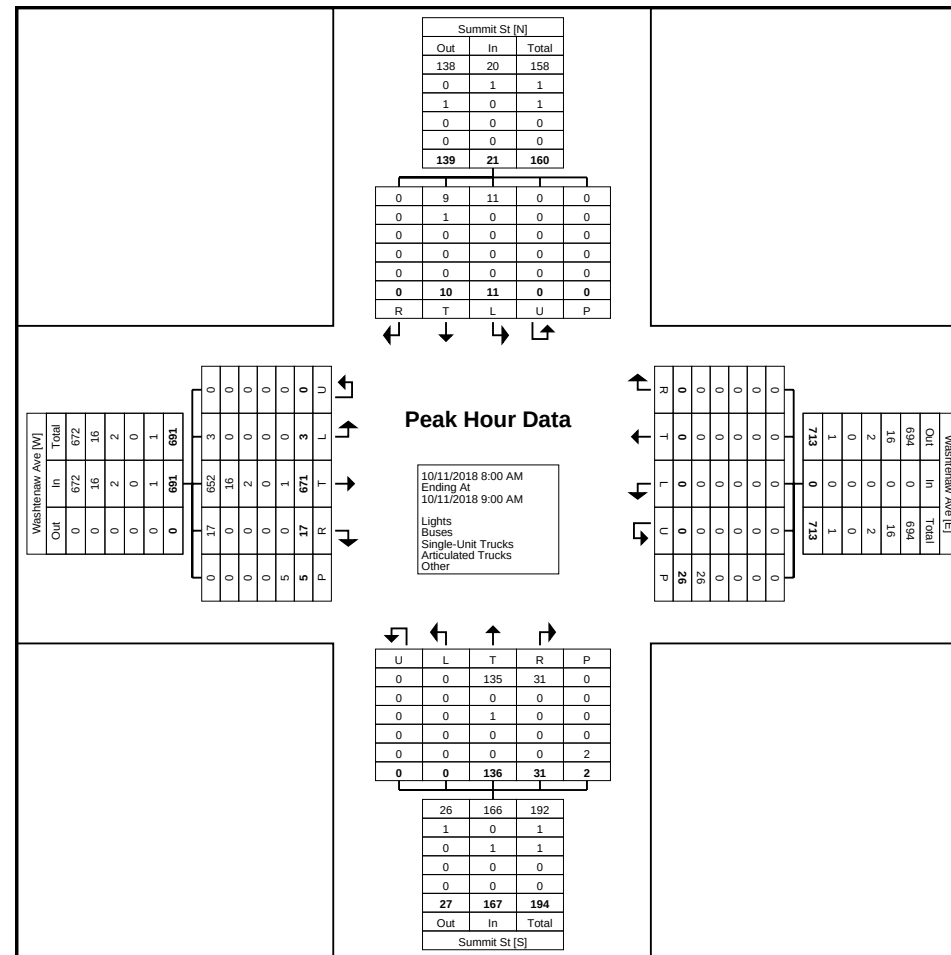
Start Time	Washtenaw Ave Westbound						Washtenaw Ave Eastbound						Summit St Southbound						Summit St Northbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
7:00 AM	0	0	0	0	1	0	0	93	3	0	2	96	4	0	0	0	0	4	0	15	5	0	1	20	120
7:15 AM	0	0	0	0	1	0	0	95	4	0	0	99	3	1	0	0	0	4	0	19	4	0	1	23	126
7:30 AM	0	0	0	0	3	0	3	128	8	0	1	139	2	0	0	0	0	2	0	28	8	0	0	36	177
7:45 AM	0	0	0	0	6	0	4	167	3	0	3	174	4	0	0	0	0	4	0	38	13	0	2	51	229
Hourly Total	0	0	0	0	11	0	7	483	18	0	6	508	13	1	0	0	0	14	0	100	30	0	4	130	652
8:00 AM	0	0	0	0	2	0	1	193	5	0	0	199	4	1	0	0	0	5	0	26	11	0	0	37	241
8:15 AM	0	0	0	0	8	0	2	146	4	0	0	152	2	1	0	0	0	3	0	35	6	0	0	41	196
8:30 AM	0	0	0	0	7	0	0	156	3	0	2	159	0	6	0	0	0	6	0	35	8	0	0	43	208
8:45 AM	0	0	0	0	9	0	0	176	5	0	3	181	5	2	0	0	0	7	0	40	6	0	2	46	234
Hourly Total	0	0	0	0	26	0	3	671	17	0	5	691	11	10	0	0	0	21	0	136	31	0	2	167	879
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 AM	0	0	0	0	6	0	1	193	6	0	2	200	4	4	0	0	0	8	0	17	8	0	2	25	233
11:15 AM	0	0	0	0	3	0	1	204	5	0	4	210	5	3	0	0	2	8	0	24	4	0	0	28	246
11:30 AM	0	0	0	0	2	0	2	180	3	0	1	185	6	3	0	0	0	9	0	24	6	0	1	30	224
11:45 AM	0	0	0	0	12	0	2	215	7	0	3	224	2	1	0	0	0	3	0	12	2	0	1	14	241
Hourly Total	0	0	0	0	23	0	6	792	21	0	10	819	17	11	0	0	2	28	0	77	20	0	4	97	944
12:00 PM	0	0	0	0	15	0	3	227	13	0	7	243	7	9	0	0	0	16	0	19	3	0	2	22	281
12:15 PM	0	0	0	0	9	0	4	254	9	0	8	267	11	6	0	0	0	17	0	9	6	0	4	15	299
12:30 PM	0	0	0	0	9	0	3	239	9	0	4	251	12	2	0	0	0	14	0	26	9	0	1	35	300
12:45 PM	0	0	0	0	5	0	5	197	12	0	2	214	1	4	0	0	2	5	0	16	4	0	3	20	239
Hourly Total	0	0	0	0	38	0	15	917	43	0	21	975	31	21	0	0	2	52	0	70	22	0	10	92	1119
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00 PM	0	0	0	0	3	0	0	286	15	0	2	301	8	3	0	0	0	11	0	16	4	0	3	20	332
2:15 PM	0	0	0	0	3	0	0	245	6	0	1	251	7	8	0	0	1	15	0	18	6	0	2	24	290
2:30 PM	0	0	0	0	9	0	0	249	11	0	4	260	7	8	0	0	0	15	0	10	11	0	0	21	296
2:45 PM	0	0	0	0	6	0	0	266	12	0	0	278	6	9	0	0	0	15	0	17	4	0	3	21	314
Hourly Total	0	0	0	0	21	0	0	1046	44	0	7	1090	28	28	0	0	1	56	0	61	25	0	8	86	1232
3:00 PM	0	0	0	0	8	0	0	317	14	0	5	331	6	4	0	0	0	10	0	9	6	1	1	16	357
3:15 PM	0	0	0	0	6	0	2	388	10	0	4	400	5	11	0	0	1	16	0	20	7	0	1	27	443
3:30 PM	0	0	0	0	5	0	4	370	20	0	3	394	5	4	0	0	0	9	0	22	6	0	1	28	431
3:45 PM	0	0	0	0	7	0	4	326	23	0	2	353	12	8	0	0	1	20	0	24	5	0	3	29	402
Hourly Total	0	0	0	0	26	0	10	1401	67	0	14	1478	28	27	0	0	2	55	0	75	24	1	6	100	1633
4:00 PM	0	0	0	0	5	0	0	412	18	0	4	430	10	4	0	0	0	14	0	15	4	0	1	19	463
4:15 PM	0	0	0	0	7	0	1	349	13	0	1	363	6	11	0	0	0	17	0	13	10	0	2	23	403
4:30 PM	0	0	0	0	3	0	0	385	15	0	5	400	7	7	0	0	0	14	0	11	7	0	1	18	432
4:45 PM	0	0	0	0	7	0	5	405	21	0	8	431	8	7	0	0	3	15	0	17	4	0	3	21	467
Hourly Total	0	0	0	0	22	0	6	1551	67	0	18	1624	31	29	0	0	3	60	0	56	25	0	7	81	1765

5:00 PM	0	0	0	0	7	0	2	431	25	1	3	459	10	8	0	0	0	18	0	21	1	0	0	22	499
5:15 PM	0	0	0	0	7	0	1	490	22	0	4	513	11	17	0	0	1	28	0	14	13	0	1	27	568
5:30 PM	0	0	0	0	11	0	2	351	15	0	3	368	6	9	0	0	1	15	0	15	10	0	0	25	408
5:45 PM	0	0	0	0	1	0	2	361	19	0	2	382	9	6	0	0	2	15	0	17	8	0	3	25	422
Hourly Total	0	0	0	0	26	0	7	1633	81	1	12	1722	36	40	0	0	4	76	0	67	32	0	4	99	1897
Grand Total	0	0	0	0	193	0	54	8494	358	1	93	8907	195	167	0	0	14	362	0	642	209	1	45	852	10121
Approach %	0.0	0.0	0.0	0.0	-	-	0.6	95.4	4.0	0.0	-	-	53.9	46.1	0.0	0.0	-	-	0.0	75.4	24.5	0.1	-	-	-
Total %	0.0	0.0	0.0	0.0	-	0.0	0.5	83.9	3.5	0.0	-	88.0	1.9	1.7	0.0	0.0	-	3.6	0.0	6.3	2.1	0.0	-	8.4	-
Lights	0	0	0	0	-	0	53	8314	357	1	-	8725	193	163	0	0	-	356	0	634	207	1	-	842	9923
% Lights	-	-	-	-	-	-	98.1	97.9	99.7	100.0	-	98.0	99.0	97.6	-	-	-	98.3	-	98.8	99.0	100.0	-	98.8	98.0
Buses	0	0	0	0	-	0	0	111	0	0	-	111	0	3	0	0	-	3	0	1	0	0	-	1	115
% Buses	-	-	-	-	-	-	0.0	1.3	0.0	0.0	-	1.2	0.0	1.8	-	-	-	0.8	-	0.2	0.0	0.0	-	0.1	1.1
Single-Unit Trucks	0	0	0	0	-	0	0	56	1	0	-	57	2	1	0	0	-	3	0	7	0	0	-	7	67
% Single-Unit Trucks	-	-	-	-	-	-	0.0	0.7	0.3	0.0	-	0.6	1.0	0.6	-	-	-	0.8	-	1.1	0.0	0.0	-	0.8	0.7
Articulated Trucks	0	0	0	0	-	0	0	10	0	0	-	10	0	0	0	0	-	0	0	0	0	0	-	0	10
% Articulated Trucks	-	-	-	-	-	-	0.0	0.1	0.0	0.0	-	0.1	0.0	0.0	-	-	-	0.0	-	0.0	0.0	0.0	-	0.0	0.1
Bicycles on Road	0	0	0	0	-	0	1	3	0	0	-	4	0	0	0	0	-	0	0	0	2	0	-	2	6
% Bicycles on Road	-	-	-	-	-	-	1.9	0.0	0.0	0.0	-	0.0	0.0	0.0	-	-	-	0.0	-	0.0	1.0	0.0	-	0.2	0.1
Bicycles on Crosswalk	-	-	-	-	17	-	-	-	-	-	6	-	-	-	-	-	0	-	-	-	-	-	6	-	-
% Bicycles on Crosswalk	-	-	-	-	8.8	-	-	-	-	-	6.5	-	-	-	-	-	0.0	-	-	-	-	-	13.3	-	-
Pedestrians	-	-	-	-	176	-	-	-	-	-	87	-	-	-	-	-	14	-	-	-	-	-	39	-	-
% Pedestrians	-	-	-	-	91.2	-	-	-	-	-	93.5	-	-	-	-	-	100.0	-	-	-	-	-	86.7	-	-



Turning Movement Data Plot

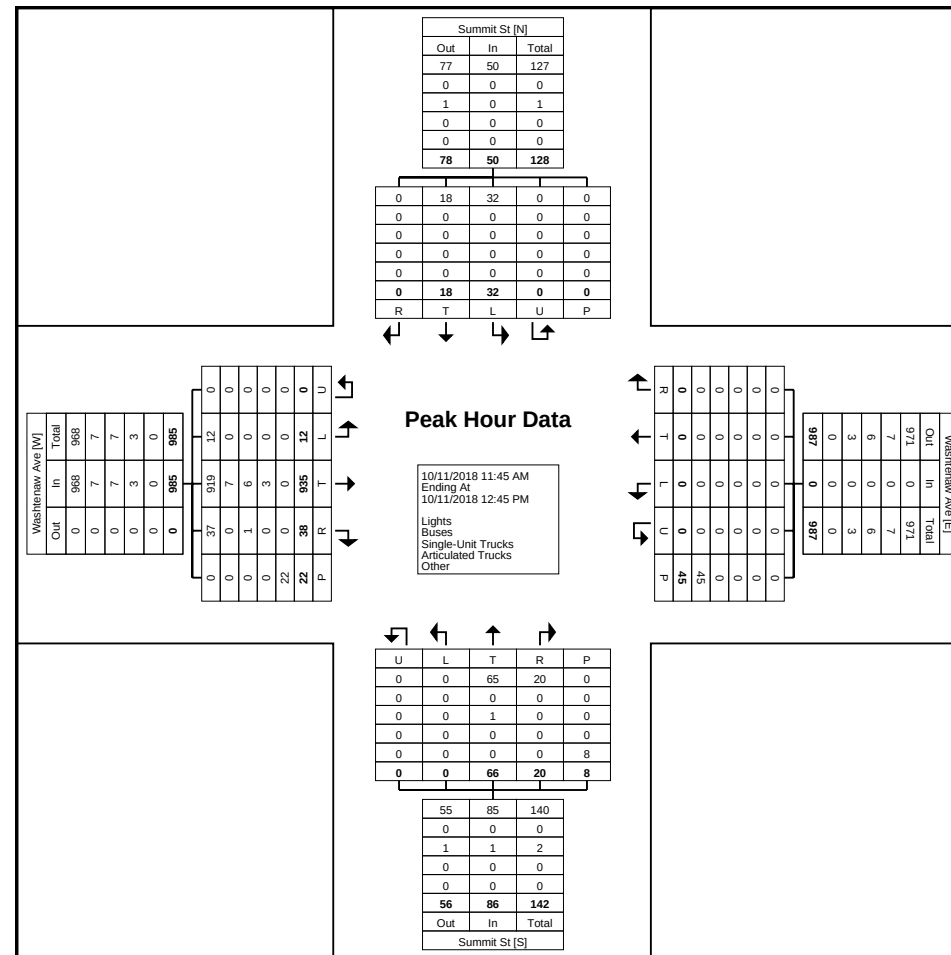
Count Name: Washtenaw Ave and Summit St
Site Code: 20180230
Start Date: 10/11/2018
Page No: 4



Turning Movement Peak Hour Data Plot (8:00 AM)

Turning Movement Peak Hour Data (11:45 AM)

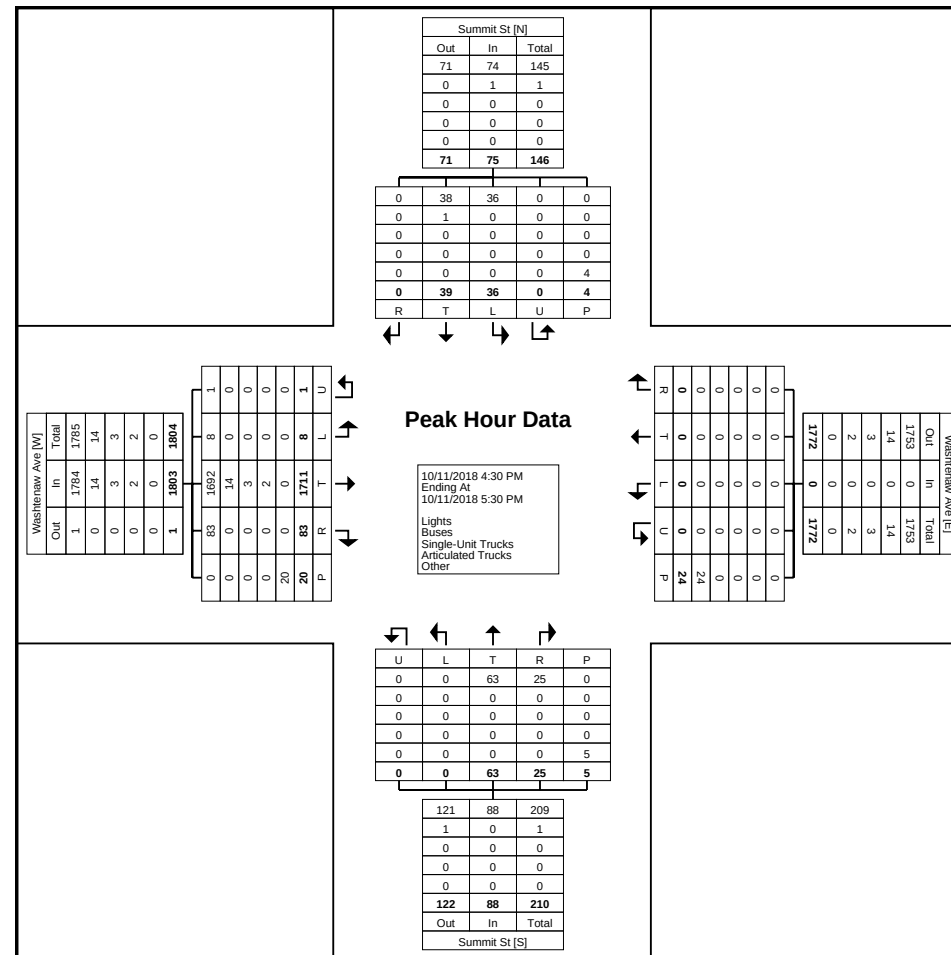
Start Time	Washtenaw Ave Westbound						Washtenaw Ave Eastbound						Summit St Southbound						Summit St Northbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
11:45 AM	0	0	0	0	12	0	2	215	7	0	3	224	2	1	0	0	0	3	0	12	2	0	1	14	241
12:00 PM	0	0	0	0	15	0	3	227	13	0	7	243	7	9	0	0	0	16	0	19	3	0	2	22	281
12:15 PM	0	0	0	0	9	0	4	254	9	0	8	267	11	6	0	0	0	17	0	9	6	0	4	15	299
12:30 PM	0	0	0	0	9	0	3	239	9	0	4	251	12	2	0	0	0	14	0	26	9	0	1	35	300
Total	0	0	0	0	45	0	12	935	38	0	22	985	32	18	0	0	0	50	0	66	20	0	8	86	1121
Approach %	0.0	0.0	0.0	0.0	-	-	1.2	94.9	3.9	0.0	-	-	64.0	36.0	0.0	0.0	-	-	0.0	76.7	23.3	0.0	-	-	-
Total %	0.0	0.0	0.0	0.0	-	0.0	1.1	83.4	3.4	0.0	-	87.9	2.9	1.6	0.0	0.0	-	4.5	0.0	5.9	1.8	0.0	-	7.7	-
PHF	0.000	0.000	0.000	0.000	-	0.000	0.750	0.920	0.731	0.000	-	0.922	0.667	0.500	0.000	0.000	-	0.735	0.000	0.635	0.556	0.000	-	0.614	0.934
Lights	0	0	0	0	-	0	12	919	37	0	-	968	32	18	0	0	-	50	0	65	20	0	-	85	1103
% Lights	-	-	-	-	-	-	100.0	98.3	97.4	-	-	98.3	100.0	100.0	-	-	-	100.0	-	98.5	100.0	-	-	98.8	98.4
Buses	0	0	0	0	-	0	0	7	0	0	-	7	0	0	0	0	-	0	0	0	0	0	-	0	7
% Buses	-	-	-	-	-	-	0.0	0.7	0.0	-	-	0.7	0.0	0.0	-	-	-	0.0	-	0.0	0.0	-	-	0.0	0.6
Single-Unit Trucks	0	0	0	0	-	0	0	6	1	0	-	7	0	0	0	0	-	0	0	1	0	0	-	1	8
% Single-Unit Trucks	-	-	-	-	-	-	0.0	0.6	2.6	-	-	0.7	0.0	0.0	-	-	-	0.0	-	1.5	0.0	-	-	1.2	0.7
Articulated Trucks	0	0	0	0	-	0	0	3	0	0	-	3	0	0	0	0	-	0	0	0	0	0	-	0	3
% Articulated Trucks	-	-	-	-	-	-	0.0	0.3	0.0	-	-	0.3	0.0	0.0	-	-	-	0.0	-	0.0	0.0	-	-	0.0	0.3
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	-	-	-	-	-	-	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	-	0.0	-	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	4	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	8.9	-	-	-	-	-	4.5	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	41	-	-	-	-	-	21	-	-	-	-	-	0	-	-	-	-	-	8	-	-
% Pedestrians	-	-	-	-	91.1	-	-	-	-	-	95.5	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-



Turning Movement Peak Hour Data Plot (11:45 AM)

Turning Movement Peak Hour Data (4:30 PM)

Start Time	Washtenaw Ave Westbound						Washtenaw Ave Eastbound						Summit St Southbound						Summit St Northbound						Int. Total
	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	Left	Thru	Right	U-Turn	Peds	App. Total	
4:30 PM	0	0	0	0	3	0	0	385	15	0	5	400	7	7	0	0	0	14	0	11	7	0	1	18	432
4:45 PM	0	0	0	0	7	0	5	405	21	0	8	431	8	7	0	0	3	15	0	17	4	0	3	21	467
5:00 PM	0	0	0	0	7	0	2	431	25	1	3	459	10	8	0	0	0	18	0	21	1	0	0	22	499
5:15 PM	0	0	0	0	7	0	1	490	22	0	4	513	11	17	0	0	1	28	0	14	13	0	1	27	568
Total	0	0	0	0	24	0	8	1711	83	1	20	1803	36	39	0	0	4	75	0	63	25	0	5	88	1966
Approach %	0.0	0.0	0.0	0.0	-	-	0.4	94.9	4.6	0.1	-	-	48.0	52.0	0.0	0.0	-	-	0.0	71.6	28.4	0.0	-	-	-
Total %	0.0	0.0	0.0	0.0	-	0.0	0.4	87.0	4.2	0.1	-	91.7	1.8	2.0	0.0	0.0	-	3.8	0.0	3.2	1.3	0.0	-	4.5	-
PHF	0.000	0.000	0.000	0.000	-	0.000	0.400	0.873	0.830	0.250	-	0.879	0.818	0.574	0.000	0.000	-	0.670	0.000	0.750	0.481	0.000	-	0.815	0.865
Lights	0	0	0	0	-	0	8	1692	83	1	-	1784	36	38	0	0	-	74	0	63	25	0	-	88	1946
% Lights	-	-	-	-	-	-	100.0	98.9	100.0	100.0	-	98.9	100.0	97.4	-	-	-	98.7	-	100.0	100.0	-	-	100.0	99.0
Buses	0	0	0	0	-	0	0	14	0	0	-	14	0	1	0	0	-	1	0	0	0	0	-	0	15
% Buses	-	-	-	-	-	-	0.0	0.8	0.0	0.0	-	0.8	0.0	2.6	-	-	-	1.3	-	0.0	0.0	-	-	0.0	0.8
Single-Unit Trucks	0	0	0	0	-	0	0	3	0	0	-	3	0	0	0	0	-	0	0	0	0	0	-	0	3
% Single-Unit Trucks	-	-	-	-	-	-	0.0	0.2	0.0	0.0	-	0.2	0.0	0.0	-	-	-	0.0	-	0.0	0.0	-	-	0.0	0.2
Articulated Trucks	0	0	0	0	-	0	0	2	0	0	-	2	0	0	0	0	-	0	0	0	0	0	-	0	2
% Articulated Trucks	-	-	-	-	-	-	0.0	0.1	0.0	0.0	-	0.1	0.0	0.0	-	-	-	0.0	-	0.0	0.0	-	-	0.0	0.1
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	-	-	-	-	-	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	-	-	-	0.0	-	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	2	-	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	1	-	-
% Bicycles on Crosswalk	-	-	-	-	8.3	-	-	-	-	-	10.0	-	-	-	-	-	0.0	-	-	-	-	-	20.0	-	-
Pedestrians	-	-	-	-	22	-	-	-	-	-	18	-	-	-	-	-	4	-	-	-	-	-	4	-	-
% Pedestrians	-	-	-	-	91.7	-	-	-	-	-	90.0	-	-	-	-	-	100.0	-	-	-	-	-	80.0	-	-

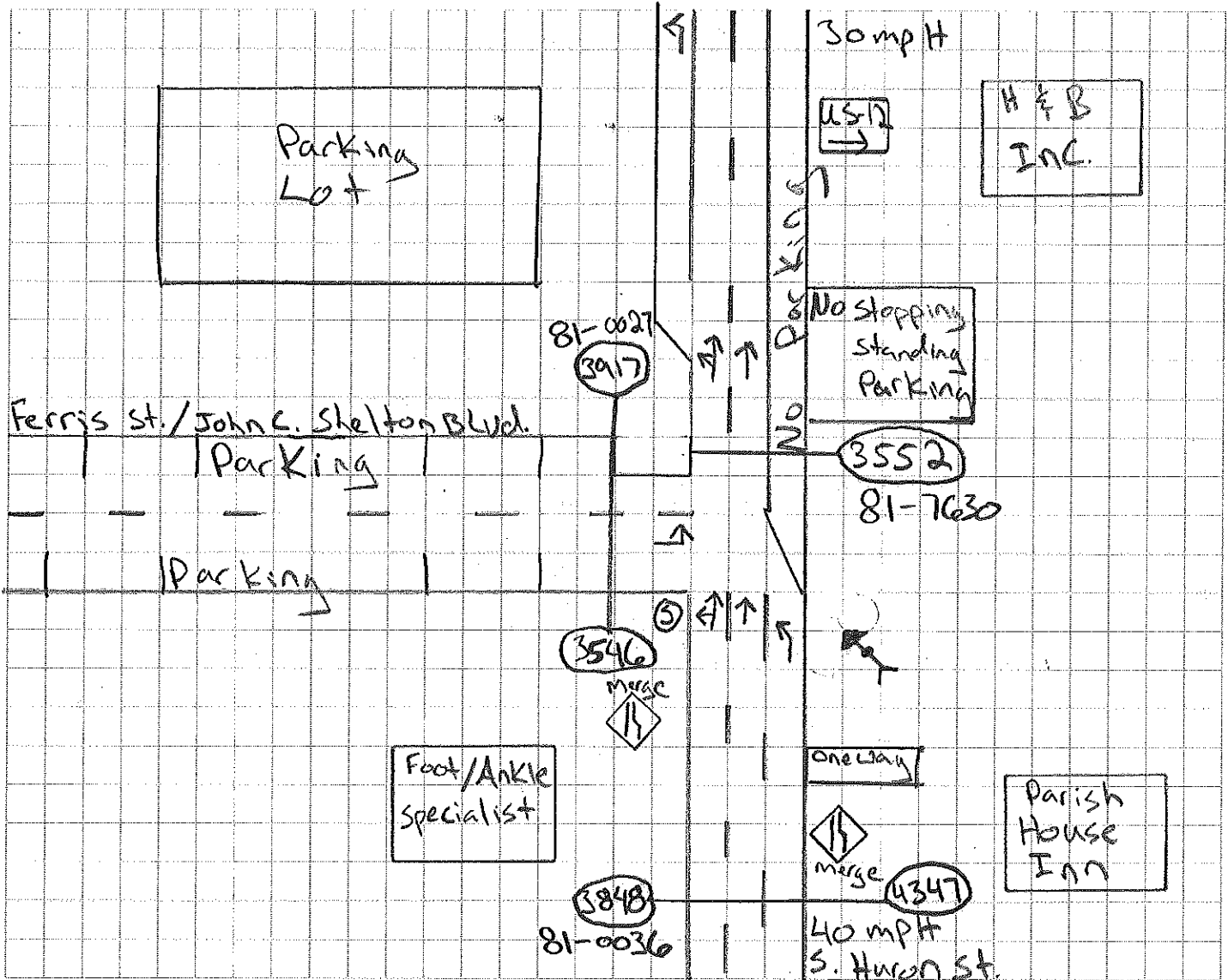


Turning Movement Peak Hour Data Plot (4:30 PM)

Michigan Department
of Transportation
1705B (01/16)

INTERSECTION DIAGRAM (Not to Scale)

DATE 10-11-16	DAY Tuesday	COUNTY Washtenaw	TIME
TWP. VILLAGE OR CITY Ypsilanti Twp.	WEATHER Sunny		7a TO 9a
INTERSECTION OF US-12/Huron St @ Ferris St / John C. Shelton Blvd.			11a TO 1p 2p TO 6p



COMMENTS

Speed Limit on South leg of Huron St. is 40 MPH
 Speed Limit on North leg of Huron St. is 30 MPH
 Speed Limit on Ferris St / John C. Shelton Blvd. is not posted
 MID set in Southeast corner

SURVEY PARTY CHIEF

DRAWN BY

COUNTED BY

MACHINES SET BY

F. Benavidez

Michigan Department Of Transportation Turning Movement

US-12 / HURON ST.
@ FERRIS ST. / JOHN C.C SHELDON BLVD.
YPSILANTI TWP.
WASHTENAW COUNTY

File Name : TM_160203_353421_10-11-2016
Site Code : 160203
Start Date : 10/11/2016
Page No : 1

Groups Printed- CARS - SINGLE UNITS - SEMIS - PEDESTRIANS

	SB US-12 / HURON ST From North		NO LEG From East				NB US-12 / HURON ST From South					FERRIS / DR JOHN C. SHELTON BLVD From West				
End Time	Peds	App. Total	Right	Thru	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Thru	Left	Peds	App. Total	Int. Total
07:15 AM	0	0	0	0	0	0	0	178	4	0	182	0	3	1	4	186
07:30 AM	0	0	0	0	0	0	0	302	4	0	306	0	1	1	2	308
07:45 AM	0	0	0	0	0	0	0	313	6	0	319	0	0	0	0	319
08:00 AM	0	0	0	0	0	0	0	294	6	0	300	0	0	0	0	300
Total	0	0	0	0	0	0	0	1087	20	0	1107	0	4	2	6	1113
08:15 AM	0	0	0	0	1	1	0	284	11	0	295	0	4	0	4	300
08:30 AM	0	0	0	0	0	0	1	329	15	0	345	0	5	3	8	353
08:45 AM	0	0	0	1	0	1	0	314	6	0	320	0	3	0	3	324
09:00 AM	0	0	0	0	0	0	1	318	20	1	340	0	6	0	6	346
Total	0	0	0	1	1	2	2	1245	52	1	1300	0	18	3	21	1323
11:15 AM	2	2	0	0	3	3	0	183	10	1	194	0	2	1	3	202
11:30 AM	0	0	0	0	1	1	0	175	4	1	180	0	9	0	9	190
11:45 AM	1	1	0	0	1	1	1	183	9	0	193	0	11	0	11	206
12:00 PM	1	1	0	0	4	4	1	228	7	0	236	0	8	3	11	252
Total	4	4	0	0	9	9	2	769	30	2	803	0	30	4	34	850
12:15 PM	0	0	0	0	0	0	0	227	12	0	239	0	11	0	11	250
12:30 PM	0	0	0	0	0	0	0	184	11	1	196	0	12	0	12	208
12:45 PM	0	0	0	0	1	1	0	234	9	1	244	0	7	2	9	254
01:00 PM	2	2	0	1	0	1	0	177	9	0	186	1	8	0	9	198
Total	2	2	0	1	1	2	0	822	41	2	865	1	38	2	41	910
02:15 PM	4	4	0	0	4	4	0	184	10	0	194	0	9	1	10	212
02:30 PM	1	1	0	0	1	1	0	172	7	1	180	0	11	3	14	196
02:45 PM	0	0	1	0	2	3	1	192	8	3	204	0	13	1	14	221
03:00 PM	3	3	0	0	3	3	1	217	14	1	233	0	8	1	9	248
Total	8	8	1	0	10	11	2	765	39	5	811	0	41	6	47	877
03:15 PM	1	1	0	1	4	5	0	192	10	0	202	1	11	0	12	220
03:30 PM	0	0	1	0	1	2	0	220	13	2	235	0	14	2	16	253
03:45 PM	0	0	0	1	1	2	0	225	12	0	237	0	17	1	18	257
04:00 PM	6	6	0	0	2	2	1	207	12	0	220	0	17	1	18	246
Total	7	7	1	2	8	11	1	844	47	2	894	1	59	4	64	976
04:15 PM	1	1	2	0	3	5	1	197	11	0	209	1	5	2	8	223
04:30 PM	1	1	0	0	0	0	0	203	6	0	209	0	15	1	16	226
04:45 PM	2	2	0	0	2	2	0	314	12	2	328	0	7	2	9	341
05:00 PM	0	0	1	0	0	1	1	322	6	0	329	0	9	1	10	340
Total	4	4	3	0	5	8	2	1036	35	2	1075	1	36	6	43	1130
05:15 PM	1	1	2	1	0	3	0	310	8	0	318	0	14	6	20	342

Michigan Department Of Transportation Turning Movement

File Name : TM_160203_353421_10-11-2016

Site Code : 160203

Start Date : 10/11/2016

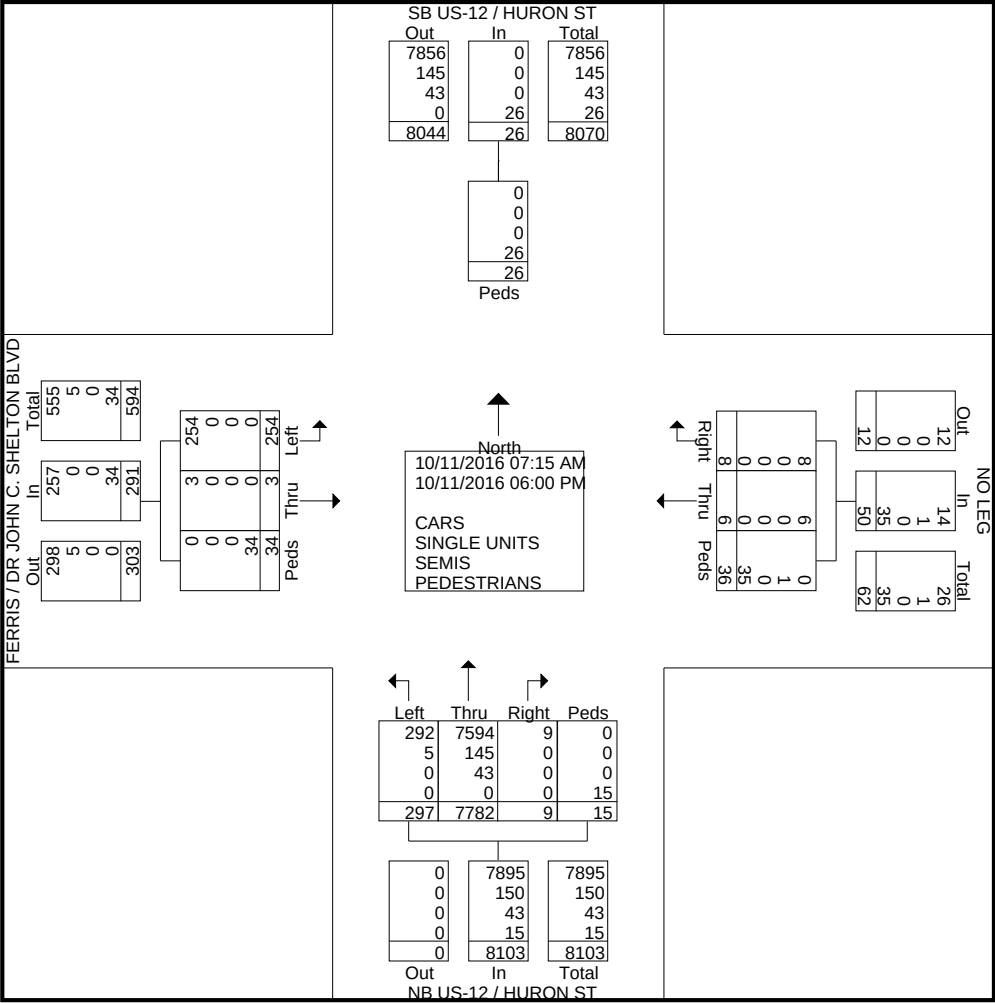
Page No : 2

Groups Printed- CARS - SINGLE UNITS - SEMIS - PEDESTRIANS

	SB US-12 / HURON ST From North		NO LEG From East				NB US-12 / HURON ST From South					FERRIS / DR JOHN C. SHELTON BLVD From West				
End Time	Peds	App. Total	Right	Thru	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Thru	Left	Peds	App. Total	Int. Total
05:30 PM	0	0	0	1	1	2	0	316	5	0	321	0	6	1	7	330
05:45 PM	0	0	0	0	0	0	0	329	5	1	335	0	3	0	3	338
06:00 PM	0	0	1	0	1	2	0	259	15	0	274	0	5	0	5	281
Total	1	1	3	2	2	7	0	1214	33	1	1248	0	28	7	35	1291
Grand Total	26	26	8	6	36	50	9	7782	297	15	8103	3	254	34	291	8470
Apprch %	100		16	12	72		0.1	96	3.7	0.2		1	87.3	11.7		
Total %	0.3	0.3	0.1	0.1	0.4	0.6	0.1	91.9	3.5	0.2	95.7	0	3	0.4	3.4	
CARS	0	0	8	6	0	14	9	7594	292	0	7895	3	254	0	257	8166
% CARS	0	0	100	100	0	28	100	97.6	98.3	0	97.4	100	100	0	88.3	96.4
SINGLE UNITS	0	0	0	0	1	1	0	145	5	0	150	0	0	0	0	151
% SINGLE UNITS	0	0	0	0	2.8	2	0	1.9	1.7	0	1.9	0	0	0	0	1.8
SEMIS	0	0	0	0	0	0	0	43	0	0	43	0	0	0	0	43
% SEMIS	0	0	0	0	0	0	0	0.6	0	0	0.5	0	0	0	0	0.5
PEDESTRIANS	26	26	0	0	35	35	0	0	0	15	15	0	0	34	34	110
% PEDESTRIANS	100	100	0	0	97.2	70	0	0	0	100	0.2	0	0	100	11.7	1.3

Michigan Department
Of
Transportation
Turning Movement

File Name : TM_160203_353421_10-11-2016
Site Code : 160203
Start Date : 10/11/2016
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Michigan Department Of Transportation Turning Movement

US-12 / HURON ST.
@ FERRIS ST. / JOHN C.C SHELDON BLVD.
YPSILANTI TWP.
WASHTENAW COUNTY

File Name : TM_160203_353421_10-11-2016
Site Code : 160203
Start Date : 10/11/2016
Page No : 1

Groups Printed- CARS

	SB US-12 / HURON ST From North		NO LEG From East				NB US-12 / HURON ST From South					FERRIS / DR JOHN C. SHELTON BLVD From West				
End Time	Peds	App. Total	Right	Thru	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Thru	Left	Peds	App. Total	Int. Total
07:15 AM	0	0	0	0	0	0	0	172	4	0	176	0	3	0	3	179
07:30 AM	0	0	0	0	0	0	0	295	4	0	299	0	1	0	1	300
07:45 AM	0	0	0	0	0	0	0	309	6	0	315	0	0	0	0	315
08:00 AM	0	0	0	0	0	0	0	278	5	0	283	0	0	0	0	283
Total	0	0	0	0	0	0	0	1054	19	0	1073	0	4	0	4	1077
08:15 AM	0	0	0	0	0	0	0	275	11	0	286	0	4	0	4	290
08:30 AM	0	0	0	0	0	0	1	323	15	0	339	0	5	0	5	344
08:45 AM	0	0	0	1	0	1	0	310	6	0	316	0	3	0	3	320
09:00 AM	0	0	0	0	0	0	1	315	20	0	336	0	6	0	6	342
Total	0	0	0	1	0	1	2	1223	52	0	1277	0	18	0	18	1296
11:15 AM	0	0	0	0	0	0	0	177	10	0	187	0	2	0	2	189
11:30 AM	0	0	0	0	0	0	0	162	3	0	165	0	9	0	9	174
11:45 AM	0	0	0	0	0	0	1	177	9	0	187	0	11	0	11	198
12:00 PM	0	0	0	0	0	0	1	219	6	0	226	0	8	0	8	234
Total	0	0	0	0	0	0	2	735	28	0	765	0	30	0	30	795
12:15 PM	0	0	0	0	0	0	0	224	11	0	235	0	11	0	11	246
12:30 PM	0	0	0	0	0	0	0	177	11	0	188	0	12	0	12	200
12:45 PM	0	0	0	0	0	0	0	223	9	0	232	0	7	0	7	239
01:00 PM	0	0	0	1	0	1	0	174	9	0	183	1	8	0	9	193
Total	0	0	0	1	0	1	0	798	40	0	838	1	38	0	39	878
02:15 PM	0	0	0	0	0	0	0	181	10	0	191	0	9	0	9	200
02:30 PM	0	0	0	0	0	0	0	168	7	0	175	0	11	0	11	186
02:45 PM	0	0	1	0	0	1	1	184	8	0	193	0	13	0	13	207
03:00 PM	0	0	0	0	0	0	1	211	13	0	225	0	8	0	8	233
Total	0	0	1	0	0	1	2	744	38	0	784	0	41	0	41	826
03:15 PM	0	0	0	1	0	1	0	183	10	0	193	1	11	0	12	206
03:30 PM	0	0	1	0	0	1	0	212	13	0	225	0	14	0	14	240
03:45 PM	0	0	0	1	0	1	0	220	12	0	232	0	17	0	17	250
04:00 PM	0	0	0	0	0	0	1	205	12	0	218	0	17	0	17	235
Total	0	0	1	2	0	3	1	820	47	0	868	1	59	0	60	931
04:15 PM	0	0	2	0	0	2	1	192	11	0	204	1	5	0	6	212
04:30 PM	0	0	0	0	0	0	0	200	6	0	206	0	15	0	15	221
04:45 PM	0	0	0	0	0	0	0	311	12	0	323	0	7	0	7	330
05:00 PM	0	0	1	0	0	1	1	315	6	0	322	0	9	0	9	332
Total	0	0	3	0	0	3	2	1018	35	0	1055	1	36	0	37	1095
05:15 PM	0	0	2	1	0	3	0	307	8	0	315	0	14	0	14	332

Michigan Department Of Transportation Turning Movement

File Name : TM_160203_353421_10-11-2016

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Groups Printed- CARS

	SB US-12 / HURON ST From North		NO LEG From East				NB US-12 / HURON ST From South					FERRIS / DR JOHN C. SHELTON BLVD From West				
End Time	Peds	App. Total	Right	Thru	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Thru	Left	Peds	App. Total	Int. Total
05:30 PM	0	0	0	1	0	1	0	314	5	0	319	0	6	0	6	326
05:45 PM	0	0	0	0	0	0	0	325	5	0	330	0	3	0	3	333
06:00 PM	0	0	1	0	0	1	0	256	15	0	271	0	5	0	5	277
Total	0	0	3	2	0	5	0	1202	33	0	1235	0	28	0	28	1268
Grand Total	0	0	8	6	0	14	9	7594	292	0	7895	3	254	0	257	8166
Apprch %	0		57.1	42.9	0		0.1	96.2	3.7	0		1.2	98.8	0		
Total %	0	0	0.1	0.1	0	0.2	0.1	93	3.6	0	96.7	0	3.1	0	3.1	

Michigan Department Of Transportation Turning Movement

US-12 / HURON ST.
@ FERRIS ST. / JOHN C.C SHELDON BLVD.
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WASHTENAW COUNTY

File Name : TM_160203_353421_10-11-2016
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Groups Printed- SINGLE UNITS

	SB US-12 / HURON ST From North		NO LEG From East				NB US-12 / HURON ST From South					FERRIS / DR JOHN C. SHELTON BLVD From West				
End Time	Peds	App. Total	Right	Thru	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Thru	Left	Peds	App. Total	Int. Total
07:15 AM	0	0	0	0	0	0	0	5	0	0	5	0	0	0	0	5
07:30 AM	0	0	0	0	0	0	0	6	0	0	6	0	0	0	0	6
07:45 AM	0	0	0	0	0	0	0	4	0	0	4	0	0	0	0	4
08:00 AM	0	0	0	0	0	0	0	10	1	0	11	0	0	0	0	11
Total	0	0	0	0	0	0	0	25	1	0	26	0	0	0	0	26
08:15 AM	0	0	0	0	0	0	0	6	0	0	6	0	0	0	0	6
08:30 AM	0	0	0	0	0	0	0	4	0	0	4	0	0	0	0	4
08:45 AM	0	0	0	0	0	0	0	4	0	0	4	0	0	0	0	4
09:00 AM	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	3
Total	0	0	0	0	0	0	0	17	0	0	17	0	0	0	0	17
11:15 AM	0	0	0	0	0	0	0	4	0	0	4	0	0	0	0	4
11:30 AM	0	0	0	0	0	0	0	11	1	0	12	0	0	0	0	12
11:45 AM	0	0	0	0	0	0	0	5	0	0	5	0	0	0	0	5
12:00 PM	0	0	0	0	0	0	0	7	1	0	8	0	0	0	0	8
Total	0	0	0	0	0	0	0	27	2	0	29	0	0	0	0	29
12:15 PM	0	0	0	0	0	0	0	2	1	0	3	0	0	0	0	3
12:30 PM	0	0	0	0	0	0	0	5	0	0	5	0	0	0	0	5
12:45 PM	0	0	0	0	0	0	0	8	0	0	8	0	0	0	0	8
01:00 PM	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	2
Total	0	0	0	0	0	0	0	17	1	0	18	0	0	0	0	18
02:15 PM	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	2
02:30 PM	0	0	0	0	0	0	0	4	0	0	4	0	0	0	0	4
02:45 PM	0	0	0	0	1	1	0	8	0	0	8	0	0	0	0	9
03:00 PM	0	0	0	0	0	0	0	4	1	0	5	0	0	0	0	5
Total	0	0	0	0	1	1	0	18	1	0	19	0	0	0	0	20
03:15 PM	0	0	0	0	0	0	0	7	0	0	7	0	0	0	0	7
03:30 PM	0	0	0	0	0	0	0	6	0	0	6	0	0	0	0	6
03:45 PM	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	3
04:00 PM	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	2
Total	0	0	0	0	0	0	0	18	0	0	18	0	0	0	0	18
04:15 PM	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	3
04:30 PM	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	3
04:45 PM	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	3
05:00 PM	0	0	0	0	0	0	0	5	0	0	5	0	0	0	0	5
Total	0	0	0	0	0	0	0	14	0	0	14	0	0	0	0	14
05:15 PM	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	3

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Groups Printed- SINGLE UNITS

	SB US-12 / HURON ST From North		NO LEG From East				NB US-12 / HURON ST From South					FERRIS / DR JOHN C. SHELTON BLVD From West				
End Time	Peds	App. Total	Right	Thru	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Thru	Left	Peds	App. Total	Int. Total
05:30 PM	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
05:45 PM	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	3
06:00 PM	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	2
Total	0	0	0	0	0	0	0	9	0	0	9	0	0	0	0	9
Grand Total	0	0	0	0	1	1	0	145	5	0	150	0	0	0	0	151
Apprch %	0		0	0	100		0	96.7	3.3	0		0	0	0		
Total %	0	0	0	0	0.7	0.7	0	96	3.3	0	99.3	0	0	0	0	

Michigan Department Of Transportation Turning Movement

US-12 / HURON ST.
@ FERRIS ST. / JOHN C.C SHELDON BLVD.
YPSILANTI TWP.
WASHTENAW COUNTY

File Name : TM_160203_353421_10-11-2016
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Groups Printed- SEMIS

	SB US-12 / HURON ST From North		NO LEG From East				NB US-12 / HURON ST From South					FERRIS / DR JOHN C. SHELTON BLVD From West				
End Time	Peds	App. Total	Right	Thru	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Thru	Left	Peds	App. Total	Int. Total
07:15 AM	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
07:30 AM	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
08:00 AM	0	0	0	0	0	0	0	6	0	0	6	0	0	0	0	6
Total	0	0	0	0	0	0	0	8	0	0	8	0	0	0	0	8
08:15 AM	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	3
08:30 AM	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	2
Total	0	0	0	0	0	0	0	5	0	0	5	0	0	0	0	5
11:15 AM	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	2
11:30 AM	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	2
11:45 AM	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
12:00 PM	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	2
Total	0	0	0	0	0	0	0	7	0	0	7	0	0	0	0	7
12:15 PM	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
12:30 PM	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	2
12:45 PM	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	3
01:00 PM	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
Total	0	0	0	0	0	0	0	7	0	0	7	0	0	0	0	7
02:15 PM	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
03:00 PM	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	2
Total	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	3
03:15 PM	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	2
03:30 PM	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	2
03:45 PM	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	2
Total	0	0	0	0	0	0	0	6	0	0	6	0	0	0	0	6
04:15 PM	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	2
05:00 PM	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	2
Total	0	0	0	0	0	0	0	4	0	0	4	0	0	0	0	4
05:30 PM	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
05:45 PM	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
06:00 PM	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
Total	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	3

Michigan Department Of Transportation Turning Movement

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Groups Printed- SEMIS

	SB US-12 / HURON ST From North		NO LEG From East				NB US-12 / HURON ST From South					FERRIS / DR JOHN C. SHELTON BLVD From West				
	Peds	App. Total	Right	Thru	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Thru	Left	Peds	App. Total	Int. Total
Grand Total	0	0	0	0	0	0	0	43	0	0	43	0	0	0	0	43
Apprch %	0		0	0	0		0	100	0	0		0	0	0		
Total %	0	0	0	0	0	0	0	100	0	0	100	0	0	0	0	

Turning Movement

WASHTENAW COUNTY

Page No : 1

Groups Printed- PEDESTRIANS

	SB US-12 / HURON ST From North		NO LEG From East				NB US-12 / HURON ST From South					FERRIS / DR JOHN C. SHELTON BLVD From West				
End Time	Peds	App. Total	Right	Thru	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Thru	Left	Peds	App. Total	Int. Total
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2
08:15 AM	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	3
09:00 AM	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
Total	0	0	0	0	1	1	0	0	0	1	1	0	0	3	3	5
11:15 AM	2	2	0	0	3	3	0	0	0	1	1	0	0	1	1	7
11:30 AM	0	0	0	0	1	1	0	0	0	1	1	0	0	0	0	2
11:45 AM	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	2
12:00 PM	1	1	0	0	4	4	0	0	0	0	0	0	0	3	3	8
Total	4	4	0	0	9	9	0	0	0	2	2	0	0	4	4	19
12:30 PM	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
12:45 PM	0	0	0	0	1	1	0	0	0	1	1	0	0	2	2	4
01:00 PM	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Total	2	2	0	0	1	1	0	0	0	2	2	0	0	2	2	7
02:15 PM	4	4	0	0	4	4	0	0	0	0	0	0	0	1	1	9
02:30 PM	1	1	0	0	1	1	0	0	0	1	1	0	0	3	3	6
02:45 PM	0	0	0	0	1	1	0	0	0	3	3	0	0	1	1	5
03:00 PM	3	3	0	0	3	3	0	0	0	1	1	0	0	1	1	8
Total	8	8	0	0	9	9	0	0	0	5	5	0	0	6	6	28
03:15 PM	1	1	0	0	4	4	0	0	0	0	0	0	0	0	0	5
03:30 PM	0	0	0	0	1	1	0	0	0	2	2	0	0	2	2	5
03:45 PM	0	0	0	0	1	1	0	0	0	0	0	0	0	1	1	2
04:00 PM	6	6	0	0	2	2	0	0	0	0	0	0	0	1	1	9
Total	7	7	0	0	8	8	0	0	0	2	2	0	0	4	4	21
04:15 PM	1	1	0	0	3	3	0	0	0	0	0	0	0	2	2	6
04:30 PM	1	1	0	0	0	0	0	0	0	0	0	0	0	1	1	2
04:45 PM	2	2	0	0	2	2	0	0	0	2	2	0	0	2	2	8
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
Total	4	4	0	0	5	5	0	0	0	2	2	0	0	6	6	17
05:15 PM	1	1	0	0	0	0	0	0	0	0	0	0	0	6	6	7
05:30 PM	0	0	0	0	1	1	0	0	0	0	0	0	0	1	1	2

Michigan Department Of Transportation Turning Movement

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Groups Printed- PEDESTRIANS

	SB US-12 / HURON ST From North		NO LEG From East				NB US-12 / HURON ST From South					FERRIS / DR JOHN C. SHELTON BLVD From West				
End Time	Peds	App. Total	Right	Thru	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Thru	Left	Peds	App. Total	Int. Total
05:45 PM	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
06:00 PM	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1
Total	1	1	0	0	2	2	0	0	0	1	1	0	0	7	7	11
Grand Total	26	26	0	0	35	35	0	0	0	15	15	0	0	34	34	110
Apprch %	100		0	0	100		0	0	0	100		0	0	100		
Total %	23.6	23.6	0	0	31.8	31.8	0	0	0	13.6	13.6	0	0	30.9	30.9	

Time	Ferris St										Huron St										Total
	Eastbound					Westbound					Northbound					Southbound					
	Left	Thru	Right	Peds	Approach	Left	Thru	Right	Peds	Approach	Left	Thru	Right	Peds	Approach	Left	Thru	Right	Peds	Approach	
7:00 AM - 7:15 AM	3	0	0	1	3	0	0	0	0	0	4	178	0	0	182	0	0	0	0	0	185
7:15 AM - 7:30 AM	1	0	0	1	1	0	0	0	0	0	4	302	0	0	306	0	0	0	0	0	307
7:30 AM - 7:45 AM	0	0	0	0	0	0	0	0	0	0	6	313	0	0	319	0	0	0	0	0	319
7:45 AM - 8:00 AM	0	0	0	0	0	0	0	0	0	0	6	294	0	0	300	0	0	0	0	0	300
8:00 AM - 8:15 AM	4	0	0	0	4	0	0	0	1	0	11	284	0	0	295	0	0	0	0	0	299
8:15 AM - 8:30 AM	5	0	0	3	5	0	0	0	0	0	15	329	1	0	345	0	0	0	0	0	350
8:30 AM - 8:45 AM	3	0	0	0	3	0	1	0	0	1	6	314	0	0	320	0	0	0	0	0	324
8:45 AM - 9:00 AM	6	0	0	0	6	0	0	0	0	0	20	318	1	1	339	0	0	0	0	0	345
Total	22	0	0	5	22	0	1	0	1	1	72	2332	2	1	2406	0	0	0	0	0	2429

Time	Ferris St										Huron St										Total
	Eastbound					Westbound					Northbound					Southbound					
	Left	Thru	Right	Peds	Approach	Left	Thru	Right	Peds	Approach	Left	Thru	Right	Peds	Approach	Left	Thru	Right	Peds	Approach	
7:00 AM - 8:00 AM	4	0	0	2	4	0	0	0	0	0	20	1087	0	0	1107	0	0	0	0	0	1111
7:15 AM - 8:15 AM	5	0	0	1	5	0	0	0	1	0	27	1193	0	0	1220	0	0	0	0	0	1225
7:30 AM - 8:30 AM	9	0	0	3	9	0	0	0	1	0	38	1220	1	0	1259	0	0	0	0	0	1268
7:45 AM - 8:45 AM	12	0	0	3	12	0	1	0	1	1	38	1221	1	0	1260	0	0	0	0	0	1273
8:00 AM - 9:00 AM	18	0	0	3	18	0	1	0	1	1	52	1245	2	1	1299	0	0	0	0	0	1318

Approach PHF	0.75	-	0.94	-
HV%	0%	-	0%	-

Time	Ferris St										Huron St										Total
	Eastbound					Westbound					Northbound					Southbound					
	Left	Thru	Right	Peds	Approach	Left	Thru	Right	Peds	Approach	Left	Thru	Right	Peds	Approach	Left	Thru	Right	Peds	Approach	
11:00 AM - 11:15 AM	2	0	0	1	2	0	0	0	3	0	10	183	0	1	193	0	0	0	2	0	195
11:15 AM - 11:30 AM	9	0	0	0	9	0	0	0	1	0	4	175	0	1	179	9	0	0	0	9	197
11:30 AM - 11:45 AM	11	0	0	0	11	0	0	0	1	0	9	183	1	0	193	0	0	0	1	0	204
11:45 AM - 12:00 PM	8	0	0	3	8	0	0	0	4	0	7	228	1	0	236	0	0	0	1	0	244
12:00 PM - 12:15 PM	11	0	0	0	11	0	0	0	0	0	12	227	0	0	239	0	0	0	0	0	250
12:15 PM - 12:30 PM	12	0	0	0	12	0	0	0	0	0	11	184	0	1	195	0	0	0	0	0	207
12:30 PM - 12:45 PM	7	0	0	2	7	0	0	0	1	0	9	234	0	1	243	0	0	0	0	0	250
12:45 PM - 1:00 PM	8	1	0	0	9	0	1	0	0	1	9	177	0	0	186	0	0	0	2	0	196
Total	68	1	0	6	69	0	1	0	10	1	71	1591	2	4	1664	9	0	0	6	9	1743

Time	Ferris St										Huron St										Total
	Eastbound					Westbound					Northbound					Southbound					
	Left	Thru	Right	Peds	Approach	Left	Thru	Right	Peds	Approach	Left	Thru	Right	Peds	Approach	Left	Thru	Right	Peds	Approach	
11:00 AM - 12:00 PM	30	0	0	4	30	0	0	0	9	0	30	769	2	2	801	9	0	0	4	9	840
11:15 AM - 12:15 PM	39	0	0	3	39	0	0	0	6	0	32	813	2	1	847	9	0	0	2	9	895
11:30 AM - 12:30 PM	42	0	0	3	42	0	0	0	5	0	39	822	2	1	863	0	0	0	2	0	905
11:45 AM - 12:45 PM	38	0	0	5	38	0	0	0	5	0	39	873	1	2	913	0	0	0	1	0	951
12:00 PM - 1:00 PM	38	1	0	2	39	0	1	0	1	1	41	822	0	2	863	0	0	0	2	0	903

Approach PHF	0.79	-	0.94	-
HV%	0%	-	1%	-

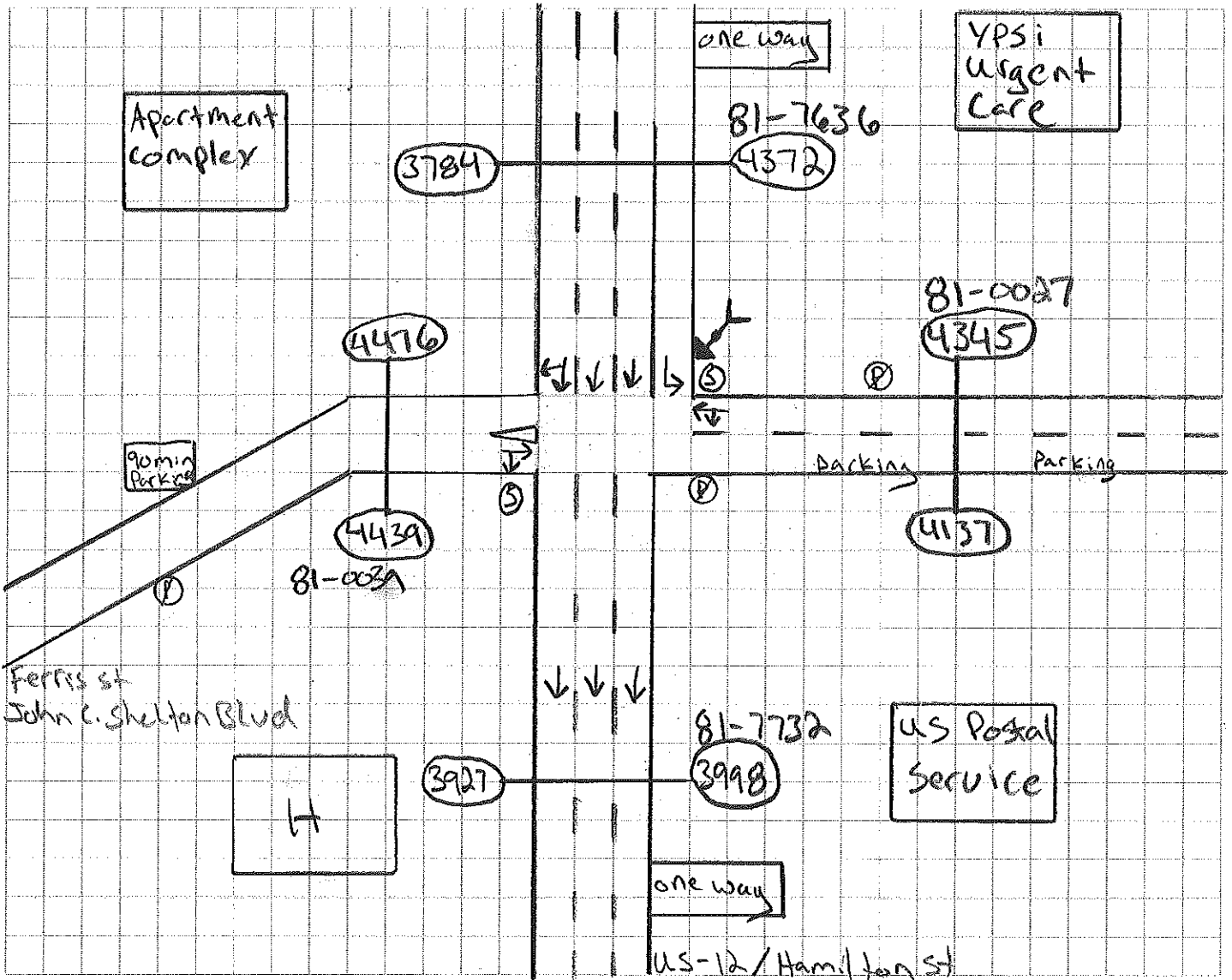
Time	Ferris St										Huron St										Total
	Eastbound					Westbound					Northbound					Southbound					
	Left	Thru	Right	Peds	Approach	Left	Thru	Right	Peds	Approach	Left	Thru	Right	Peds	Approach	Left	Thru	Right	Peds	Approach	
2:00 PM - 2:15 PM	9	0	0	1	9	0	0	0	4	0	10	184	0	0	194	0	0	0	4	0	203
2:15 PM - 2:30 PM	11	0	0	3	11	0	0	0	1	0	7	172	0	1	179	0	0	0	1	0	190
2:30 PM - 2:45 PM	13	0	0	1	13	0	0	1	2	1	8	192	1	3	201	0	0	0	0	0	215
2:45 PM - 3:00 PM	8	0	0	1	8	0	0	0	3	0	14	217	1	1	232	0	0	0	3	0	240
3:00 PM - 3:15 PM	11	1	0	0	12	0	1	0	4	1	10	192	0	0	202	0	0	0	1	0	215
3:15 PM - 3:30 PM	14	0	0	2	14	0	0	1	1	1	13	220	0	2	233	0	0	0	0	0	248
3:30 PM - 3:45 PM	17	0	0	1	17	0	1	0	1	1	12	225	0	0	237	0	0	0	0	0	255
3:45 PM - 4:00 PM	17	0	0	1	17	0	0	0	2	0	12	207	1	0	220	0	0	0	6	0	237
4:00 PM - 4:15 PM	5	1	0	2	6	0	0	2	3	2	11	197	1	0	209	0	0	0	1	0	217
4:15 PM - 4:30 PM	15	0	0	1	15	0	0	0	0	0	6	203	0	0	209	0	0	0	1	0	224
4:30 PM - 4:45 PM	7	0	0	2	7	0	0	0	2	0	12	314	0	2	326	0	0	0	2	0	333
4:45 PM - 5:00 PM	9	0	0	1	9	0	0	1	0	1	6	322	1	0	329	0	0	0	0	0	339
5:00 PM - 5:15 PM	14	0	0	6	14	0	1	2	0	3	8	310	0	0	318	0	0	0	1	0	335
5:15 PM - 5:30 PM	6	0	0	1	6	0	1	0	1	1	5	316	0	0	321	0	0	0	0	0	328
5:30 PM - 5:45 PM	3	0	0	0	3	0	0	0	0	0	5	329	0	1	334	0	0	0	0	0	337
5:45 PM - 6:00 PM	5	0	0	0	5	0	0	1	1	1	15	259	0	0	274	0	0	0	0	0	280
Total	164	2	0	23	166	0	4	8	25	12	154	3859	5	10	4018	0	0	0	20	0	4196

Time	Ferris St										Huron St										Total
	Eastbound					Westbound					Northbound					Southbound					
	Left	Thru	Right	Peds	Approach	Left	Thru	Right	Peds	Approach	Left	Thru	Right	Peds	Approach	Left	Thru	Right	Peds	Approach	
2:00 PM - 3:00 PM	41	0	0	6	41	0	0	1	10	1	39	765	2	5	806	0	0	0	8	0	848
2:15 PM - 3:15 PM	43	1	0	5	44	0	1	1	10	2	39	773	2	5	814	0	0	0	5	0	860
2:30 PM - 3:30 PM	46	1	0	4	47	0	1	2	10	3	45	821	2	6	868	0	0	0	4	0	918
2:45 PM - 3:45 PM	50	1	0	4	51	0	2	1	9	3	49	854	1	3	904	0	0	0	4	0	958
3:00 PM - 4:00 PM	59	1	0	4	60	0	2	1	8	3	47	844	1	2	892	0	0	0	7	0	955
3:15 PM - 4:15 PM	53	1	0	6	54	0	1	3	7	4	48	849	2	2	899	0	0	0	7	0	957
3:30 PM - 4:30 PM	54	1	0	5	55	0	1	2	6	3	41	832	2	0	875	0	0	0	8	0	933
3:45 PM - 4:45 PM	44	1	0	6	45	0	0	2	7	2	41	921	2	2	964	0	0	0	10	0	1011
4:00 PM - 5:00 PM	36	1	0	6	37	0	0	3	5	3	35	1036	2	2	1073	0	0	0	4	0	1113
4:15 PM - 5:15 PM	45	0	0	10	45	0	1	3	2	4	32	1149	1	2	1182	0	0	0	4	0	1231
4:30 PM - 5:30 PM	36	0	0	10	36	0	2	3	3	5	31	1262	1	2	1294	0	0	0	3	0	1335
4:45 PM - 5:45 PM	32	0	0	8	32	0	2	3	1	5	24	1277	1	1	1302	0	0	0	1	0	1339
5:00 PM - 6:00 PM	28	0	0	7	28	0	2	3	2	5	33	1214	0	1	1247	0	0	0	1	0	1280

Approach PHF	0.57	-	0.97	-
HV%	0%	-	0%	-

INTERSECTION DIAGRAM
(Not to Scale)

DATE 10-11-16	DAY Tuesday	COUNTY Wash tenaw	TIME
TWP. VILLAGE OR CITY Ypsilanti Twp.		WEATHER Sunny	7a TO 9a
INTERSECTION OF US-12/Hamilton St @ Ferris St/John C Shelton			11a TO 1p 2p TO 6p



COMMENTS

Speed Limit on Hamilton St is 40 MPH
 Speed Limit on Ferris St./John C. Shelton Blvd is not posted
 MIO Set in Northeast corner

SURVEY PARTY CHIEF

F. Benauides

DRAWN BY

COUNTED BY

MACHINES SET BY

Michigan Department Of Transportation Turning Movement

US-12 / HAMILTON ST.
@ FERRIS ST. / J. C. SHELDON BLVD.
YPSILATI TWP.
WASHTENAW COUNTY

File Name : TM_160204_353429_10-11-2016
Site Code : 160204
Start Date : 10/11/2016
Page No : 1

Groups Printed- CARS - SINGLE UNITS - SEMIS - PEDESTRIANS

	HAMILTON ST. From North					FERRIS ST. From East					HAMILTON ST. From South					FERRIS ST. From West					
End Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:15 AM	0	137	2	0	139	0	4	8	0	12	0	0	0	0	0	6	1	0	0	7	158
07:30 AM	3	141	3	0	147	0	3	3	1	7	0	0	0	0	0	6	1	0	0	7	161
07:45 AM	0	123	4	0	127	0	8	2	0	10	0	0	0	2	2	3	1	0	0	4	143
08:00 AM	4	132	4	0	140	0	4	2	0	6	0	0	0	0	0	5	1	0	0	6	152
Total	7	533	13	0	553	0	19	15	1	35	0	0	0	2	2	20	4	0	0	24	614
08:15 AM	2	125	21	0	148	0	1	6	0	7	0	0	0	0	0	9	4	0	1	14	169
08:30 AM	0	148	12	0	160	0	5	2	0	7	0	0	0	0	0	5	4	0	0	9	176
08:45 AM	4	148	8	1	161	0	5	7	4	16	0	0	0	0	0	5	2	0	0	7	184
09:00 AM	3	125	14	0	142	0	2	5	0	7	0	0	0	1	1	7	4	0	0	11	161
Total	9	546	55	1	611	0	13	20	4	37	0	0	0	1	1	26	14	0	1	41	690
11:15 AM	2	188	21	0	211	0	9	12	0	21	0	0	0	0	0	4	3	0	1	8	240
11:30 AM	5	186	12	0	203	0	1	8	0	9	0	0	0	0	0	3	6	0	1	10	222
11:45 AM	2	169	19	2	192	0	5	9	0	14	0	0	0	0	0	9	2	0	0	11	217
12:00 PM	3	186	14	0	203	0	2	10	0	12	0	0	0	1	1	3	1	0	0	4	220
Total	12	729	66	2	809	0	17	39	0	56	0	0	0	1	1	19	12	0	2	33	899
12:15 PM	4	203	17	0	224	0	4	9	0	13	0	0	0	1	1	8	5	0	1	14	252
12:30 PM	6	235	31	1	273	0	4	6	1	11	0	0	0	4	4	6	7	0	3	16	304
12:45 PM	6	243	23	0	272	0	3	6	1	10	0	0	0	1	1	9	4	0	0	13	296
01:00 PM	3	220	23	6	252	0	2	10	1	13	0	0	0	1	1	6	5	0	1	12	278
Total	19	901	94	7	1021	0	13	31	3	47	0	0	0	7	7	29	21	0	5	55	1130
01:15 PM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Total	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
02:15 PM	2	308	25	1	336	0	7	9	0	16	0	0	0	1	1	9	4	0	2	15	368
02:30 PM	6	244	23	1	274	0	3	11	12	26	0	0	0	1	1	5	6	0	1	12	313
02:45 PM	4	247	26	0	277	0	8	6	1	15	0	0	0	0	0	11	9	0	1	21	313
03:00 PM	2	233	26	5	266	0	8	5	1	14	0	0	0	0	0	9	4	0	2	15	295
Total	14	1032	100	7	1153	0	26	31	14	71	0	0	0	2	2	34	23	0	6	63	1289
03:15 PM	3	337	23	3	366	0	4	15	0	19	0	0	0	0	0	4	4	0	1	9	394
03:30 PM	2	332	29	1	364	0	10	14	0	24	0	0	0	0	0	5	4	0	0	9	397
03:45 PM	4	379	22	2	407	0	10	8	1	19	0	0	0	2	2	7	11	0	1	19	447
04:00 PM	7	337	24	1	369	0	5	12	2	19	0	0	0	3	3	7	3	0	0	10	401
Total	16	1385	98	7	1506	0	29	49	3	81	0	0	0	5	5	23	22	0	2	47	1639
04:15 PM	6	336	29	2	373	0	0	14	0	14	0	0	0	2	2	9	4	0	3	16	405
04:30 PM	5	285	21	1	312	0	6	9	2	17	0	0	0	1	1	6	5	0	0	11	341
04:45 PM	1	309	26	3	339	0	9	3	0	12	0	0	0	1	1	4	7	0	4	15	367
05:00 PM	5	344	19	2	370	0	14	9	0	23	0	0	0	0	0	5	7	0	0	12	405
Total	17	1274	95	8	1394	0	29	35	2	66	0	0	0	4	4	24	23	0	7	54	1518

Michigan Department Of Transportation Turning Movement

File Name : TM_160204_353429_10-11-2016

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Start Date : 10/11/2016

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Groups Printed- CARS - SINGLE UNITS - SEMIS - PEDESTRIANS

	HAMILTON ST. From North					FERRIS ST. From East					HAMILTON ST. From South					FERRIS ST. From West					
End Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
05:15 PM	3	403	26	1	433	0	5	17	0	22	0	0	0	2	2	6	5	0	2	13	470
05:30 PM	6	336	23	1	366	0	6	8	1	15	0	0	0	1	1	8	7	0	0	15	397
05:45 PM	4	288	19	2	313	0	6	7	1	14	0	0	0	1	1	4	5	0	1	10	338
06:00 PM	4	303	11	3	321	0	8	9	2	19	0	0	0	1	1	7	7	0	3	17	358
Total	17	1330	79	7	1433	0	25	41	4	70	0	0	0	5	5	25	24	0	6	55	1563
Grand Total	111	7732	600	39	8482	0	171	261	31	463	0	0	0	27	27	200	143	0	29	372	9344
Apprch %	1.3	91.2	7.1	0.5		0	36.9	56.4	6.7		0	0	0	100		53.8	38.4	0	7.8		
Total %	1.2	82.7	6.4	0.4	90.8	0	1.8	2.8	0.3	5	0	0	0	0.3	0.3	2.1	1.5	0	0.3	4	
CARS	109	7552	593	0	8254	0	165	242	0	407	0	0	0	0	0	196	141	0	0	337	8998
% CARS	98.2	97.7	98.8	0	97.3	0	96.5	92.7	0	87.9	0	0	0	0	0	98	98.6	0	0	90.6	96.3
SINGLE UNITS	2	138	7	0	147	0	6	17	0	23	0	0	0	0	0	4	2	0	0	6	176
% SINGLE UNITS	1.8	1.8	1.2	0	1.7	0	3.5	6.5	0	5	0	0	0	0	0	2	1.4	0	0	1.6	1.9
SEMIS	0	42	0	0	42	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	44
% SEMIS	0	0.5	0	0	0.5	0	0	0.8	0	0.4	0	0	0	0	0	0	0	0	0	0	0.5
PEDESTRIANS	0	0	0	39	39	0	0	0	31	31	0	0	0	27	27	0	0	0	29	29	126
% PEDESTRIANS	0	0	0	100	0.5	0	0	0	100	6.7	0	0	0	100	100	0	0	0	100	7.8	1.3

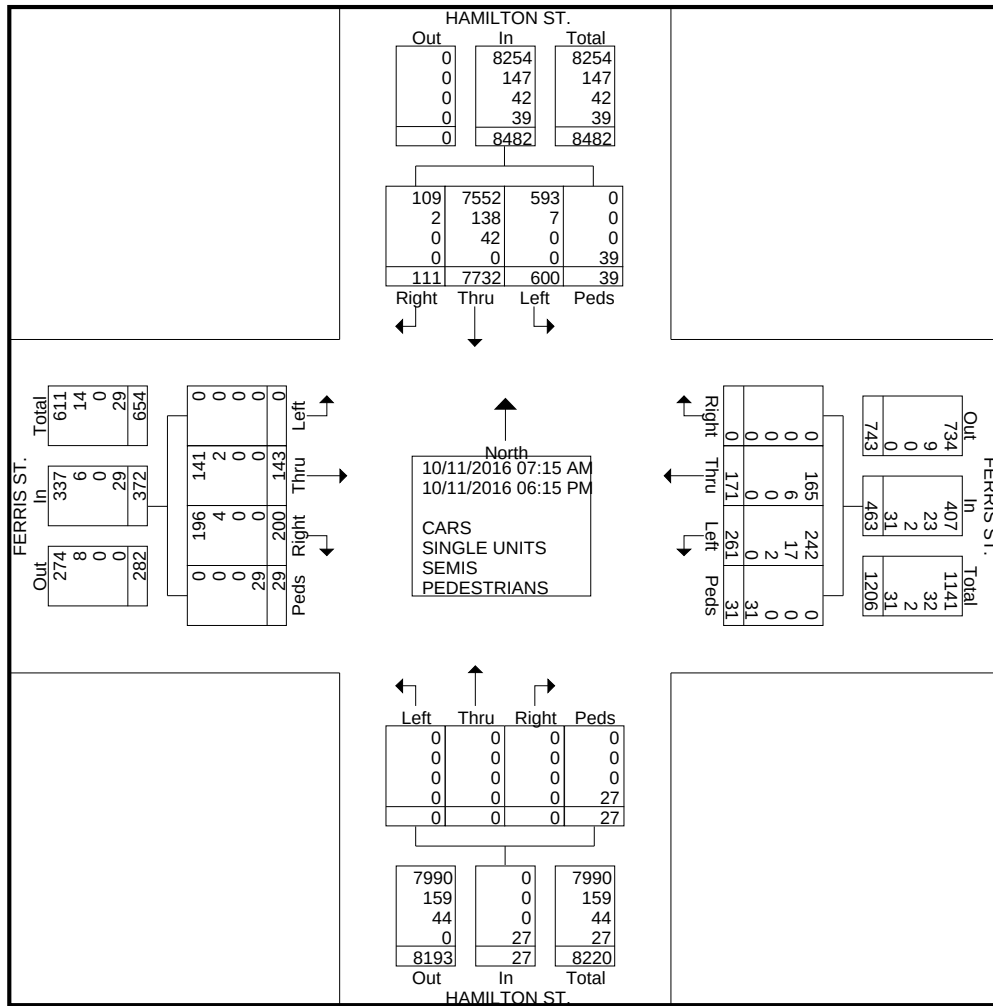
Michigan Department Of Transportation Turning Movement

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Michigan Department Of Transportation Turning Movement

US-12 / HAMILTON ST.
@ FERRIS ST. / J. C. SHELDON BLVD.
YPSILATI TWP.
WASHTENAW COUNTY

File Name : TM_160204_353429_10-11-2016
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Groups Printed- CARS

	HAMILTON ST. From North					FERRIS ST. From East					HAMILTON ST. From South					FERRIS ST. From West					
End Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:15 AM	0	133	2	0	135	0	3	6	0	9	0	0	0	0	0	6	1	0	0	7	151
07:30 AM	3	136	3	0	142	0	2	3	0	5	0	0	0	0	0	6	1	0	0	7	154
07:45 AM	0	118	3	0	121	0	7	2	0	9	0	0	0	0	0	3	1	0	0	4	134
08:00 AM	4	125	3	0	132	0	4	2	0	6	0	0	0	0	0	5	1	0	0	6	144
Total	7	512	11	0	530	0	16	13	0	29	0	0	0	0	0	20	4	0	0	24	583
08:15 AM	2	120	20	0	142	0	1	4	0	5	0	0	0	0	0	7	4	0	0	11	158
08:30 AM	0	144	12	0	156	0	5	2	0	7	0	0	0	0	0	5	4	0	0	9	172
08:45 AM	4	144	8	0	156	0	5	6	0	11	0	0	0	0	0	5	2	0	0	7	174
09:00 AM	3	117	14	0	134	0	2	5	0	7	0	0	0	0	0	7	4	0	0	11	152
Total	9	525	54	0	588	0	13	17	0	30	0	0	0	0	0	24	14	0	0	38	656
11:15 AM	2	181	20	0	203	0	9	11	0	20	0	0	0	0	0	4	3	0	0	7	230
11:30 AM	5	180	12	0	197	0	1	8	0	9	0	0	0	0	0	3	6	0	0	9	215
11:45 AM	2	155	19	0	176	0	5	8	0	13	0	0	0	0	0	8	2	0	0	10	199
12:00 PM	3	178	14	0	195	0	2	9	0	11	0	0	0	0	0	3	1	0	0	4	210
Total	12	694	65	0	771	0	17	36	0	53	0	0	0	0	0	18	12	0	0	30	854
12:15 PM	4	198	17	0	219	0	4	7	0	11	0	0	0	0	0	8	4	0	0	12	242
12:30 PM	6	232	31	0	269	0	4	6	0	10	0	0	0	0	0	6	7	0	0	13	292
12:45 PM	6	239	23	0	268	0	3	5	0	8	0	0	0	0	0	9	4	0	0	13	289
01:00 PM	3	213	23	0	239	0	2	10	0	12	0	0	0	0	0	6	5	0	0	11	262
Total	19	882	94	0	995	0	13	28	0	41	0	0	0	0	0	29	20	0	0	49	1085
01:15 PM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Total	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
02:15 PM	2	299	25	0	326	0	7	8	0	15	0	0	0	0	0	9	4	0	0	13	354
02:30 PM	6	238	23	0	267	0	3	11	0	14	0	0	0	0	0	5	6	0	0	11	292
02:45 PM	4	240	26	0	270	0	7	5	0	12	0	0	0	0	0	11	9	0	0	20	302
03:00 PM	1	229	25	0	255	0	7	5	0	12	0	0	0	0	0	9	4	0	0	13	280
Total	13	1006	99	0	1118	0	24	29	0	53	0	0	0	0	0	34	23	0	0	57	1228
03:15 PM	2	328	22	0	352	0	3	14	0	17	0	0	0	0	0	4	4	0	0	8	377
03:30 PM	2	323	29	0	354	0	10	14	0	24	0	0	0	0	0	5	4	0	0	9	387
03:45 PM	4	377	22	0	403	0	10	7	0	17	0	0	0	0	0	7	10	0	0	17	437
04:00 PM	7	331	24	0	362	0	5	12	0	17	0	0	0	0	0	6	3	0	0	9	388
Total	15	1359	97	0	1471	0	28	47	0	75	0	0	0	0	0	22	21	0	0	43	1589
04:15 PM	6	332	29	0	367	0	0	13	0	13	0	0	0	0	0	9	4	0	0	13	393
04:30 PM	5	283	21	0	309	0	6	9	0	15	0	0	0	0	0	6	5	0	0	11	335
04:45 PM	1	303	26	0	330	0	9	2	0	11	0	0	0	0	0	4	7	0	0	11	352
05:00 PM	5	338	19	0	362	0	14	9	0	23	0	0	0	0	0	5	7	0	0	12	397
Total	17	1256	95	0	1368	0	29	33	0	62	0	0	0	0	0	24	23	0	0	47	1477

Michigan Department Of Transportation Turning Movement

File Name : TM_160204_353429_10-11-2016
 Site Code : 160204
 Start Date : 10/11/2016
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Groups Printed- CARS

	HAMILTON ST. From North					FERRIS ST. From East					HAMILTON ST. From South					FERRIS ST. From West					
End Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
05:15 PM	3	399	25	0	427	0	5	16	0	21	0	0	0	0	0	6	5	0	0	11	459
05:30 PM	6	331	23	0	360	0	6	8	0	14	0	0	0	0	0	8	7	0	0	15	389
05:45 PM	4	287	19	0	310	0	6	6	0	12	0	0	0	0	0	4	5	0	0	9	331
06:00 PM	4	299	11	0	314	0	8	9	0	17	0	0	0	0	0	7	7	0	0	14	345
Total	17	1316	78	0	1411	0	25	39	0	64	0	0	0	0	0	25	24	0	0	49	1524
Grand Total	109	7552	593	0	8254	0	165	242	0	407	0	0	0	0	0	196	141	0	0	337	8998
Apprch %	1.3	91.5	7.2	0		0	40.5	59.5	0		0	0	0	0		58.2	41.8	0	0		
Total %	1.2	83.9	6.6	0	91.7	0	1.8	2.7	0	4.5	0	0	0	0	0	2.2	1.6	0	0	3.7	

Turning Movement

WASHTENAW COUNTY

Page No : 1

	HAMILTON ST. From North					FERRIS ST. From East					HAMILTON ST. From South					FERRIS ST. From West					
End Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:15 AM	0	3	0	0	3	0	1	1	0	2	0	0	0	0	0	0	0	0	0	0	5
07:30 AM	0	5	0	0	5	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	6
07:45 AM	0	4	1	0	5	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	6
08:00 AM	0	3	1	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
Total	0	15	2	0	17	0	3	1	0	4	0	0	0	0	0	0	0	0	0	0	21
08:15 AM	0	4	1	0	5	0	0	2	0	2	0	0	0	0	0	2	0	0	0	2	9
08:30 AM	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
08:45 AM	0	1	0	0	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	2
09:00 AM	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
Total	0	13	1	0	14	0	0	3	0	3	0	0	0	0	0	2	0	0	0	2	19
11:15 AM	0	4	1	0	5	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	6
11:30 AM	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
11:45 AM	0	10	0	0	10	0	0	1	0	1	0	0	0	0	0	1	0	0	0	1	12
12:00 PM	0	6	0	0	6	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	7
Total	0	25	1	0	26	0	0	3	0	3	0	0	0	0	0	1	0	0	0	1	30
12:15 PM	0	4	0	0	4	0	0	1	0	1	0	0	0	0	0	0	1	0	0	1	6
12:30 PM	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
12:45 PM	0	3	0	0	3	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	4
01:00 PM	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
Total	0	15	0	0	15	0	0	2	0	2	0	0	0	0	0	0	1	0	0	1	18
02:15 PM	0	6	0	0	6	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	7
02:30 PM	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
02:45 PM	0	6	0	0	6	0	1	1	0	2	0	0	0	0	0	0	0	0	0	0	8
03:00 PM	1	3	1	0	5	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	6
Total	1	20	1	0	22	0	2	2	0	4	0	0	0	0	0	0	0	0	0	0	26
03:15 PM	1	7	1	0	9	0	1	1	0	2	0	0	0	0	0	0	0	0	0	0	11
03:30 PM	0	7	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
03:45 PM	0	2	0	0	2	0	0	1	0	1	0	0	0	0	0	0	1	0	0	1	4
04:00 PM	0	6	0	0	6	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	7
Total	1	22	1	0	24	0	1	2	0	3	0	0	0	0	0	1	1	0	0	2	29
04:15 PM	0	4	0	0	4	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	5
04:30 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
04:45 PM	0	5	0	0	5	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	6
05:00 PM	0	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
Total	0	16	0	0	16	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	18
05:15 PM	0	4	1	0	5	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	6
05:30 PM	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3

Michigan Department Of Transportation Turning Movement

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 Site Code : 160204
 Start Date : 10/11/2016
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Groups Printed- SINGLE UNITS

	HAMILTON ST. From North					FERRIS ST. From East					HAMILTON ST. From South					FERRIS ST. From West					
End Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
05:45 PM	0	1	0	0	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	2
06:00 PM	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
Total	0	12	1	0	13	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	15
Grand Total	2	138	7	0	147	0	6	17	0	23	0	0	0	0	0	4	2	0	0	6	176
Apprch %	1.4	93.9	4.8	0		0	26.1	73.9	0		0	0	0	0		66.7	33.3	0	0		
Total %	1.1	78.4	4	0	83.5	0	3.4	9.7	0	13.1	0	0	0	0		2.3	1.1	0	0	3.4	

Turning Movement

US-12 / HAMILTON ST.
@ FERRIS ST. / J. C. SHELDON BLVD.
YPSILATI TWP.
WASHTENAW COUNTY

File Name : TM_160204_353429_10-11-2016
Site Code : 160204
Start Date : 10/11/2016
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Groups Printed- SEMIS

	HAMILTON ST. From North					FERRIS ST. From East					HAMILTON ST. From South					FERRIS ST. From West						
End Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total	
07:15 AM	0	1	0	0	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	2
07:45 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
08:00 AM	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
Total	0	6	0	0	6	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	7
08:15 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
08:30 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
08:45 AM	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
09:00 AM	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Total	0	8	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
11:15 AM	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
11:30 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
11:45 AM	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
12:00 PM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Total	0	10	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
12:15 PM	0	1	0	0	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	2
12:45 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
01:00 PM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Total	0	4	0	0	4	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	5
02:15 PM	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
02:30 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
02:45 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
03:00 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
03:15 PM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
03:30 PM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Total	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
04:30 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
04:45 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
05:30 PM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2

Turning Movement

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Groups Printed- SEMIS

[illegible]

Michigan Department Of Transportation Turning Movement

US-12 / HAMILTON ST.
@ FERRIS ST. / J. C. SHELDON BLVD.
YPSILATI TWP.
WASHTENAW COUNTY

File Name : TM_160204_353429_10-11-2016
Site Code : 160204
Start Date : 10/11/2016
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Groups Printed- PEDESTRIANS

End Time	HAMILTON ST. From North					FERRIS ST. From East					HAMILTON ST. From South					FERRIS ST. From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
07:30 AM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	2
Total	0	0	0	0	0	0	0	0	1	1	0	0	0	2	2	0	0	0	0	0	3
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
08:45 AM	0	0	0	1	1	0	0	0	4	4	0	0	0	0	0	0	0	0	0	0	5
09:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1
Total	0	0	0	1	1	0	0	0	4	4	0	0	0	1	1	0	0	0	1	1	7
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
11:45 AM	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1
Total	0	0	0	2	2	0	0	0	0	0	0	0	0	1	1	0	0	0	2	2	5
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	2
12:30 PM	0	0	0	1	1	0	0	0	1	1	0	0	0	4	4	0	0	0	3	3	9
12:45 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	0	0	0	0	0	2
01:00 PM	0	0	0	6	6	0	0	0	1	1	0	0	0	1	1	0	0	0	1	1	9
Total	0	0	0	7	7	0	0	0	3	3	0	0	0	7	7	0	0	0	5	5	22
02:15 PM	0	0	0	1	1	0	0	0	0	0	0	0	0	1	1	0	0	0	2	2	4
02:30 PM	0	0	0	1	1	0	0	0	12	12	0	0	0	1	1	0	0	0	1	1	15
02:45 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	1	2
03:00 PM	0	0	0	5	5	0	0	0	1	1	0	0	0	0	0	0	0	0	2	2	8
Total	0	0	0	7	7	0	0	0	14	14	0	0	0	2	2	0	0	0	6	6	29
03:15 PM	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	4
03:30 PM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
03:45 PM	0	0	0	2	2	0	0	0	1	1	0	0	0	2	2	0	0	0	1	1	6
04:00 PM	0	0	0	1	1	0	0	0	2	2	0	0	0	3	3	0	0	0	0	0	6
Total	0	0	0	7	7	0	0	0	3	3	0	0	0	5	5	0	0	0	2	2	17
04:15 PM	0	0	0	2	2	0	0	0	0	0	0	0	0	2	2	0	0	0	3	3	7
04:30 PM	0	0	0	1	1	0	0	0	2	2	0	0	0	1	1	0	0	0	0	0	4
04:45 PM	0	0	0	3	3	0	0	0	0	0	0	0	0	1	1	0	0	0	4	4	8
05:00 PM	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Total	0	0	0	8	8	0	0	0	2	2	0	0	0	4	4	0	0	0	7	7	21
05:15 PM	0	0	0	1	1	0	0	0	0	0	0	0	0	2	2	0	0	0	2	2	5
05:30 PM	0	0	0	1	1	0	0	0	1	1	0	0	0	1	1	0	0	0	0	0	3

Michigan Department Of Transportation Turning Movement

File Name : TM_160204_353429_10-11-2016
 Site Code : 160204
 Start Date : 10/11/2016
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Groups Printed- PEDESTRIANS

	HAMILTON ST. From North					FERRIS ST. From East					HAMILTON ST. From South					FERRIS ST. From West					
End Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
05:45 PM	0	0	0	2	2	0	0	0	1	1	0	0	0	1	1	0	0	0	1	1	5
06:00 PM	0	0	0	3	3	0	0	0	2	2	0	0	0	1	1	0	0	0	3	3	9
Total	0	0	0	7	7	0	0	0	4	4	0	0	0	5	5	0	0	0	6	6	22
Grand Total	0	0	0	39	39	0	0	0	31	31	0	0	0	27	27	0	0	0	29	29	126
Apprch %	0	0	0	100		0	0	0	100		0	0	0	100		0	0	0	100		
Total %	0	0	0	31	31	0	0	0	24.6	24.6	0	0	0	21.4	21.4	0	0	0	23	23	

Time	Ferris St										Hamilton St										Total
	Eastbound					Westbound					Northbound					Southbound					
	Left	Thru	Right	Peds	Approach	Left	Thru	Right	Peds	Approach	Left	Thru	Right	Peds	Approach	Left	Thru	Right	Peds	Approach	
7:00 AM - 7:15 AM	0	1	6	0	7	8	4	0	0	12	0	0	0	0	0	2	137	0	0	139	158
7:15 AM - 7:30 AM	0	1	6	0	7	3	3	0	1	6	0	0	0	0	0	3	141	3	0	147	160
7:30 AM - 7:45 AM	0	1	3	0	4	2	8	0	0	10	0	0	0	2	0	4	123	0	0	127	141
7:45 AM - 8:00 AM	0	1	5	0	6	2	4	0	0	6	0	0	0	0	0	4	132	4	0	140	152
8:00 AM - 8:15 AM	0	4	9	1	13	6	1	0	0	7	0	0	0	0	0	21	125	2	0	148	168
8:15 AM - 8:30 AM	0	4	5	0	9	2	5	0	0	7	0	0	0	0	0	12	148	0	0	160	176
8:30 AM - 8:45 AM	0	2	5	0	7	7	5	0	4	12	0	0	0	0	0	8	148	4	1	160	179
8:45 AM - 9:00 AM	0	4	7	0	11	5	2	0	0	7	0	0	0	1	0	14	125	3	0	142	160
Total	0	18	46	1	64	35	32	0	5	67	0	0	0	3	0	68	1079	16	1	1163	1294

Time	Ferris St										Hamilton St										Total
	Eastbound					Westbound					Northbound					Southbound					
	Left	Thru	Right	Peds	Approach	Left	Thru	Right	Peds	Approach	Left	Thru	Right	Peds	Approach	Left	Thru	Right	Peds	Approach	
7:00 AM - 8:00 AM	0	4	20	0	24	15	19	0	1	34	0	0	0	2	0	13	533	7	0	553	611
7:15 AM - 8:15 AM	0	7	23	1	30	13	16	0	1	29	0	0	0	2	0	32	521	9	0	562	621
7:30 AM - 8:30 AM	0	10	22	1	32	12	18	0	0	30	0	0	0	2	0	41	528	6	0	575	637
7:45 AM - 8:45 AM	0	11	24	1	35	17	15	0	4	32	0	0	0	0	0	45	553	10	1	608	675
8:00 AM - 9:00 AM	0	14	26	1	40	20	13	0	4	33	0	0	0	1	0	55	546	9	1	610	683

Approach PHF	0.77	0.69	-	0.95
HV%	0%	0%	-	1%

Time	Ferris St										Hamilton St										Total
	Eastbound					Westbound					Northbound					Southbound					
	Left	Thru	Right	Peds	Approach	Left	Thru	Right	Peds	Approach	Left	Thru	Right	Peds	Approach	Left	Thru	Right	Peds	Approach	
11:00 AM - 11:15 AM	0	3	4	1	7	12	9	0	0	21	0	0	0	0	0	21	188	2	0	211	239
11:15 AM - 11:30 AM	0	6	3	1	9	8	1	0	0	9	0	0	0	0	0	12	186	5	0	203	221
11:30 AM - 11:45 AM	0	2	9	0	11	9	5	0	0	14	0	0	0	0	0	19	169	2	2	190	215
11:45 AM - 12:00 PM	0	1	3	0	4	10	2	0	0	12	0	0	0	1	0	14	186	3	0	203	219
12:00 PM - 12:15 PM	0	5	8	1	13	9	4	0	0	13	0	0	0	1	0	17	203	4	0	224	250
12:15 PM - 12:30 PM	0	7	6	3	13	6	4	0	1	10	0	0	0	4	0	31	235	6	1	272	295
12:30 PM - 12:45 PM	0	4	9	0	13	6	3	0	1	9	0	0	0	1	0	23	243	6	0	272	294
12:45 PM - 1:00 PM	0	5	6	1	11	10	2	0	1	12	0	0	0	1	0	23	220	3	6	246	269
Total	0	33	48	7	81	70	30	0	3	100	0	0	0	8	0	160	1630	31	9	1821	2002

Time	Ferris St										Hamilton St										Total
	Eastbound					Westbound					Northbound					Southbound					
	Left	Thru	Right	Peds	Approach	Left	Thru	Right	Peds	Approach	Left	Thru	Right	Peds	Approach	Left	Thru	Right	Peds	Approach	
11:00 AM - 12:00 PM	0	12	19	2	31	39	17	0	0	56	0	0	0	1	0	66	729	12	2	807	894
11:15 AM - 12:15 PM	0	14	23	2	37	36	12	0	0	48	0	0	0	2	0	62	744	14	2	820	905
11:30 AM - 12:30 PM	0	15	26	4	41	34	15	0	1	49	0	0	0	6	0	81	793	15	3	889	979
11:45 AM - 12:45 PM	0	17	26	4	43	31	13	0	2	44	0	0	0	7	0	85	867	19	1	971	1058
12:00 PM - 1:00 PM	0	21	29	5	50	31	13	0	3	44	0	0	0	7	0	94	901	19	7	1014	1108

Approach PHF	0.96	0.85	-	0.93
HV%	0%	2%	-	0%

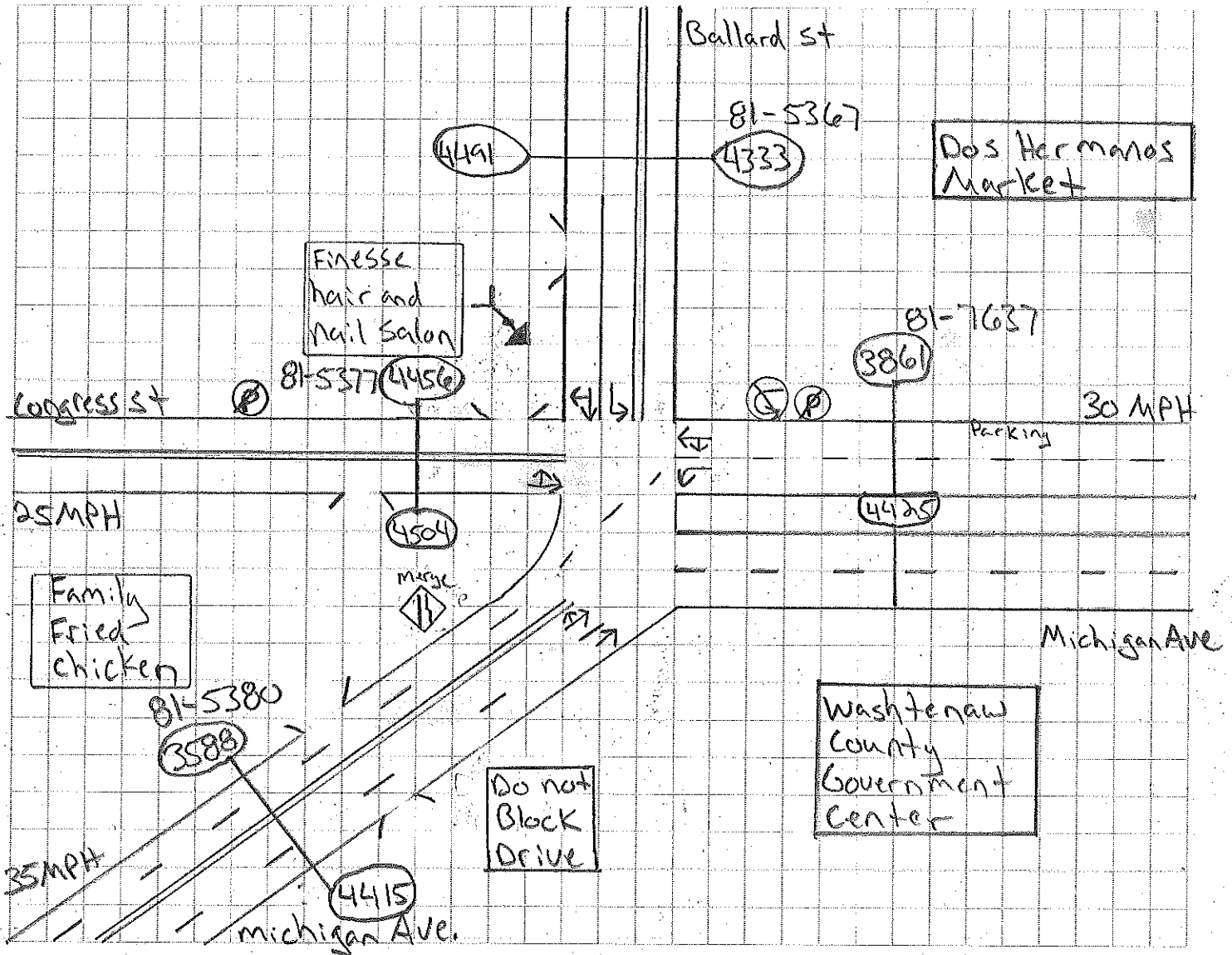
Time	Ferris St										Hamilton St										Total
	Eastbound					Westbound					Northbound					Southbound					
	Left	Thru	Right	Peds	Approach	Left	Thru	Right	Peds	Approach	Left	Thru	Right	Peds	Approach	Left	Thru	Right	Peds	Approach	
2:00 PM - 2:15 PM	0	4	9	2	13	9	7	0	0	16	0	0	0	1	0	25	308	2	1	335	364
2:15 PM - 2:30 PM	0	6	5	1	11	11	3	0	12	14	0	0	0	1	0	23	244	6	1	273	298
2:30 PM - 2:45 PM	0	9	11	1	20	6	8	0	1	14	0	0	0	0	0	26	247	4	0	277	311
2:45 PM - 3:00 PM	0	4	9	2	13	5	8	0	1	13	0	0	0	0	0	26	233	2	5	261	287
3:00 PM - 3:15 PM	0	4	4	1	8	15	4	0	0	19	0	0	0	0	0	23	337	3	3	363	390
3:15 PM - 3:30 PM	0	4	5	0	9	14	10	0	0	24	0	0	0	0	0	29	332	2	1	363	396
3:30 PM - 3:45 PM	0	11	7	1	18	8	10	0	1	18	0	0	0	2	0	22	379	4	2	405	441
3:45 PM - 4:00 PM	0	3	7	0	10	12	5	0	2	17	0	0	0	3	0	24	337	7	1	368	395
4:00 PM - 4:15 PM	0	4	9	3	13	14	0	0	0	14	0	0	0	2	0	29	336	6	2	371	398
4:15 PM - 4:30 PM	0	5	6	0	11	9	6	0	2	15	0	0	0	1	0	21	285	5	1	311	337
4:30 PM - 4:45 PM	0	7	4	4	11	3	9	0	0	12	0	0	0	1	0	26	309	1	3	336	359
4:45 PM - 5:00 PM	0	7	5	0	12	9	14	0	0	23	0	0	0	0	0	19	344	5	2	368	403
5:00 PM - 5:15 PM	0	5	6	2	11	17	5	0	0	22	0	0	0	2	0	26	403	3	1	432	465
5:15 PM - 5:30 PM	0	7	8	0	15	8	6	0	1	14	0	0	0	1	0	23	336	6	1	365	394
5:30 PM - 5:45 PM	0	5	4	1	9	7	6	0	1	13	0	0	0	1	0	19	288	4	2	311	333
5:45 PM - 6:00 PM	0	7	7	3	14	9	8	0	2	17	0	0	0	1	0	11	303	4	3	318	349
Total	0	92	106	21	198	156	109	0	23	265	0	0	0	16	0	372	5021	64	29	5457	5920

Time	Ferris St										Hamilton St										Total
	Eastbound					Westbound					Northbound					Southbound					
	Left	Thru	Right	Peds	Approach	Left	Thru	Right	Peds	Approach	Left	Thru	Right	Peds	Approach	Left	Thru	Right	Peds	Approach	
2:00 PM - 3:00 PM	0	23	34	6	57	31	26	0	14	57	0	0	0	2	0	100	1032	14	7	1146	1260
2:15 PM - 3:15 PM	0	23	29	5	52	37	23	0	14	60	0	0	0	1	0	98	1061	15	9	1174	1286
2:30 PM - 3:30 PM	0	21	29	4	50	40	30	0	2	70	0	0	0	0	0	104	1149	11	9	1264	1384
2:45 PM - 3:45 PM	0	23	25	4	48	42	32	0	2	74	0	0	0	2	0	100	1281	11	11	1392	1514
3:00 PM - 4:00 PM	0	22	23	2	45	49	29	0	3	78	0	0	0	5	0	98	1385	16	7	1499	1622
3:15 PM - 4:15 PM	0	22	28	4	50	48	25	0	3	73	0	0	0	7	0	104	1384	19	6	1507	1630
3:30 PM - 4:30 PM	0	23	29	4	52	43	21	0	5	64	0	0	0	8	0	96	1337	22	6	1455	1571
3:45 PM - 4:45 PM	0	19	26	7	45	38	20	0	4	58	0	0	0	7	0	100	1267	19	7	1386	1489
4:00 PM - 5:00 PM	0	23	24	7	47	35	29	0	2	64	0	0	0	4	0	95	1274	17	8	1386	1497
4:15 PM - 5:15 PM	0	24	21	6	45	38	34	0	2	72	0	0	0	4	0	92	1341	14	7	1447	1564
4:30 PM - 5:30 PM	0	26	23	6	49	37	34	0	1	71	0	0	0	4	0	94	1392	15	7	1501	1621
4:45 PM - 5:45 PM	0	24	23	3	47	41	31	0	2	72	0	0	0	4	0	87	1371	18	6	1476	1595
5:00 PM - 6:00 PM	0	24	25	6	49	41	25	0	4	66	0	0	0	5	0	79	1330	17	7	1426	1541

Approach PHF	0.69	0.76	-	0.93
HV%	0%	0%	-	0%

INTERSECTION DIAGRAM
(Not to Scale)

DATE 10-12-16	DAY Wednesday	COUNTY Washtenaw	TIME
TWP. VILLAGE OR CITY Ypsilanti Twp.	WEATHER Cloudy	7a TO 9a	
INTERSECTION OF US-12/Michigan Ave @ Congress St./Ballard St		11a TO 1p	
		2p TO 6p	



COMMENTS

Speed Limit on Ballard St is not posted. Speed Limit on Congress St. is 25 MPH. Speed Limit on East leg of Michigan Ave. is 30 MPH. Speed Limit on West leg of Michigan Ave is 35 MPH. MIO was set in the Northwest corner.

SURVEY PARTY CHIEF F. Benavidez	DRAWN BY	COUNTED BY	MACHINES SET BY
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Michigan Department Of Transportation Turning Movement

US-12 / MICHIGAN AVE.
@ CONGRESS ST. / BALLARD ST.
YPSILATI TWP.
WASHTENAW COUNTY

File Name : TM_160205_353436_10-11-2016
Site Code : 160205
Start Date : 10/11/2016
Page No : 1

Groups Printed- CARS - SINGLE UNITS - SEMIS - PEDESTRIANS																					
	BALLARD ST From North					MICHIGAN AVE. From East					MICHIGAN AVE From Southwest					CONGRESS ST. From West					
End Time	Right	Bear Right	Left	Peds	App. Total	Right	Thru	Bear Left	Peds	App. Total	Bear Right	Bear Left	Hard Left	Peds	App. Total	Hard Right	Thru	Left	Peds	App. Total	Int. Total
07:15 AM	1	1	2	1	5	2	15	59	0	76	39	0	0	0	39	0	15	1	0	16	136
07:30 AM	1	3	5	2	11	7	30	79	0	116	54	0	0	0	54	0	18	0	2	20	201
07:45 AM	1	4	1	0	6	3	34	131	0	168	50	0	0	2	52	1	20	0	0	21	247
08:00 AM	0	3	4	0	7	8	39	96	0	143	69	0	0	0	69	1	13	1	0	15	234
Total	3	11	12	3	29	20	118	365	0	503	212	0	0	2	214	2	66	2	2	72	818
08:15 AM	0	7	1	1	9	6	35	103	0	144	79	0	0	0	79	0	22	2	0	24	256
08:30 AM	2	4	1	2	9	9	28	79	1	117	70	0	0	0	70	0	22	3	0	25	221
08:45 AM	0	4	8	3	15	8	39	90	0	137	77	0	0	1	78	0	16	2	1	19	249
09:00 AM	0	2	6	4	12	8	28	77	0	113	87	0	0	0	87	0	24	1	2	27	239
Total	2	17	16	10	45	31	130	349	1	511	313	0	0	1	314	0	84	8	3	95	965
11:15 AM	3	6	3	4	16	7	26	84	0	117	86	0	0	0	86	0	20	1	0	21	240
11:30 AM	3	4	4	7	18	6	30	86	0	122	90	0	0	0	90	0	15	1	1	17	247
11:45 AM	4	3	2	6	15	5	25	88	0	118	84	0	0	3	87	1	9	2	4	16	236
12:00 PM	1	6	4	6	17	11	24	77	0	112	81	0	0	0	81	0	17	2	0	19	229
Total	11	19	13	23	66	29	105	335	0	469	341	0	0	3	344	1	61	6	5	73	952
12:15 PM	3	5	3	5	16	8	29	89	0	126	87	0	0	9	96	1	15	2	5	23	261
12:30 PM	3	5	9	3	20	6	26	88	0	120	90	0	0	1	91	1	17	3	0	21	252
12:45 PM	3	4	2	15	24	5	28	91	0	124	107	0	0	1	108	1	28	2	1	32	288
01:00 PM	1	5	2	9	17	8	22	96	1	127	97	0	0	0	97	1	29	2	3	35	276
Total	10	19	16	32	77	27	105	364	1	497	381	0	0	11	392	4	89	9	9	111	1077
02:15 PM	2	4	6	9	21	10	34	85	0	129	96	0	0	5	101	0	19	2	0	21	272
02:30 PM	3	5	6	7	21	8	21	112	0	141	119	0	0	12	131	1	23	1	1	26	319
02:45 PM	0	4	5	4	13	10	36	109	0	155	99	0	0	4	103	1	27	1	2	31	302
03:00 PM	1	3	3	5	12	10	43	85	1	139	99	0	0	1	100	0	23	1	0	24	275
Total	6	16	20	25	67	38	134	391	1	564	413	0	0	22	435	2	92	5	3	102	1168
03:15 PM	7	6	4	6	23	6	35	97	0	138	109	0	0	0	109	0	31	3	0	34	304
03:30 PM	2	7	9	9	27	9	31	88	0	128	115	0	0	2	117	0	24	2	0	26	298
03:45 PM	1	12	6	10	29	11	42	85	0	138	130	0	0	1	131	0	29	3	0	32	330
04:00 PM	3	6	7	5	21	14	32	99	0	145	132	0	0	4	136	1	33	2	2	38	340
Total	13	31	26	30	100	40	140	369	0	549	486	0	0	7	493	1	117	10	2	130	1272
04:15 PM	2	3	11	4	20	9	32	94	1	136	119	0	0	0	119	0	33	3	1	37	312
04:30 PM	2	4	4	2	12	14	36	94	0	144	123	0	0	0	123	0	35	1	1	37	316
04:45 PM	3	3	7	7	20	10	50	122	0	182	127	0	0	0	127	0	22	3	3	28	357
05:00 PM	3	3	8	5	19	10	56	110	0	176	132	0	0	1	133	0	30	1	0	31	359
Total	10	13	30	18	71	43	174	420	1	638	501	0	0	1	502	0	120	8	5	133	1344
05:15 PM	3	13	12	5	33	8	71	138	1	218	145	1	0	0	146	0	26	5	1	32	429

Michigan Department Of Transportation Turning Movement

File Name : TM_160205_353436_10-11-2016

Site Code : 160205

Start Date : 10/11/2016

Page No : 2

Groups Printed- CARS - SINGLE UNITS - SEMIS - PEDESTRIANS

	BALLARD ST From North					MICHIGAN AVE. From East					MICHIGAN AVE From Southwest					CONGRESS ST. From West					
End Time	Right	Bear Right	Left	Peds	App. Total	Right	Thru	Bear Left	Peds	App. Total	Bear Right	Bear Left	Hard Left	Peds	App. Total	Hard Right	Thru	Left	Peds	App. Total	Int. Total
05:30 PM	1	2	5	4	12	12	57	157	0	226	147	0	0	3	150	0	34	6	2	42	430
05:45 PM	4	5	7	2	18	7	61	161	0	229	141	0	0	1	142	0	22	5	0	27	416
06:00 PM	4	8	4	4	20	17	47	108	0	172	117	1	0	1	119	0	42	2	0	44	355
Total	12	28	28	15	83	44	236	564	1	845	550	2	0	5	557	0	124	18	3	145	1630
06:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
Grand Total	67	154	161	156	538	272	1142	3157	5	4576	3198	2	0	52	3252	10	753	66	32	861	9227
Apprch %	12.5	28.6	29.9	29		5.9	25	69	0.1		98.3	0.1	0	1.6		1.2	87.5	7.7	3.7		
Total %	0.7	1.7	1.7	1.7	5.8	2.9	12.4	34.2	0.1	49.6	34.7	0	0	0.6	35.2	0.1	8.2	0.7	0.3	9.3	
CARS	65	151	156	0	372	246	1117	3036	0	4399	3095	2	0	0	3097	7	734	66	0	807	8675
% CARS	97	98.1	96.9	0	69.1	90.4	97.8	96.2	0	96.1	96.8	100	0	0	95.2	70	97.5	100	0	93.7	94
SINGLE UNITS	2	3	5	0	10	25	25	104	0	154	85	0	0	0	85	3	19	0	0	22	271
% SINGLE UNITS	3	1.9	3.1	0	1.9	9.2	2.2	3.3	0	3.4	2.7	0	0	0	2.6	30	2.5	0	0	2.6	2.9
SEMIS	0	0	0	0	0	1	0	17	0	18	18	0	0	0	18	0	0	0	0	0	36
% SEMIS	0	0	0	0	0	0.4	0	0.5	0	0.4	0.6	0	0	0	0.6	0	0	0	0	0	0.4
PEDESTRIANS	0	0	0	156	156	0	0	0	5	5	0	0	0	52	52	0	0	0	32	32	245
% PEDESTRIANS	0	0	0	100	29	0	0	0	100	0.1	0	0	0	100	1.6	0	0	0	100	3.7	2.7

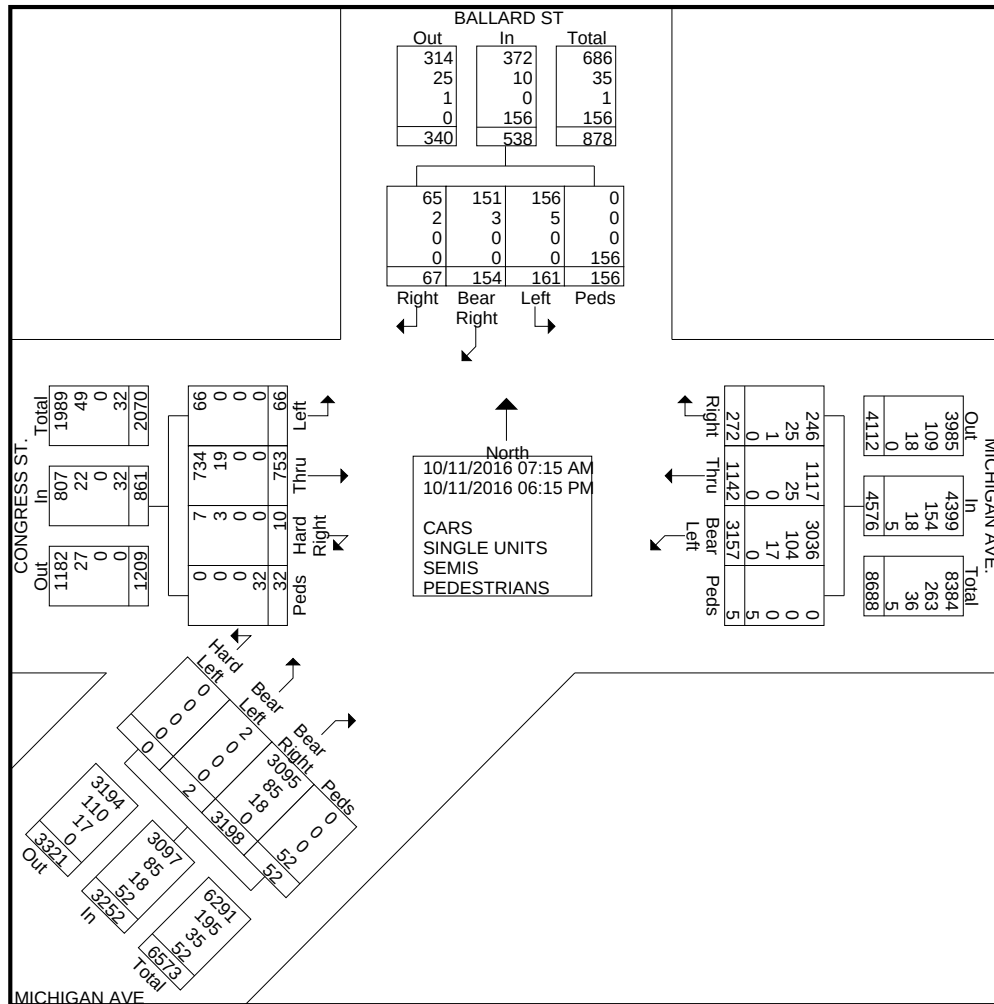
Michigan Department Of Transportation Turning Movement

File Name : TM_160205_353436_10-11-2016

Site Code : 160205

Start Date : 10/11/2016

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Michigan Department Of Transportation Turning Movement

US-12 / MICHIGAN AVE.
@ CONGRESS ST. / BALLARD ST.
YPSILATI TWP.
WASHTENAW COUNTY

File Name : TM_160205_353436_10-11-2016
Site Code : 160205
Start Date : 10/11/2016
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Groups Printed- CARS

	BALLARD ST From North					MICHIGAN AVE. From East					MICHIGAN AVE From Southwest					CONGRESS ST. From West					
End Time	Right	Bear Right	Left	Peds	App. Total	Right	Thru	Bear Left	Peds	App. Total	Bear Right	Bear Left	Hard Left	Peds	App. Total	Hard Right	Thru	Left	Peds	App. Total	Int. Total
07:15 AM	1	1	2	0	4	2	15	58	0	75	38	0	0	0	38	0	14	1	0	15	132
07:30 AM	1	3	5	0	9	7	29	75	0	111	53	0	0	0	53	0	18	0	0	18	191
07:45 AM	1	4	1	0	6	3	34	130	0	167	42	0	0	0	42	0	19	0	0	19	234
08:00 AM	0	3	3	0	6	7	37	92	0	136	69	0	0	0	69	1	13	1	0	15	226
Total	3	11	11	0	25	19	115	355	0	489	202	0	0	0	202	1	64	2	0	67	783
08:15 AM	0	7	1	0	8	4	34	98	0	136	75	0	0	0	75	0	21	2	0	23	242
08:30 AM	2	4	1	0	7	9	26	75	0	110	67	0	0	0	67	0	22	3	0	25	209
08:45 AM	0	4	8	0	12	7	38	85	0	130	73	0	0	0	73	0	16	2	0	18	233
09:00 AM	0	2	6	0	8	6	27	73	0	106	80	0	0	0	80	0	24	1	0	25	219
Total	2	17	16	0	35	26	125	331	0	482	295	0	0	0	295	0	83	8	0	91	903
11:15 AM	3	6	3	0	12	5	26	80	0	111	82	0	0	0	82	0	19	1	0	20	225
11:30 AM	3	4	4	0	11	6	29	82	0	117	88	0	0	0	88	0	14	1	0	15	231
11:45 AM	3	3	1	0	7	4	22	87	0	113	79	0	0	0	79	1	8	2	0	11	210
12:00 PM	1	6	4	0	11	10	23	74	0	107	76	0	0	0	76	0	16	2	0	18	212
Total	10	19	12	0	41	25	100	323	0	448	325	0	0	0	325	1	57	6	0	64	878
12:15 PM	3	5	3	0	11	7	28	84	0	119	87	0	0	0	87	0	14	2	0	16	233
12:30 PM	3	5	8	0	16	6	26	87	0	119	86	0	0	0	86	1	15	3	0	19	240
12:45 PM	3	4	2	0	9	4	27	87	0	118	103	0	0	0	103	1	27	2	0	30	260
01:00 PM	1	4	2	0	7	7	21	93	0	121	94	0	0	0	94	0	29	2	0	31	253
Total	10	18	15	0	43	24	102	351	0	477	370	0	0	0	370	2	85	9	0	96	986
02:15 PM	2	4	6	0	12	9	34	78	0	121	92	0	0	0	92	0	18	2	0	20	245
02:30 PM	3	5	5	0	13	8	21	106	0	135	116	0	0	0	116	1	23	1	0	25	289
02:45 PM	0	4	5	0	9	9	36	105	0	150	95	0	0	0	95	1	26	1	0	28	282
03:00 PM	1	2	3	0	6	9	42	81	0	132	93	0	0	0	93	0	22	1	0	23	254
Total	6	15	19	0	40	35	133	370	0	538	396	0	0	0	396	2	89	5	0	96	1070
03:15 PM	6	6	4	0	16	5	32	93	0	130	106	0	0	0	106	0	30	3	0	33	285
03:30 PM	2	7	8	0	17	9	31	86	0	126	112	0	0	0	112	0	24	2	0	26	281
03:45 PM	1	12	6	0	19	10	41	81	0	132	128	0	0	0	128	0	29	3	0	32	311
04:00 PM	3	6	7	0	16	13	31	95	0	139	130	0	0	0	130	1	33	2	0	36	321
Total	12	31	25	0	68	37	135	355	0	527	476	0	0	0	476	1	116	10	0	127	1198
04:15 PM	2	3	11	0	16	8	31	91	0	130	116	0	0	0	116	0	33	3	0	36	298
04:30 PM	2	4	4	0	10	14	36	88	0	138	120	0	0	0	120	0	33	1	0	34	302
04:45 PM	3	3	7	0	13	9	50	122	0	181	123	0	0	0	123	0	22	3	0	25	342
05:00 PM	3	2	8	0	13	9	55	108	0	172	127	0	0	0	127	0	29	1	0	30	342
Total	10	12	30	0	52	40	172	409	0	621	486	0	0	0	486	0	117	8	0	125	1284
05:15 PM	3	13	12	0	28	7	71	133	0	211	141	1	0	0	142	0	26	5	0	31	412

Michigan Department Of Transportation Turning Movement

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Groups Printed- CARS

	BALLARD ST From North					MICHIGAN AVE. From East					MICHIGAN AVE From Southwest					CONGRESS ST. From West					
End Time	Right	Bear Right	Left	Peds	App. Total	Right	Thru	Bear Left	Peds	App. Total	Bear Right	Bear Left	Hard Left	Peds	App. Total	Hard Right	Thru	Left	Peds	App. Total	Int. Total
05:30 PM	1	2	5	0	8	11	57	151	0	219	147	0	0	0	147	0	33	6	0	39	413
05:45 PM	4	5	7	0	16	6	61	154	0	221	140	0	0	0	140	0	22	5	0	27	404
06:00 PM	4	8	4	0	16	16	46	104	0	166	116	1	0	0	117	0	42	2	0	44	343
Total	12	28	28	0	68	40	235	542	0	817	544	2	0	0	546	0	123	18	0	141	1572
06:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
Grand Total	65	151	156	0	372	246	1117	3036	0	4399	3095	2	0	0	3097	7	734	66	0	807	8675
Apprch %	17.5	40.6	41.9	0		5.6	25.4	69	0		99.9	0.1	0	0		0.9	91	8.2	0		
Total %	0.7	1.7	1.8	0	4.3	2.8	12.9	35	0	50.7	35.7	0	0	0	35.7	0.1	8.5	0.8	0	9.3	

Michigan Department Of Transportation Turning Movement

US-12 / MICHIGAN AVE.
@ CONGRESS ST. / BALLARD ST.
YPSILATI TWP.
WASHTENAW COUNTY

File Name : TM_160205_353436_10-11-2016
Site Code : 160205
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Groups Printed- SINGLE UNITS																					
	BALLARD ST From North					MICHIGAN AVE. From East					MICHIGAN AVE From Southwest					CONGRESS ST. From West					
End Time	Right	Bear Right	Left	Peds	App. Total	Right	Thru	Bear Left	Peds	App. Total	Bear Right	Bear Left	Hard Left	Peds	App. Total	Hard Right	Thru	Left	Peds	App. Total	Int. Total
07:15 AM	0	0	0	0	0	0	0	1	0	1	1	0	0	0	1	0	1	0	0	1	3
07:30 AM	0	0	0	0	0	0	1	3	0	4	1	0	0	0	1	0	0	0	0	0	5
07:45 AM	0	0	0	0	0	0	0	1	0	1	6	0	0	0	6	1	1	0	0	2	9
08:00 AM	0	0	1	0	1	1	2	3	0	6	0	0	0	0	0	0	0	0	0	0	7
Total	0	0	1	0	1	1	3	8	0	12	8	0	0	0	8	1	2	0	0	3	24
08:15 AM	0	0	0	0	0	1	1	3	0	5	4	0	0	0	4	0	1	0	0	1	10
08:30 AM	0	0	0	0	0	0	2	3	0	5	3	0	0	0	3	0	0	0	0	0	8
08:45 AM	0	0	0	0	0	1	1	3	0	5	4	0	0	0	4	0	0	0	0	0	9
09:00 AM	0	0	0	0	0	2	1	4	0	7	6	0	0	0	6	0	0	0	0	0	13
Total	0	0	0	0	0	4	5	13	0	22	17	0	0	0	17	0	1	0	0	1	40
11:15 AM	0	0	0	0	0	2	0	3	0	5	4	0	0	0	4	0	1	0	0	1	10
11:30 AM	0	0	0	0	0	0	1	4	0	5	1	0	0	0	1	0	1	0	0	1	7
11:45 AM	1	0	1	0	2	1	3	1	0	5	4	0	0	0	4	0	1	0	0	1	12
12:00 PM	0	0	0	0	0	1	1	3	0	5	3	0	0	0	3	0	1	0	0	1	9
Total	1	0	1	0	2	4	5	11	0	20	12	0	0	0	12	0	4	0	0	4	38
12:15 PM	0	0	0	0	0	1	1	4	0	6	0	0	0	0	0	1	1	0	0	2	8
12:30 PM	0	0	1	0	1	0	0	1	0	1	4	0	0	0	4	0	2	0	0	2	8
12:45 PM	0	0	0	0	0	1	1	3	0	5	3	0	0	0	3	0	1	0	0	1	9
01:00 PM	0	1	0	0	1	1	1	3	0	5	2	0	0	0	2	1	0	0	0	1	9
Total	0	1	1	0	2	3	3	11	0	17	9	0	0	0	9	2	4	0	0	6	34
02:15 PM	0	0	0	0	0	1	0	5	0	6	2	0	0	0	2	0	1	0	0	1	9
02:30 PM	0	0	1	0	1	0	0	5	0	5	2	0	0	0	2	0	0	0	0	0	8
02:45 PM	0	0	0	0	0	1	0	4	0	5	4	0	0	0	4	0	1	0	0	1	10
03:00 PM	0	1	0	0	1	1	1	4	0	6	3	0	0	0	3	0	1	0	0	1	11
Total	0	1	1	0	2	3	1	18	0	22	11	0	0	0	11	0	3	0	0	3	38
03:15 PM	1	0	0	0	1	1	3	3	0	7	3	0	0	0	3	0	1	0	0	1	12
03:30 PM	0	0	1	0	1	0	0	2	0	2	3	0	0	0	3	0	0	0	0	0	6
03:45 PM	0	0	0	0	0	1	1	3	0	5	2	0	0	0	2	0	0	0	0	0	7
04:00 PM	0	0	0	0	0	1	1	4	0	6	2	0	0	0	2	0	0	0	0	0	8
Total	1	0	1	0	2	3	5	12	0	20	10	0	0	0	10	0	1	0	0	1	33
04:15 PM	0	0	0	0	0	1	1	3	0	5	3	0	0	0	3	0	0	0	0	0	8
04:30 PM	0	0	0	0	0	0	0	6	0	6	3	0	0	0	3	0	2	0	0	2	11
04:45 PM	0	0	0	0	0	1	0	0	0	1	4	0	0	0	4	0	0	0	0	0	5
05:00 PM	0	1	0	0	1	1	1	1	0	3	4	0	0	0	4	0	1	0	0	1	9
Total	0	1	0	0	1	3	2	10	0	15	14	0	0	0	14	0	3	0	0	3	33
05:15 PM	0	0	0	0	0	1	0	5	0	6	2	0	0	0	2	0	0	0	0	0	8

Michigan Department Of Transportation Turning Movement

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Groups Printed- SINGLE UNITS

	BALLARD ST From North					MICHIGAN AVE. From East					MICHIGAN AVE From Southwest					CONGRESS ST. From West					
End Time	Right	Bear Right	Left	Peds	App. Total	Right	Thru	Bear Left	Peds	App. Total	Bear Right	Bear Left	Hard Left	Peds	App. Total	Hard Right	Thru	Left	Peds	App. Total	Int. Total
05:30 PM	0	0	0	0	0	1	0	6	0	7	0	0	0	0	0	0	1	0	0	1	8
05:45 PM	0	0	0	0	0	1	0	6	0	7	1	0	0	0	1	0	0	0	0	0	8
06:00 PM	0	0	0	0	0	1	1	4	0	6	1	0	0	0	1	0	0	0	0	0	7
Total	0	0	0	0	0	4	1	21	0	26	4	0	0	0	4	0	1	0	0	1	31
Grand Total	2	3	5	0	10	25	25	104	0	154	85	0	0	0	85	3	19	0	0	22	271
Apprch %	20	30	50	0		16.2	16.2	67.5	0		100	0	0	0		13.6	86.4	0	0		
Total %	0.7	1.1	1.8	0	3.7	9.2	9.2	38.4	0	56.8	31.4	0	0	0	31.4	1.1	7	0	0	8.1	

Michigan Department
Of
Transportation
Turning Movement

US-12 / MICHIGAN AVE.
@ CONGRESS ST. / BALLARD ST.
YPSILANTI TWP.
WASHTENAW COUNTY

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Groups Printed- SEMIS

	BALLARD ST From North					MICHIGAN AVE. From East					MICHIGAN AVE From Southwest					CONGRESS ST. From West					
End Time	Right	Bear Right	Left	Peds	App. Total	Right	Thru	Bear Left	Peds	App. Total	Bear Right	Bear Left	Hard Left	Peds	App. Total	Hard Right	Thru	Left	Peds	App. Total	Int. Total
07:30 AM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
07:45 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	2
08:00 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	2	0	2	2	0	0	0	0	2	0	0	0	0	4
08:15 AM	0	0	0	0	0	1	0	2	0	3	0	0	0	0	0	0	0	0	0	0	3
08:30 AM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
08:45 AM	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	2
09:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
Total	0	0	0	0	0	1	0	5	0	6	1	0	0	0	1	0	0	0	0	0	7
11:15 AM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
11:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
11:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
12:00 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	2
Total	0	0	0	0	0	0	0	1	0	1	4	0	0	0	4	0	0	0	0	0	5
12:15 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
12:45 PM	0	0	0	0	0	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0	2
01:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	2	0	2	2	0	0	0	2	0	0	0	0	0	4
02:15 PM	0	0	0	0	0	0	0	2	0	2	2	0	0	0	2	0	0	0	0	0	4
02:30 PM	0	0	0	0	0	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0	2
03:00 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0	0	0	0	0	3
Total	0	0	0	0	0	0	0	3	0	3	6	0	0	0	6	0	0	0	0	0	9
03:15 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
03:45 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	2
05:00 PM	0	0	0	0	0	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0	2
Total	0	0	0	0	0	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0	2
05:15 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	2
05:45 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1

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Groups Printed- SEMIS

	BALLARD ST From North					MICHIGAN AVE. From East					MICHIGAN AVE From Southwest					CONGRESS ST. From West					
End Time	Right	Bear Right	Left	Peds	App. Total	Right	Thru	Bear Left	Peds	App. Total	Bear Right	Bear Left	Hard Left	Peds	App. Total	Hard Right	Thru	Left	Peds	App. Total	Int. Total
Total	0	0	0	0	0	0	0	1	0	1	2	0	0	0	2	0	0	0	0	0	3
Grand Total	0	0	0	0	0	1	0	17	0	18	18	0	0	0	18	0	0	0	0	0	36
Apprch %	0	0	0	0		5.6	0	94.4	0		100	0	0	0		0	0	0	0		
Total %	0	0	0	0	0	2.8	0	47.2	0	50	50	0	0	0	50	0	0	0	0	0	

Michigan Department
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US-12 / MICHIGAN AVE.
@ CONGRESS ST. / BALLARD ST.
YPSILATI TWP.
WASHTENAW COUNTY

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Groups Printed- PEDESTRIANS

	BALLARD ST From North					MICHIGAN AVE. From East					MICHIGAN AVE From Southwest					CONGRESS ST. From West					
End Time	Right	Bear Right	Left	Peds	App. Total	Right	Thru	Bear Left	Peds	App. Total	Bear Right	Bear Left	Hard Left	Peds	App. Total	Hard Right	Thru	Left	Peds	App. Total	Int. Total
07:15 AM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
07:30 AM	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	4
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	2
Total	0	0	0	3	3	0	0	0	0	0	0	0	0	2	2	0	0	0	2	2	7
08:15 AM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
08:30 AM	0	0	0	2	2	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	3
08:45 AM	0	0	0	3	3	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	5
09:00 AM	0	0	0	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	6
Total	0	0	0	10	10	0	0	0	1	1	0	0	0	1	1	0	0	0	3	3	15
11:15 AM	0	0	0	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
11:30 AM	0	0	0	7	7	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	8
11:45 AM	0	0	0	6	6	0	0	0	0	0	0	0	0	3	3	0	0	0	4	4	13
12:00 PM	0	0	0	6	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
Total	0	0	0	23	23	0	0	0	0	0	0	0	0	3	3	0	0	0	5	5	31
12:15 PM	0	0	0	5	5	0	0	0	0	0	0	0	0	9	9	0	0	0	5	5	19
12:30 PM	0	0	0	3	3	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	4
12:45 PM	0	0	0	15	15	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	17
01:00 PM	0	0	0	9	9	0	0	0	1	1	0	0	0	0	0	0	0	0	3	3	13
Total	0	0	0	32	32	0	0	0	1	1	0	0	0	11	11	0	0	0	9	9	53
02:15 PM	0	0	0	9	9	0	0	0	0	0	0	0	0	5	5	0	0	0	0	0	14
02:30 PM	0	0	0	7	7	0	0	0	0	0	0	0	0	12	12	0	0	0	1	1	20
02:45 PM	0	0	0	4	4	0	0	0	0	0	0	0	0	4	4	0	0	0	2	2	10
03:00 PM	0	0	0	5	5	0	0	0	1	1	0	0	0	1	1	0	0	0	0	0	7
Total	0	0	0	25	25	0	0	0	1	1	0	0	0	22	22	0	0	0	3	3	51
03:15 PM	0	0	0	6	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
03:30 PM	0	0	0	9	9	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	11
03:45 PM	0	0	0	10	10	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	11
04:00 PM	0	0	0	5	5	0	0	0	0	0	0	0	0	4	4	0	0	0	2	2	11
Total	0	0	0	30	30	0	0	0	0	0	0	0	0	7	7	0	0	0	2	2	39
04:15 PM	0	0	0	4	4	0	0	0	1	1	0	0	0	0	0	0	0	0	1	1	6
04:30 PM	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	3
04:45 PM	0	0	0	7	7	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	10
05:00 PM	0	0	0	5	5	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	6
Total	0	0	0	18	18	0	0	0	1	1	0	0	0	1	1	0	0	0	5	5	25
05:15 PM	0	0	0	5	5	0	0	0	1	1	0	0	0	0	0	0	0	0	1	1	7

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Groups Printed- PEDESTRIANS

	BALLARD ST From North					MICHIGAN AVE. From East					MICHIGAN AVE From Southwest					CONGRESS ST. From West					
End Time	Right	Bear Right	Left	Peds	App. Total	Right	Thru	Bear Left	Peds	App. Total	Bear Right	Bear Left	Hard Left	Peds	App. Total	Hard Right	Thru	Left	Peds	App. Total	Int. Total
05:30 PM	0	0	0	4	4	0	0	0	0	0	0	0	0	3	3	0	0	0	2	2	9
05:45 PM	0	0	0	2	2	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	3
06:00 PM	0	0	0	4	4	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	5
Total	0	0	0	15	15	0	0	0	1	1	0	0	0	5	5	0	0	0	3	3	24
Grand Total	0	0	0	156	156	0	0	0	5	5	0	0	0	52	52	0	0	0	32	32	245
Apprch %	0	0	0	100		0	0	0	100		0	0	0	100		0	0	0	100		
Total %	0	0	0	63.7	63.7	0	0	0	2	2	0	0	0	21.2	21.2	0	0	0	13.1	13.1	

Time	Congress St/Michigan Ave										Michigan Ave/Ballard St										Total
	Eastbound					Westbound					Northeast-Bound					Southbound					
	Left	Thru	Right (Hard Right)	Peds	Approach	Left (Bear Left)	Thru	Right	Peds	Approach	Left	Thru	Right (Bear Right)	Peds	Approach	Left	Thru (Bear Right)	Right	Peds	Approach	
7:00 AM - 7:15 AM	1	15	0	0	16	59	15	2	0	76	0	0	39	0	39	2	1	1	1	4	135
7:15 AM - 7:30 AM	0	18	0	2	18	79	30	7	0	116	0	0	54	0	54	5	3	1	2	9	197
7:30 AM - 7:45 AM	0	20	1	0	21	131	34	3	0	168	0	0	50	2	50	1	4	1	0	6	245
7:45 AM - 8:00 AM	1	13	1	0	15	96	39	8	0	143	0	0	69	0	69	4	3	0	0	7	234
8:00 AM - 8:15 AM	2	22	0	0	24	103	35	6	0	144	0	0	79	0	79	1	7	0	1	8	255
8:15 AM - 8:30 AM	3	22	0	0	25	79	28	9	1	116	0	0	70	0	70	3	22	0	0	25	236
8:30 AM - 8:45 AM	2	16	0	1	18	90	39	8	0	137	0	0	77	1	77	2	16	0	1	18	250
8:45 AM - 9:00 AM	1	24	0	2	25	77	28	8	0	113	0	0	87	0	87	6	2	0	4	8	233
Total	10	150	2	5	162	714	248	51	1	1013	0	0	525	3	525	24	58	3	9	85	1785

Time	Congress St/Michigan Ave										Michigan Ave/Ballard St										Total
	Eastbound					Westbound					Northeast-Bound					Southbound					
	Left	Thru	Right (Hard Right)	Peds	Approach	Left (Bear Left)	Thru	Right	Peds	Approach	Left	Thru	Right (Bear Right)	Peds	Approach	Left (Bear Right)	Right	Peds	Approach		
7:00 AM - 8:00 AM	2	66	2	2	70	365	118	20	0	503	0	0	212	2	212	12	11	3	3	26	811
7:15 AM - 8:15 AM	3	73	2	2	78	409	138	24	0	571	0	0	252	2	252	11	17	2	3	30	931
7:30 AM - 8:30 AM	6	77	2	0	85	409	136	26	1	571	0	0	268	2	268	9	36	1	1	46	970
7:45 AM - 8:45 AM	8	73	1	1	82	368	141	31	1	540	0	0	295	1	295	10	48	0	2	58	975
8:00 AM - 9:00 AM	8	84	0	3	92	349	130	31	1	510	0	0	313	1	313	12	47	0	6	59	974

Approach PHF	0.82	0.94	0.93	0.58
HV%	0%	1%	0%	0%

Time	Congress St/Michigan Ave										Michigan Ave/Ballard St										Total
	Eastbound					Westbound					Northeast-Bound					Southbound					
	Left	Thru	Right (Hard Right)	Peds	Approach	Left (Bear Left)	Thru	Right	Peds	Approach	Left	Thru	Right (Bear Right)	Peds	Approach	Left	Thru (Bear Right)	Right	Peds	Approach	
11:00 AM - 11:15 AM	1	20	0	0	21	84	26	7	0	117	0	0	86	0	86	3	6	3	4	12	236
11:15 AM - 11:30 AM	1	15	0	1	16	86	30	6	0	122	0	0	90	0	90	4	4	3	7	11	239
11:30 AM - 11:45 AM	2	9	1	4	12	88	25	5	0	118	0	0	84	3	84	2	3	4	6	9	223
11:45 AM - 12:00 PM	2	17	0	0	19	77	24	11	0	112	0	0	81	0	81	4	6	1	6	11	223
12:00 PM - 12:15 PM	2	15	1	5	18	89	29	8	0	126	0	0	87	9	87	3	5	3	5	11	242
12:15 PM - 12:30 PM	3	17	1	0	21	88	26	6	0	120	0	0	90	1	90	9	5	3	3	17	248
12:30 PM - 12:45 PM	2	28	1	1	31	91	28	5	0	124	0	0	107	1	107	2	4	3	15	9	271
12:45 PM - 1:00 PM	2	29	1	3	32	96	22	8	1	126	0	0	97	0	97	2	5	1	9	8	263
Total	15	150	5	14	170	699	210	56	1	965	0	0	722	14	722	29	38	21	55	88	1945

Time	Congress St/Michigan Ave										Michigan Ave/Ballard St										Total
	Eastbound					Westbound					Northeast-Bound					Southbound					
	Left	Thru	Right (Hard Right)	Peds	Approach	Left (Bear Left)	Thru	Right	Peds	Approach	Left	Thru	Right (Bear Right)	Peds	Approach	Left (Bear Right)	Thru	Right	Peds	Approach	
11:00 AM - 12:00 PM	6	61	1	5	68	335	105	29	0	469	0	0	341	3	341	13	19	11	23	43	921
11:15 AM - 12:15 PM	7	56	2	10	65	340	108	30	0	478	0	0	342	12	342	13	18	11	24	42	927
11:30 AM - 12:30 PM	9	58	3	9	70	342	104	30	0	476	0	0	342	13	342	18	19	11	20	48	936
11:45 AM - 12:45 PM	9	77	3	6	89	345	107	30	0	482	0	0	365	11	365	18	20	10	29	48	984
12:00 PM - 1:00 PM	9	89	4	9	102	364	105	27	1	496	0	0	381	11	381	16	19	10	32	45	1024

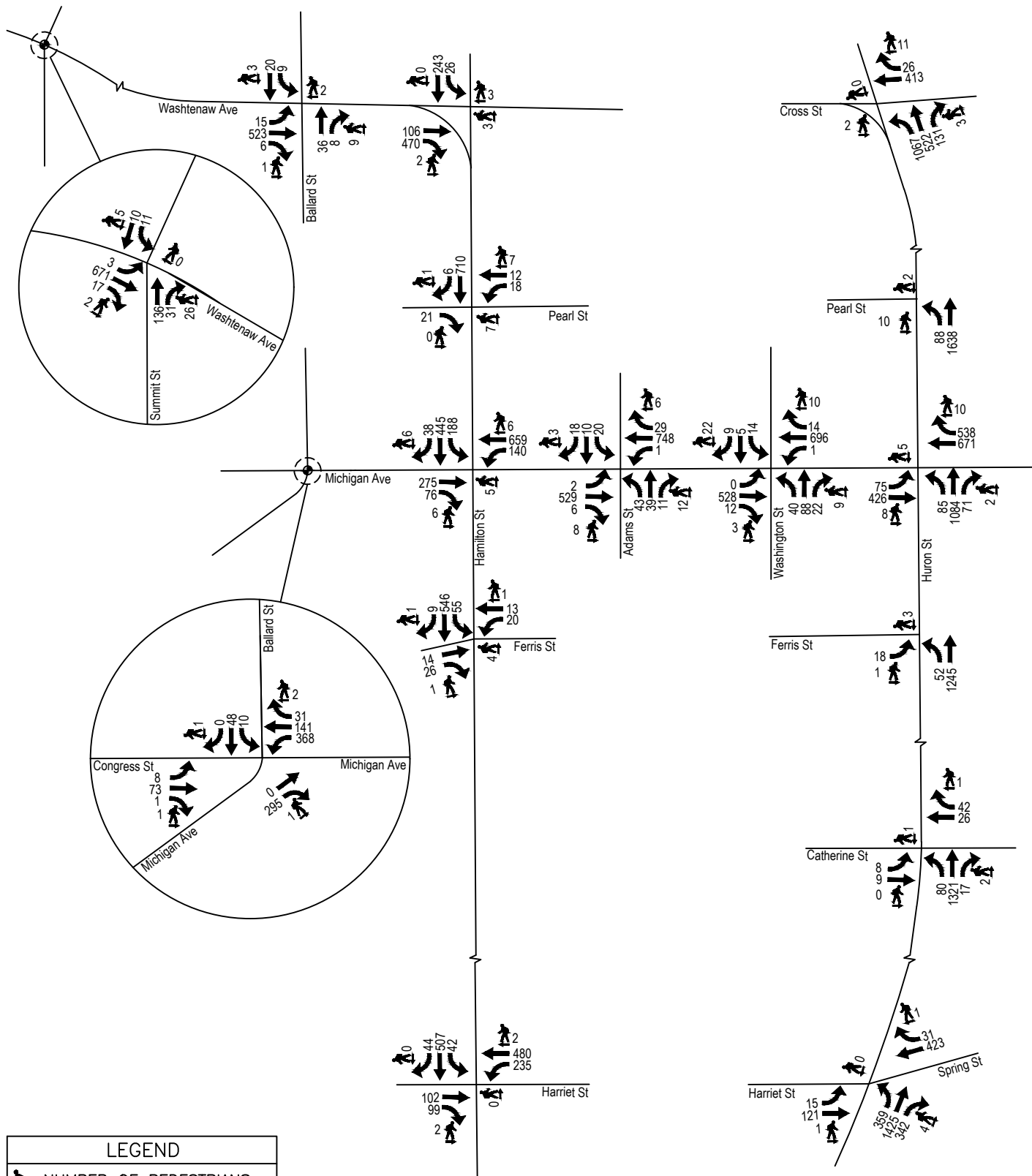
Approach PHF	0.80	0.98	0.89	0.66
HV%	0%	0%	1%	0%

Time	Congress St/Michigan Ave										Michigan Ave/Ballard St										Total
	Eastbound					Westbound					Northeast-Bound					Southbound					
	Left	Thru	Right (Hard Right)	Peds	Approach	Left (Bear Left)	Thru	Right	Peds	Approach	Left	Thru	Right (Bear Right)	Peds	Approach	Left	Thru (Bear Right)	Right	Peds	Approach	
2:00 PM - 2:15 PM	2	19	0	0	21	85	34	10	0	129	0	0	96	5	96	6	4	2	9	12	258
2:15 PM - 2:30 PM	1	23	1	1	25	112	21	8	0	141	0	0	119	12	119	6	5	3	7	14	299
2:30 PM - 2:45 PM	1	27	1	2	29	109	36	10	0	155	0	0	99	4	99	5	4	0	4	9	292
2:45 PM - 3:00 PM	1	23	0	0	24	85	43	10	1	138	0	0	99	1	99	3	3	1	5	7	268
3:00 PM - 3:15 PM	3	31	0	0	34	97	35	6	0	138	0	0	109	0	109	4	6	7	6	17	298
3:15 PM - 3:30 PM	2	24	0	0	26	88	31	9	0	128	0	0	115	2	115	9	7	2	9	18	287
3:30 PM - 3:45 PM	3	29	0	0	32	85	42	11	0	138	0	0	130	1	130	6	12	1	10	19	319
3:45 PM - 4:00 PM	2	33	1	2	36	99	32	14	0	145	0	0	132	4	132	7	6	3	5	16	329
4:00 PM - 4:15 PM	3	33	0	1	36	94	32	9	1	135	0	0	119	0	119	11	3	2	4	16	306
4:15 PM - 4:30 PM	1	35	0	1	36	94	36	14	0	144	0	0	123	0	123	4	4	2	2	10	313
4:30 PM - 4:45 PM	3	22	0	3	25	122	50	10	0	182	0	0	127	0	127	7	3	3	7	13	347
4:45 PM - 5:00 PM	1	30	0	0	31	110	56	10	0	176	0	0	132	1	132	8	3	3	5	14	353
5:00 PM - 5:15 PM	5	26	0	1	31	138	71	8	1	217	0	1	145	0	146	12	13	3	5	28	422
5:15 PM - 5:30 PM	6	34	0	2	40	157	57	12	0	226	0	0	147	3	147	5	2	1	4	8	421
5:30 PM - 5:45 PM	5	22	0	0	27	161	61	7	0	229	0	0	141	1	141	7	5	4	2	16	413
5:45 PM - 6:00 PM	2	42	0	0	44	108	47	17	0	172	0	1	117	1	118	4	8	4	4	16	350
Total	41	453	3	13	497	1744	684	165	3	2593	0	2	1950	35	1952	104	88	41	88	233	5275

Time	Congress St/Michigan Ave										Michigan Ave/Ballard St										Total
	Eastbound					Westbound					Northeast-Bound					Southbound					
	Left	Thru	Right (Hard Right)	Peds	Approach	Left (Bear Left)	Thru	Right	Peds	Approach	Left	Thru	Right (Bear Right)	Peds	Approach	Left	Thru (Bear Right)	Right	Peds	Approach	
2:00 PM - 3:00 PM	5	92	2	3	99	391	134	38	1	563	0	0	413	22	413	20	16	6	25	42	1117
2:15 PM - 3:15 PM	6	104	2	3	112	403	135	34	1	572	0	0	426	17	426	18	18	11	22	47	1157
2:30 PM - 3:30 PM	7	105	1	2	113	379	145	35	1	559	0	0	422	7	422	21	20	10	24	51	1145
2:45 PM - 3:45 PM	9	107	0	0	116	355	151	36	1	542	0	0	453	4	453	22	28	11	30	61	1172
3:00 PM - 4:00 PM	10	117	1	2	128	369	140	40	0	549	0	0	486	7	486	26	31	13	30	70	1233
3:15 PM - 4:15 PM	10	119	1	3	130	366	137	43	1	546	0	0	496	7	496	33	28	8	28	69	1241
3:30 PM - 4:30 PM	9	130	1	4	140	372	142	48	1	562	0	0	504	5	504	28	25	8	21	61	1267
3:45 PM - 4:45 PM	9	123	1	7	133	409	150	47	1	606	0	0	501	4	501	29	16	10	18	55	1295
4:00 PM - 5:00 PM	8	120	0	5	128	420	174	43	1	637	0	0	501	1	501	30	13	10	18	53	1319
4:15 PM - 5:15 PM	10	113	0	5	123	464	213	42	1	719	0	1	527	1	528	31	23	11	19	65	1435
4:30 PM - 5:30 PM	15	112	0	6	127	527	234	40	1	801	0	1	551	4	552	32	21	10	21	63	1543
4:45 PM - 5:45 PM	17	112	0	3	129	566	245	37	1	848	0	1	565	5	566	32	23	11	16	66	1609
5:00 PM - 6:00 PM	18	124	0	3	142	564	236	44	1	844	0	2	550	5	552	28	28	12	15	68	1606

Approach PHF	0.81	0.93	0.96	0.59
HV%	0%	0%	1%	0%

Appendix B
Existing Volume Diagrams



HRC
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 CONSULTING ENGINEERS SINCE 1913

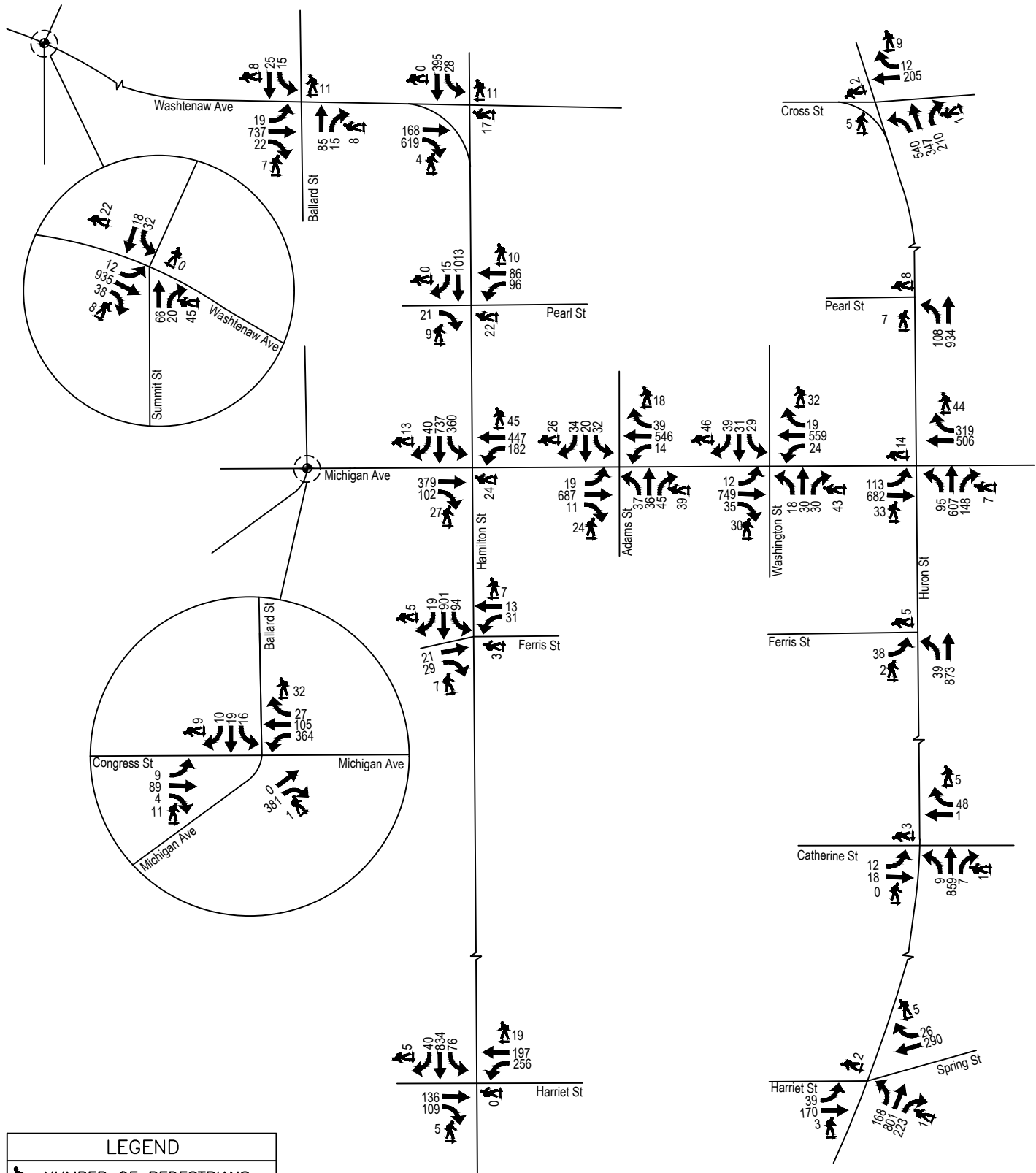
555 HULET DRIVE P.O. BOX 824
 BLOOMFIELD HILLS, MICH. 48303-0824

JOB NO.
 20180230

DATE
 12/14/2018

EXISTING AM PEAK HOUR VOLUME DIAGRAM





555 HULET DRIVE
BLOOMFIELD HILLS, MICH.

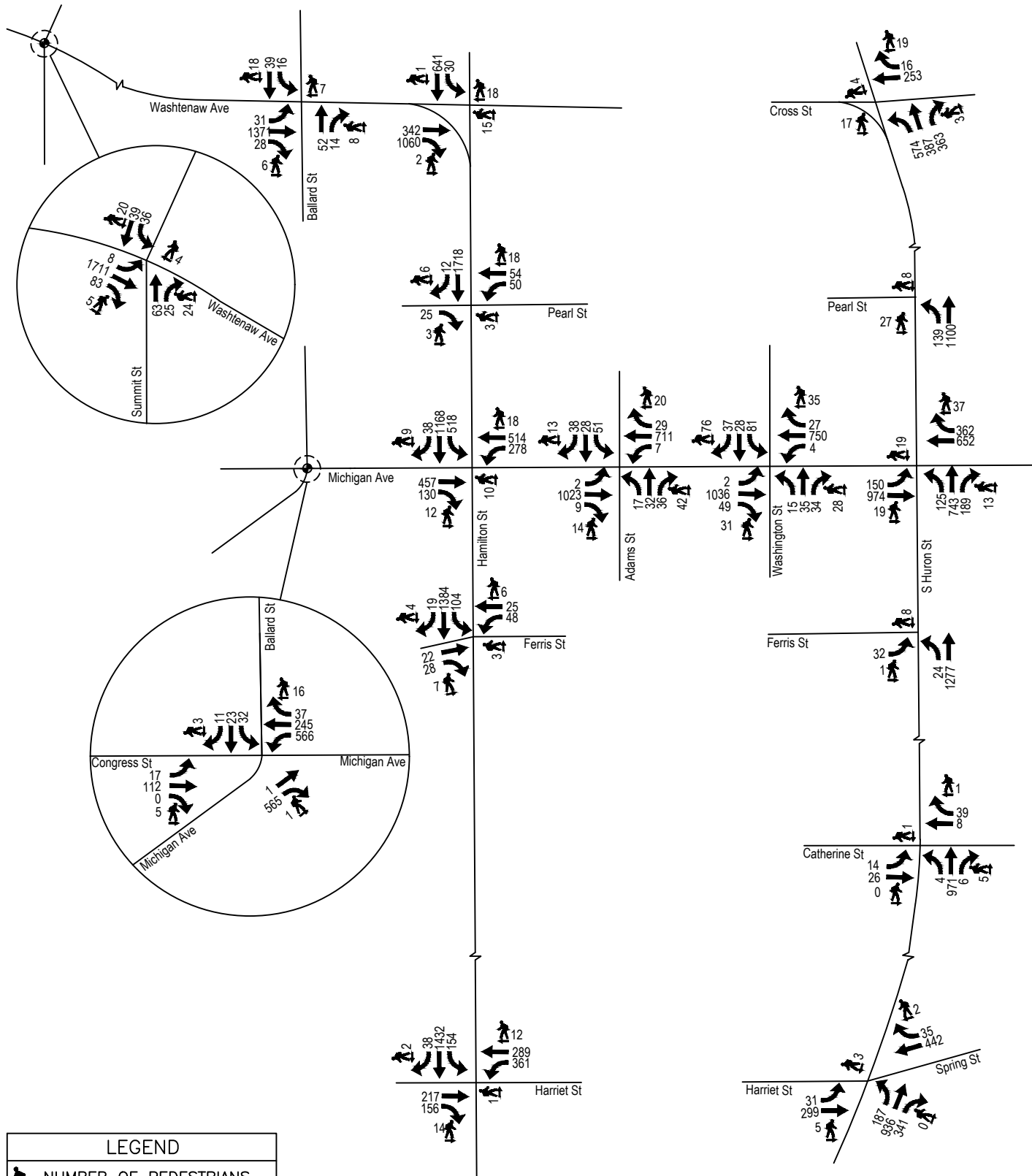
P.O. BOX 824
48303-0824

JOB NO.
20180230

DATE
12/14/2018

EXISTING
MIDDAY PEAK HOUR VOLUME DIAGRAM





LEGEND	
	NUMBER OF PEDESTRIANS CROSSING ALONG APPROACH

HRC
HUBBELL, ROTH & CLARK, INC.
 CONSULTING ENGINEERS SINCE 1913

555 HULET DRIVE P.O. BOX 824
 BLOOMFIELD HILLS, MICH. 48303-0824

JOB NO. 20180230	DATE 12/14/2018
---------------------	--------------------

EXISTING PM PEAK HOUR VOLUME DIAGRAM

N
 NOT TO SCALE

Appendix C
Growth Rates

Nicita, Nicholas

From: Mark Ferrall <ferrallm@miwats.org>
Sent: Tuesday, November 27, 2018 11:45 AM
To: Nicita, Nicholas
Subject: Re: Ypsilanti Growth Rate
Attachments: image001.jpg

	Rate
Hamilton	0.6%
Huron	0.6%
Michigan Ave	0.7%

Annual Growth Rate

Use annual growth rate of 0.6% for
Washtenaw Ave per discussion with WATS
-NN
11/17/18

Growth rates are above. The difference from the previous counts probably comes from the horizon years or slightly different study segments.

On Mon, Nov 26, 2018 at 1:05 PM Nicita, Nicholas <NNicita@hrcengr.com> wrote:

Hello Mark,

Following up our conversation, looking to put together a traffic model for the Hamilton and Huron St corridors. Attached are all the intersections (represented by circles) included in our study area. Need to apply a growth rate to the study area for a construction year of 2022 and a future year of 2038. Would you be able to please assist with providing a growth rate for our study area for the years 2022 and 2038?

For your reference, WCRC requested a growth rate in 2014 for the same study area and used an annual growth rate of 0.31%.

Thanks,



Nicholas Nicita, PE, LEED AP

Phone: (248) 454-6300

Direct: (248) 454-6344

Email: nnicita@hrcengr.com

The sender intends that this email is for the exclusive use of the person/company to whom it is addressed. This message may contain information that is confidential or privileged and exempt from disclosure under applicable law. If the reader of this email is not the intended recipient, be aware any disclosure, dissemination, distribution or copying of this communication, or the use of its contents is prohibited. If you have received this email in error, please immediately notify the sender of your inadvertent receipt and mail the original copy to: Hubbell, Roth, & Clark, Inc., P.O. Box 824, Bloomfield Hills, MI 48303.

--

Mark Ferrall

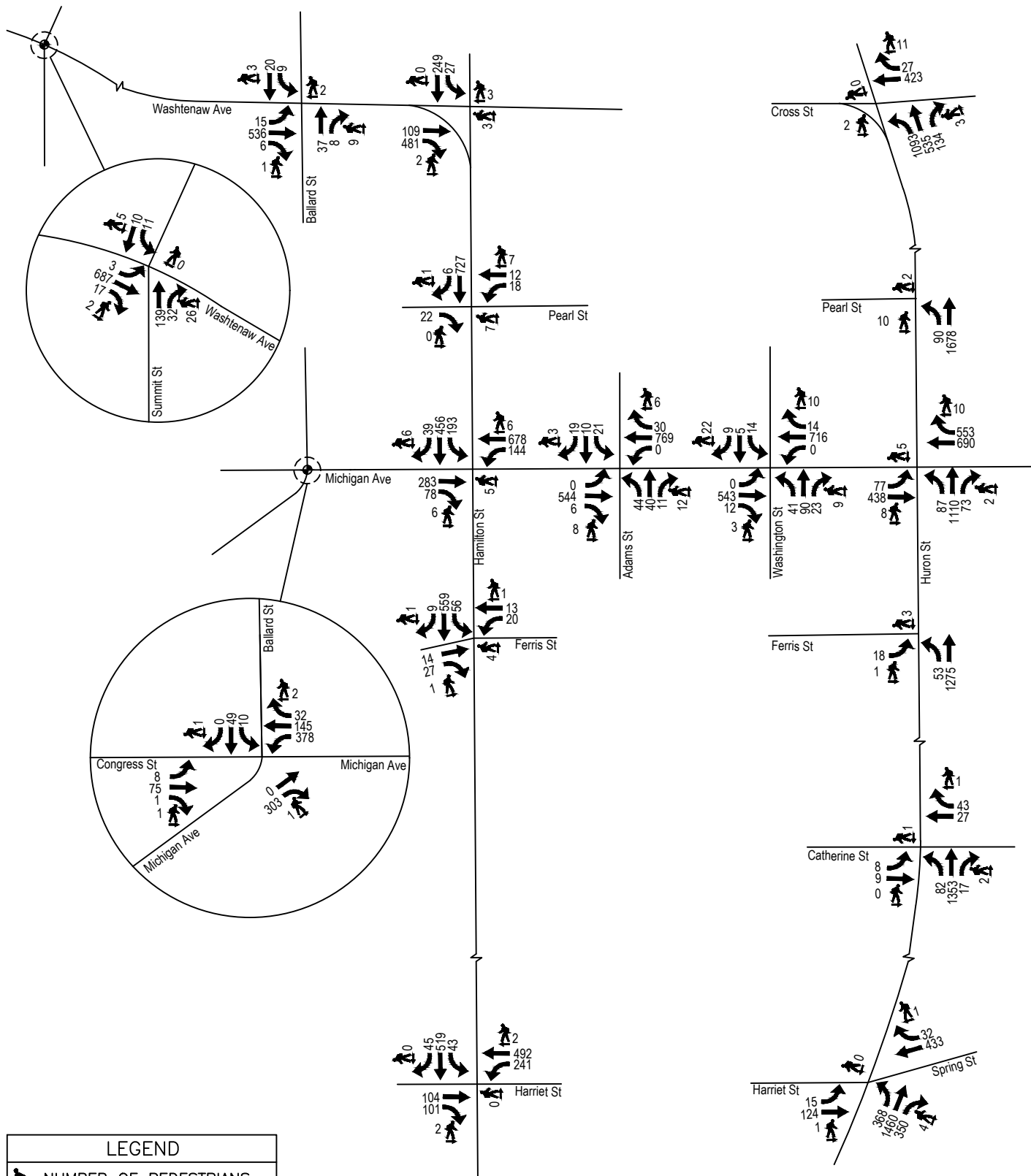
Transportation Planner

[Washtenaw Area Transportation Study](#)

ferrallm@miwats.org

(734)994.3127

Appendix D
Background Volume Diagrams



HRC
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CONSULTING ENGINEERS SINCE 1913

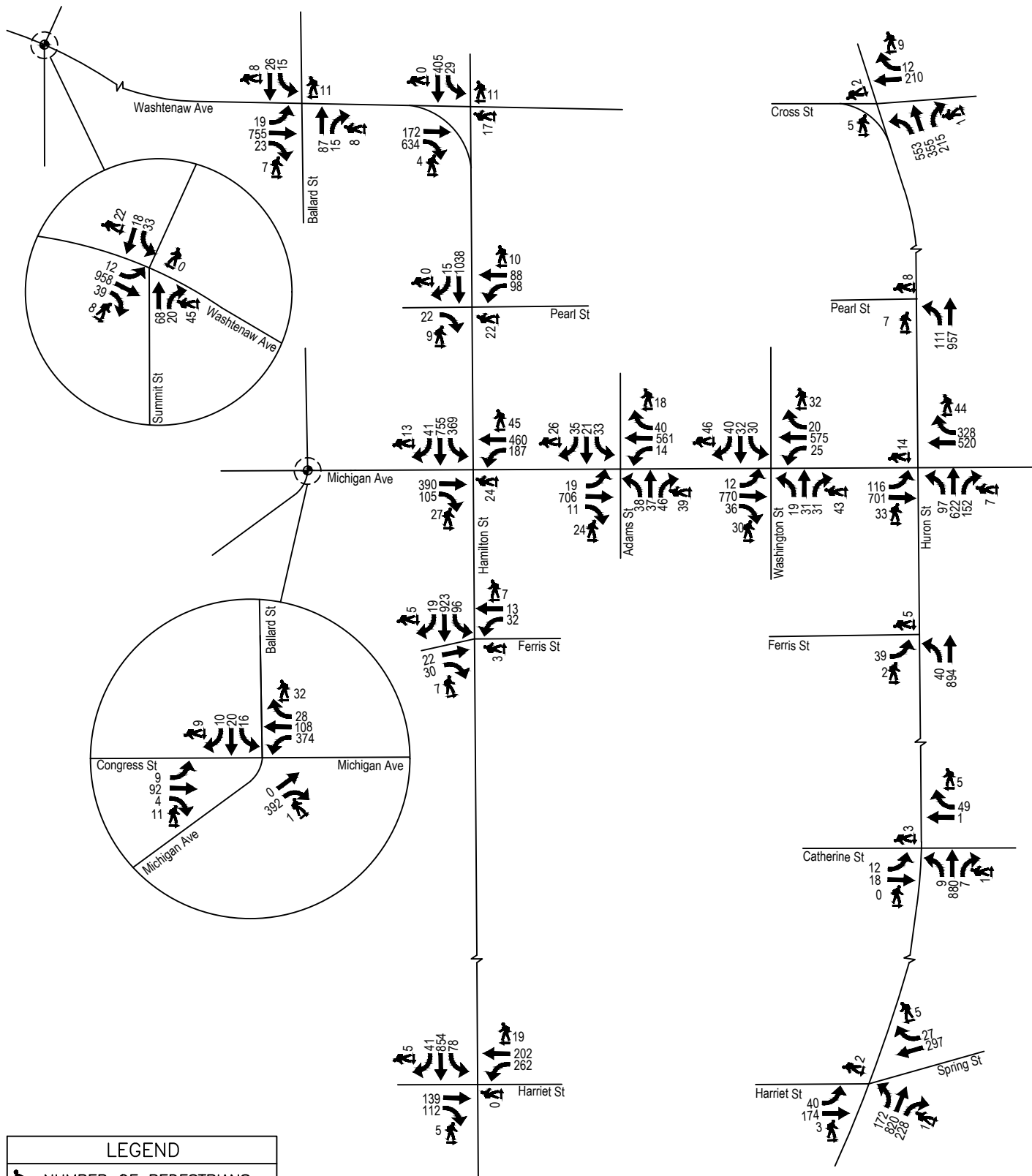
555 HULET DRIVE P.O. BOX 824
BLOOMFIELD HILLS, MICH. 48303-0824

JOB NO.
20180230

DATE
12/14/2018

BACKGROUND 2022 AM PEAK HOUR VOLUME DIAGRAM





HRC
HUBBELL, ROTH & CLARK, INC.
CONSULTING ENGINEERS SINCE 1913

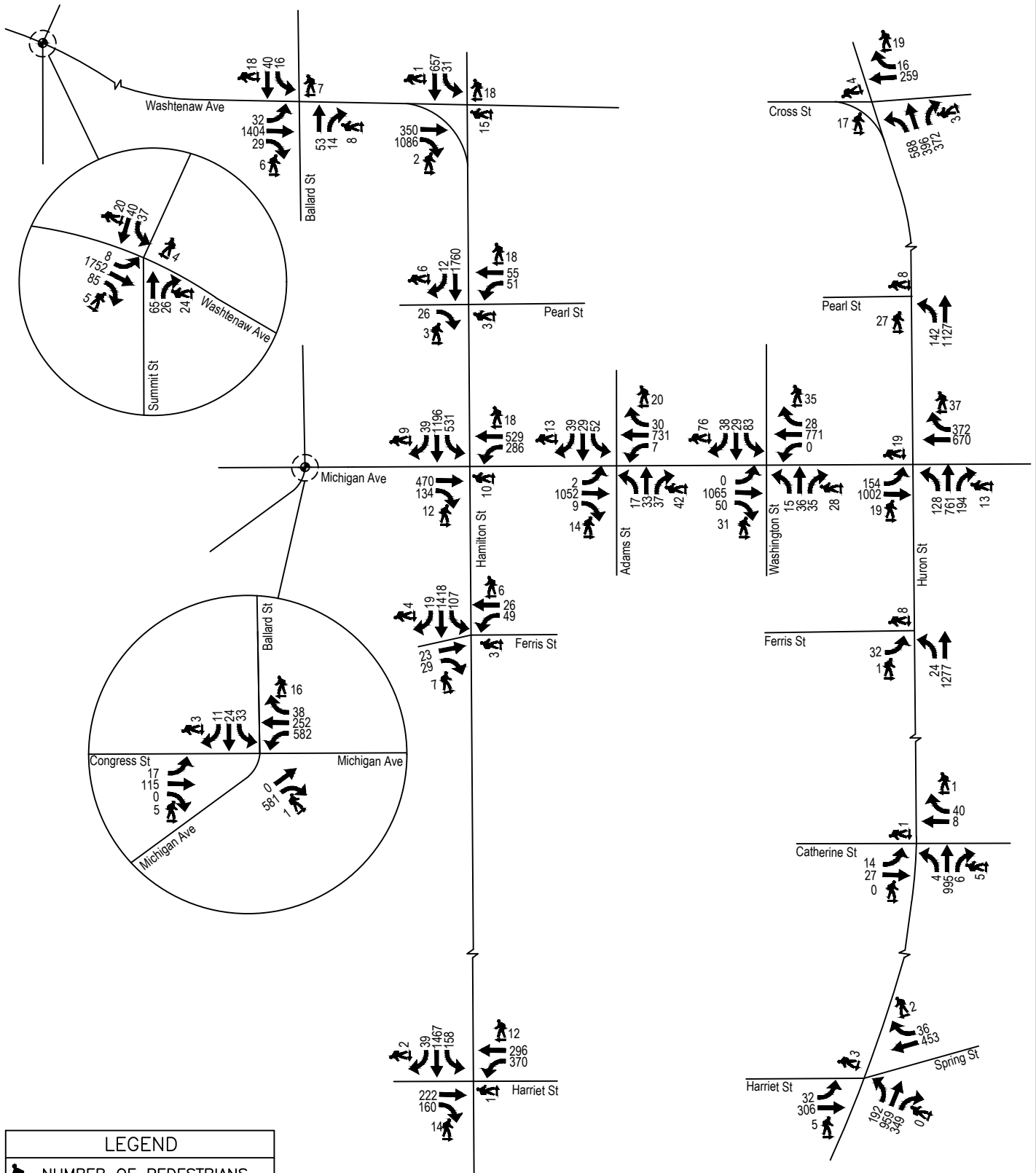
555 HULET DRIVE
BLOOMFIELD HILLS, MICH.

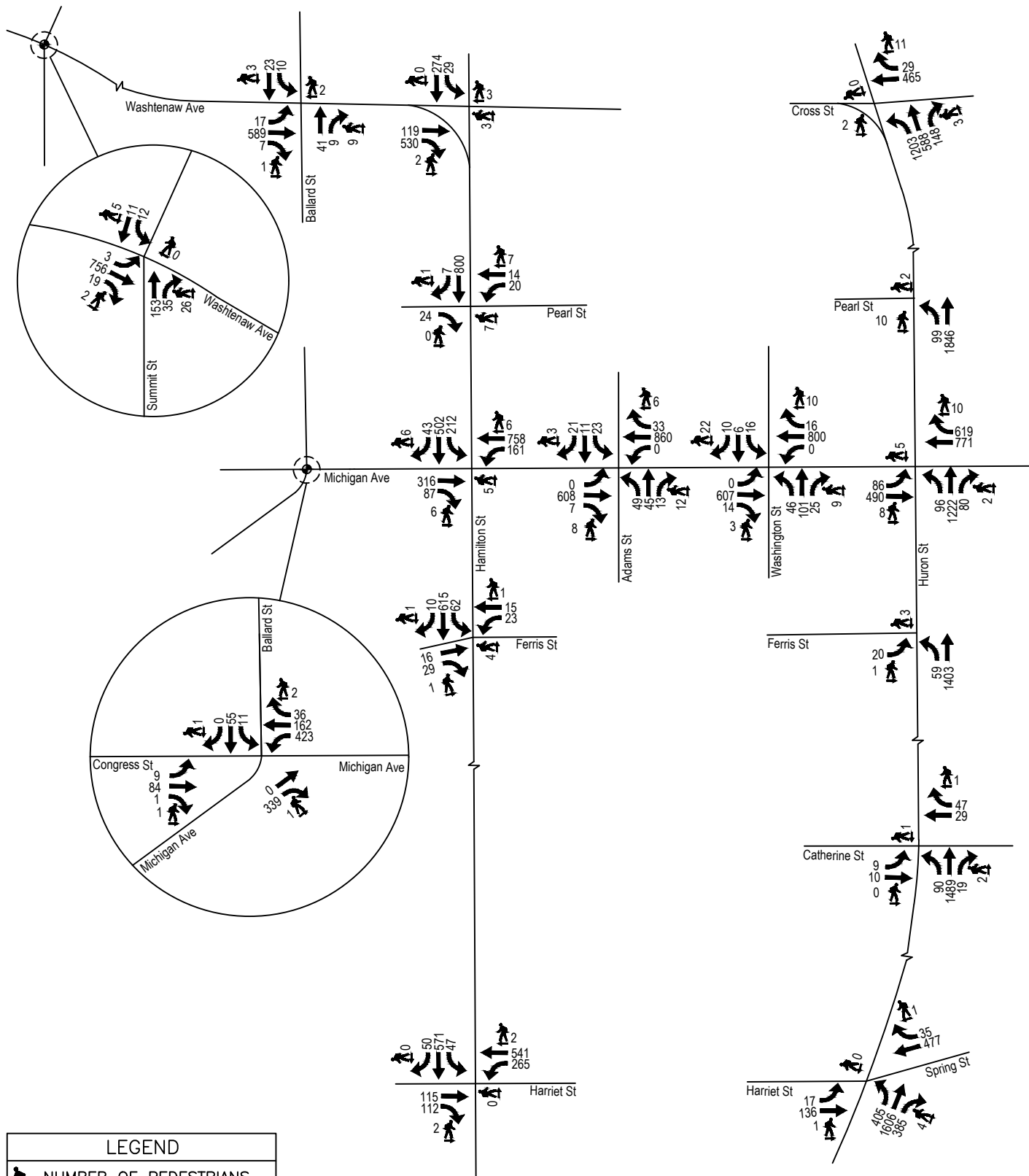
JOB NO.
20180230

DATE
12/14/2018

BACKGROUND 2022 MIDDAY PEAK HOUR VOLUME DIAGRAM

N
NOT TO SCALE





HRC
HUBBELL, ROTH & CLARK, INC.
CONSULTING ENGINEERS SINCE 1913

555 HULET DRIVE
BLOOMFIELD HILLS, MICH.

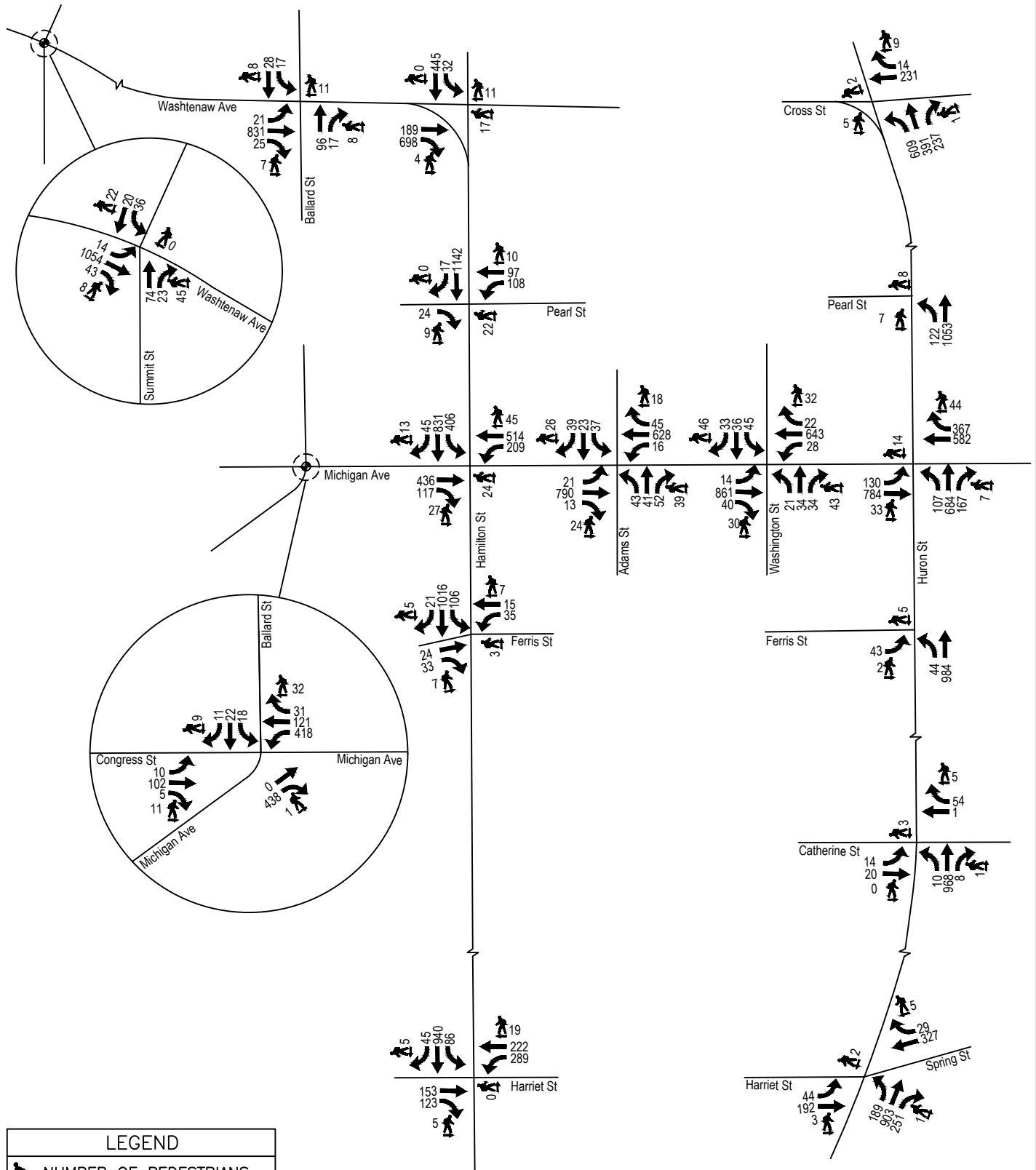
P.O. BOX 824
48303-0824

JOB NO.
20180230

DATE
12/14/2018

BACKGROUND 2038 AM PEAK HOUR VOLUME DIAGRAM





HRC
HUBBELL, ROTH & CLARK, INC.
CONSULTING ENGINEERS SINCE 1913

555 HULET DRIVE
BLOOMFIELD HILLS, MICH.

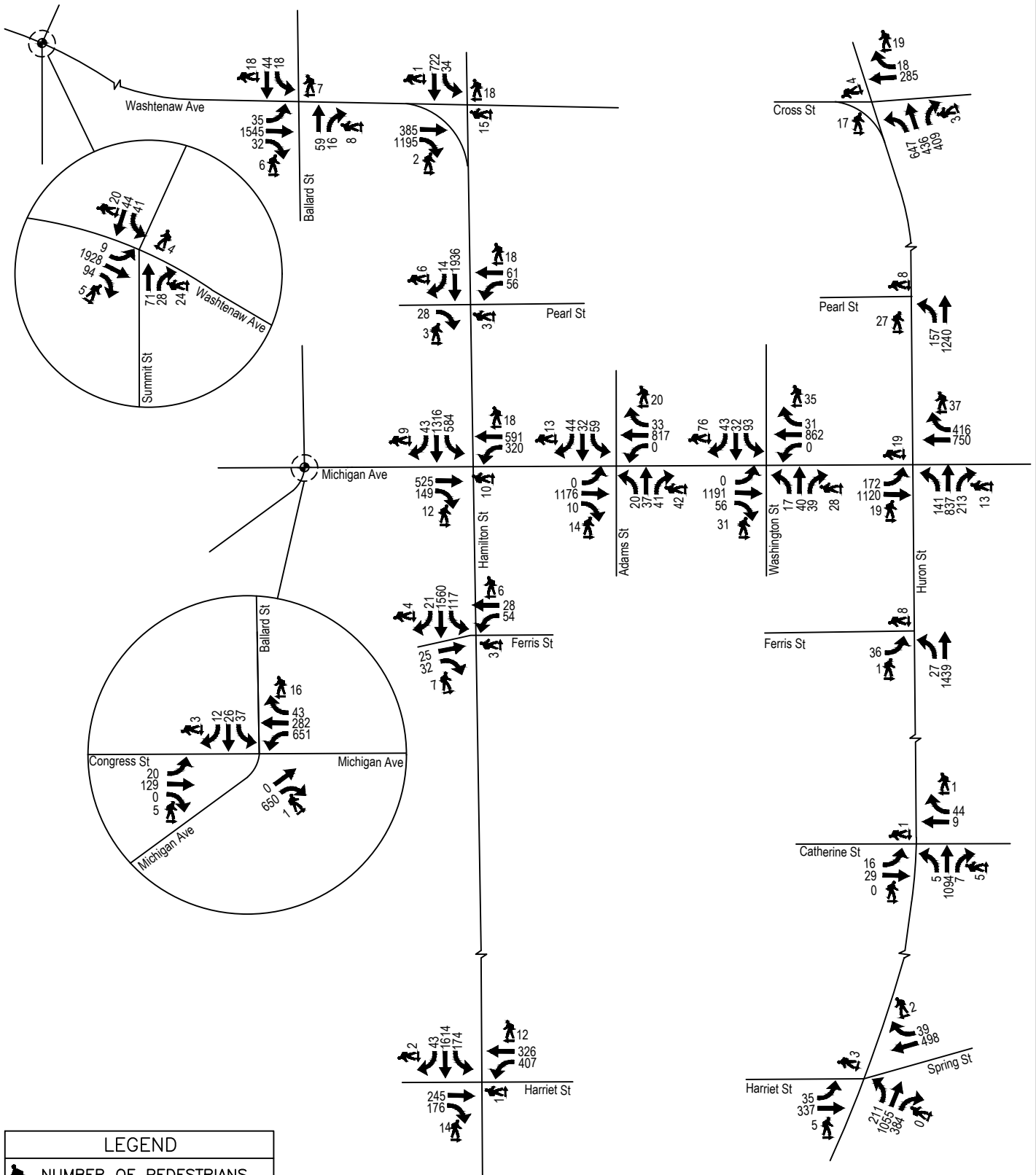
JOB NO.
20180230

DATE
12/14/2018

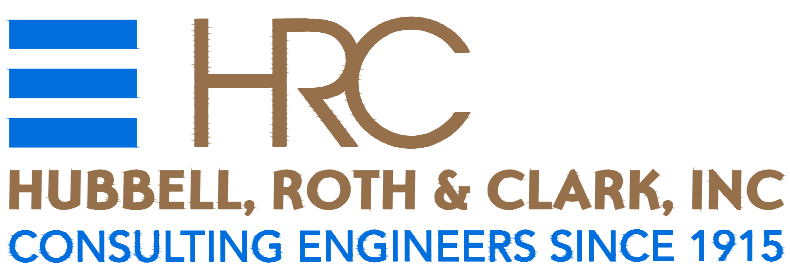
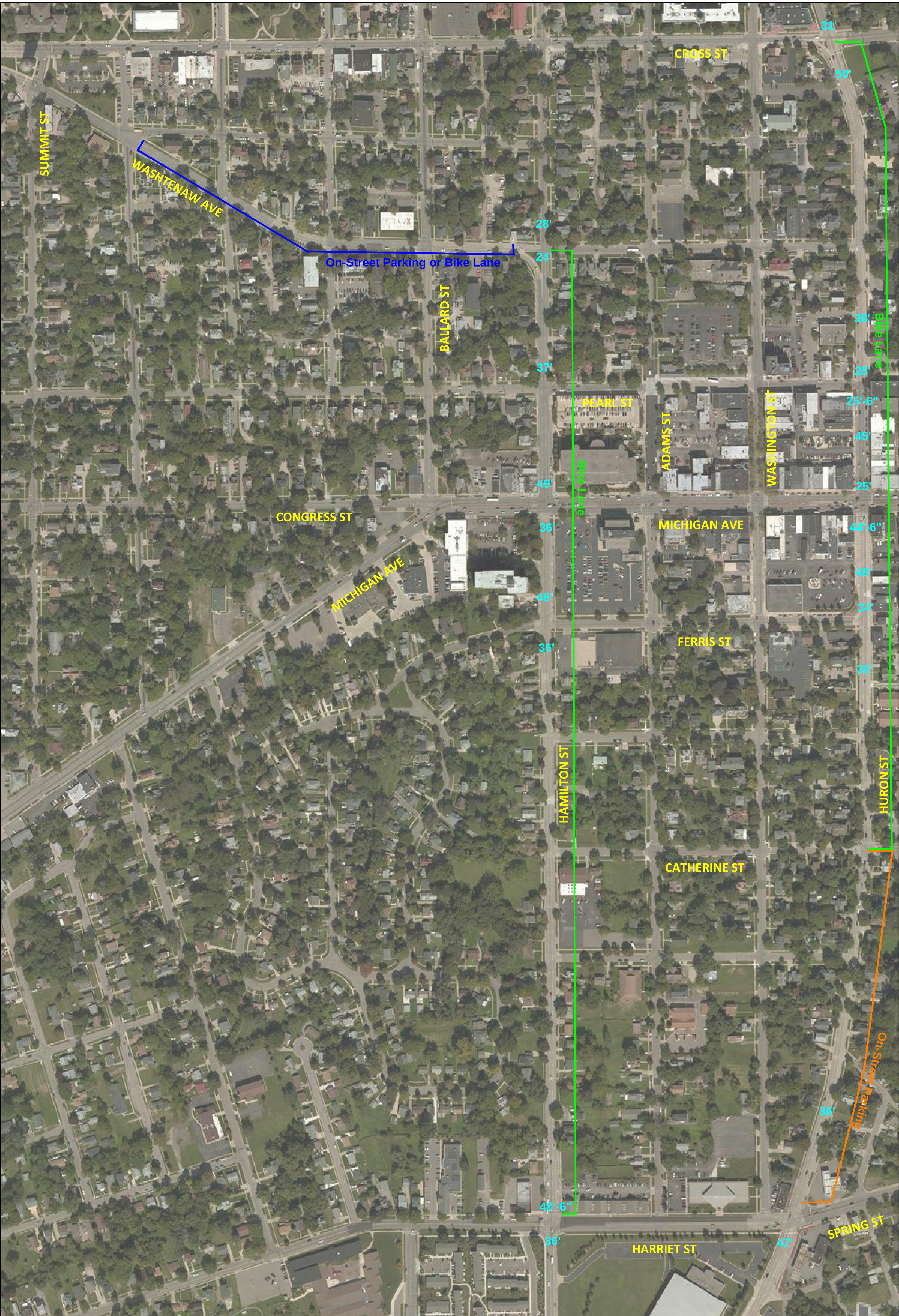
BACKGROUND 2038 MIDDAY PEAK HOUR VOLUME DIAGRAM



NOT TO SCALE



Appendix E
On-Street Parking and Bike Lane Locations



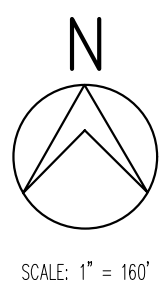
555 HULET DRIVE
BLOOMFIELD HILLS, MICH.

P.O. BOX 824
48303-0824

JOB NO.
20180230

DATE
12/14/2018

ROADWAY WIDTHS



Appendix F
Conceptual Plans

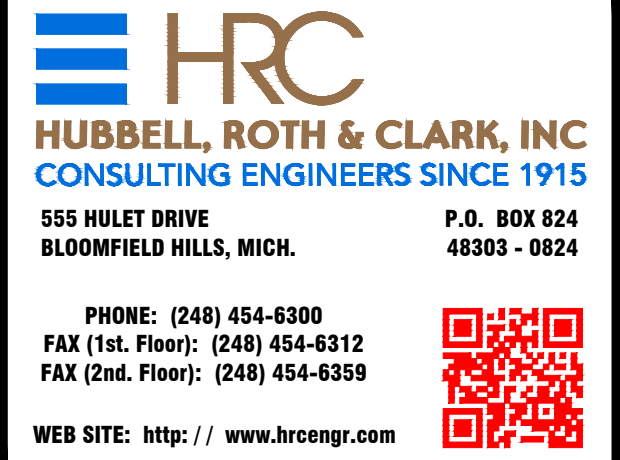


MADISON BLVD

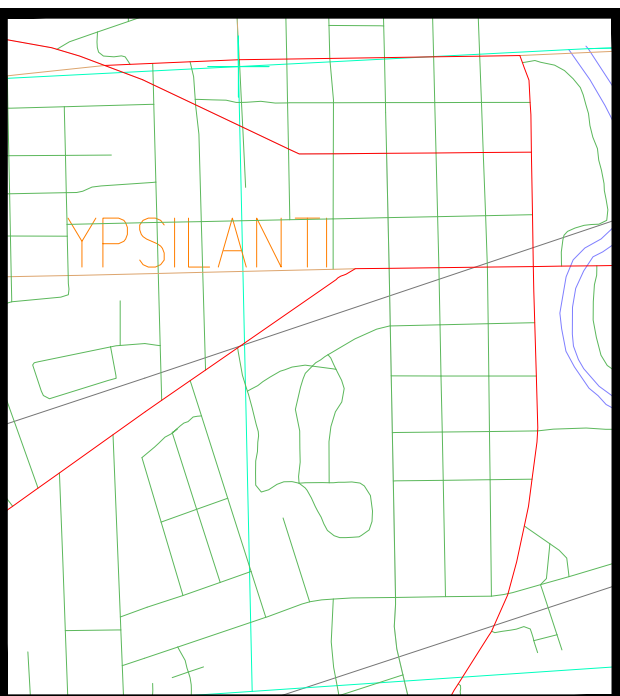
COORDINATE SIDEWALK WITH WATS HURON I-94
NON-MOTORIZED CROSSING (TYP.)



MADISON BLVD

[illegible]

DATE	ADDITIONS AND/OR REVISIONS
DESIGNED	ECH
DRAWN	ECH
CHECKED	NBN
APPROVED	NBN



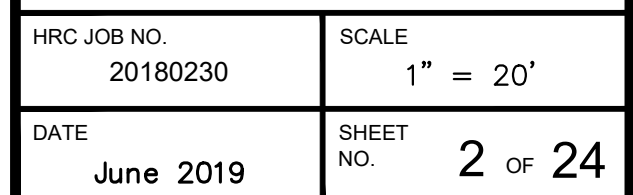
CITY OF YPSILANTI

ROAD DIET

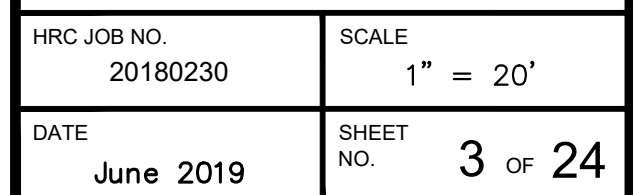
CAPACITY ANALYSIS

HAMILTON ST
PAVEMENT MARKING
RECONFIGURATION OPTION

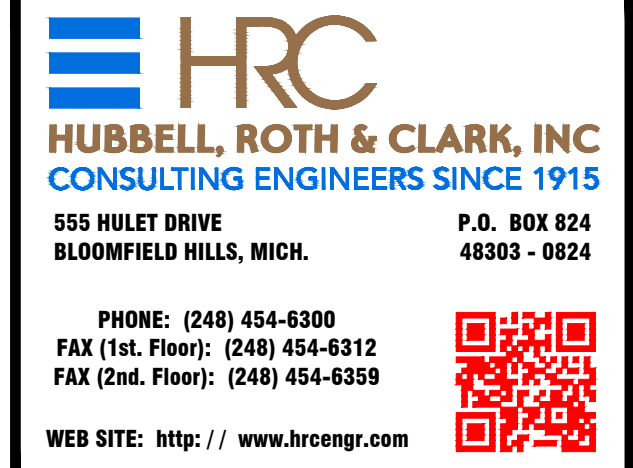
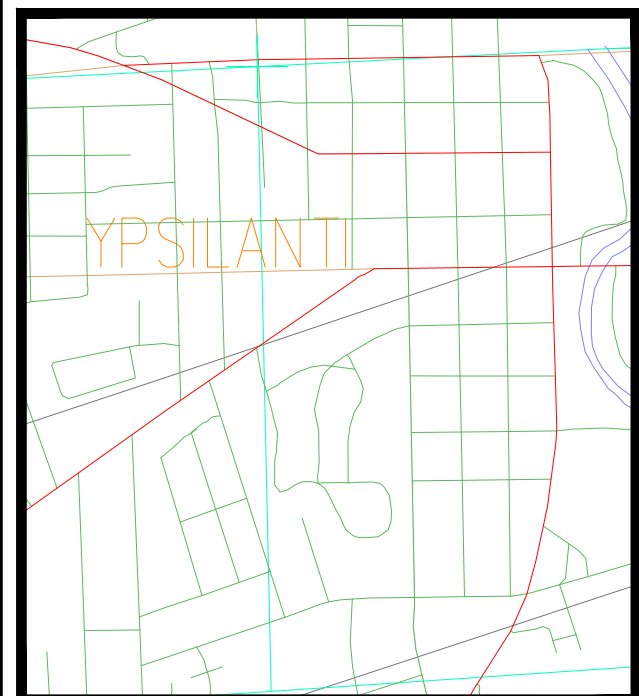
HRC JOB NO. 20180230	SCALE 1" = 20'
DATE June 2019	SHEET NO. 1 OF 24



DRIVEWAY



HARRIET ST

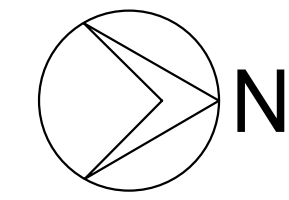
[illegible]

HAMILTON ST
PAVEMENT MARKING
RECONFIGURATION OPTION

HRC JOB NO. 20180230	SCALE 1" = 20'
DATE June 2019	SHEET NO. 4 OF 24

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MATCH LINE CC



**EXISTING
CONDITION**

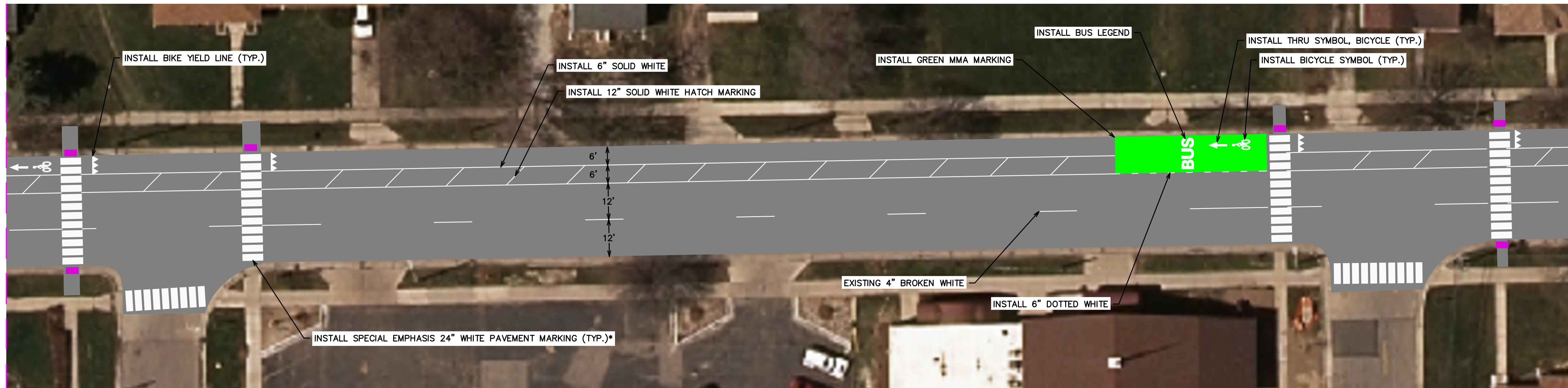


BUFFALO ST

CATHERINE ST

MATCH LINE EE
HAMILTON ST

**PROPOSED
CONDITION**

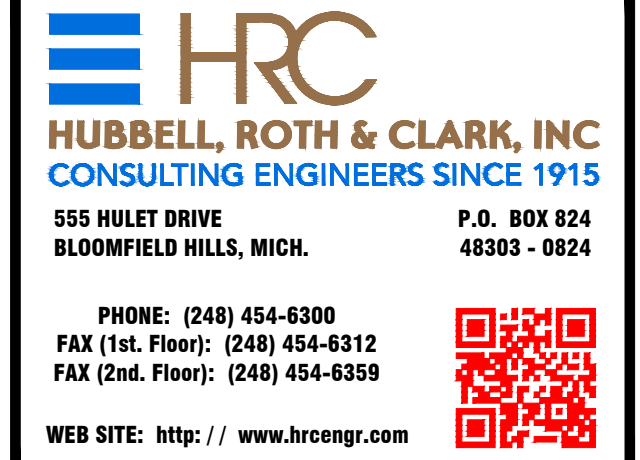
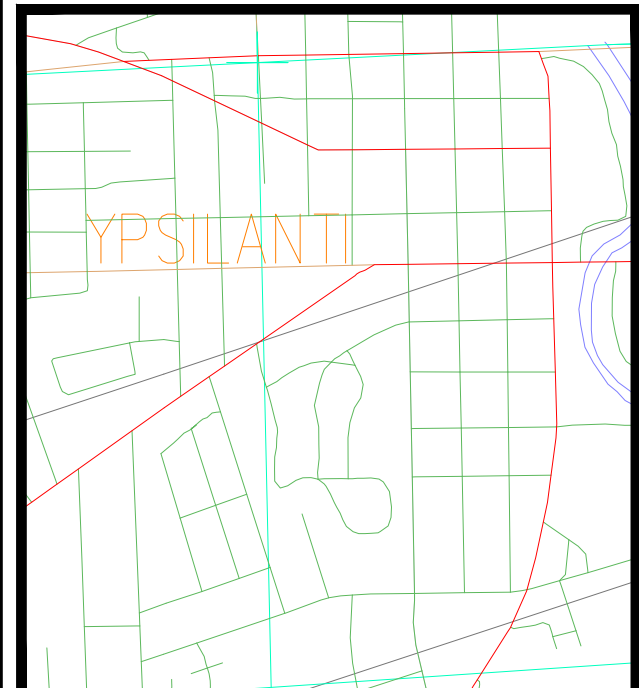


BUFFALO ST

CATHERINE ST

MATCH LINE EE
HAMILTON ST

*FURTHER ANALYSIS NEEDS TO BE PERFORMED TO DETERMINE IF ADDITIONAL PEDESTRIAN TREATMENTS ARE REQUIRED AT BUFALLO ST AND CATHERINE ST

[illegible]

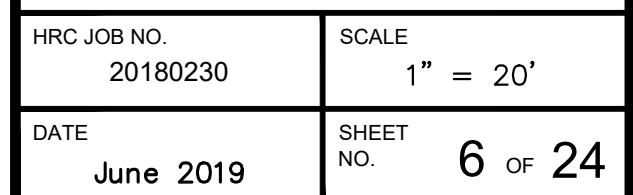
CITY OF YPSILANTI

ROAD DIET

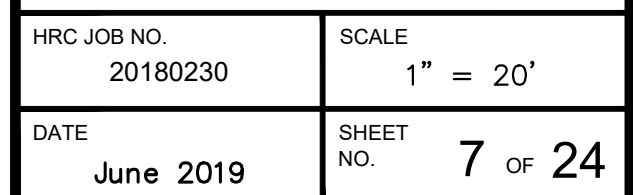
CAPACITY ANALYSIS

HAMILTON ST
PAVEMENT MARKING
RECONFIGURATION OPTION

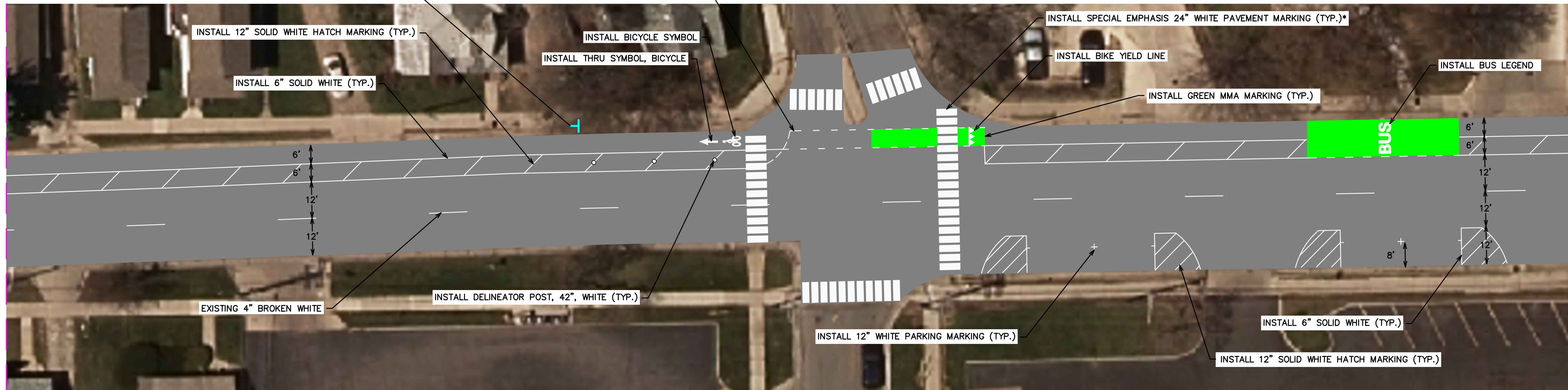
HRC JOB NO. 20180230	SCALE 1" = 20'
DATE June 2019	SHEET NO. 5 OF 24

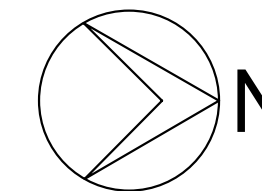


*FURTHER ANALYSIS NEEDS TO BE PERFORMED TO DETERMINE IF ADDITIONAL PEDESTRIAN TREATMENTS ARE REQUIRED AT WOODWARD ST

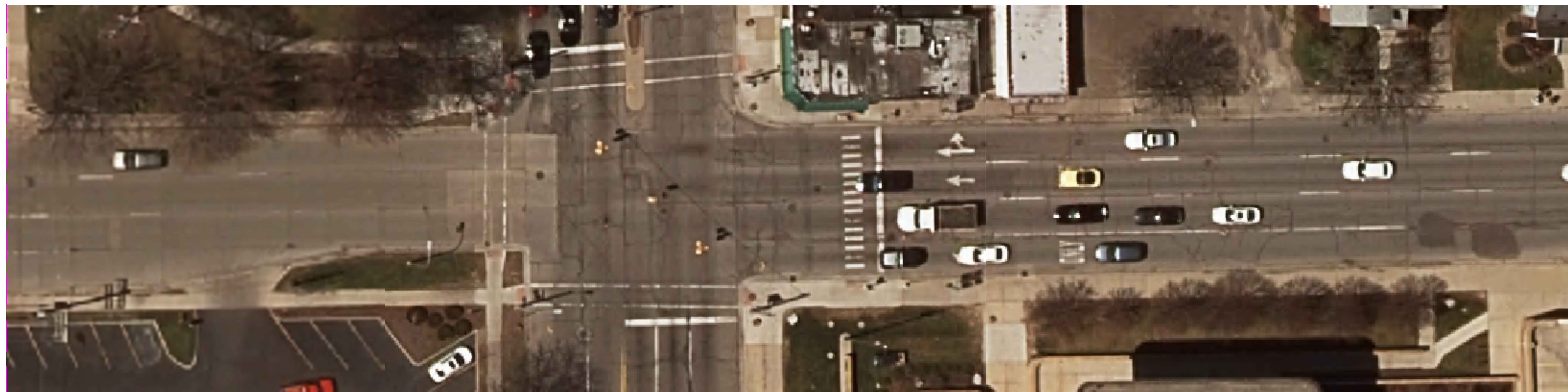


*FURTHER ANALYSIS NEEDS TO BE PERFORMED TO DETERMINE IF ADDITIONAL PEDESTRIAN TREATMENTS ARE REQUIRED AT FERRIS ST





**EXISTING
CONDITION**



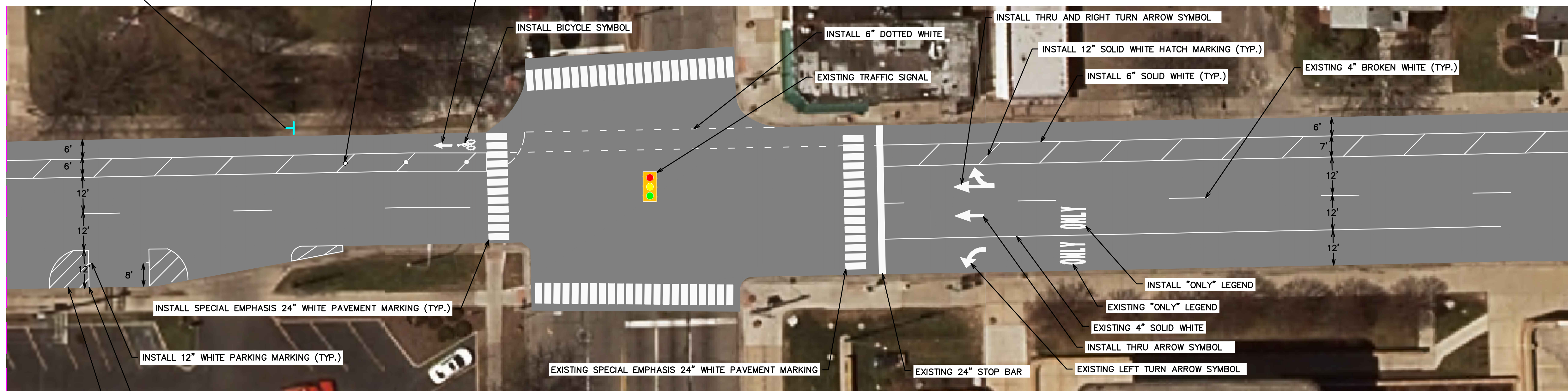
MICHIGAN AVE

MATCH LINE HH
HAMILTON ST



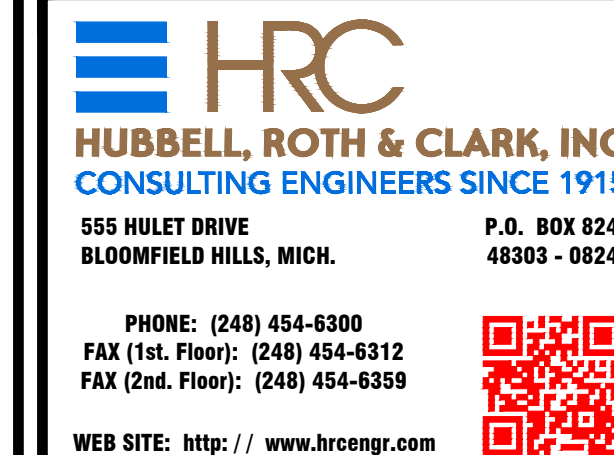
R3-17 (30" X 24")
5 Sft Sign, Type IIIB
15 Ft Post, Steel, 3 lb

**PROPOSED
CONDITION**

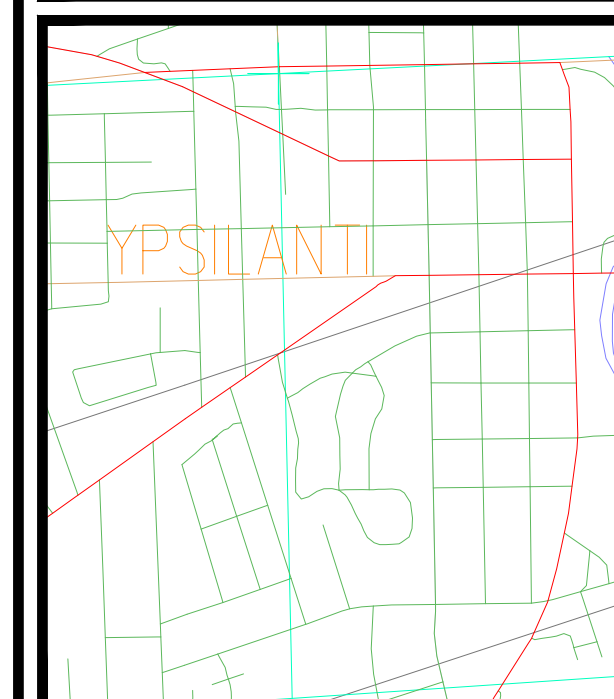


MICHIGAN AVE

MATCH LINE HH
HAMILTON ST



DATE	ADDITIONS AND/OR REVISIONS
DESIGNED	ECH
DRAWN	ECH
CHECKED	NBN
APPROVED	NBN



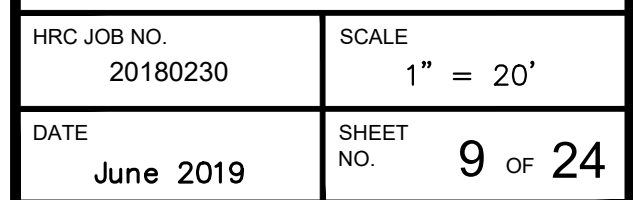
CITY OF YPSILANTI

ROAD DIET

CAPACITY ANALYSIS

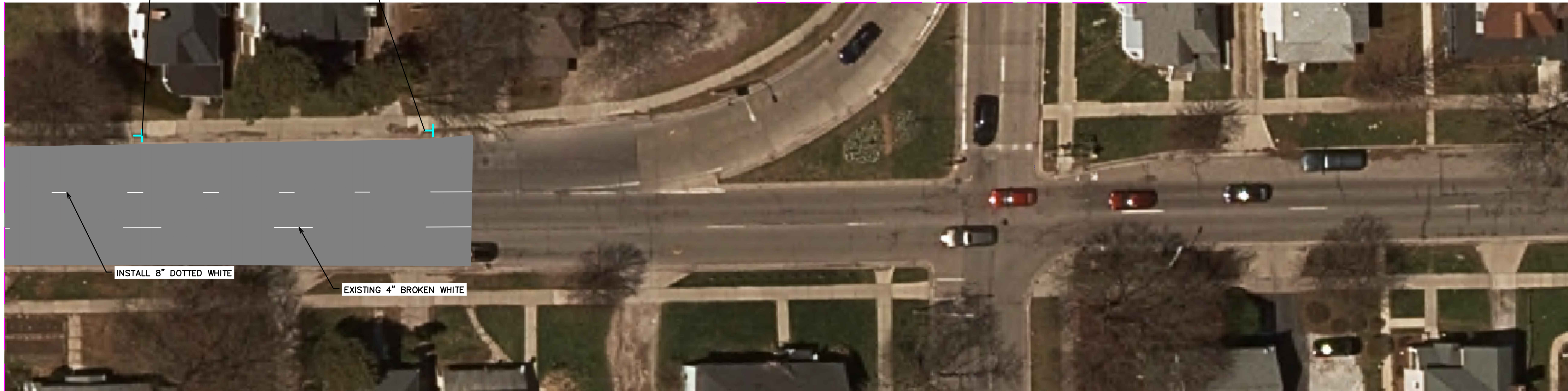
HAMILTON ST
PAVEMENT MARKING
RECONFIGURATION OPTION

HRC JOB NO. 20180230	SCALE 1" = 20'
DATE June 2019	SHEET NO. 8 OF 2

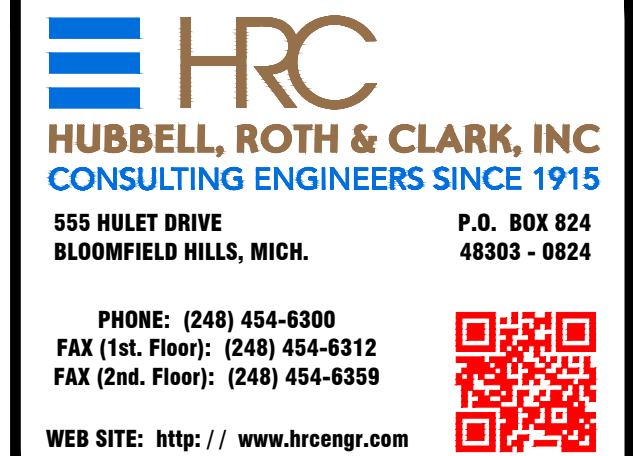
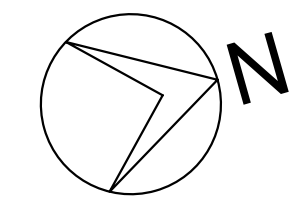


*FURTHER ANALYSIS NEEDS TO BE PERFORMED TO DETERMINE IF ADDITIONAL PEDESTRIAN TREATMENTS ARE REQUIRED AT PEARL ST

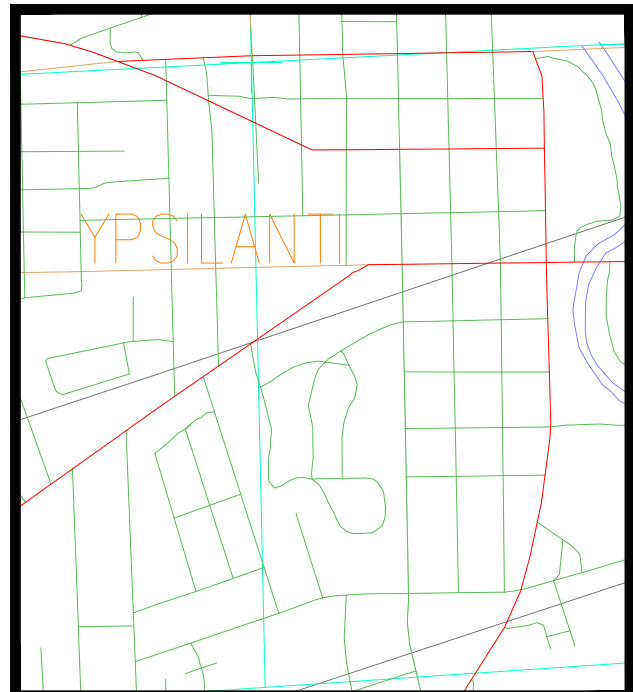
HRC JOB NO. 20180230	SCALE 1" = 20'
DATE June 2019	SHEET NO. 10 OF 24



EXISTING 4" BROKEN WHITE

[illegible]

DATE	ADDITIONS AND/OR REVISIONS
DESIGNED	ECH
DRAWN	ECH
CHECKED	NBN
APPROVED	NBN



CITY OF YPSILANTI

ROAD DIET

CAPACITY ANALYSIS

HURON ST
PAVEMENT MARKING
RECONFIGURATION OPTION

HRC JOB NO. 20180230	SCALE 1" = 20'
DATE June 2019	SHEET NO. 11 OF 24

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**EXISTING
CONDITION**

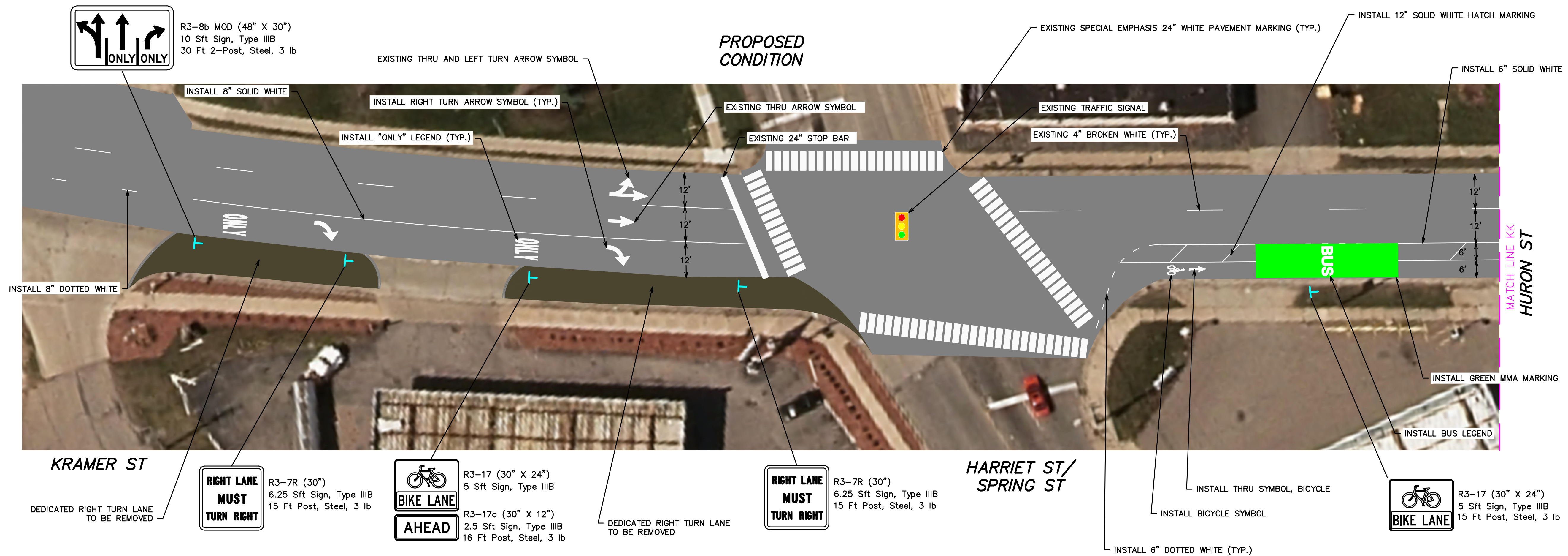


MATCH LINE KK
HURON ST

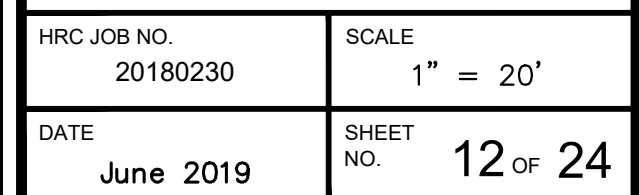
KRAMER ST

HARRIET ST/
SPRING ST

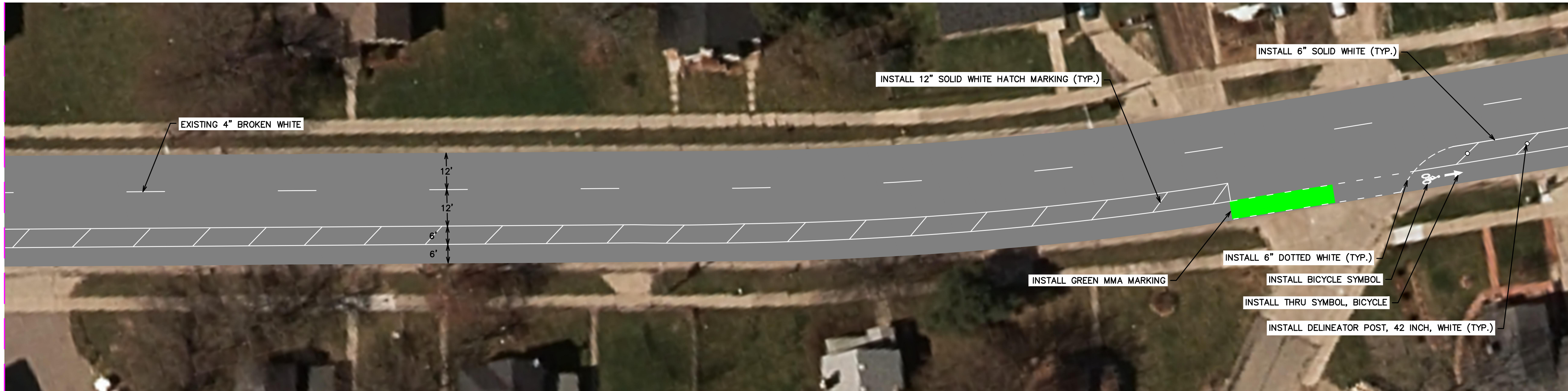
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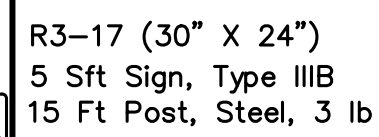
MATCH LINE KK
HURON ST



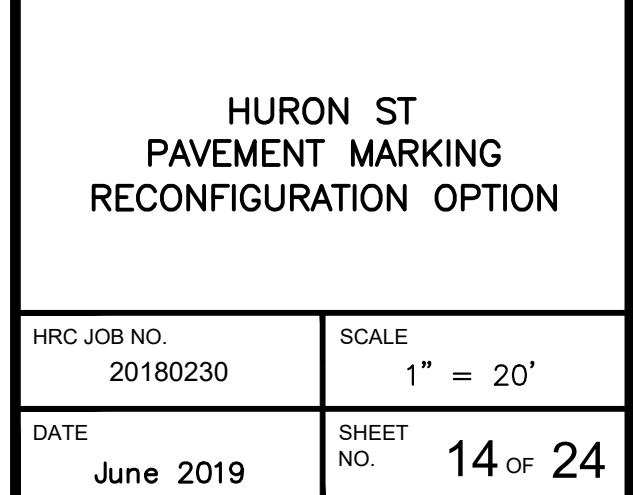
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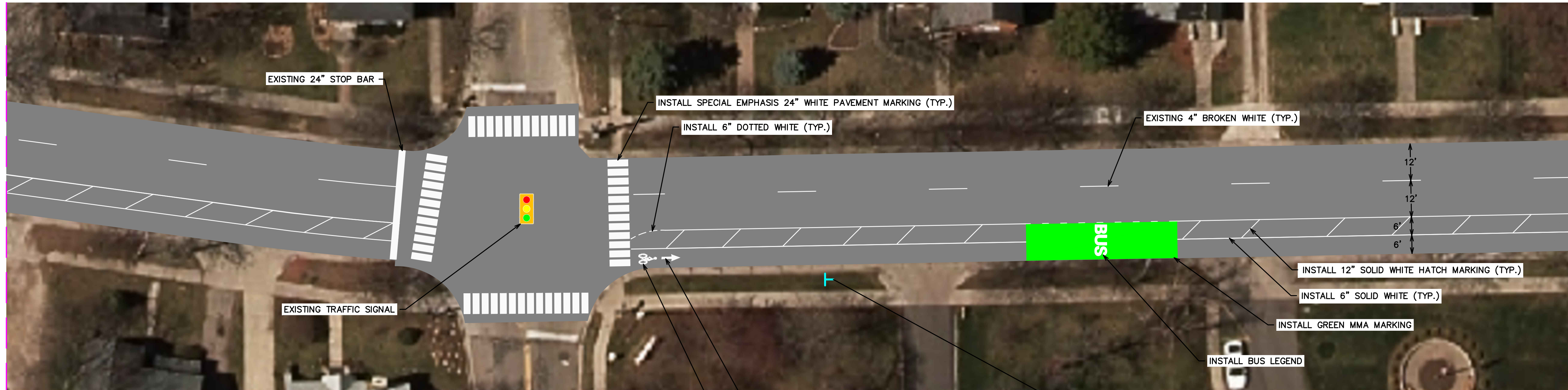
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DATE June 2019	SHEET NO. 13 OF 24

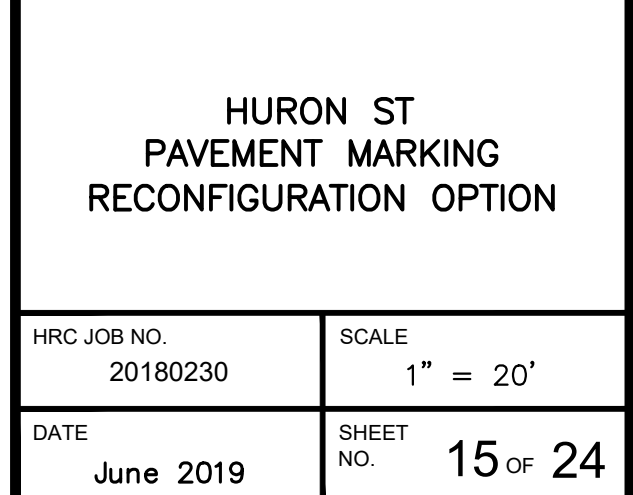


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HRC JOB NO. 20180230	SCALE 1" = 20'
DATE June 2019	SHEET NO. 14 OF 24



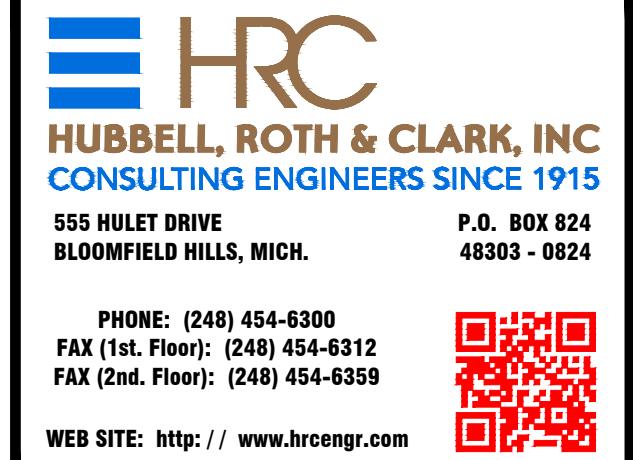




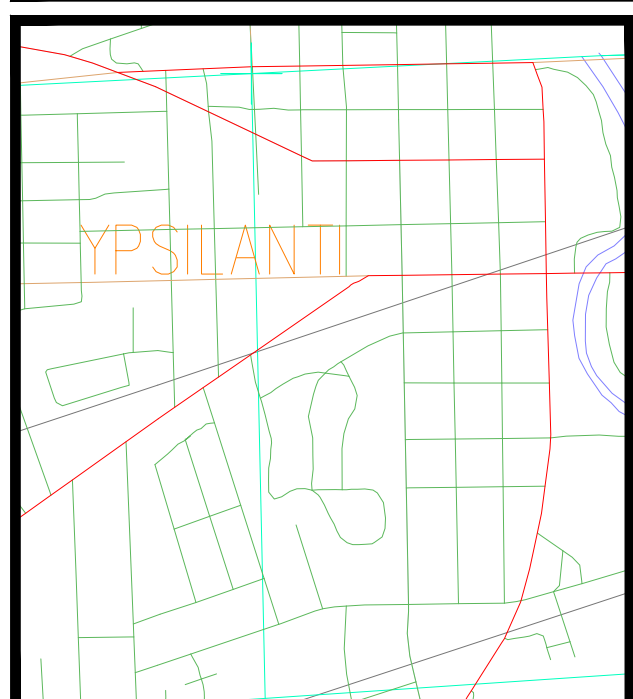
EXISTING TRAFFIC SIGNAL




R3-17a (30" X 12")
2.5 Sft Sign, Type III B
16 Ft Post, Steel, 3 lb



DATE	ADDITIONS AND/OR REVISIONS
DESIGNED	ECH
DRAWN	ECH
CHECKED	NBN
APPROVED	NBN



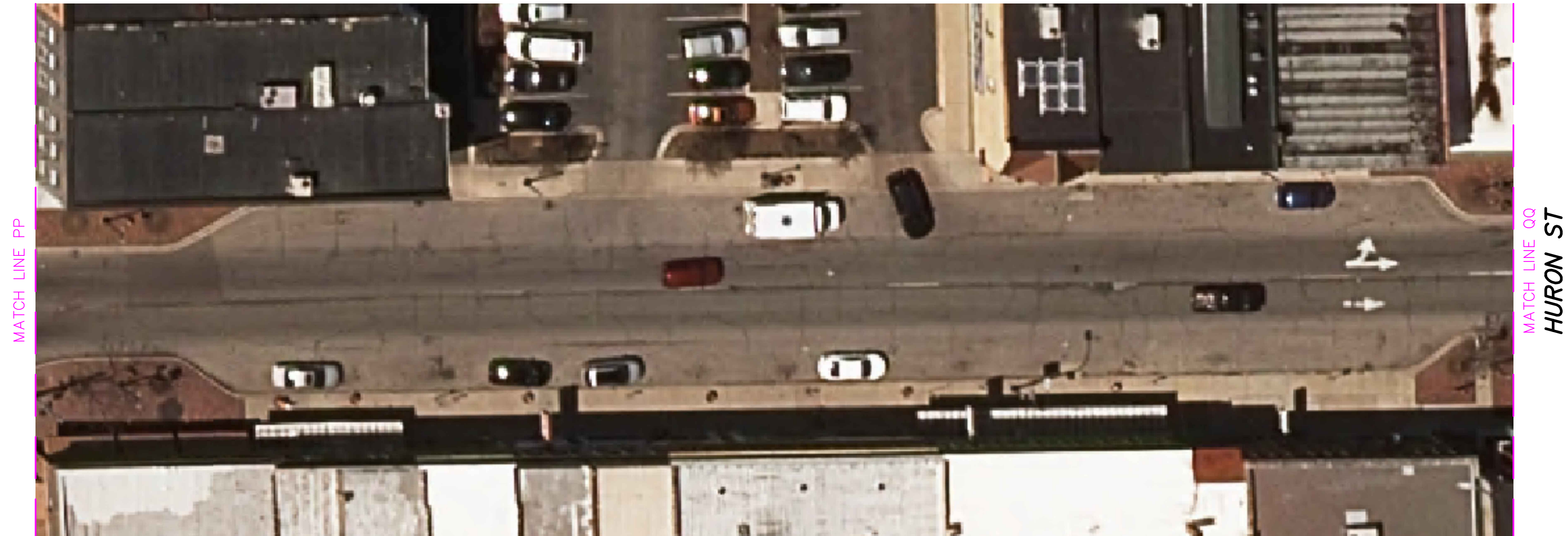
CITY OF YPSILANTI

ROAD DIET

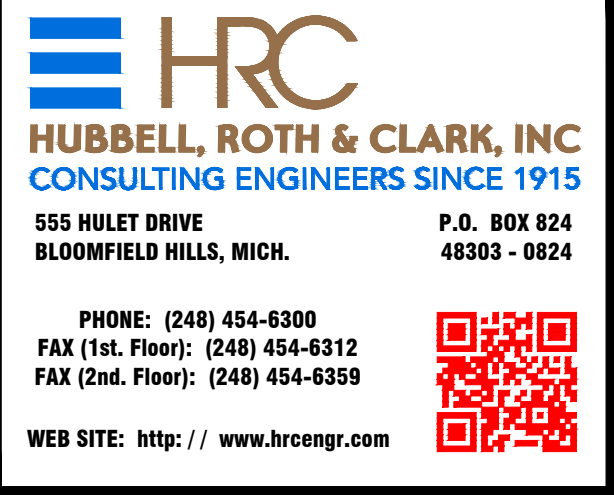
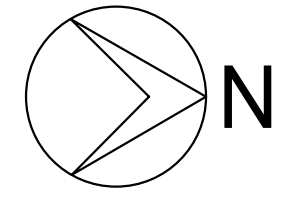
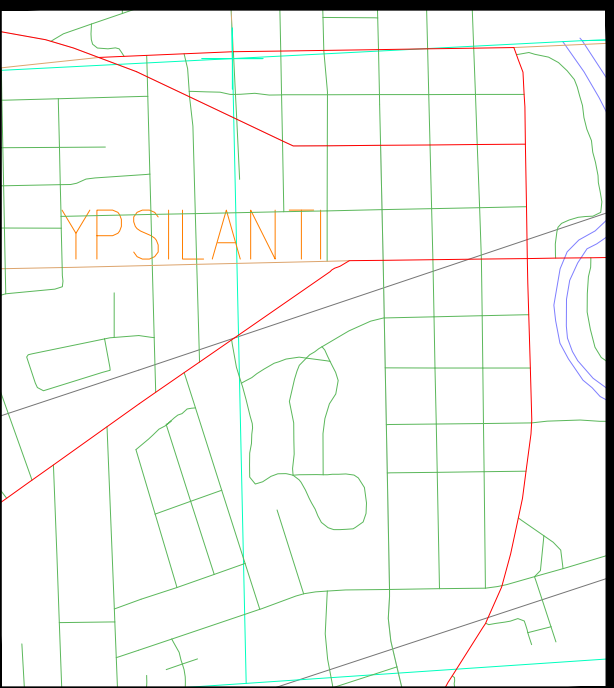
CAPACITY ANALYSIS

HURON ST
PAVEMENT MARKING
RECONFIGURATION OPTION

HRC JOB NO. 20180230	SCALE 1" = 20'
DATE June 2019	SHEET NO. 16 OF 24

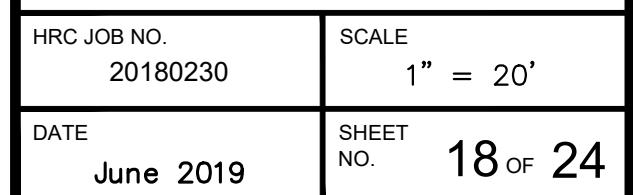


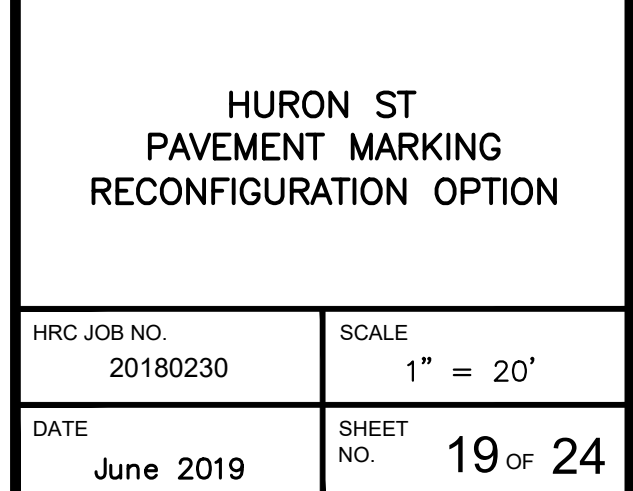
NO CHANGES

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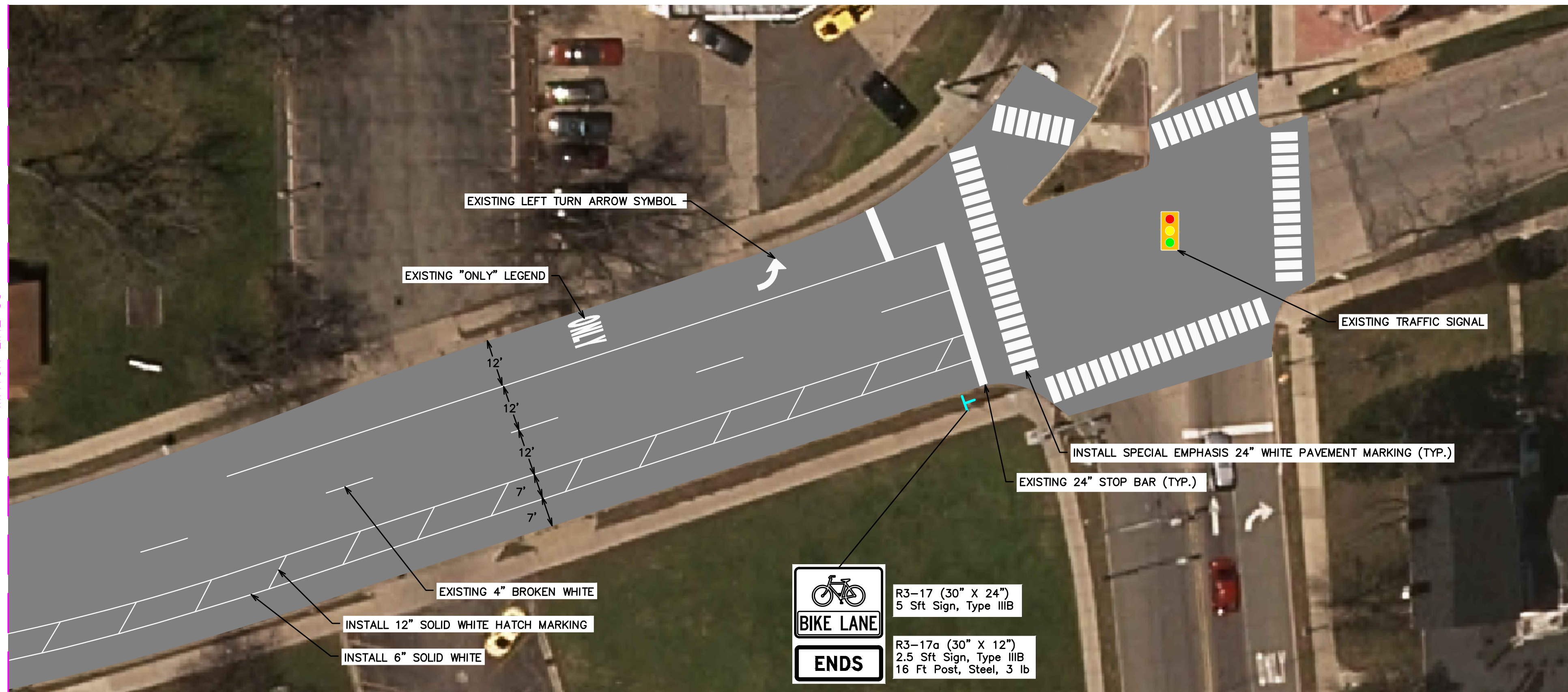
HURON ST
PAVEMENT MARKING
RECONFIGURATION OPTION

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DATE June 2019	SHEET NO. 17 OF 24

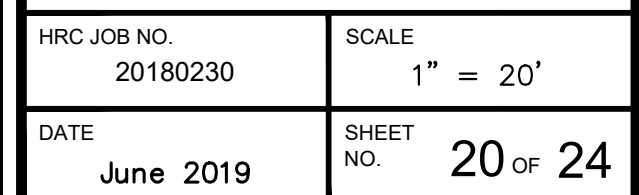


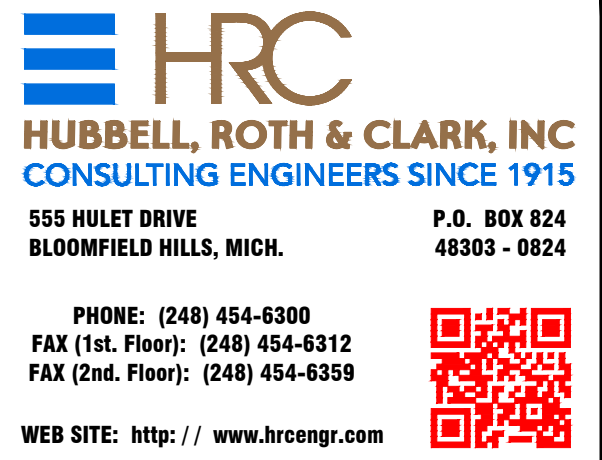


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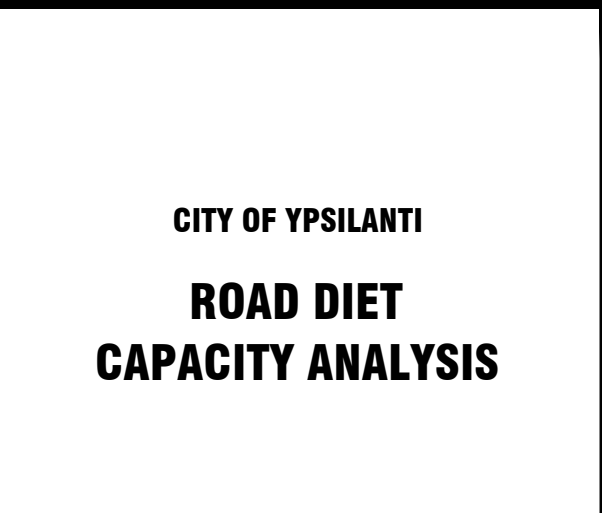


CROSS ST

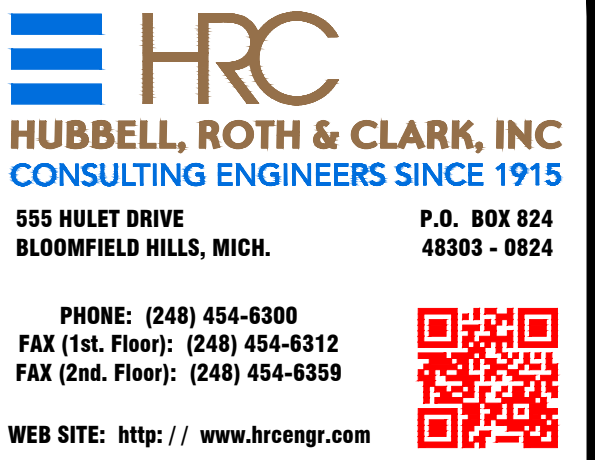
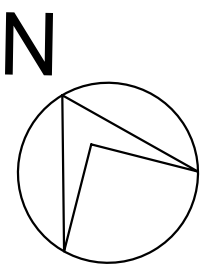
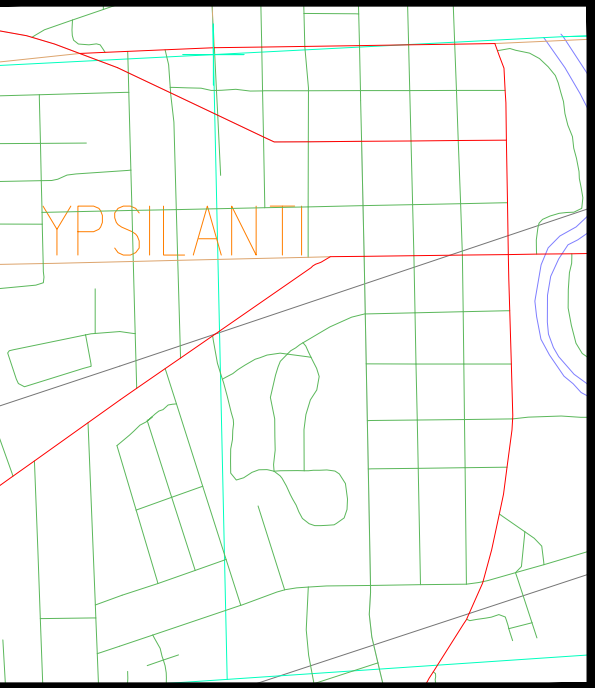




DATE	ADDITIONS AND/OR REVISIONS
DESIGNED	ECH
DRAWN	ECH
CHECKED	NBN
APPROVED	NBN



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[illegible]

CITY OF YPSILANTI ROAD DIET CAPACITY ANALYSIS

WASHTENAW AVE
PAVEMENT MARKING
RECONFIGURATION OPTION

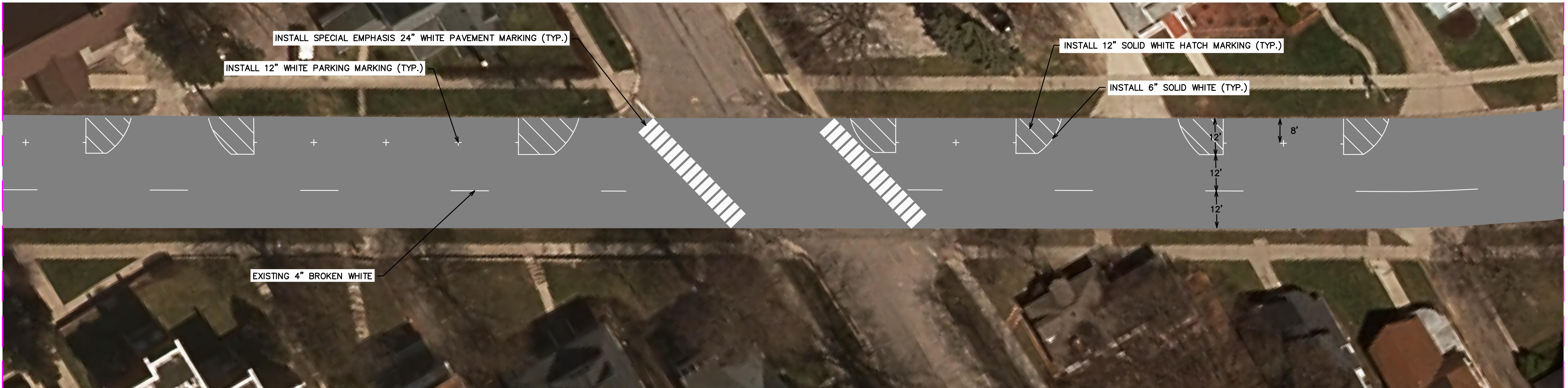
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DATE June 2019	SHEET NO. 22 OF 24

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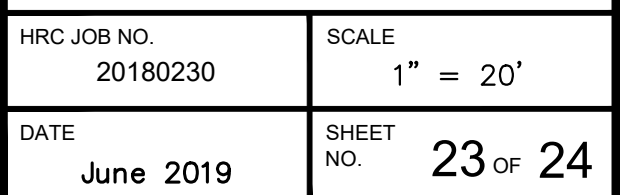
COLLEGE PL *EXISTING
CONDITION*



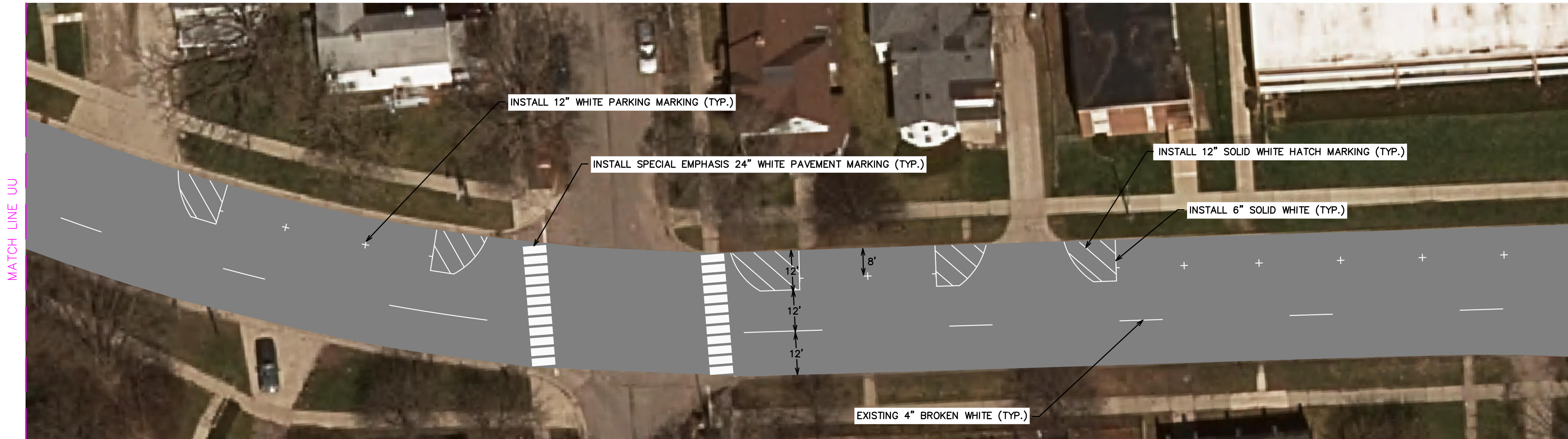
COLLEGE PL	PROPOSED CONDITION
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NORMAL ST

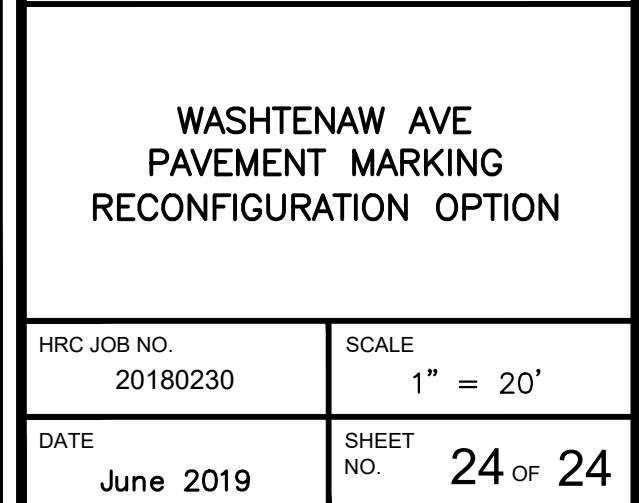


WASHTENAW AVE





MATCH LINE WW
WASH TENAW AVE



Appendix G
Capacity Analysis Tables

AM Peak Hour Signalized Delay and LOS

Intersection	Synchro Node	Approach	Movement	Existing		Background 2022		Background 2038		Road Diet 2038		Road Diet Mitigation 2038	
				Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
Washtenaw Ave & Summit St	1002	EB	LT/TH/RT	8.3	A	8.4	A	8.6	A	8.6	A	8.6	A
			Approach	8.3	A	8.4	A	8.6	A	8.6	A	8.6	A
		NB	TH/RT	32.3	C	32.7	C	34.1	C	34.1	C	34.1	C
			Approach	32.3	C	32.7	C	34.1	C	34.1	C	34.1	C
		SB	LT/TH	34.2	C	34.5	C	33.9	C	33.9	C	33.9	C
			Approach	34.2	C	34.5	C	33.9	C	33.9	C	33.9	C
		Intersection		13.4	B	13.5	B	13.9	B	13.9	B	13.9	B
Washtenaw Ave & Ballard St	1004	EB	LT/TH/RT	1.4	A	1.4	A	1.4	A	2.1	A	2.1	A
			Approach	1.4	A	1.4	A	1.4	A	2.1	A	2.1	A
		NB	TH/RT	34.7	C	34.6	C	34.7	C	34.7	C	34.7	C
			Approach	34.7	C	34.6	C	34.7	C	34.7	C	34.7	C
		SB	LT	33.4	C	33.3	C	33.3	C	33.3	C	33.3	C
			TH	33.6	C	33.5	C	33.5	C	33.5	C	33.5	C
		Approach		33.5	C	33.4	C	33.4	C	33.4	C	33.4	C
		Intersection		5.7	A	5.7	A	5.8	A	6.4	A	6.4	A
Hamilton St & Michigan Ave	1013	EB	TH/RT	19.1	B	19.2	B	19.6	B	19.6	B	20.8	C
			Approach	19.1	B	19.2	B	19.6	B	19.6	B	20.8	C
		WB	LT	12.8	B	13.3	B	15.3	B	15.3	B	16.7	B
			TH	8.4	A	8.7	A	9.8	A	9.8	A	12.1	B
			Approach	9.2	A	9.5	A	10.8	B	10.8	B	12.9	B
		SB	LT	23.0	C	23.2	C	23.8	C	23.4	C	21.2	C
			LT/TH/RT	21.7	C	21.7	C	22.1	C	N/A			
			TH/RT	N/A						23.9	C	21.7	C
		Approach		22.0	C	22.1	C	22.5	C	23.7	C	21.6	C
		Intersection		15.6	B	15.8	B	16.6	B	17.0	B	17.5	B
Huron St & Cross St	1016	WB	TH	16.5	B	16.8	B	17.8	B	17.8	B	17.8	B
			RT	10.9	B	10.9	B	10.9	B	10.9	B	10.9	B
			Approach	16.2	B	16.4	B	17.4	B	17.4	B	17.4	B
		NB	LT	Free Flow									
			TH	27.1	C	27.0	C	26.9	C	N/A			
			RT	24.7	C	24.6	C	24.4	C				
			TH/RT	N/A						28.9	C	14.5	B
			Approach	22.0	C	26.5	C	26.4	C	28.9	C	14.5	B
		Intersection		24.7	C	22.1	C	22.5	C	23.9	C	15.8	B
Huron St & Michigan Ave	1023	EB	LT	14.6	B	14.8	B	16.4	B	16.4	B	17.6	B
			TH	4.8	A	4.8	A	4.9	A	4.9	A	4.8	A
			Approach	6.2	A	6.3	A	6.6	A	6.6	A	6.7	A
		WB	TH/RT	31.3	C	32.8	C	44.4	D	44.4	D	44.4	D
			RT	55.1	E	60.1	E	92.3	F	92.3	F	92.3	F
			Approach	38.6	D	41.2	D	59.1	E	59.1	E	59.1	E
		NB	LT	5.6	A	5.6	A	3.7	A	10.9	B	10.1	B
			TH/RT	28.0	C	31.8	C	56.4	E	59.3	E	34.9	C
			Approach	26.5	C	30.0	C	52.7	D	55.9	E	33.2	C
		Intersection		28.2	C	30.8	C	27.6	C	48.9	D	39.8	D
Michigan Ave & Congress St & Ballard St	2000	EB	LT/TH/RT	44.4	D	44.5	D	44.8	D	44.8	D	44.8	D
			Approach	44.4	D	44.5	D	44.8	D	44.8	D	44.8	D
		WB	LT	17.7	B	17.9	B	18.4	B	18.4	B	18.4	B
			LT/TH/RT	18.7	B	18.8	B	19.6	B	19.6	B	19.6	B
			Approach	18.2	B	18.4	B	19.0	B	19.0	B	19.0	B
		SB	LT	42.1	D	42.1	D	42.1	D	42.1	D	42.1	D
			TH/RT	44.3	D	44.4	D	44.7	D	44.7	D	44.7	D
			Approach	43.9	D	44.0	D	44.3	D	44.3	D	44.3	D
		NB	RT	15.1	B	15.1	B	15.3	B	15.3	B	15.3	B
			Approach	15.1	B	15.1	B	15.3	B	15.3	B	15.3	B
		Intersection		22.0	C	22.1	C	22.5	C	22.5	C	22.5	C

AM Peak Hour Signalized Delay and LOS

Intersection	Synchro Node	Approach	Movement	Existing		Background 2022		Background 2038		Road Diet 2038		Road Diet Mitigation 2038	
				Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
Michigan Ave & Adams St	2004	EB	LT/TH/RT	2.3	A	2.3	A	2.3	A	2.3	A	2.7	A
			Approach	2.3	A	2.3	A	2.3	A	2.3	A	2.7	A
		WB	LT/TH/RT	2.7	A	2.9	A	3.4	A	3.4	A	3.6	A
			Approach	2.7	A	2.9	A	3.4	A	3.4	A	3.6	A
		NB	LT	31.4	C	31.5	C	32.2	C	32.2	C	32.2	C
			TH/RT	30.5	C	30.6	C	31.3	C	31.3	C	31.3	C
			Approach	30.9	C	31.0	C	31.7	C	31.7	C	31.7	C
		SB	LT	28.7	C	28.8	C	29.0	C	29.0	C	29.0	C
			TH/RT	28.0	C	28.0	C	28.1	C	28.1	C	28.1	C
			Approach	28.3	C	28.3	C	28.5	C	28.5	C	28.5	C
		Intersection		6.2	A	6.3	A	6.7	A	6.7	A	6.9	A
Michigan Ave & Washington St	2005	EB	LT/TH/RT	1.8	A	1.8	A	1.8	A	1.8	A	2.6	A
			Approach	1.8	A	1.8	A	1.8	A	1.8	A	2.6	A
		WB	LT/TH/RT	1.3	A	1.7	A	1.2	A	1.1	A	1.2	A
			Approach	1.3	A	1.7	A	1.2	A	1.1	A	1.2	A
		NB	LT/TH/RT	75.1	E	78.5	E	111.7	F	111.7	F	51.2	D
			Approach	75.1	E	78.5	E	111.7	F	111.7	F	51.2	D
		SB	LT/TH/RT	28.6	C	28.6	C	29.1	C	29.1	C	25.0	C
			Approach	28.6	C	28.6	C	29.1	C	29.1	C	25.0	C
		Intersection		13.1	B	13.7	B	18.5	B	18.5	B	9.7	A
Huron St & Harriet/Spring St	3001	EB	LT	22.9	C	22.9	C	23.5	C	23.5	C	23.6	C
			TH	22.3	C	22.3	C	22.3	C	22.3	C	22.6	C
			Approach	22.4	C	22.4	C	22.4	C	22.4	C	22.7	C
		WB	TH/RT	25.7	C	25.9	C	26.6	C	26.6	C	26.6	C
			Approach	25.7	C	25.9	C	26.6	C	26.6	C	26.6	C
		NB	LT/TH	13.1	B	13.3	B	14.4	B	35.3	D	35.3	D
			RT	9.3	A	9.4	A	9.6	A	13.4	B	13.4	B
			Approach	12.5	B	12.7	B	13.7	B	31.8	C	31.8	C
		Intersection		15.4	B	15.6	B	16.5	B	30.3	C	30.3	C
Hamilton St & Harriet St	3003	EB	TH/RT	22.4	C	22.4	C	22.6	C	22.6	C	32.7	C
			Approach	22.4	C	22.4	C	22.6	C	22.6	C	32.7	C
		WB	LT	12.8	B	13.1	B	14.6	B	17.6	B	27.7	C
			TH	7.9	A	8.0	A	8.6	A	10.8	B	18.7	B
			Approach	9.5	A	9.7	A	10.6	B	13.0	B	21.7	C
		SB	LT	13.3	B	13.3	B	13.8	B	13.2	B	5.6	A
			TH/RT	15.5	B	15.6	B	16.1	B	18.0	B	8.0	A
			Approach	15.3	B	15.4	B	15.9	B	17.6	B	7.9	A
		Intersection		13.9	B	14.0	B	14.6	B	16.4	B	18.2	B
Huron St & Catherine St	3004	EB	LT/TH	34.8	C	34.8	C	34.5	C	34.5	C	34.5	C
			Approach	34.8	C	34.8	C	34.5	C	34.5	C	34.5	C
		WB	TH/RT	35.3	D	35.4	D	35.7	D	35.7	D	35.7	D
			Approach	35.3	D	35.4	D	35.7	D	35.7	D	35.7	D
		NB	LT/TH/RT	3.4	A	3.4	A	3.7	A	4.2	A	4.2	A
			Approach	3.4	A	3.4	A	3.7	A	4.2	A	4.2	A
		Intersection		5.6	A	5.6	A	5.9	A	6.3	A	6.3	A

Off Peak Signalized Delay and LOS

Intersection	Synchro Node	Approach	Movement	Existing		Background 2022		Background 2038		Road Diet 2038		Road Diet Mitigation 2038	
				Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
Washtenaw Ave & Summit St	1002	EB	LT/TH/RT	9.0	A	9.0	A	9.3	A	9.3	A	9.3	A
			Approach	9.0	A	9.0	A	9.3	A	9.3	A	9.3	A
		NB	TH/RT	29.7	C	29.9	C	30.7	C	30.7	C	30.7	C
			Approach	29.7	C	29.9	C	30.7	C	30.7	C	30.7	C
		SB	LT/TH	36.5	D	36.4	D	37.1	D	37.1	D	37.1	D
			Approach	36.5	D	36.4	D	37.1	D	37.1	D	37.1	D
		Intersection		12.7	B	12.8	B	13.1	B	13.1	B	13.1	B
Washtenaw Ave & Ballard St	1004	EB	LT/TH/RT	0.8	A	0.8	A	0.9	A	1.8	A	1.8	A
			Approach	0.8	A	0.8	A	0.9	A	1.8	A	1.8	A
		NB	TH/RT	33.8	C	33.7	C	34.2	C	34.2	C	34.2	C
			Approach	33.8	C	33.7	C	34.2	C	34.2	C	34.2	C
		SB	LT	31.1	C	31.0	C	30.9	C	30.9	C	30.9	C
			TH	31.1	C	31.1	C	30.8	C	30.8	C	30.8	C
			Approach	31.1	C	31.0	C	30.9	C	30.9	C	30.9	C
		Intersection		6.5	A	6.5	A	6.6	A	7.3	A	7.3	A
Hamilton St & Michigan Ave	1013	EB	TH/RT	22.3	C	22.5	C	23.0	C	19.5	B	23.4	C
			Approach	22.3	C	22.5	C	23.0	C	19.5	B	23.4	C
		WB	LT	13.2	B	13.7	B	16.8	B	16.8	B	27.5	C
			TH	6.6	A	6.7	A	7.7	A	7.7	A	17.7	B
			Approach	8.5	A	8.7	A	10.3	B	10.3	B	20.5	C
		SB	LT	27.9	C	28.3	C	30.3	C	32.5	C	22.0	C
			LT/TH/RT	24.5	C	24.7	C	25.7	C	N/A			
			TH/RT	N/A						30.8	C	21.3	C
			Approach	25.3	C	25.6	C	26.8	C	31.3	C	21.5	C
		Intersection		20.0	B	20.3	C	21.4	C	22.9	C	21.6	C
Huron St & Cross St	1016	WB	TH	14.9	B	14.9	B	15.3	B	15.3	B	15.3	B
			RT	12.4	B	12.4	B	12.5	B	12.5	B	12.5	B
			Approach	14.7	B	14.8	B	15.1	B	15.1	B	15.1	B
		NB	LT	Free Flow									
			TH	9.7	A	20.7	C	20.5	C	N/A			
			RT	11.2	B	22.5	C	22.3	C				
			TH/RT	N/A						23.4	C	23.4	C
			Approach	10.3	B	21.4	C	21.2	C	23.4	C	23.4	C
		Intersection		11.6	B	26.9	C	19.3	B	20.9	C	20.8	C
Huron St & Michigan Ave	1023	EB	LT	24.8	C	8.0	A	9.7	A	9.7	A	8.9	A
			TH	15.0	B	3.9	A	4.1	A	4.1	A	3.5	A
			Approach	16.4	B	4.5	A	4.9	A	4.9	A	4.3	A
		WB	TH/RT	21.7	C	21.9	C	23.0	C	23.0	C	23.0	C
			RT	26.7	C	27.3	C	30.2	C	30.2	C	30.2	C
			Approach	23.2	C	23.5	C	25.2	C	25.2	C	25.2	C
		NB	LT	21.7	C	9.0	A	8.2	A	8.7	A	8.8	A
			TH/RT	31.9	C	17.6	B	18.6	B	18.1	B	18.2	B
			Approach	30.8	C	16.6	B	17.4	B	17.1	B	17.1	B
		Intersection		23.8	C	15.1	B	16.0	B	15.9	B	15.7	B
Michigan Ave & Congress St & Ballard St	2000	EB	LT/TH/RT	24.3	C	24.4	C	24.6	C	24.6	C	24.6	C
			Approach	24.3	C	24.4	C	24.6	C	24.6	C	24.6	C
		WB	LT	37.8	D	38.2	D	40.5	D	30.2	C	23.3	C
			LT/TH/RT	41.5	D	42.1	D	46.0	D	35.3	D	28.0	C
			Approach	39.7	D	40.2	D	43.3	D	32.8	C	25.6	C
		SB	LT	22.8	C	22.8	C	22.9	C	22.9	C	22.9	C
			TH/RT	22.7	C	22.7	C	22.7	C	22.7	C	22.7	C
			Approach	22.7	C	22.7	C	22.8	C	22.8	C	22.8	C
		NB	RT	22.5	C	22.5	C	22.7	C	22.7	C	22.7	C
			Approach	22.5	C	22.5	C	22.7	C	22.7	C	22.7	C
		Intersection		30.5	C	30.8	C	32.3	C	27.5	C	24.2	C

Off Peak Signalized Delay and LOS

Intersection	Synchro Node	Approach	Movement	Existing		Background 2022		Background 2038		Road Diet 2038		Road Diet Mitigation 2038	
				Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
Michigan Ave & Adams St	2004	EB	LT/TH/RT	4.1	A	4.1	A	4.1	A	3.8	A	5.5	A
			Approach	4.1	A	4.1	A	4.1	A	3.8	A	5.5	A
		WB	LT/TH/RT	2.0	A	2.0	A	2.0	A	2.0	A	2.0	A
			Approach	2.0	A	2.0	A	2.0	A	2.0	A	2.0	A
		NB	LT	30.1	C	30.2	C	30.7	C	30.7	C	30.7	C
			TH/RT	30.2	C	30.3	C	30.7	C	30.7	C	30.7	C
			Approach	30.1	C	30.3	C	30.7	C	30.7	C	30.7	C
		SB	LT	29.5	C	29.6	C	30.1	C	30.1	C	30.1	C
			TH/RT	28.7	C	28.8	C	29.0	C	29.0	C	29.0	C
			Approach	29.0	C	29.1	C	29.4	C	29.4	C	29.4	C
		Intersection		7.1	A	7.1	A	7.2	A	7.1	A	7.9	A
Michigan Ave & Washington St	2005	EB	LT/TH/RT	1.9	A	1.9	A	2.0	A	2.0	A	2.2	A
			Approach	1.9	A	1.9	A	2.0	A	2.0	A	2.2	A
		WB	LT/TH/RT	2.1	A	2.1	A	2.1	A	2.0	A	2.0	A
			Approach	2.1	A	2.1	A	2.1	A	2.0	A	2.0	A
		NB	LT/TH/RT	31.3	C	31.6	C	32.4	C	32.4	C	32.4	C
			Approach	31.3	C	31.6	C	32.4	C	32.4	C	32.4	C
		SB	LT/TH/RT	31.8	C	32.1	C	33.2	C	33.2	C	33.2	C
			Approach	31.8	C	32.1	C	33.2	C	33.2	C	33.2	C
		Intersection		5.4	A	5.5	A	5.6	A	5.6	A	5.7	A
Huron St & Harriet/Spring St	3001	EB	LT	19.0	B	18.9	B	19.4	B	20.3	C	21.1	C
			TH	18.2	B	18.3	B	18.8	B	19.7	B	20.9	C
			Approach	18.4	B	18.4	B	18.9	B	19.8	B	20.9	C
		WB	TH/RT	21.0	C	21.0	C	21.3	C	21.3	C	21.3	C
			Approach	21.0	C	21.0	C	21.3	C	21.3	C	21.3	C
		NB	LT/TH	11.5	B	11.6	B	12.0	B	11.8	B	11.8	B
			RT	10.2	B	10.2	B	10.3	B	10.7	B	10.7	B
			Approach	11.3	B	11.3	B	11.6	B	11.6	B	11.6	B
		Intersection		13.9	B	14.0	B	14.3	B	14.4	B	14.6	B
Hamilton St & Harriet St	3003	EB	TH/RT	22.5	C	22.5	C	22.9	C	22.9	C	32.4	C
			Approach	22.5	C	22.5	C	22.9	C	22.9	C	32.4	C
		WB	LT	14.3	B	14.5	B	15.5	B	16.2	B	30.7	C
			TH	6.8	A	6.8	A	6.8	A	7.0	A	14.1	B
			Approach	11.1	B	11.2	B	11.7	B	12.2	B	23.5	C
		SB	LT	12.8	B	12.8	B	13.2	B	12.2	B	7.1	A
			TH/RT	17.2	B	17.4	B	18.5	B	28.9	C	13.4	B
			Approach	16.9	B	17.1	B	18.1	B	27.6	C	12.9	B
		Intersection		16.1	B	16.2	B	17.0	B	22.7	C	18.7	B
Huron St & Catherine St	3004	EB	LT/TH	34.6	C	34.6	C	34.8	C	34.8	C	34.8	C
			Approach	34.6	C	34.6	C	34.8	C	34.8	C	34.8	C
		WB	TH/RT	32.8	C	32.8	C	32.7	C	32.7	C	32.7	C
			Approach	32.8	C	32.8	C	32.7	C	32.7	C	32.7	C
		NB	LT/TH/RT	5.9	A	5.9	A	6.1	A	4.7	A	4.7	A
			Approach	5.9	A	5.9	A	6.1	A	4.7	A	4.7	A
		Intersection		8.6	A	8.6	A	8.8	A	7.6	A	7.6	A

PM Peak Signalized Delay and LOS

Intersection	Synchro Node	Approach	Movement	Existing		Background 2022		Background 2038		Road Diet 2038		Road Diet Mitigation 2038	
				Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
Washtenaw Ave & Summit St	1002	EB	LT/TH/RT	12.2	B	12.5	B	13.7	B	13.7	B	13.7	B
			Approach	12.2	B	12.5	B	13.7	B	13.7	B	13.7	B
		NB	TH/RT	28.3	C	28.5	C	29.2	C	29.2	C	29.2	C
			Approach	28.3	C	28.5	C	29.2	C	29.2	C	29.2	C
		SB	LT/TH	37.3	D	37.4	D	38.1	D	38.1	D	38.1	D
			Approach	37.3	D	37.4	D	38.1	D	38.1	D	38.1	D
		Intersection		14.2	B	14.5	B	15.6	B	15.6	B	15.6	B
Washtenaw Ave & Ballard St	1004	EB	LT/TH/RT	0.5	A	0.5	A	0.5	A	1.6	A	1.6	A
			Approach	0.5	A	0.5	A	0.5	A	1.6	A	1.6	A
		NB	TH/RT	34.8	C	34.9	C	35.2	D	35.2	D	35.2	D
			Approach	34.8	C	34.9	C	35.2	D	35.2	D	35.2	D
		SB	LT	33.8	C	33.8	C	33.8	C	33.8	C	33.8	C
			TH	34.4	C	34.5	C	34.5	C	34.5	C	34.5	C
			Approach	34.2	C	34.3	C	34.3	C	34.3	C	34.3	C
		Intersection		3.5	A	3.6	A	3.6	A	4.6	A	4.6	A
Hamilton St & Michigan Ave	1013	EB	TH/RT	22.1	C	22.3	C	23.3	C	23.3	C	30.3	C
			Approach	22.1	C	22.3	C	23.3	C	23.3	C	30.3	C
		WB	LT	20.2	C	22.2	C	38.3	D	38.5	D	76.9	E
			TH	6.1	A	6.3	A	7.4	A	7.4	A	10.1	B
			Approach	11.0	B	11.9	B	18.2	B	18.3	B	33.5	C
		SB	LT	43.0	D	45.5	D	61.7	E	74.8	E	35.0	C
			LT/TH/RT	31.4	C	32.7	C	43.1	D	N/A			
			TH/RT	N/A						132.8	F	50.0	D
			Approach	34.2	C	35.8	D	47.6	D	115.3	F	45.5	D
		Intersection		26.2	C	27.3	C	35.6	D	73.4	E	39.6	D
Huron St & Cross St	1016	WB	TH	14.8	B	14.9	B	15.3	B	15.3	B	15.3	B
			RT	11.9	B	11.9	B	11.9	B	11.9	B	11.9	B
			Approach	14.6	B	14.7	B	15.1	B	15.1	B	15.1	B
		NB	LT	Free Flow									
			TH	23.8	C	23.8	C	23.6	C	N/A			
			RT	29.3	C	29.4	C	30.0	C				
			TH/RT	N/A						28.7	C	25.8	C
			Approach	26.4	C	26.5	C	26.7	C	28.7	C	25.8	C
		Intersection		23.1	C	23.2	C	23.4	C	24.9	C	22.7	C
Huron St & Michigan Ave	1023	EB	LT	13.8	B	14.6	B	19.9	B	19.9	B	29.6	C
			TH	5.6	A	5.7	A	6.7	A	6.7	A	13.3	B
			Approach	6.7	A	6.9	A	8.5	A	8.5	A	15.4	B
		WB	TH/RT	23.6	C	23.9	C	25.9	C	25.9	C	25.9	C
			RT	31.5	C	32.8	C	39.3	D	39.3	D	39.3	D
			Approach	26.0	C	26.6	C	29.9	C	29.9	C	29.9	C
		NB	LT	10.2	B	10.2	B	10.7	B	12.9	B	16.8	B
			TH/RT	21.4	C	22.6	C	31.0	C	31.7	C	34.0	C
			Approach	20.1	C	21.1	C	28.6	C	29.5	C	32.0	C
		Intersection		15.6	B	17.9	B	22.0	C	22.2	C	25.5	C
Michigan Ave & Congress St & Ballard St	2000	EB	LT/TH/RT	46.4	D	46.5	D	47.9	D	47.9	D	47.9	D
			Approach	46.4	D	46.5	D	47.9	D	47.9	D	47.9	D
		WB	LT	20.7	C	21.0	C	22.3	C	22.3	C	22.3	C
			TH	23.1	C	23.6	C	25.7	C	25.7	C	25.7	C
			Approach	21.9	C	22.3	C	24.0	C	24.0	C	24.0	C
		SB	LT	43.1	D	43.2	D	43.4	D	43.4	D	43.4	D
			TH/RT	41.9	D	42.0	D	42.0	D	42.0	D	42.0	D
			Approach	42.5	D	42.5	D	42.7	D	42.7	D	42.7	D
		NB	RT	16.1	B	16.2	B	16.4	B	16.4	B	16.4	B
			Approach	16.1	B	16.2	B	16.4	B	16.4	B	16.4	B
		Intersection		23.4	C	23.6	C	24.8	C	24.8	C	24.8	C

PM Peak Signalized Delay and LOS

Intersection	Synchro Node	Approach	Movement	Existing		Background 2022		Background 2038		Road Diet 2038		Road Diet Mitigation 2038	
				Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
Michigan Ave & Adams St	2004	EB	LT/TH/RT	3.4	A	3.4	A	3.6	A	3.2	A	5.2	A
			Approach	3.4	A	3.4	A	3.6	A	3.2	A	5.2	A
		WB	LT/TH/RT	1.7	A	1.7	A	2.0	A	1.9	A	5.6	A
			Approach	1.7	A	1.7	A	2.0	A	1.9	A	5.6	A
		NB	LT	28.5	C	28.5	C	28.8	C	28.8	C	28.8	C
			TH/RT	30.0	C	30.0	C	30.4	C	30.4	C	30.4	C
			Approach	29.7	C	29.7	C	30.1	C	30.1	C	30.1	C
		SB	LT	31.7	C	31.8	C	32.8	C	32.8	C	32.8	C
			TH/RT	29.4	C	29.5	C	29.8	C	29.8	C	29.8	C
			Approach	30.4	C	30.5	C	31.1	C	31.1	C	31.1	C
		Intersection		6.0	A	6.1	A	6.4	A	6.2	A	8.5	A
Michigan Ave & Washington St	2005	EB	LT/TH/RT	1.9	A	1.9	A	2.4	A	2.2	A	5.1	A
			Approach	1.9	A	1.9	A	2.4	A	2.2	A	5.1	A
		WB	LT/TH/RT	2.3	A	2.3	A	2.2	A	2.1	A	0.9	A
			Approach	2.3	A	2.3	A	2.2	A	2.1	A	0.9	A
		NB	LT/TH/RT	33.2	C	33.4	C	35.2	D	35.2	D	35.2	D
			Approach	33.2	C	33.4	C	35.2	D	35.2	D	35.2	D
		SB	LT/TH/RT	40.6	D	41.7	D	49.0	D	49.0	D	49.0	D
			Approach	40.6	D	41.7	D	49.0	D	49.0	D	49.0	D
		Intersection		6.6	A	6.6	A	7.5	A	7.4	A	8.5	A
Huron St & Harriet/Spring St	3001	EB	LT	18.2	B	18.2	B	19.2	B	19.3	B	28.1	C
			TH	18.4	B	18.4	B	19.0	B	19.0	B	28.6	C
			Approach	18.1	B	18.4	B	19.0	B	19.0	B	28.6	C
		WB	TH/RT	20.4	C	20.6	C	21.1	C	21.1	C	22.0	C
			Approach	20.4	C	20.6	C	21.1	C	21.1	C	22.0	C
		NB	LT/TH	14.1	B	14.2	B	14.7	B	13.1	B	18.2	B
			RT	12.8	B	13.0	B	13.8	B	5.5	A	17.9	B
			Approach	13.8	B	13.9	B	14.5	B	11.4	B	18.1	B
		Intersection		16.0	B	16.1	B	16.7	B	14.7	B	20.6	C
Hamilton St & Harriet St	3003	EB	TH/RT	24.4	C	24.5	C	25.3	C	25.3	C	29.9	C
			Approach	24.4	C	24.5	C	25.3	C	25.3	C	29.9	C
		WB	LT	20.6	C	21.4	C	26.8	C	28.5	C	180.9	F
			TH	5.9	A	5.9	A	5.8	A	6.9	A	9.0	A
			Approach	14.1	B	14.5	B	17.5	B	18.9	B	104.4	F
		SB	LT	15.7	B	15.7	B	16.1	B	15.5	B	6.5	A
			TH/RT	29.6	C	32.0	C	54.3	D	253.1	F	30.1	C
			Approach	28.3	C	30.5	C	50.7	D	230.5	F	27.9	C
		Intersection		23.9	C	25.3	C	38.0	D	143.6	F	48.9	D
Huron St & Catherine St	3004	EB	LT/TH	34.7	C	34.7	C	34.8	C	34.8	C	34.8	C
			Approach	34.7	C	34.7	C	34.8	C	34.8	C	34.8	C
		WB	TH/RT	33.1	C	33.1	C	33.0	C	33.0	C	33.0	C
			Approach	33.1	C	33.1	C	33.0	C	33.0	C	33.0	C
		NB	LT/TH/RT	3.9	A	3.9	A	4.1	A	4.4	A	1.1	A
			Approach	3.9	A	3.9	A	4.1	A	4.4	A	1.1	A
		Intersection		6.8	A	6.8	A	7.0	A	7.2	A	4.2	A

AM Peak Unsignalized Delay and LOS

Intersection	Synchro Node	Approach	Movement	Existing 2018		Background 2022		Background 2038		Road Diet 2038		Road Diet Mitigation 2038	
				Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
Hamilton St & Washtenaw Ave	9000	EB	TH	7.5	A	7.5	A	7.7	A	7.7	A	7.7	A
			RT	7.8	A	7.9	A	8.5	A	8.5	A	8.5	A
			Approach	7.7	A	7.8	A	8.4	A	8.4	A	8.4	A
		SB	LT/TH	8.0	A	8.0	A	8.3	A	8.3	A	8.3	A
			Approach	8.0	A	8.0	A	8.3	A	8.3	A	8.3	A
		Intersection	7.8	A	7.9	A	8.3	A	8.3	A	8.3	A	
Hamilton St & Pearl St	9001	EB	RT	10.2	B	10.2	B	10.5	B	11.9	B	11.9	B
			Approach	10.2	B	10.2	B	10.5	B	11.9	B	11.9	B
		WB	LT	11.1	B	11.2	B	11.6	B	13.3	B	13.3	B
			LT/TH	14.9	B	15.1	C	16.5	C	17.0	C	17.0	C
			Approach	13.4	B	13.5	B	14.6	B	15.5	C	15.5	C
		SB	TH/RT	Free Flow						N/A			
			TH	N/A						Free Flow			
			RT										
			Approach	Free Flow									
		Intersection	1.0	A	1.0	A	1.0	A	1.1	A	1.1	A	
Hamilton St & Ferris St	9002	EB	TH/RT	11.2	B	11.2	B	11.6	B	11.2	B	11.3	B
			Approach	11.2	B	11.2	B	11.6	B	11.2	B	11.3	B
		WB	LT/TH	13.1	B	13.2	B	13.7	B	13.2	B	13.4	B
			Approach	13.1	B	13.2	B	13.7	B	13.2	B	13.4	B
		SB	LT	Free Flow						N/A			
			TH/RT										
			LT/TH/RT	N/A						Free Flow			
			Approach										
Intersection	2.2	A	2.2	A	2.3	A	2.4	A	2.4	A			
Huron St & Ferris St	9003	EB	LT	11.6	B	11.6	B	11.4	B	13.0	B	13.0	B
			Approach	11.6	B	11.6	B	11.4	B	13.0	B	13.0	B
		NB	LT/TH	Free Flow									
			Approach										
		Intersection	0.5	A	0.5	A	0.6	A	0.6	A	0.6	A	
Huron St & Pearl St	9004	NB	LT/TH	Free Flow									
			Approach										
		Intersection											

Off Peak Unsignalized Delay and LOS

Intersection	Synchro Node	Approach	Movement	Existing 2018		Background 2022		Background 2038		Road Diet 2038		Road Diet Mitigation 2038	
				Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
Hamilton St & Washtenaw Ave	9000	EB	TH	8.5	A	8.5	A	8.8	A	8.8	A	8.8	A
			RT	10.7	B	11.1	B	13.1	B	13.1	B	13.1	B
			Approach	10.2	B	10.5	B	12.2	B	12.2	B	12.2	B
		SB	LT/TH	9.8	A	9.9	A	10.6	B	10.6	B	10.6	B
			Approach	9.8	A	9.9	A	10.6	B	10.6	B	10.6	B
		Intersection	10.1	B	10.3	B	11.7	B	11.7	B	11.7	B	
Hamilton St & Pearl St	9001	EB	RT	11.2	B	11.4	B	11.8	B	14.5	B	14.5	B
			Approach	11.2	B	11.4	B	11.8	B	14.5	B	14.5	B
		WB	LT	14.6	B	15.9	C	16.2	C	22.0	C	22.0	C
			LT/TH	49.9	E	55.5	F	99.8	F	100.4	F	100.4	F
			Approach	37.5	E	41.2	E	70.4	F	72.9	F	72.9	F
		SB	TH/RT	Free Flow						N/A			
			TH	N/A						Free Flow			
			RT										
			Approach	Free Flow									
		Intersection	6.7	A	7.3	A	12.3	B	12.8	B	12.8	B	
Hamilton St & Ferris St	9002	EB	TH/RT	13.4	B	13.6	B	14.6	B	16.2	C	16.8	C
			Approach	13.4	B	13.6	B	14.6	B	16.2	C	16.8	C
		WB	LT/TH	13.2	B	13.2	B	14.1	B	17.5	C	19.2	C
			Approach	13.2	B	13.2	B	14.1	B	17.5	C	19.2	C
		SB	LT	Free Flow						N/A			
			TH/RT										
			LT/TH/RT	N/A						Free Flow			
			Approach										
Intersection	1.8	A	1.8	A	1.9	A	2.4	A	2.5	A			
Huron St & Ferris St	9003	EB	LT	11.8	B	11.8	B	11.9	B	12.9	B	12.9	B
			Approach	11.8	B	11.8	B	11.9	B	12.9	B	12.9	B
		NB	LT/TH	Free Flow									
			Approach										
		Intersection	0.9	A	0.9	A	0.9	A	1.0	A	1.0	A	
Huron St & Pearl St	9004	NB	LT/TH	Free Flow									
			Approach										
		Intersection											

PM Peak Unsignalized Delay and LOS

Intersection	Synchro Node	Approach	Movement	Existing 2018		Background 2022		Background 2038		Road Diet 2038		Road Diet Mitigation 2038	
				Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
Hamilton St & Washtenaw Ave	9000	EB	TH	11.3	B	11.5	B	12.4	B	12.4	B	12.4	B
			RT	41.0	E	47.0	E	79.7	F	79.7	F	79.7	F
			Approach	33.8	D	38.4	E	63.4	F	63.4	F	63.4	F
		SB	LT/TH	20.0	C	21.4	C	30.0	D	30.0	D	30.0	D
			Approach	20.0	C	21.4	C	30.0	D	30.0	D	30.0	D
		Intersection	29.0	D	32.5	D	51.7	F	51.7	F	51.7	F	
Hamilton St & Pearl St	9001	EB	RT	14.4	B	14.7	B	15.9	C	25.1	D	25.1	D
			Approach	14.4	B	14.7	B	15.9	C	25.1	D	25.1	D
		WB	LT	18.2	C	18.8	C	21.4	C	44.8	E	44.8	E
			LT/TH	192.8	F	232.2	F	455.2	F	491.9	F	491.9	F
			Approach	136.8	F	163.7	F	316.5	F	348.9	F	348.9	F
		SB	TH/RT	Free Flow						N/A			
			TH	N/A						Free Flow			
			RT										
			Approach	Free Flow									
		Intersection	9.0	A	10.8	B	20.6	C	22.8	C	22.8	C	
Hamilton St & Ferris St	9002	EB	TH/RT	17.7	C	18.3	C	20.6	C	46.8	E	40.7	E
			Approach	17.7	C	18.3	C	20.6	C	46.8	E	40.7	E
		WB	LT/TH	18.5	C	19.2	C	22.4	C	78.1	F	50.5	F
			Approach	18.5	C	19.2	C	22.4	C	78.1	F	50.5	F
		SB	LT	Free Flow						N/A			
			TH/RT										
			LT/TH/RT	N/A						Free Flow			
			Approach										
Intersection	2.2	A	2.2	A	2.5	A	7.0	A	5.3	A			
Huron St & Ferris St	9003	EB	LT	12.5	B	12.6	B	12.7	B	15.4	C	15.4	C
			Approach	12.5	B	12.6	B	12.7	B	15.4	C	15.4	C
		NB	LT/TH	Free Flow									
			Approach										
		Intersection	0.6	A	0.6	A	0.6	A	0.8	A	0.8	A	
Huron St & Pearl St	9004	NB	LT/TH	Free Flow									
			Approach										
		Intersection											

Appendix H
Existing Condition Synchro Reports

HCM Signalized Intersection Capacity Analysis

1002: Summit & Washtenaw Ave

Road Diet Capacity Analysis

Existing AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  						 			 	
Traffic Volume (vph)	3	671	17	0	0	0	0	136	31	11	10	0
Future Volume (vph)	3	671	17	0	0	0	0	136	31	11	10	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.4						10.8			10.8	
Lane Util. Factor		0.91						1.00			1.00	
Frpb, ped/bikes		1.00						0.99			1.00	
Flpb, ped/bikes		1.00						1.00			0.98	
Frt		1.00						0.97			1.00	
Flt Protected		1.00						1.00			0.97	
Satd. Flow (prot)		5435						1642			1917	
Flt Permitted		1.00						1.00			0.74	
Satd. Flow (perm)		5435						1642			1461	
Peak-hour factor, PHF	0.87	0.87	0.87	0.92	0.92	0.92	0.91	0.91	0.91	0.75	0.75	0.75
Adj. Flow (vph)	3	771	20	0	0	0	0	149	34	15	13	0
RTOR Reduction (vph)	0	3	0	0	0	0	0	10	0	0	0	0
Lane Group Flow (vph)	0	791	0	0	0	0	0	173	0	0	28	0
Confl. Peds. (#/hr)			2						26	26		
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)								10				
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		1						2			2	
Permitted Phases	1								2			
Actuated Green, G (s)		46.6						17.2			17.2	
Effective Green, g (s)		46.6						17.2			17.2	
Actuated g/C Ratio		0.58						0.21			0.21	
Clearance Time (s)		5.4						10.8			10.8	
Lane Grp Cap (vph)		3165						353			314	
v/s Ratio Prot								c0.11				
v/s Ratio Perm		0.15									0.02	
v/c Ratio		0.25						0.49			0.09	
Uniform Delay, d1		8.2						27.5			25.1	
Progression Factor		1.00						1.00			1.34	
Incremental Delay, d2		0.2						4.8			0.6	
Delay (s)		8.3						32.3			34.2	
Level of Service		A						C			C	
Approach Delay (s)		8.3			0.0			32.3			34.2	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM 2000 Control Delay		13.4						HCM 2000 Level of Service		B		
HCM 2000 Volume to Capacity ratio		0.31										
Actuated Cycle Length (s)		80.0						Sum of lost time (s)		16.2		
Intersection Capacity Utilization		45.6%						ICU Level of Service		A		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1004: Ballard St (PB) & Washtenaw Ave

Road Diet Capacity Analysis

Existing AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	523	6	0	0	0	0	36	8	9	20	0
Future Volume (vph)	15	523	6	0	0	0	0	36	8	9	20	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.3						5.7		5.7	5.7	
Lane Util. Factor		0.91						1.00		1.00	1.00	
Frpb, ped/bikes		1.00						1.00		1.00	1.00	
Flpb, ped/bikes		1.00						1.00		0.99	1.00	
Frt		1.00						0.98		1.00	1.00	
Flt Protected		1.00						1.00		0.95	1.00	
Satd. Flow (prot)		5441						1944		1887	2000	
Flt Permitted		1.00						1.00		0.72	1.00	
Satd. Flow (perm)		5441						1944		1426	2000	
Peak-hour factor, PHF	0.90	0.90	0.90	0.92	0.92	0.92	0.73	0.73	0.73	0.91	0.91	0.91
Adj. Flow (vph)	17	581	7	0	0	0	0	49	11	10	22	0
RTOR Reduction (vph)	0	1	0	0	0	0	0	10	0	0	0	0
Lane Group Flow (vph)	0	604	0	0	0	0	0	50	0	10	22	0
Confl. Peds. (#/hr)	2		1						9	9		
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	0%	0%	0%	2%	2%	2%	0%	0%	0%	0%	0%	0%
Turn Type	custom	NA						NA		Perm	NA	
Protected Phases	1	1						2			2	
Permitted Phases	1									2		
Actuated Green, G (s)		61.6						7.4		7.4	7.4	
Effective Green, g (s)		61.6						7.4		7.4	7.4	
Actuated g/C Ratio		0.77						0.09		0.09	0.09	
Clearance Time (s)		5.3						5.7		5.7	5.7	
Vehicle Extension (s)		0.2						3.0		3.0	3.0	
Lane Grp Cap (vph)		4189						179		131	185	
v/s Ratio Prot		c0.11						c0.03			0.01	
v/s Ratio Perm										0.01		
v/c Ratio		0.14						0.28		0.08	0.12	
Uniform Delay, d1		2.4						33.8		33.2	33.3	
Progression Factor		0.54						1.00		1.00	1.00	
Incremental Delay, d2		0.1						0.9		0.2	0.3	
Delay (s)		1.4						34.7		33.4	33.6	
Level of Service		A						C		C	C	
Approach Delay (s)		1.4			0.0			34.7			33.5	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM 2000 Control Delay		5.7						HCM 2000 Level of Service		A		
HCM 2000 Volume to Capacity ratio		0.16										
Actuated Cycle Length (s)		80.0						Sum of lost time (s)		11.0		
Intersection Capacity Utilization		36.4%						ICU Level of Service		A		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1013: Hamilton St (PB) & Michigan Ave

Road Diet Capacity Analysis

Existing AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	275	76	140	659	0	0	0	0	188	445	38
Future Volume (vph)	0	275	76	140	659	0	0	0	0	188	445	38
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.2		5.2	5.2					6.8	6.8	
Lane Util. Factor		0.95		1.00	0.95					0.86	0.86	
Frpb, ped/bikes		1.00		1.00	1.00					1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00					1.00	1.00	
Frt		0.97		1.00	1.00					1.00	0.99	
Flt Protected		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (prot)		3662		1878	3480					1618	5032	
Flt Permitted		1.00		0.47	1.00					0.95	1.00	
Satd. Flow (perm)		3662		938	3480					1618	5032	
Peak-hour factor, PHF	0.84	0.84	0.84	0.83	0.83	0.83	0.92	0.92	0.92	0.91	0.91	0.91
Adj. Flow (vph)	0	327	90	169	794	0	0	0	0	207	489	42
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	11	0
Lane Group Flow (vph)	0	417	0	169	794	0	0	0	0	180	547	0
Confl. Peds. (#/hr)			6	6						5		6
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Parking (#/hr)					10							
Turn Type		NA		pm+pt	NA					custom	NA	
Protected Phases		1		2	1 2					3	3	
Permitted Phases				1 2						3		
Actuated Green, G (s)		28.8		37.6	42.8					25.2	25.2	
Effective Green, g (s)		28.8		37.6	42.8					25.2	25.2	
Actuated g/C Ratio		0.36		0.47	0.53					0.31	0.31	
Clearance Time (s)		5.2		5.2						6.8	6.8	
Lane Grp Cap (vph)		1318		544	1861					509	1585	
v/s Ratio Prot		0.11		0.03	c0.23					c0.11	0.11	
v/s Ratio Perm				0.11								
v/c Ratio		0.32		0.31	0.43					0.35	0.35	
Uniform Delay, d1		18.5		14.8	11.2					21.1	21.1	
Progression Factor		1.00		0.77	0.69					1.00	1.00	
Incremental Delay, d2		0.6		1.4	0.7					1.9	0.6	
Delay (s)		19.1		12.8	8.4					23.0	21.7	
Level of Service		B		B	A					C	C	
Approach Delay (s)		19.1			9.2			0.0			22.0	
Approach LOS		B			A			A			C	
Intersection Summary												
HCM 2000 Control Delay			15.6		HCM 2000 Level of Service					B		
HCM 2000 Volume to Capacity ratio			0.43									
Actuated Cycle Length (s)			80.0		Sum of lost time (s)					17.2		
Intersection Capacity Utilization			56.7%		ICU Level of Service					B		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1016: Huron St (PB) & Cross St (PB)/Cross St

Road Diet Capacity Analysis

Existing AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑	↑		↑↑	↑			
Traffic Volume (vph)	0	0	0	0	413	26	0	522	131	0	0	0
Future Volume (vph)	0	0	0	0	413	26	0	522	131	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)					5.5	5.5		5.6	5.6			
Lane Util. Factor					1.00	1.00		0.95	1.00			
Frpb, ped/bikes					1.00	1.00		1.00	1.00			
Flpb, ped/bikes					1.00	1.00		1.00	1.00			
Frt					1.00	0.85		1.00	0.85			
Flt Protected					1.00	1.00		1.00	1.00			
Satd. Flow (prot)					2000	1700		3800	1700			
Flt Permitted					1.00	1.00		1.00	1.00			
Satd. Flow (perm)					2000	1700		3800	1700			
Peak-hour factor, PHF	0.92	0.92	0.92	0.81	0.81	0.81	0.94	0.94	0.94	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	510	32	0	555	139	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	17	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	510	15	0	555	139	0	0	0
Confl. Peds. (#/hr)						11			3			
Confl. Bikes (#/hr)						4						
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type					NA	custom		NA	custom			
Protected Phases					2	2		8	8			
Permitted Phases						2			8			
Actuated Green, G (s)					38.5	38.5		30.4	30.4			
Effective Green, g (s)					38.5	38.5		30.4	30.4			
Actuated g/C Ratio					0.48	0.48		0.38	0.38			
Clearance Time (s)					5.5	5.5		5.6	5.6			
Lane Grp Cap (vph)					962	818		1444	646			
v/s Ratio Prot					c0.26	0.01		c0.15	0.08			
v/s Ratio Perm												
v/c Ratio					0.53	0.02		0.38	0.22			
Uniform Delay, d1					14.5	10.9		18.0	16.7			
Progression Factor					1.00	1.00		1.48	1.45			
Incremental Delay, d2					2.1	0.0		0.4	0.4			
Delay (s)					16.5	10.9		27.1	24.7			
Level of Service					B	B		C	C			
Approach Delay (s)		0.0			16.2			26.6			0.0	
Approach LOS		A			B			C			A	
Intersection Summary												
HCM 2000 Control Delay			22.0				HCM 2000 Level of Service		C			
HCM 2000 Volume to Capacity ratio			0.47									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)		11.1			
Intersection Capacity Utilization			55.2%				ICU Level of Service		B			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1023: Huron St (PB) & Michigan Ave

Road Diet Capacity Analysis

Existing AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 				
Traffic Volume (vph)	75	426	0	0	671	538	85	1084	71	0	0	0
Future Volume (vph)	75	426	0	0	671	538	85	1084	71	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	5.0	5.0			5.0	5.0	5.6	5.6				
Lane Util. Factor	1.00	0.95			0.91	0.91	1.00	0.95				
Frpb, ped/bikes	1.00	1.00			1.00	0.98	1.00	1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00				
Frt	1.00	1.00			0.97	0.85	1.00	0.99				
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00				
Satd. Flow (prot)	1881	3480			3219	1271	1873	3724				
Flt Permitted	0.14	1.00			1.00	1.00	0.95	1.00				
Satd. Flow (perm)	283	3480			3219	1271	1873	3724				
Peak-hour factor, PHF	0.93	0.93	0.93	0.89	0.89	0.89	0.95	0.95	0.95	0.92	0.92	0.92
Adj. Flow (vph)	81	458	0	0	754	604	89	1141	75	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	81	458	0	0	941	417	89	1216	0	0	0	0
Confl. Peds. (#/hr)	10					10	5		2			
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%
Parking (#/hr)		10			10	10						
Turn Type	pm+pt	NA			NA	Perm	Perm	NA				
Protected Phases	2	1 2			1			3				
Permitted Phases	1 2					1	3					
Actuated Green, G (s)	37.0	42.0			28.0	28.0	27.4	27.4				
Effective Green, g (s)	37.0	42.0			28.0	28.0	27.4	27.4				
Actuated g/C Ratio	0.46	0.52			0.35	0.35	0.34	0.34				
Clearance Time (s)	5.0				5.0	5.0	5.6	5.6				
Lane Grp Cap (vph)	310	1827			1126	444	641	1275				
v/s Ratio Prot	0.03	c0.13			0.29			c0.33				
v/s Ratio Perm	0.09					c0.33	0.05					
v/c Ratio	0.26	0.25			0.84	0.94	0.14	0.95				
Uniform Delay, d1	24.8	10.4			23.9	25.2	18.2	25.7				
Progression Factor	0.51	0.43			1.00	1.00	0.29	0.47				
Incremental Delay, d2	2.0	0.3			7.4	29.9	0.4	15.9				
Delay (s)	14.6	4.8			31.3	55.1	5.6	28.0				
Level of Service	B	A			C	E	A	C				
Approach Delay (s)		6.2			38.6			26.5			0.0	
Approach LOS		A			D			C			A	
Intersection Summary												
HCM 2000 Control Delay			28.2				HCM 2000 Level of Service		C			
HCM 2000 Volume to Capacity ratio			0.86									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)		15.6			
Intersection Capacity Utilization			72.7%				ICU Level of Service		C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2000: Michigan Ave & Congress St & Ballard St

Road Diet Capacity Analysis

Existing AM Peak Hour

											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NEL	NER	
Lane Configurations											
Traffic Volume (vph)	8	73	1	368	141	31	10	48	0	295	
Future Volume (vph)	8	73	1	368	141	31	10	48	0	295	
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	
Total Lost time (s)		5.9		6.1	6.1		6.3	6.3		6.1	
Lane Util. Factor		1.00		0.95	0.95		1.00	1.00		0.88	
Frpb, ped/bikes		1.00		1.00	1.00		1.00	1.00		1.00	
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00		1.00	
Frt		1.00		1.00	0.98		1.00	0.85		0.85	
Flt Protected		1.00		0.95	0.98		0.95	1.00		1.00	
Satd. Flow (prot)		1987		1787	1538		1900	1700		2992	
Flt Permitted		1.00		0.95	0.98		0.95	1.00		1.00	
Satd. Flow (perm)		1987		1787	1538		1900	1700		2992	
Peak-hour factor, PHF	0.82	0.82	0.82	0.94	0.94	0.94	0.60	0.60	0.93	0.93	
Adj. Flow (vph)	10	89	1	391	150	33	17	80	0	317	
RTOR Reduction (vph)	0	0	0	0	3	0	0	0	0	154	
Lane Group Flow (vph)	0	100	0	285	286	0	17	80	0	163	
Confl. Peds. (#/hr)	2		1	1		2	1			1	
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	0%	0%	0%	0%	
Parking (#/hr)					10						
Turn Type	Split	NA		Split	NA		Prot	Prot		Over	
Protected Phases	3	3		1	1		2	2		1	
Permitted Phases											
Actuated Green, G (s)		20.0		61.7	61.7		20.0	20.0		61.7	
Effective Green, g (s)		20.0		61.7	61.7		20.0	20.0		61.7	
Actuated g/C Ratio		0.17		0.51	0.51		0.17	0.17		0.51	
Clearance Time (s)		5.9		6.1	6.1		6.3	6.3		6.1	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0		3.0	
Lane Grp Cap (vph)		331		918	790		316	283		1538	
v/s Ratio Prot		c0.05		0.16	c0.19		0.01	c0.05		0.05	
v/s Ratio Perm											
v/c Ratio		0.30		0.31	0.36		0.05	0.28		0.11	
Uniform Delay, d1		43.9		16.9	17.4		42.0	43.7		15.0	
Progression Factor		1.00		1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2		0.5		0.9	1.3		0.1	0.6		0.1	
Delay (s)		44.4		17.7	18.7		42.1	44.3		15.1	
Level of Service		D		B	B		D	D		B	
Approach Delay (s)		44.4			18.2		43.9		15.1		
Approach LOS		D			B		D		B		
Intersection Summary											
HCM 2000 Control Delay			22.0			HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.33								
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			18.3		
Intersection Capacity Utilization			64.4%			ICU Level of Service			C		
Analysis Period (min)			15								
c Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

2004: Adams St (PB) & Michigan Ave

Road Diet Capacity Analysis

Existing AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	529	6	0	748	29	43	39	11	20	10	18
Future Volume (vph)	0	529	6	0	748	29	43	39	11	20	10	18
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.1			5.1		6.0	6.0		6.0	6.0	
Lane Util. Factor		0.95			0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		0.99	1.00	
Frt		1.00			0.99		1.00	0.97		1.00	0.90	
Flt Protected		1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3473			3456		1894	1636		1879	1520	
Flt Permitted		1.00			1.00		0.73	1.00		0.70	1.00	
Satd. Flow (perm)		3473			3456		1462	1636		1390	1520	
Peak-hour factor, PHF	0.94	0.94	0.94	0.89	0.89	0.89	0.60	0.60	0.60	0.75	0.75	0.75
Adj. Flow (vph)	0	563	6	0	840	33	72	65	18	27	13	24
RTOR Reduction (vph)	0	1	0	0	3	0	0	12	0	0	20	0
Lane Group Flow (vph)	0	568	0	0	870	0	72	71	0	27	17	0
Confl. Peds. (#/hr)	6		8	8		6	3		12	12		3
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%
Parking (#/hr)		10			10			10			10	
Turn Type		NA			NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases							2			2		
Actuated Green, G (s)		54.9			54.9		14.0	14.0		14.0	14.0	
Effective Green, g (s)		54.9			54.9		14.0	14.0		14.0	14.0	
Actuated g/C Ratio		0.69			0.69		0.18	0.18		0.18	0.18	
Clearance Time (s)		5.1			5.1		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)		2383			2371		255	286		243	266	
v/s Ratio Prot		0.16			0.25			0.04			0.01	
v/s Ratio Perm							0.05			0.02		
v/c Ratio		0.24			0.37		0.28	0.25		0.11	0.06	
Uniform Delay, d1		4.7			5.3		28.6	28.5		27.8	27.5	
Progression Factor		0.44			0.44		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.2			0.4		2.8	2.1		0.9	0.5	
Delay (s)		2.3			2.7		31.4	30.5		28.7	28.0	
Level of Service		A			A		C	C		C	C	
Approach Delay (s)		2.3			2.7			30.9			28.3	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM 2000 Control Delay		6.2					HCM 2000 Level of Service			A		
HCM 2000 Volume to Capacity ratio		0.35										
Actuated Cycle Length (s)		80.0					Sum of lost time (s)			11.1		
Intersection Capacity Utilization		49.0%					ICU Level of Service			A		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2005: Washington St (PB) & Michigan Ave

Road Diet Capacity Analysis

Existing AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	528	12	0	696	14	40	88	22	14	5	9
Future Volume (vph)	0	528	12	0	696	14	40	88	22	14	5	9
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.0			5.0			6.0			6.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			1.00			0.99	
Flpb, ped/bikes		1.00			1.00			0.99			1.00	
Frt		1.00			1.00			0.98			0.96	
Flt Protected		1.00			1.00			0.99			0.98	
Satd. Flow (prot)		3501			3467			1628			1771	
Flt Permitted		1.00			1.00			0.90			0.73	
Satd. Flow (perm)		3501			3467			1483			1328	
Peak-hour factor, PHF	0.86	0.86	0.86	0.94	0.94	0.94	0.60	0.60	0.60	0.88	0.88	0.88
Adj. Flow (vph)	0	614	14	0	740	15	67	147	37	16	6	10
RTOR Reduction (vph)	0	2	0	0	2	0	0	7	0	0	8	0
Lane Group Flow (vph)	0	626	0	0	753	0	0	244	0	0	24	0
Confl. Peds. (#/hr)	10		3	3		10	22		9	9		22
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	0%	0%	0%	4%	4%	4%
Parking (#/hr)		10			10			10				
Turn Type		NA			NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases							2			2		
Actuated Green, G (s)		55.0			55.0			14.0			14.0	
Effective Green, g (s)		55.0			55.0			14.0			14.0	
Actuated g/C Ratio		0.69			0.69			0.18			0.18	
Clearance Time (s)		5.0			5.0			6.0			6.0	
Lane Grp Cap (vph)		2406			2383			259			232	
v/s Ratio Prot		0.18			0.22							
v/s Ratio Perm								0.16			0.02	
v/c Ratio		0.26			0.32			0.94			0.10	
Uniform Delay, d1		4.8			5.0			32.6			27.7	
Progression Factor		0.32			0.21			1.00			1.00	
Incremental Delay, d2		0.3			0.2			42.5			0.9	
Delay (s)		1.8			1.3			75.1			28.6	
Level of Service		A			A			E			C	
Approach Delay (s)		1.8			1.3			75.1			28.6	
Approach LOS		A			A			E			C	
Intersection Summary												
HCM 2000 Control Delay		13.1			HCM 2000 Level of Service			B				
HCM 2000 Volume to Capacity ratio		0.44										
Actuated Cycle Length (s)		80.0			Sum of lost time (s)			11.0				
Intersection Capacity Utilization		45.4%			ICU Level of Service			A				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3001: Huron St & Harriet St/Spring St

Road Diet Capacity Analysis

Existing AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	121	0	0	423	31	359	1425	342	0	0	0
Future Volume (vph)	15	121	0	0	423	31	359	1425	342	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	6.6	6.6			6.6			6.1	6.1			
Lane Util. Factor	1.00	0.95			0.95			0.91	1.00			
Frpb, ped/bikes	1.00	1.00			1.00			1.00	0.99			
Flpb, ped/bikes	1.00	1.00			1.00			1.00	1.00			
Frt	1.00	1.00			0.99			1.00	0.85			
Flt Protected	0.95	1.00			1.00			0.99	1.00			
Satd. Flow (prot)	1880	3762			3757			5406	1675			
Flt Permitted	0.38	1.00			1.00			0.99	1.00			
Satd. Flow (perm)	755	3762			3757			5406	1675			
Peak-hour factor, PHF	0.68	0.68	0.68	0.87	0.87	0.87	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	178	0	0	486	36	390	1549	372	0	0	0
RTOR Reduction (vph)	0	0	0	0	6	0	0	0	163	0	0	0
Lane Group Flow (vph)	22	178	0	0	516	0	0	1939	209	0	0	0
Confl. Peds. (#/hr)	1					1			4			
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA	Perm			
Protected Phases		4			8			2				
Permitted Phases	4						2		2			
Actuated Green, G (s)	22.4	22.4			22.4			44.9	44.9			
Effective Green, g (s)	22.4	22.4			22.4			44.9	44.9			
Actuated g/C Ratio	0.28	0.28			0.28			0.56	0.56			
Clearance Time (s)	6.6	6.6			6.6			6.1	6.1			
Lane Grp Cap (vph)	211	1053			1051			3034	940			
v/s Ratio Prot		0.05			0.14							
v/s Ratio Perm	0.03							0.36	0.12			
v/c Ratio	0.10	0.17			0.49			0.64	0.22			
Uniform Delay, d1	21.4	21.8			24.0			12.0	8.8			
Progression Factor	1.02	1.01			1.00			1.00	1.00			
Incremental Delay, d2	1.0	0.3			1.6			1.0	0.5			
Delay (s)	22.8	22.3			25.7			13.1	9.3			
Level of Service	C	C			C			B	A			
Approach Delay (s)		22.3			25.7			12.5			0.0	
Approach LOS		C			C			B			A	
Intersection Summary												
HCM 2000 Control Delay		15.4			HCM 2000 Level of Service			B				
HCM 2000 Volume to Capacity ratio		0.59										
Actuated Cycle Length (s)		80.0			Sum of lost time (s)			12.7				
Intersection Capacity Utilization		61.5%			ICU Level of Service			B				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3003: Hamilton St & Harriet St

Road Diet Capacity Analysis

Existing AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	102	99	235	480	0	0	0	0	42	507	44
Future Volume (vph)	0	102	99	235	480	0	0	0	0	42	507	44
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.8		5.8	5.8					5.6	5.6	
Lane Util. Factor		0.95		1.00	0.95					1.00	0.91	
Frpb, ped/bikes		0.99		1.00	1.00					1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00					1.00	1.00	
Frt		0.93		1.00	1.00					1.00	0.99	
Flt Protected		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (prot)		3495		1898	3800					1881	5342	
Flt Permitted		1.00		0.58	1.00					0.95	1.00	
Satd. Flow (perm)		3495		1168	3800					1881	5342	
Peak-hour factor, PHF	0.74	0.74	0.74	0.95	0.95	0.95	0.93	0.92	0.92	0.93	0.93	0.93
Adj. Flow (vph)	0	138	134	247	505	0	0	0	0	45	545	47
RTOR Reduction (vph)	0	97	0	0	0	0	0	0	0	0	13	0
Lane Group Flow (vph)	0	175	0	247	505	0	0	0	0	45	579	0
Confl. Peds. (#/hr)			2	2								
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	1%
Turn Type		NA		D.P+P	NA					Perm	NA	
Protected Phases		4		3	8 3						2	
Permitted Phases				4						2		
Actuated Green, G (s)		22.2		36.4	42.2					26.4	26.4	
Effective Green, g (s)		22.2		36.4	42.2					26.4	26.4	
Actuated g/C Ratio		0.28		0.45	0.53					0.33	0.33	
Clearance Time (s)		5.8		5.8						5.6	5.6	
Vehicle Extension (s)		4.0		4.0						0.2	0.2	
Lane Grp Cap (vph)		969		661	2004					620	1762	
v/s Ratio Prot		0.05		c0.07	0.13						c0.11	
v/s Ratio Perm				c0.10						0.02		
v/c Ratio		0.18		0.37	0.25					0.07	0.33	
Uniform Delay, d1		22.0		15.1	10.3					18.4	20.1	
Progression Factor		1.00		0.82	0.76					0.71	0.74	
Incremental Delay, d2		0.4		0.4	0.1					0.2	0.5	
Delay (s)		22.4		12.8	7.9					13.3	15.5	
Level of Service		C		B	A					B	B	
Approach Delay (s)		22.4			9.5			0.0			15.3	
Approach LOS		C			A			A			B	
Intersection Summary												
HCM 2000 Control Delay			13.8			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.35									
Actuated Cycle Length (s)			80.0			Sum of lost time (s)				17.2		
Intersection Capacity Utilization			54.4%			ICU Level of Service				A		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3004: Huron St & Catherine St (PB)

Road Diet Capacity Analysis

Existing AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								  				
Traffic Volume (vph)	8	9	0	0	26	42	80	1321	17	0	0	0
Future Volume (vph)	8	9	0	0	26	42	80	1321	17	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.3			5.3			5.3				
Lane Util. Factor		1.00			1.00			0.91				
Frpb, ped/bikes		1.00			0.99			1.00				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.92			1.00				
Flt Protected		0.98			1.00			1.00				
Satd. Flow (prot)		1954			1818			5379				
Flt Permitted		0.81			1.00			1.00				
Satd. Flow (perm)		1619			1818			5379				
Peak-hour factor, PHF	0.71	0.71	0.71	0.77	0.77	0.77	0.94	0.94	0.94	0.92	0.92	0.92
Adj. Flow (vph)	11	13	0	0	34	55	85	1405	18	0	0	0
RTOR Reduction (vph)	0	0	0	0	50	0	0	1	0	0	0	0
Lane Group Flow (vph)	0	24	0	0	39	0	0	1507	0	0	0	0
Confl. Peds. (#/hr)	1					1	1		2			
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		2			2			1				
Permitted Phases	2						1					
Actuated Green, G (s)		6.6			6.6			62.8				
Effective Green, g (s)		6.6			6.6			62.8				
Actuated g/C Ratio		0.08			0.08			0.78				
Clearance Time (s)		5.3			5.3			5.3				
Vehicle Extension (s)		3.0			3.0			0.2				
Lane Grp Cap (vph)		133			149			4222				
v/s Ratio Prot					c0.02							
v/s Ratio Perm		0.01						0.28				
v/c Ratio		0.18			0.26			0.36				
Uniform Delay, d1		34.2			34.4			2.6				
Progression Factor		1.00			1.00			1.26				
Incremental Delay, d2		0.7			0.9			0.2				
Delay (s)		34.8			35.3			3.4				
Level of Service		C			D			A				
Approach Delay (s)		34.8			35.3			3.4			0.0	
Approach LOS		C			D			A			A	
Intersection Summary												
HCM 2000 Control Delay		5.6			HCM 2000 Level of Service				A			
HCM 2000 Volume to Capacity ratio		0.35										
Actuated Cycle Length (s)		80.0			Sum of lost time (s)				10.6			
Intersection Capacity Utilization		42.2%			ICU Level of Service				A			
Analysis Period (min)		15										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 9000: Hamilton St & Washtenaw Ave

Road Diet Capacity Analysis Existing AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	0	106	470	0	0	0	0	0	0	26	243	0
Future Volume (vph)	0	106	470	0	0	0	0	0	0	26	243	0
Peak Hour Factor	0.89	0.89	0.89	0.92	0.92	0.92	0.92	0.92	0.92	0.91	0.91	0.91
Hourly flow rate (vph)	0	119	528	0	0	0	0	0	0	29	267	0
Direction, Lane #	EB 1	EB 2	EB 3	SB 1	SB 2							
Volume Total (vph)	60	60	528	118	178							
Volume Left (vph)	0	0	0	29	0							
Volume Right (vph)	0	0	528	0	0							
Hadj (s)	0.00	0.00	-0.70	0.14	0.02							
Departure Headway (s)	5.2	5.2	3.2	5.0	4.8							
Degree Utilization, x	0.09	0.09	0.47	0.16	0.24							
Capacity (veh/h)	652	656	1116	707	726							
Control Delay (s)	7.5	7.5	7.8	7.7	8.1							
Approach Delay (s)	7.7			8.0								
Approach LOS	A			A								
Intersection Summary												
Delay			7.8									
Level of Service			A									
Intersection Capacity Utilization			41.6%	ICU Level of Service	A							
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

9001: Hamilton St & Pearl St

Road Diet Capacity Analysis

Existing AM Peak Hour

																		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR						
Lane Configurations											  							
Traffic Volume (veh/h)	0	0	21	18	12	0	0	0	0	0	710	6						
Future Volume (Veh/h)	0	0	21	18	12	0	0	0	0	0	710	6						
Sign Control	Stop				Stop				Free		Free							
Grade	0%				0%				0%		0%							
Peak Hour Factor	0.66	0.66	0.66	0.83	0.83	0.83	0.92	0.92	0.92	0.92	0.92	0.92						
Hourly flow rate (vph)	0	0	32	22	14	0	0	0	0	0	772	7						
Pedestrians	1																	
Lane Width (ft)	12.0																	
Walking Speed (ft/s)	4.0																	
Percent Blockage	0																	
Right turn flare (veh)																		
Median type							None			None								
Median storage (veh)																		
Upstream signal (ft)	435																	
pX, platoon unblocked																		
vC, conflicting volume	784	776	262	289	780	0	780				0							
vC1, stage 1 conf vol																		
vC2, stage 2 conf vol																		
vCu, unblocked vol	784	776	262	289	780	0	780				0							
tC, single (s)	7.6	6.6	7.0	7.5	6.5	6.9	4.1				4.1							
tC, 2 stage (s)																		
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				2.2							
p0 queue free %	100	100	96	96	96	100	100				100							
cM capacity (veh/h)	269	321	727	617	329	1091	846				1629							
Direction, Lane #	EB 1	WB 1	WB 2	SB 1	SB 2	SB 3												
Volume Total	32	15	21	309	309	161												
Volume Left	0	15	7	0	0	0												
Volume Right	32	0	0	0	0	7												
cSH	727	617	392	1700	1700	1700												
Volume to Capacity	0.04	0.02	0.05	0.18	0.18	0.09												
Queue Length 95th (ft)	3	2	4	0	0	0												
Control Delay (s)	10.2	11.0	14.7	0.0	0.0	0.0												
Lane LOS	B	B	B															
Approach Delay (s)	10.2	13.2	0.0															
Approach LOS	B	B																
Intersection Summary																		
Average Delay	0.9																	
Intersection Capacity Utilization	29.8%			ICU Level of Service					A									
Analysis Period (min)	15																	

HCM Unsignalized Intersection Capacity Analysis

9002: Hamilton St/Hamilton St (PB) & Ferris St

Road Diet Capacity Analysis

Existing AM Peak Hour

																											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR															
Lane Configurations																											
Traffic Volume (veh/h)	0	14	26	20	13	0	0	0	0	55	546	9															
Future Volume (Veh/h)	0	14	26	20	13	0	0	0	0	55	546	9															
Sign Control		Stop			Stop			Free			Free																
Grade		0%			0%			0%			0%																
Peak Hour Factor	0.77	0.77	0.77	0.69	0.69	0.69	0.92	0.92	0.92	0.95	0.95	0.95															
Hourly flow rate (vph)	0	18	34	29	19	0	0	0	0	58	575	9															
Pedestrians		1			4			1																			
Lane Width (ft)		12.0			12.0			0.0																			
Walking Speed (ft/s)		4.0			4.0			4.0																			
Percent Blockage		0			0			0																			
Right turn flare (veh)																											
Median type								None			None																
Median storage (veh)																											
Upstream signal (ft)											450																
pX, platoon unblocked	0.98	0.98	0.98	0.98	0.98		0.98																				
vC, conflicting volume	706	700	198	356	705	4	585			4																	
vC1, stage 1 conf vol																											
vC2, stage 2 conf vol																											
vCu, unblocked vol	609	603	88	249	608	4	485			4																	
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1																	
tC, 2 stage (s)																											
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2																	
p0 queue free %	100	95	96	95	95	100	100			96																	
cM capacity (veh/h)	349	389	935	603	387	1081	1061			1618																	
Direction, Lane #	EB 1	WB 1	SB 1	SB 2	SB 3	SB 4																					
Volume Total	52	48	58	230	230	124																					
Volume Left	0	29	58	0	0	0																					
Volume Right	34	0	0	0	0	9																					
cSH	629	494	1618	1700	1700	1700																					
Volume to Capacity	0.08	0.10	0.04	0.14	0.14	0.07																					
Queue Length 95th (ft)	7	8	3	0	0	0																					
Control Delay (s)	11.2	13.1	7.3	0.0	0.0	0.0																					
Lane LOS	B	B	A																								
Approach Delay (s)	11.2	13.1	0.7																								
Approach LOS	B	B																									
Intersection Summary																											
Average Delay			2.2																								
Intersection Capacity Utilization			25.4%	ICU Level of Service					A																		
Analysis Period (min)			15																								

HCM Unsignalized Intersection Capacity Analysis 9003: Huron St/Huron St (PB) & Ferris St

Road Diet Capacity Analysis
Existing AM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	18	0	52	1245	0	0
Future Volume (Veh/h)	18	0	52	1245	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.75	0.75	0.94	0.94	0.92	0.92
Hourly flow rate (vph)	24	0	55	1324	0	0
Pedestrians	3					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				857	448	
pX, platoon unblocked	0.95					
vC, conflicting volume	554	3	3			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	353	3	3			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	100	97			
cM capacity (veh/h)	572	1083	1628			
Direction, Lane #	EB 1	NB 1	NB 2	NB 3		
Volume Total	24	320	530	530		
Volume Left	24	55	0	0		
Volume Right	0	0	0	0		
cSH	572	1628	1700	1700		
Volume to Capacity	0.04	0.03	0.31	0.31		
Queue Length 95th (ft)	3	3	0	0		
Control Delay (s)	11.6	1.5	0.0	0.0		
Lane LOS	B	A				
Approach Delay (s)	11.6	0.3				
Approach LOS	B					
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization			33.9%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis 9004: Huron St (PB)/Huron St & Pearl St

Road Diet Capacity Analysis
Existing AM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				 		
Traffic Volume (veh/h)	0	0	88	1638	0	0
Future Volume (Veh/h)	0	0	88	1638	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.95	0.95	0.92	0.92
Hourly flow rate (vph)	0	0	93	1724	0	0
Pedestrians	2					
Lane Width (ft)	0.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				430		
pX, platoon unblocked	0.68					
vC, conflicting volume	1050	2	2			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	146	2	2			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	94			
cM capacity (veh/h)	540	1088	1634			
Direction, Lane #	NB 1	NB 2				
Volume Total	668	1149				
Volume Left	93	0				
Volume Right	0	0				
cSH	1634	1700				
Volume to Capacity	0.06	0.68				
Queue Length 95th (ft)	5	0				
Control Delay (s)	1.6	0.0				
Lane LOS	A					
Approach Delay (s)	0.6					
Approach LOS						
Intersection Summary						
Average Delay		0.6				
Intersection Capacity Utilization		48.8%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Signalized Intersection Capacity Analysis

1002: Summit & Washtenaw Ave

Road Diet Capacity Analysis

Existing OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	935	38	0	0	0	0	66	20	32	18	0
Future Volume (vph)	12	935	38	0	0	0	0	66	20	32	18	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.4						10.8			10.8	
Lane Util. Factor		0.91						1.00			1.00	
Frpb, ped/bikes		1.00						0.98			1.00	
Flpb, ped/bikes		1.00						1.00			0.97	
Frt		0.99						0.97			1.00	
Flt Protected		1.00						1.00			0.97	
Satd. Flow (prot)		5418						1617			1871	
Flt Permitted		1.00						1.00			0.72	
Satd. Flow (perm)		5418						1617			1396	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.61	0.61	0.61	0.74	0.74	0.74
Adj. Flow (vph)	13	1016	41	0	0	0	0	108	33	43	24	0
RTOR Reduction (vph)	0	5	0	0	0	0	0	14	0	0	0	0
Lane Group Flow (vph)	0	1065	0	0	0	0	0	127	0	0	67	0
Confl. Peds. (#/hr)			8						45	45		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)								10				
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		1						2			2	
Permitted Phases	1									2		
Actuated Green, G (s)		46.6						17.2			17.2	
Effective Green, g (s)		46.6						17.2			17.2	
Actuated g/C Ratio		0.58						0.21			0.21	
Clearance Time (s)		5.4						10.8			10.8	
Lane Grp Cap (vph)		3155						347			300	
v/s Ratio Prot								c0.08				
v/s Ratio Perm		0.20									0.05	
v/c Ratio		0.34						0.37			0.22	
Uniform Delay, d1		8.7						26.8			25.9	
Progression Factor		1.00						1.00			1.35	
Incremental Delay, d2		0.3						3.0			1.7	
Delay (s)		9.0						29.7			36.5	
Level of Service		A						C			D	
Approach Delay (s)		9.0			0.0			29.7			36.5	
Approach LOS		A			A			C			D	
Intersection Summary												
HCM 2000 Control Delay		12.7						HCM 2000 Level of Service		B		
HCM 2000 Volume to Capacity ratio		0.34										
Actuated Cycle Length (s)		80.0						Sum of lost time (s)		16.2		
Intersection Capacity Utilization		45.6%						ICU Level of Service		A		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1004: Ballard St (PB) & Washtenaw Ave

Road Diet Capacity Analysis

Existing OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  						 		 		
Traffic Volume (vph)	19	737	22	0	0	0	0	85	15	15	25	0
Future Volume (vph)	19	737	22	0	0	0	0	85	15	15	25	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.3						5.7		5.7	5.7	
Lane Util. Factor		0.91						1.00		1.00	1.00	
Frpb, ped/bikes		1.00						1.00		1.00	1.00	
Flpb, ped/bikes		1.00						1.00		0.99	1.00	
Frt		1.00						0.98		1.00	1.00	
Flt Protected		1.00						1.00		0.95	1.00	
Satd. Flow (prot)		5425						1954		1890	2000	
Flt Permitted		1.00						1.00		0.67	1.00	
Satd. Flow (perm)		5425						1954		1338	2000	
Peak-hour factor, PHF	0.88	0.88	0.88	0.25	0.25	0.25	0.76	0.76	0.76	0.67	0.67	0.67
Adj. Flow (vph)	22	838	25	0	0	0	0	112	20	22	37	0
RTOR Reduction (vph)	0	3	0	0	0	0	0	9	0	0	0	0
Lane Group Flow (vph)	0	882	0	0	0	0	0	123	0	22	37	0
Confl. Peds. (#/hr)	11		7						8	8		
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	custom	NA						NA		Perm	NA	
Protected Phases	1	1						2			2	
Permitted Phases	1									2		
Actuated Green, G (s)		58.6						10.4		10.4	10.4	
Effective Green, g (s)		58.6						10.4		10.4	10.4	
Actuated g/C Ratio		0.73						0.13		0.13	0.13	
Clearance Time (s)		5.3						5.7		5.7	5.7	
Vehicle Extension (s)		0.2						3.0		3.0	3.0	
Lane Grp Cap (vph)		3973						254		173	260	
v/s Ratio Prot		c0.16						c0.06			0.02	
v/s Ratio Perm										0.02		
v/c Ratio		0.22						0.49		0.13	0.14	
Uniform Delay, d1		3.4						32.3		30.8	30.8	
Progression Factor		0.19						1.00		1.00	1.00	
Incremental Delay, d2		0.1						1.5		0.3	0.3	
Delay (s)		0.8						33.8		31.1	31.1	
Level of Service		A						C		C	C	
Approach Delay (s)		0.8			0.0			33.8			31.1	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM 2000 Control Delay		6.5						HCM 2000 Level of Service		A		
HCM 2000 Volume to Capacity ratio		0.26										
Actuated Cycle Length (s)		80.0						Sum of lost time (s)		11.0		
Intersection Capacity Utilization		36.0%						ICU Level of Service		A		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1013: Hamilton St (PB) & Michigan Ave

Road Diet Capacity Analysis

Existing OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↖	↑↑					↖	↑↑↑	
Traffic Volume (vph)	0	379	102	182	447	0	0	0	0	360	737	40
Future Volume (vph)	0	379	102	182	447	0	0	0	0	360	737	40
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.2		5.2	5.2					6.8	6.8	
Lane Util. Factor		0.95		1.00	0.95					0.86	0.86	
Frpb, ped/bikes		0.99		1.00	1.00					1.00	1.00	
Flpb, ped/bikes		1.00		0.99	1.00					1.00	1.00	
Frt		0.97		1.00	1.00					1.00	0.99	
Flt Protected		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (prot)		3647		1871	3480					1618	5043	
Flt Permitted		1.00		0.41	1.00					0.95	1.00	
Satd. Flow (perm)		3647		800	3480					1618	5043	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.25	0.25	0.25	0.93	0.93	0.93
Adj. Flow (vph)	0	399	107	192	471	0	0	0	0	387	792	43
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	6	0
Lane Group Flow (vph)	0	506	0	192	471	0	0	0	0	298	918	0
Confl. Peds. (#/hr)			27	27						24		13
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Parking (#/hr)					10							
Turn Type		NA		pm+pt	NA					custom	NA	
Protected Phases		1		2	1 2					3	3	
Permitted Phases				1 2						3		
Actuated Green, G (s)		28.8		37.6	42.8					25.2	25.2	
Effective Green, g (s)		28.8		37.6	42.8					25.2	25.2	
Actuated g/C Ratio		0.36		0.47	0.53					0.31	0.31	
Clearance Time (s)		5.2		5.2						6.8	6.8	
Lane Grp Cap (vph)		1312		493	1861					509	1588	
v/s Ratio Prot		0.14		c0.04	0.14					c0.18	0.18	
v/s Ratio Perm				c0.14								
v/c Ratio		0.39		0.39	0.25					0.59	0.58	
Uniform Delay, d1		19.0		16.8	10.0					23.0	22.9	
Progression Factor		0.94		0.62	0.43					1.00	1.00	
Incremental Delay, d2		0.8		2.2	0.3					4.9	1.5	
Delay (s)		18.8		12.7	4.6					27.9	24.5	
Level of Service		B		B	A					C	C	
Approach Delay (s)		18.8			7.0			0.0			25.3	
Approach LOS		B			A			A			C	
Intersection Summary												
HCM 2000 Control Delay			18.8		HCM 2000 Level of Service					B		
HCM 2000 Volume to Capacity ratio			0.47									
Actuated Cycle Length (s)			80.0		Sum of lost time (s)					17.2		
Intersection Capacity Utilization			58.9%		ICU Level of Service					B		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1016: Huron St (PB) & Cross St (PB)/Cross St

Road Diet Capacity Analysis

Existing OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	205	12	0	347	210	0	0	0
Future Volume (vph)	0	0	0	0	205	12	0	347	210	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)					5.5	5.5		5.6	5.6			
Lane Util. Factor					1.00	1.00		0.95	1.00			
Frpb, ped/bikes					1.00	1.00		1.00	1.00			
Flpb, ped/bikes					1.00	1.00		1.00	1.00			
Frt					1.00	0.85		1.00	0.85			
Flt Protected					1.00	1.00		1.00	1.00			
Satd. Flow (prot)					2000	1700		3762	1683			
Flt Permitted					1.00	1.00		1.00	1.00			
Satd. Flow (perm)					2000	1700		3762	1683			
Peak-hour factor, PHF	0.92	0.92	0.92	0.84	0.84	0.84	0.95	0.95	0.95	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	244	14	0	365	221	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	8	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	244	6	0	365	221	0	0	0
Confl. Peds. (#/hr)						9			1			
Confl. Bikes (#/hr)						4						
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	0%	0%	0%
Turn Type					NA	custom		NA	custom			
Protected Phases					2	2		8	8			
Permitted Phases						2			8			
Actuated Green, G (s)					35.5	35.5		33.4	33.4			
Effective Green, g (s)					35.5	35.5		33.4	33.4			
Actuated g/C Ratio					0.44	0.44		0.42	0.42			
Clearance Time (s)					5.5	5.5		5.6	5.6			
Lane Grp Cap (vph)					887	754		1570	702			
v/s Ratio Prot					c0.12	0.00		0.10	c0.13			
v/s Ratio Perm												
v/c Ratio					0.28	0.01		0.23	0.31			
Uniform Delay, d1					14.1	12.4		15.0	15.6			
Progression Factor					1.00	1.00		0.63	0.65			
Incremental Delay, d2					0.8	0.0		0.3	1.0			
Delay (s)					14.9	12.4		9.7	11.2			
Level of Service					B	B		A	B			
Approach Delay (s)		0.0			14.7			10.3			0.0	
Approach LOS		A			B			B			A	
Intersection Summary												
HCM 2000 Control Delay			11.6		HCM 2000 Level of Service						B	
HCM 2000 Volume to Capacity ratio			0.29									
Actuated Cycle Length (s)			80.0		Sum of lost time (s)						11.1	
Intersection Capacity Utilization			56.3%		ICU Level of Service						B	
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1023: Huron St (PB) & Michigan Ave

Road Diet Capacity Analysis

Existing OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	113	682	0	0	506	319	95	607	148	0	0	0
Future Volume (vph)	113	682	0	0	506	319	95	607	148	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	5.0	5.0			5.0	5.0	5.6	5.6				
Lane Util. Factor	1.00	0.95			0.91	0.91	1.00	0.95				
Frpb, ped/bikes	1.00	1.00			0.99	0.94	1.00	1.00				
Flpb, ped/bikes	0.99	1.00			1.00	1.00	0.99	1.00				
Frt	1.00	1.00			0.98	0.85	1.00	0.97				
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00				
Satd. Flow (prot)	1890	3515			3247	1219	1857	3638				
Flt Permitted	0.31	1.00			1.00	1.00	0.95	1.00				
Satd. Flow (perm)	624	3515			3247	1219	1857	3638				
Peak-hour factor, PHF	0.93	0.93	0.93	0.94	0.94	0.94	0.86	0.86	0.86	0.92	0.92	0.92
Adj. Flow (vph)	122	733	0	0	538	339	110	706	172	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	122	733	0	0	613	264	110	878	0	0	0	0
Confl. Peds. (#/hr)	44					44	14		7			
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	1%	0%	0%	0%
Parking (#/hr)		10			10	10						
Turn Type	pm+pt	NA			NA	Perm	Perm	NA				
Protected Phases	2	1 2			1			3				
Permitted Phases	1 2					1	3					
Actuated Green, G (s)	38.0	43.0			29.0	29.0	26.4	26.4				
Effective Green, g (s)	38.0	43.0			29.0	29.0	26.4	26.4				
Actuated g/C Ratio	0.48	0.54			0.36	0.36	0.33	0.33				
Clearance Time (s)	5.0				5.0	5.0	5.6	5.6				
Lane Grp Cap (vph)	438	1889			1177	441	612	1200				
v/s Ratio Prot	0.03	c0.21			0.19			c0.24				
v/s Ratio Perm	0.10					c0.22	0.06					
v/c Ratio	0.28	0.39			0.52	0.60	0.18	0.73				
Uniform Delay, d1	17.5	10.8			20.0	20.8	19.1	23.7				
Progression Factor	1.33	1.33			1.00	1.00	1.10	1.18				
Incremental Delay, d2	1.5	0.6			1.6	5.9	0.6	3.9				
Delay (s)	24.8	15.0			21.7	26.7	21.7	31.9				
Level of Service	C	B			C	C	C	C				
Approach Delay (s)		16.4			23.2			30.8			0.0	
Approach LOS		B			C			C			A	
Intersection Summary												
HCM 2000 Control Delay			23.8									
HCM 2000 Volume to Capacity ratio			0.64									
Actuated Cycle Length (s)			80.0									
Intersection Capacity Utilization			57.8%									
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2000: Michigan Ave & Congress St & Ballard St

Road Diet Capacity Analysis

Existing OP Peak Hour

											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	SBR2	NEL	NER
Lane Configurations											
Traffic Volume (vph)	9	89	4	364	105	27	16	19	10	0	381
Future Volume (vph)	9	89	4	364	105	27	16	19	10	0	381
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.9		6.1	6.1		6.3	6.3			6.1
Lane Util. Factor		1.00		0.95	0.95		1.00	1.00			0.88
Frpb, ped/bikes		1.00		1.00	0.99		1.00	1.00			1.00
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00			1.00
Frt		0.99		1.00	0.98		1.00	0.85			0.85
Flt Protected		1.00		0.95	0.98		0.95	1.00			1.00
Satd. Flow (prot)		1978		1805	1533		1900	1700			2962
Flt Permitted		1.00		0.95	0.98		0.95	1.00			1.00
Satd. Flow (perm)		1978		1805	1533		1900	1700			2962
Peak-hour factor, PHF	0.80	0.80	0.80	0.95	0.95	0.95	0.66	0.66	0.66	0.89	0.89
Adj. Flow (vph)	11	111	5	383	111	28	24	29	15	0	428
RTOR Reduction (vph)	0	2	0	0	5	0	0	33	0	0	312
Lane Group Flow (vph)	0	126	0	260	257	0	24	11	0	0	116
Confl. Peds. (#/hr)	32		11	11		32	1		9		1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%
Parking (#/hr)					10						
Turn Type	Split	NA		Split	NA		Prot	Prot			Over
Protected Phases	3	3		1	1		2	2			1
Permitted Phases											
Actuated Green, G (s)		20.0		21.7	21.7		20.0	20.0			21.7
Effective Green, g (s)		20.0		21.7	21.7		20.0	20.0			21.7
Actuated g/C Ratio		0.25		0.27	0.27		0.25	0.25			0.27
Clearance Time (s)		5.9		6.1	6.1		6.3	6.3			6.1
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0			3.0
Lane Grp Cap (vph)		494		489	415		475	425			803
v/s Ratio Prot		c0.06		0.14	c0.17		c0.01	0.01			0.04
v/s Ratio Perm											
v/c Ratio		0.25		0.53	0.62		0.05	0.03			0.14
Uniform Delay, d1		24.0		24.8	25.5		22.8	22.6			22.1
Progression Factor		1.00		0.37	0.37		1.00	1.00			1.00
Incremental Delay, d2		0.3		4.0	6.6		0.0	0.0			0.4
Delay (s)		24.3		13.2	16.0		22.8	22.7			22.5
Level of Service		C		B	B		C	C			C
Approach Delay (s)		24.3			14.6		22.7			22.5	
Approach LOS		C			B		C			C	
Intersection Summary											
HCM 2000 Control Delay			19.1			HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio			0.32								
Actuated Cycle Length (s)			80.0			Sum of lost time (s)			18.3		
Intersection Capacity Utilization			63.5%			ICU Level of Service			B		
Analysis Period (min)			15								
c Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

2004: Adams St (PB) & Michigan Ave

Road Diet Capacity Analysis

Existing OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	687	11	14	546	39	37	36	45	32	20	34
Future Volume (vph)	19	687	11	14	546	39	37	36	45	32	20	34
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.1			5.1		6.0	6.0		6.0	6.0	
Lane Util. Factor		0.95			0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			1.00		1.00	0.97		1.00	0.97	
Flpb, ped/bikes		1.00			1.00		0.98	1.00		0.96	1.00	
Frt		1.00			0.99		1.00	0.92		1.00	0.90	
Flt Protected		1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3462			3462		1853	1513		1797	1470	
Flt Permitted		0.93			0.93		0.72	1.00		0.69	1.00	
Satd. Flow (perm)		3229			3232		1396	1513		1303	1470	
Peak-hour factor, PHF	0.93	0.93	0.93	0.89	0.89	0.89	0.76	0.76	0.76	0.86	0.86	0.86
Adj. Flow (vph)	20	739	12	16	613	44	49	47	59	37	23	40
RTOR Reduction (vph)	0	1	0	0	6	0	0	49	0	0	33	0
Lane Group Flow (vph)	0	770	0	0	667	0	49	57	0	37	30	0
Confl. Peds. (#/hr)	18		24	24		18	26		39	39		26
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	0%	0%	0%	2%	2%	2%
Parking (#/hr)		10			10			10			10	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)		54.9			54.9		14.0	14.0		14.0	14.0	
Effective Green, g (s)		54.9			54.9		14.0	14.0		14.0	14.0	
Actuated g/C Ratio		0.69			0.69		0.18	0.18		0.18	0.18	
Clearance Time (s)		5.1			5.1		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)		2215			2217		244	264		228	257	
v/s Ratio Prot								c0.04			0.02	
v/s Ratio Perm		c0.24			0.21		0.04			0.03		
v/c Ratio		0.35			0.30		0.20	0.22		0.16	0.12	
Uniform Delay, d1		5.2			5.0		28.2	28.3		28.0	27.8	
Progression Factor		0.72			2.42		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.4			0.3		1.8	1.9		1.5	0.9	
Delay (s)		4.1			12.3		30.1	30.2		29.5	28.7	
Level of Service		A			B		C	C		C	C	
Approach Delay (s)		4.1			12.3			30.1			29.0	
Approach LOS		A			B			C			C	
Intersection Summary												
HCM 2000 Control Delay			11.2			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.32									
Actuated Cycle Length (s)			80.0			Sum of lost time (s)				11.1		
Intersection Capacity Utilization			59.8%			ICU Level of Service				B		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2005: Washington St (PB) & Michigan Ave

Road Diet Capacity Analysis

Existing OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	749	35	24	559	19	18	30	30	39	31	29
Future Volume (vph)	12	749	35	24	559	19	18	30	30	39	31	29
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.0			5.0			6.0			6.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			0.98			0.98	
Flpb, ped/bikes		1.00			1.00			0.99			0.98	
Frt		0.99			1.00			0.95			0.96	
Flt Protected		1.00			1.00			0.99			0.98	
Satd. Flow (prot)		3476			3445			1541			1818	
Flt Permitted		0.94			0.90			0.91			0.86	
Satd. Flow (perm)		3285			3110			1412			1595	
Peak-hour factor, PHF	0.89	0.89	0.89	0.94	0.94	0.94	0.81	0.81	0.81	0.92	0.92	0.92
Adj. Flow (vph)	13	842	39	26	595	20	22	37	37	42	34	32
RTOR Reduction (vph)	0	4	0	0	3	0	0	28	0	0	19	0
Lane Group Flow (vph)	0	890	0	0	638	0	0	68	0	0	89	0
Confl. Peds. (#/hr)	32		30	30		32	46		43	43		46
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	0%	0%	0%	0%	0%	0%
Parking (#/hr)		10			10			10				
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)		55.0			55.0			14.0			14.0	
Effective Green, g (s)		55.0			55.0			14.0			14.0	
Actuated g/C Ratio		0.69			0.69			0.18			0.18	
Clearance Time (s)		5.0			5.0			6.0			6.0	
Lane Grp Cap (vph)		2258			2138			247			279	
v/s Ratio Prot												
v/s Ratio Perm		c0.27			0.21			0.05			c0.06	
v/c Ratio		0.39			0.30			0.28			0.32	
Uniform Delay, d1		5.4			4.9			28.6			28.8	
Progression Factor		0.25			1.07			1.00			1.00	
Incremental Delay, d2		0.5			0.3			2.7			3.0	
Delay (s)		1.9			5.6			31.3			31.8	
Level of Service		A			A			C			C	
Approach Delay (s)		1.9			5.6			31.3			31.8	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM 2000 Control Delay		6.7			HCM 2000 Level of Service			A				
HCM 2000 Volume to Capacity ratio		0.38										
Actuated Cycle Length (s)		80.0			Sum of lost time (s)			11.0				
Intersection Capacity Utilization		58.8%			ICU Level of Service			B				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3001: Huron St & Harriet St/Spring St

Road Diet Capacity Analysis

Existing OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			  				
Traffic Volume (vph)	39	170	0	0	290	26	168	801	223	0	0	0
Future Volume (vph)	39	170	0	0	290	26	168	801	223	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	6.6	6.6			6.6			6.1	6.1			
Lane Util. Factor	1.00	0.95			0.95			0.91	1.00			
Frpb, ped/bikes	1.00	1.00			1.00			1.00	0.99			
Flpb, ped/bikes	1.00	1.00			1.00			1.00	1.00			
Frt	1.00	1.00			0.99			1.00	0.85			
Flt Protected	0.95	1.00			1.00			0.99	1.00			
Satd. Flow (prot)	1893	3800			3748			5412	1678			
Flt Permitted	0.55	1.00			1.00			0.99	1.00			
Satd. Flow (perm)	1099	3800			3748			5412	1678			
Peak-hour factor, PHF	0.90	0.90	0.90	0.95	0.95	0.95	0.95	0.95	0.95	0.92	0.92	0.92
Adj. Flow (vph)	43	189	0	0	305	27	177	843	235	0	0	0
RTOR Reduction (vph)	0	0	0	0	8	0	0	0	112	0	0	0
Lane Group Flow (vph)	43	189	0	0	324	0	0	1020	123	0	0	0
Confl. Peds. (#/hr)	5					5	2		1			
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA	Perm			
Protected Phases		4			8			2				
Permitted Phases	4						2		2			
Actuated Green, G (s)	25.4	25.4			25.4			41.9	41.9			
Effective Green, g (s)	25.4	25.4			25.4			41.9	41.9			
Actuated g/C Ratio	0.32	0.32			0.32			0.52	0.52			
Clearance Time (s)	6.6	6.6			6.6			6.1	6.1			
Lane Grp Cap (vph)	348	1206			1189			2834	878			
v/s Ratio Prot		0.05			0.09							
v/s Ratio Perm	0.04							0.19	0.07			
v/c Ratio	0.12	0.16			0.27			0.36	0.14			
Uniform Delay, d1	19.4	19.6			20.4			11.2	9.8			
Progression Factor	0.99	0.96			1.00			1.00	1.00			
Incremental Delay, d2	0.7	0.3			0.6			0.4	0.3			
Delay (s)	19.9	19.2			21.0			11.5	10.1			
Level of Service	B	B			C			B	B			
Approach Delay (s)		19.3			21.0			11.3			0.0	
Approach LOS		B			C			B			A	
Intersection Summary												
HCM 2000 Control Delay		14.1			HCM 2000 Level of Service			B				
HCM 2000 Volume to Capacity ratio		0.33										
Actuated Cycle Length (s)		80.0			Sum of lost time (s)			12.7				
Intersection Capacity Utilization		66.4%			ICU Level of Service			C				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3003: Hamilton St & Harriet St

Road Diet Capacity Analysis

Existing OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑↑					↑	↑↑↑	
Traffic Volume (vph)	0	136	109	256	197	0	0	0	0	76	834	40
Future Volume (vph)	0	136	109	256	197	0	0	0	0	76	834	40
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.8		5.8	5.8					5.6	5.6	
Lane Util. Factor		0.95		1.00	0.95					1.00	0.91	
Frpb, ped/bikes		0.99		1.00	1.00					1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00					1.00	1.00	
Frt		0.93		1.00	1.00					1.00	0.99	
Flt Protected		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (prot)		3519		1896	3800					1881	5362	
Flt Permitted		1.00		0.58	1.00					0.95	1.00	
Satd. Flow (perm)		3519		1158	3800					1881	5362	
Peak-hour factor, PHF	0.88	0.88	0.88	0.87	0.87	0.87	0.92	0.92	0.92	0.87	0.87	0.87
Adj. Flow (vph)	0	155	124	294	226	0	0	0	0	87	959	46
RTOR Reduction (vph)	0	90	0	0	0	0	0	0	0	0	7	0
Lane Group Flow (vph)	0	189	0	294	226	0	0	0	0	87	998	0
Confl. Peds. (#/hr)			5	5								5
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	1%
Turn Type		NA		D.P+P	NA					Perm	NA	
Protected Phases		4		3	8 3						2	
Permitted Phases				4						2		
Actuated Green, G (s)		22.2		36.4	42.2					26.4	26.4	
Effective Green, g (s)		22.2		36.4	42.2					26.4	26.4	
Actuated g/C Ratio		0.28		0.45	0.53					0.33	0.33	
Clearance Time (s)		5.8		5.8						5.6	5.6	
Vehicle Extension (s)		4.0		4.0						0.2	0.2	
Lane Grp Cap (vph)		976		657	2004					620	1769	
v/s Ratio Prot		0.05		c0.08	0.06						c0.19	
v/s Ratio Perm				c0.12						0.05		
v/c Ratio		0.19		0.45	0.11					0.14	0.56	
Uniform Delay, d1		22.1		15.9	9.5					18.8	22.1	
Progression Factor		1.00		0.74	0.59					0.70	0.74	
Incremental Delay, d2		0.4		0.6	0.0					0.4	1.2	
Delay (s)		22.5		12.4	5.6					13.6	17.4	
Level of Service		C		B	A					B	B	
Approach Delay (s)		22.5			9.5			0.0			17.1	
Approach LOS		C			A			A			B	
Intersection Summary												
HCM 2000 Control Delay			15.8			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.50									
Actuated Cycle Length (s)			80.0			Sum of lost time (s)				17.2		
Intersection Capacity Utilization			65.3%			ICU Level of Service				C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3004: Huron St & Catherine St (PB)

Road Diet Capacity Analysis

Existing OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								  				
Traffic Volume (vph)	12	18	0	0	1	48	9	859	7	0	0	0
Future Volume (vph)	12	18	0	0	1	48	9	859	7	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.3			5.3			5.3				
Lane Util. Factor		1.00			1.00			0.91				
Frpb, ped/bikes		1.00			0.98			1.00				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.87			1.00				
Flt Protected		0.98			1.00			1.00				
Satd. Flow (prot)		1956			1699			5395				
Flt Permitted		0.84			1.00			1.00				
Satd. Flow (perm)		1685			1699			5395				
Peak-hour factor, PHF	0.60	0.60	0.60	0.88	0.88	0.88	0.91	0.91	0.91	0.92	0.92	0.92
Adj. Flow (vph)	20	30	0	0	1	55	10	944	8	0	0	0
RTOR Reduction (vph)	0	0	0	0	50	0	0	1	0	0	0	0
Lane Group Flow (vph)	0	50	0	0	6	0	0	961	0	0	0	0
Confl. Peds. (#/hr)	5					5	3		1			
Confl. Bikes (#/hr)						1			1			
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		2			2			1				
Permitted Phases	2						1					
Actuated Green, G (s)		7.8			7.8			61.6				
Effective Green, g (s)		7.8			7.8			61.6				
Actuated g/C Ratio		0.10			0.10			0.77				
Clearance Time (s)		5.3			5.3			5.3				
Vehicle Extension (s)		3.0			3.0			0.2				
Lane Grp Cap (vph)		164			165			4154				
v/s Ratio Prot					0.00							
v/s Ratio Perm		c0.03						0.18				
v/c Ratio		0.30			0.04			0.23				
Uniform Delay, d1		33.6			32.7			2.6				
Progression Factor		1.00			1.00			1.68				
Incremental Delay, d2		1.1			0.1			0.1				
Delay (s)		34.6			32.8			4.5				
Level of Service		C			C			A				
Approach Delay (s)		34.6			32.8			4.5			0.0	
Approach LOS		C			C			A			A	
Intersection Summary												
HCM 2000 Control Delay		7.4			HCM 2000 Level of Service				A			
HCM 2000 Volume to Capacity ratio		0.24										
Actuated Cycle Length (s)		80.0			Sum of lost time (s)				10.6			
Intersection Capacity Utilization		33.1%			ICU Level of Service				A			
Analysis Period (min)		15										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis 9000: Hamilton St & Washtenaw Ave

Road Diet Capacity Analysis Existing OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗								↖↑	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	0	168	619	0	0	0	0	0	0	28	395	0
Future Volume (vph)	0	168	619	0	0	0	0	0	0	28	395	0
Peak Hour Factor	0.85	0.85	0.85	0.92	0.92	0.92	0.92	0.92	0.92	0.90	0.90	0.90
Hourly flow rate (vph)	0	198	728	0	0	0	0	0	0	31	439	0
Direction, Lane #	EB 1	EB 2	EB 3	SB 1	SB 2							
Volume Total (vph)	99	99	728	177	293							
Volume Left (vph)	0	0	0	31	0							
Volume Right (vph)	0	0	728	0	0							
Hadj (s)	0.00	0.00	-0.70	0.12	0.03							
Departure Headway (s)	5.6	5.6	3.2	5.2	5.1							
Degree Utilization, x	0.16	0.16	0.65	0.26	0.41							
Capacity (veh/h)	600	602	1119	676	690							
Control Delay (s)	8.5	8.5	10.7	8.7	10.4							
Approach Delay (s)	10.2			9.8								
Approach LOS	B			A								
Intersection Summary												
Delay			10.1									
Level of Service			B									
Intersection Capacity Utilization			54.7%	ICU Level of Service	A							
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

9001: Hamilton St & Pearl St

Road Diet Capacity Analysis

Existing OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											  	
Traffic Volume (veh/h)	0	0	21	96	86	0	0	0	0	0	1013	15
Future Volume (Veh/h)	0	0	21	96	86	0	0	0	0	0	1013	15
Sign Control	Stop				Stop				Free		Free	
Grade	0%				0%				0%		0%	
Peak Hour Factor	0.60	0.60	0.60	0.75	0.75	0.75	0.92	0.92	0.92	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	35	128	115	0	0	0	0	0	1126	17
Pedestrians								9				
Lane Width (ft)								0.0				
Walking Speed (ft/s)								4.0				
Percent Blockage								0				
Right turn flare (veh)												
Median type								None	None			
Median storage (veh)												
Upstream signal (ft)								435				
pX, platoon unblocked												
vC, conflicting volume	1192	1134	393	419	1143	0	1143			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1192	1134	393	419	1143	0	1143			0		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	94	74	43	100	100			100		
cM capacity (veh/h)	79	204	612	493	202	1091	619			1629		
Direction, Lane #	EB 1	WB 1	WB 2	SB 1	SB 2	SB 3						
Volume Total	35	85	158	450	450	242						
Volume Left	0	85	43	0	0	0						
Volume Right	35	0	0	0	0	17						
cSH	612	493	240	1700	1700	1700						
Volume to Capacity	0.06	0.17	0.66	0.26	0.26	0.14						
Queue Length 95th (ft)	5	16	103	0	0	0						
Control Delay (s)	11.2	13.8	44.7	0.0	0.0	0.0						
Lane LOS	B	B	E									
Approach Delay (s)	11.2	33.8	0.0									
Approach LOS	B	D										
Intersection Summary												
Average Delay			6.1									
Intersection Capacity Utilization			39.5%	ICU Level of Service					A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

9002: Hamilton St/Hamilton St (PB) & Ferris St

Road Diet Capacity Analysis

Existing OP Peak Hour

																											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR															
Lane Configurations																											
Traffic Volume (veh/h)	0	21	29	31	13	0	0	0	0	94	901	19															
Future Volume (Veh/h)	0	21	29	31	13	0	0	0	0	94	901	19															
Sign Control		Stop			Stop			Free			Free																
Grade		0%			0%			0%			0%																
Peak Hour Factor	0.95	0.95	0.95	0.85	0.85	0.85	0.92	0.92	0.92	0.93	0.93	0.93															
Hourly flow rate (vph)	0	22	31	36	15	0	0	0	0	101	969	20															
Pedestrians		5			3			7																			
Lane Width (ft)		12.0			12.0			0.0																			
Walking Speed (ft/s)		4.0			4.0			4.0																			
Percent Blockage		0			0			0																			
Right turn flare (veh)																											
Median type								None			None																
Median storage (veh)																											
Upstream signal (ft)											450																
pX, platoon unblocked	0.88	0.88	0.88	0.88	0.88		0.88																				
vC, conflicting volume	1194	1189	345	577	1199	3	994			3																	
vC1, stage 1 conf vol																											
vC2, stage 2 conf vol																											
vCu, unblocked vol	746	741	0	46	752	3	520			3																	
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1																	
tC, 2 stage (s)																											
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2																	
p0 queue free %	100	92	97	95	95	100	100			94																	
cM capacity (veh/h)	244	284	957	720	277	1077	927			1628																	
Direction, Lane #	EB 1	WB 1	SB 1	SB 2	SB 3	SB 4																					
Volume Total	53	51	101	388	388	214																					
Volume Left	0	36	101	0	0	0																					
Volume Right	31	0	0	0	0	20																					
cSH	483	490	1628	1700	1700	1700																					
Volume to Capacity	0.11	0.10	0.06	0.23	0.23	0.13																					
Queue Length 95th (ft)	9	9	5	0	0	0																					
Control Delay (s)	13.4	13.2	7.4	0.0	0.0	0.0																					
Lane LOS	B	B	A																								
Approach Delay (s)	13.4	13.2	0.7																								
Approach LOS	B	B																									
Intersection Summary																											
Average Delay			1.8																								
Intersection Capacity Utilization			32.6%	ICU Level of Service		A																					
Analysis Period (min)			15																								

HCM Unsignalized Intersection Capacity Analysis

9003: Huron St/Huron St (PB) & Ferris St

Road Diet Capacity Analysis

Existing OP Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				  		
Traffic Volume (veh/h)	38	0	39	873	0	0
Future Volume (Veh/h)	38	0	39	873	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.79	0.79	0.94	0.94	0.92	0.92
Hourly flow rate (vph)	48	0	41	929	0	0
Pedestrians	5				1	
Lane Width (ft)	12.0				0.0	
Walking Speed (ft/s)	4.0				4.0	
Percent Blockage	0				0	
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				857	448	
pX, platoon unblocked	1.00					
vC, conflicting volume	398	5	5			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	384	5	5			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	92	100	97			
cM capacity (veh/h)	577	1078	1615			
Direction, Lane #	EB 1	NB 1	NB 2	NB 3		
Volume Total	48	227	372	372		
Volume Left	48	41	0	0		
Volume Right	0	0	0	0		
cSH	577	1615	1700	1700		
Volume to Capacity	0.08	0.03	0.22	0.22		
Queue Length 95th (ft)	7	2	0	0		
Control Delay (s)	11.8	1.5	0.0	0.0		
Lane LOS	B	A				
Approach Delay (s)	11.8	0.3				
Approach LOS	B					
Intersection Summary						
Average Delay			0.9			
Intersection Capacity Utilization			26.8%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

9004: Huron St (PB)/Huron St & Pearl St

Road Diet Capacity Analysis

Existing OP Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	108	934	0	0
Future Volume (Veh/h)	0	0	108	934	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.88	0.88	0.92	0.92
Hourly flow rate (vph)	0	0	123	1061	0	0
Pedestrians	8					
Lane Width (ft)	0.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (ft)				430		
pX, platoon unblocked	0.81					
vC, conflicting volume	784	8	8			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	265	8	8			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	92			
cM capacity (veh/h)	529	1078	1625			
Direction, Lane #	NB 1	NB 2				
Volume Total	477	707				
Volume Left	123	0				
Volume Right	0	0				
cSH	1625	1700				
Volume to Capacity	0.08	0.42				
Queue Length 95th (ft)	6	0				
Control Delay (s)	2.4	0.0				
Lane LOS	A					
Approach Delay (s)	1.0					
Approach LOS						
Intersection Summary						
Average Delay		1.0				
Intersection Capacity Utilization		30.8%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Signalized Intersection Capacity Analysis

1002: Summit & Washtenaw Ave

Road Diet Capacity Analysis

Existing PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	1711	83	0	0	0	0	63	25	36	39	0
Future Volume (vph)	8	1711	83	0	0	0	0	63	25	36	39	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.4						10.8			10.8	
Lane Util. Factor		0.91						1.00			1.00	
Frpb, ped/bikes		1.00						0.99			1.00	
Flpb, ped/bikes		1.00						1.00			0.99	
Frt		0.99						0.96			1.00	
Flt Protected		1.00						1.00			0.98	
Satd. Flow (prot)		5413						1614			1925	
Flt Permitted		1.00						1.00			0.79	
Satd. Flow (perm)		5413						1614			1563	
Peak-hour factor, PHF	0.88	0.88	0.88	0.92	0.92	0.92	0.82	0.82	0.82	0.67	0.67	0.67
Adj. Flow (vph)	9	1944	94	0	0	0	0	77	30	54	58	0
RTOR Reduction (vph)	0	6	0	0	0	0	0	9	0	0	0	0
Lane Group Flow (vph)	0	2041	0	0	0	0	0	98	0	0	112	0
Confl. Peds. (#/hr)	4		5						24	24		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)								10				
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		1						2			2	
Permitted Phases	1									2		
Actuated Green, G (s)		46.6						17.2			17.2	
Effective Green, g (s)		46.6						17.2			17.2	
Actuated g/C Ratio		0.58						0.21			0.21	
Clearance Time (s)		5.4						10.8			10.8	
Lane Grp Cap (vph)		3153						347			336	
v/s Ratio Prot								0.06				
v/s Ratio Perm		0.38									c0.07	
v/c Ratio		0.65						0.28			0.33	
Uniform Delay, d1		11.2						26.2			26.6	
Progression Factor		1.00						1.00			1.31	
Incremental Delay, d2		1.0						2.0			2.7	
Delay (s)		12.2						28.3			37.3	
Level of Service		B						C			D	
Approach Delay (s)		12.2			0.0			28.3			37.3	
Approach LOS		B			A			C			D	
Intersection Summary												
HCM 2000 Control Delay		14.2						HCM 2000 Level of Service		B		
HCM 2000 Volume to Capacity ratio		0.56										
Actuated Cycle Length (s)		80.0						Sum of lost time (s)		16.2		
Intersection Capacity Utilization		60.6%						ICU Level of Service		B		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1004: Ballard St (PB) & Washtenaw Ave

Road Diet Capacity Analysis

Existing PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑						↑		↑	↑	
Traffic Volume (vph)	31	1371	28	0	0	0	0	52	14	16	39	0
Future Volume (vph)	31	1371	28	0	0	0	0	52	14	16	39	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.3						5.7		5.7	5.7	
Lane Util. Factor		0.91						1.00		1.00	1.00	
Frpb, ped/bikes		1.00						1.00		1.00	1.00	
Flpb, ped/bikes		1.00						1.00		0.99	1.00	
Frt		1.00						0.97		1.00	1.00	
Flt Protected		1.00						1.00		0.95	1.00	
Satd. Flow (prot)		5434						1936		1889	2000	
Flt Permitted		1.00						1.00		0.71	1.00	
Satd. Flow (perm)		5434						1936		1407	2000	
Peak-hour factor, PHF	0.94	0.94	0.94	0.92	0.92	0.92	0.87	0.87	0.87	0.72	0.72	0.72
Adj. Flow (vph)	33	1459	30	0	0	0	0	60	16	22	54	0
RTOR Reduction (vph)	0	2	0	0	0	0	0	14	0	0	0	0
Lane Group Flow (vph)	0	1520	0	0	0	0	0	62	0	22	54	0
Confl. Peds. (#/hr)	7		6						8	8		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	custom	NA						NA		Perm	NA	
Protected Phases	1	1						2			2	
Permitted Phases	1									2		
Actuated Green, G (s)		61.3						7.7		7.7	7.7	
Effective Green, g (s)		61.3						7.7		7.7	7.7	
Actuated g/C Ratio		0.77						0.10		0.10	0.10	
Clearance Time (s)		5.3						5.7		5.7	5.7	
Vehicle Extension (s)		0.2						3.0		3.0	3.0	
Lane Grp Cap (vph)		4163						186		135	192	
v/s Ratio Prot		c0.28						c0.03			0.03	
v/s Ratio Perm										0.02		
v/c Ratio		0.37						0.34		0.16	0.28	
Uniform Delay, d1		3.0						33.8		33.2	33.6	
Progression Factor		0.09						1.00		1.00	1.00	
Incremental Delay, d2		0.2						1.1		0.6	0.8	
Delay (s)		0.5						34.8		33.8	34.4	
Level of Service		A						C		C	C	
Approach Delay (s)		0.5			0.0			34.8			34.2	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM 2000 Control Delay		3.5										
HCM 2000 Volume to Capacity ratio		0.36										
Actuated Cycle Length (s)		80.0								11.0		
Intersection Capacity Utilization		45.7%								A		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1013: Hamilton St (PB) & Michigan Ave

Road Diet Capacity Analysis

Existing PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	457	130	278	514	0	0	0	0	518	1168	38
Future Volume (vph)	0	457	130	278	514	0	0	0	0	518	1168	38
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.2		5.2	5.2					6.8	6.8	
Lane Util. Factor		0.95		1.00	0.95					0.86	0.86	
Frpb, ped/bikes		0.99		1.00	1.00					1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00					1.00	1.00	
Frt		0.97		1.00	1.00					1.00	1.00	
Flt Protected		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (prot)		3652		1898	3515					1634	5115	
Flt Permitted		1.00		0.31	1.00					0.95	1.00	
Satd. Flow (perm)		3652		610	3515					1634	5115	
Peak-hour factor, PHF	0.91	0.91	0.91	0.94	0.94	0.94	0.92	0.92	0.92	0.90	0.90	0.90
Adj. Flow (vph)	0	502	143	296	547	0	0	0	0	576	1298	42
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	645	0	296	547	0	0	0	0	467	1446	0
Confl. Peds. (#/hr)			12	12						10		9
Confl. Bikes (#/hr)			1									1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)				10								
Turn Type		NA		pm+pt	NA					custom		NA
Protected Phases		1		2	1 2					3		3
Permitted Phases				1 2						3		
Actuated Green, G (s)		27.8		36.6	41.8					26.2		26.2
Effective Green, g (s)		27.8		36.6	41.8					26.2		26.2
Actuated g/C Ratio		0.35		0.46	0.52					0.33		0.33
Clearance Time (s)		5.2		5.2						6.8		6.8
Lane Grp Cap (vph)		1269		420	1836					535		1675
v/s Ratio Prot		0.18		c0.08	0.16					c0.29		0.28
v/s Ratio Perm				c0.24								
v/c Ratio		0.51		0.70	0.30					0.87		0.86
Uniform Delay, d1		20.7		22.8	10.8					25.3		25.2
Progression Factor		1.00		0.48	0.53					1.00		1.00
Incremental Delay, d2		1.5		9.2	0.4					17.7		6.2
Delay (s)		22.1		20.2	6.1					43.0		31.4
Level of Service		C		C	A					D		C
Approach Delay (s)		22.1			11.0			0.0				34.2
Approach LOS		C			B			A				C
Intersection Summary												
HCM 2000 Control Delay			26.2		HCM 2000 Level of Service					C		
HCM 2000 Volume to Capacity ratio			0.77									
Actuated Cycle Length (s)			80.0		Sum of lost time (s)					17.2		
Intersection Capacity Utilization			70.7%		ICU Level of Service					C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1016: Huron St (PB) & Cross St (PB)/Cross St

Road Diet Capacity Analysis

Existing PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	253	16	0	387	363	0	0	0
Future Volume (vph)	0	0	0	0	253	16	0	387	363	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)					5.5	5.5		5.6	5.6			
Lane Util. Factor					1.00	1.00		0.95	1.00			
Frpb, ped/bikes					1.00	1.00		1.00	1.00			
Flpb, ped/bikes					1.00	1.00		1.00	1.00			
Frt					1.00	0.85		1.00	0.85			
Flt Protected					1.00	1.00		1.00	1.00			
Satd. Flow (prot)					2000	1700		3800	1700			
Flt Permitted					1.00	1.00		1.00	1.00			
Satd. Flow (perm)					2000	1700		3800	1700			
Peak-hour factor, PHF	0.92	0.92	0.92	0.87	0.87	0.87	0.95	0.95	0.95	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	291	18	0	407	382	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	10	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	291	8	0	407	382	0	0	0
Confl. Peds. (#/hr)						19			3			
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type					NA	custom		NA	custom			
Protected Phases					2	2		8	8			
Permitted Phases						2			8			
Actuated Green, G (s)					36.5	36.5		32.4	32.4			
Effective Green, g (s)					36.5	36.5		32.4	32.4			
Actuated g/C Ratio					0.46	0.46		0.40	0.40			
Clearance Time (s)					5.5	5.5		5.6	5.6			
Lane Grp Cap (vph)					912	775		1539	688			
v/s Ratio Prot					c0.15	0.00		0.11	c0.22			
v/s Ratio Perm												
v/c Ratio					0.32	0.01		0.26	0.56			
Uniform Delay, d1					13.8	11.9		15.9	18.3			
Progression Factor					1.00	1.00		1.48	1.46			
Incremental Delay, d2					0.9	0.0		0.3	2.6			
Delay (s)					14.8	11.9		23.8	29.3			
Level of Service					B	B		C	C			
Approach Delay (s)		0.0			14.6			26.4			0.0	
Approach LOS		A			B			C			A	
Intersection Summary												
HCM 2000 Control Delay			23.1		HCM 2000 Level of Service						C	
HCM 2000 Volume to Capacity ratio			0.43									
Actuated Cycle Length (s)			80.0		Sum of lost time (s)						11.1	
Intersection Capacity Utilization			55.4%		ICU Level of Service						B	
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1023: Huron St (PB) & Michigan Ave

Road Diet Capacity Analysis

Existing PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 				
Traffic Volume (vph)	150	974	0	0	652	362	125	743	189	0	0	0
Future Volume (vph)	150	974	0	0	652	362	125	743	189	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	5.0	5.0			5.0	5.0	5.6	5.6				
Lane Util. Factor	1.00	0.95			0.91	0.91	1.00	0.95				
Frpb, ped/bikes	1.00	1.00			1.00	0.94	1.00	1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00	0.98	1.00				
Frt	1.00	1.00			0.99	0.85	1.00	0.97				
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00				
Satd. Flow (prot)	1896	3515			3310	1241	1867	3667				
Flt Permitted	0.23	1.00			1.00	1.00	0.95	1.00				
Satd. Flow (perm)	454	3515			3310	1241	1867	3667				
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.92	0.92	0.92	0.25	0.25	0.25
Adj. Flow (vph)	160	1036	0	0	694	385	136	808	205	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	160	1036	0	0	756	323	136	1013	0	0	0	0
Confl. Peds. (#/hr)	37					37	19		13			
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)		10			10	10						
Turn Type	pm+pt	NA			NA	Perm	Perm	NA				
Protected Phases	2	1 2			1			3				
Permitted Phases	1 2					1	3					
Actuated Green, G (s)	38.0	43.0			29.0	29.0	26.4	26.4				
Effective Green, g (s)	38.0	43.0			29.0	29.0	26.4	26.4				
Actuated g/C Ratio	0.48	0.54			0.36	0.36	0.33	0.33				
Clearance Time (s)	5.0				5.0	5.0	5.6	5.6				
Lane Grp Cap (vph)	377	1889			1199	449	616	1210				
v/s Ratio Prot	0.05	c0.29			0.23			c0.28				
v/s Ratio Perm	0.15					c0.26	0.07					
v/c Ratio	0.42	0.55			0.63	0.72	0.22	0.84				
Uniform Delay, d1	22.1	12.1			21.1	22.0	19.4	24.8				
Progression Factor	0.48	0.38			1.00	1.00	0.48	0.58				
Incremental Delay, d2	3.1	1.0			2.5	9.6	0.8	6.9				
Delay (s)	13.8	5.6			23.6	31.5	10.2	21.4				
Level of Service	B	A			C	C	B	C				
Approach Delay (s)		6.7			26.0		20.1				0.0	
Approach LOS		A			C		C				A	
Intersection Summary												
HCM 2000 Control Delay			17.3				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.76									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)			15.6		
Intersection Capacity Utilization			67.7%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2000: Michigan Ave & Congress St & Ballard St

Road Diet Capacity Analysis

Existing PM Peak Hour

											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	SBR2	NEL	NER
Lane Configurations											
Traffic Volume (vph)	17	112	0	566	245	37	32	23	11	0	565
Future Volume (vph)	17	112	0	566	245	37	32	23	11	0	565
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.9		6.1	6.1		6.3	6.3			6.1
Lane Util. Factor		1.00		0.95	0.95		1.00	1.00			0.88
Frpb, ped/bikes		1.00		1.00	0.99		1.00	1.00			1.00
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00			1.00
Frt		1.00		1.00	0.99		1.00	0.85			0.85
Flt Protected		0.99		0.95	0.98		0.95	1.00			1.00
Satd. Flow (prot)		1987		1805	1554		1900	1700			2962
Flt Permitted		0.99		0.95	0.98		0.95	1.00			1.00
Satd. Flow (perm)		1987		1805	1554		1900	1700			2962
Peak-hour factor, PHF	0.81	0.81	0.81	0.93	0.93	0.93	0.60	0.60	0.60	0.95	0.95
Adj. Flow (vph)	21	138	0	609	263	40	53	38	18	0	595
RTOR Reduction (vph)	0	0	0	0	2	0	0	47	0	0	289
Lane Group Flow (vph)	0	159	0	451	459	0	53	9	0	0	306
Confl. Peds. (#/hr)	16		5	5		16	1		3		1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%
Parking (#/hr)					10						
Turn Type	Split	NA		Split	NA		Prot	Prot			Over
Protected Phases	3	3		1	1		2	2			1
Permitted Phases											
Actuated Green, G (s)		20.0		61.7	61.7		20.0	20.0			61.7
Effective Green, g (s)		20.0		61.7	61.7		20.0	20.0			61.7
Actuated g/C Ratio		0.17		0.51	0.51		0.17	0.17			0.51
Clearance Time (s)		5.9		6.1	6.1		6.3	6.3			6.1
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0			3.0
Lane Grp Cap (vph)		331		928	799		316	283			1522
v/s Ratio Prot		c0.08		0.25	c0.29		c0.03	0.01			0.10
v/s Ratio Perm											
v/c Ratio		0.48		0.49	0.57		0.17	0.03			0.20
Uniform Delay, d1		45.3		18.9	20.1		42.9	41.9			15.8
Progression Factor		1.00		1.00	1.00		1.00	1.00			1.00
Incremental Delay, d2		1.1		1.8	3.0		0.3	0.0			0.3
Delay (s)		46.4		20.7	23.1		43.1	41.9			16.1
Level of Service		D		C	C		D	D			B
Approach Delay (s)		46.4			21.9		42.5			16.1	
Approach LOS		D			C		D			B	
Intersection Summary											
HCM 2000 Control Delay			23.4			HCM 2000 Level of Service				C	
HCM 2000 Volume to Capacity ratio			0.48								
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			18.3		
Intersection Capacity Utilization			72.5%			ICU Level of Service			C		
Analysis Period (min)			15								
c Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

2004: Adams St (PB) & Michigan Ave

Road Diet Capacity Analysis

Existing PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔		↔	↔		↔	↔	
Traffic Volume (vph)	0	1023	9	0	711	29	17	32	36	51	28	38
Future Volume (vph)	0	1023	9	0	711	29	17	32	36	51	28	38
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.1			5.1		6.0	6.0		6.0	6.0	
Lane Util. Factor		0.95			0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			1.00		1.00	0.97		1.00	0.99	
Flpb, ped/bikes		1.00			1.00		0.99	1.00		0.96	1.00	
Frt		1.00			0.99		1.00	0.92		1.00	0.91	
Flt Protected		1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3509			3451		1877	1519		1827	1530	
Flt Permitted		1.00			1.00		0.70	1.00		0.69	1.00	
Satd. Flow (perm)		3509			3451		1387	1519		1336	1530	
Peak-hour factor, PHF	0.95	0.95	0.95	0.91	0.91	0.91	0.71	0.71	0.71	0.77	0.77	0.77
Adj. Flow (vph)	0	1077	9	0	781	32	24	45	51	66	36	49
RTOR Reduction (vph)	0	1	0	0	4	0	0	42	0	0	40	0
Lane Group Flow (vph)	0	1085	0	0	809	0	24	54	0	66	45	0
Confl. Peds. (#/hr)	20		14	14		20	13		42	42		13
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	0%	0%	0%	0%	0%	0%
Parking (#/hr)		10			10			10			10	
Turn Type		NA			NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases							2			2		
Actuated Green, G (s)		54.9			54.9		14.0	14.0		14.0	14.0	
Effective Green, g (s)		54.9			54.9		14.0	14.0		14.0	14.0	
Actuated g/C Ratio		0.69			0.69		0.18	0.18		0.18	0.18	
Clearance Time (s)		5.1			5.1		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)		2408			2368		242	265		233	267	
v/s Ratio Prot		c0.31			0.23			0.04			0.03	
v/s Ratio Perm							0.02			c0.05		
v/c Ratio		0.45			0.34		0.10	0.20		0.28	0.17	
Uniform Delay, d1		5.7			5.1		27.7	28.2		28.6	28.0	
Progression Factor		0.47			0.24		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.5			0.4		0.8	1.7		3.0	1.3	
Delay (s)		3.1			1.6		28.5	30.0		31.7	29.4	
Level of Service		A			A		C	C		C	C	
Approach Delay (s)		3.1			1.6			29.7			30.4	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM 2000 Control Delay			5.9				HCM 2000 Level of Service			A		
HCM 2000 Volume to Capacity ratio			0.42									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)			11.1		
Intersection Capacity Utilization			55.6%				ICU Level of Service			B		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2005: Washington St (PB) & Michigan Ave

Road Diet Capacity Analysis

Existing PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1036	49	0	750	27	15	35	34	81	28	37
Future Volume (vph)	0	1036	49	0	750	27	15	35	34	81	28	37
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.0			5.0			6.0			6.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			0.98			0.97	
Flpb, ped/bikes		1.00			1.00			0.99			0.99	
Frt		0.99			0.99			0.95			0.97	
Flt Protected		1.00			1.00			0.99			0.97	
Satd. Flow (prot)		3478			3486			1547			1806	
Flt Permitted		1.00			1.00			0.92			0.78	
Satd. Flow (perm)		3478			3486			1444			1448	
Peak-hour factor, PHF	0.93	0.93	0.93	0.95	0.95	0.95	0.68	0.68	0.68	0.87	0.87	0.87
Adj. Flow (vph)	0	1114	53	0	789	28	22	51	50	93	32	43
RTOR Reduction (vph)	0	4	0	0	3	0	0	31	0	0	16	0
Lane Group Flow (vph)	0	1163	0	0	814	0	0	92	0	0	152	0
Confl. Peds. (#/hr)	35		31	31		35	76		28	28		76
Confl. Bikes (#/hr)			1			1						1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)		10			10			10				
Turn Type		NA			NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases							2			2		
Actuated Green, G (s)		55.0			55.0			14.0			14.0	
Effective Green, g (s)		55.0			55.0			14.0			14.0	
Actuated g/C Ratio		0.69			0.69			0.18			0.18	
Clearance Time (s)		5.0			5.0			6.0			6.0	
Lane Grp Cap (vph)		2391			2396			252			253	
v/s Ratio Prot		c0.33			0.23							
v/s Ratio Perm								0.06			c0.11	
v/c Ratio		0.49			0.34			0.37			0.60	
Uniform Delay, d1		5.9			5.1			29.1			30.4	
Progression Factor		0.19			0.37			1.00			1.00	
Incremental Delay, d2		0.7			0.3			4.1			10.2	
Delay (s)		1.8			2.2			33.2			40.6	
Level of Service		A			A			C			D	
Approach Delay (s)		1.8			2.2			33.2			40.6	
Approach LOS		A			A			C			D	
Intersection Summary												
HCM 2000 Control Delay		6.5			HCM 2000 Level of Service			A				
HCM 2000 Volume to Capacity ratio		0.51										
Actuated Cycle Length (s)		80.0			Sum of lost time (s)			11.0				
Intersection Capacity Utilization		55.5%			ICU Level of Service			B				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3001: Huron St & Harriet St/Spring St

Road Diet Capacity Analysis

Existing PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			  				
Traffic Volume (vph)	31	299	0	0	442	35	187	936	341	0	0	0
Future Volume (vph)	31	299	0	0	442	35	187	936	341	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	6.6	6.6			6.6			6.1	6.1			
Lane Util. Factor	1.00	0.95			0.95			0.91	1.00			
Frpb, ped/bikes	1.00	1.00			1.00			1.00	1.00			
Flpb, ped/bikes	1.00	1.00			1.00			1.00	1.00			
Frt	1.00	1.00			0.99			1.00	0.85			
Flt Protected	0.95	1.00			1.00			0.99	1.00			
Satd. Flow (prot)	1898	3800			3754			5413	1700			
Flt Permitted	0.39	1.00			1.00			0.99	1.00			
Satd. Flow (perm)	781	3800			3754			5413	1700			
Peak-hour factor, PHF	0.83	0.83	0.83	0.86	0.86	0.86	0.95	0.95	0.95	0.92	0.92	0.92
Adj. Flow (vph)	37	360	0	0	514	41	197	985	359	0	0	0
RTOR Reduction (vph)	0	0	0	0	7	0	0	0	150	0	0	0
Lane Group Flow (vph)	37	360	0	0	548	0	0	1182	209	0	0	0
Confl. Peds. (#/hr)	2					2	3					
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA	Perm			
Protected Phases		4			8			2				
Permitted Phases	4						2		2			
Actuated Green, G (s)	28.4	28.4			28.4			38.9	38.9			
Effective Green, g (s)	28.4	28.4			28.4			38.9	38.9			
Actuated g/C Ratio	0.35	0.35			0.35			0.49	0.49			
Clearance Time (s)	6.6	6.6			6.6			6.1	6.1			
Lane Grp Cap (vph)	277	1349			1332			2632	826			
v/s Ratio Prot		0.09			0.15							
v/s Ratio Perm	0.05							0.22	0.12			
v/c Ratio	0.13	0.27			0.41			0.45	0.25			
Uniform Delay, d1	17.5	18.4			19.5			13.5	12.0			
Progression Factor	0.98	0.97			1.00			1.00	1.00			
Incremental Delay, d2	1.0	0.5			0.9			0.6	0.7			
Delay (s)	18.1	18.3			20.4			14.1	12.8			
Level of Service	B	B			C			B	B			
Approach Delay (s)		18.3			20.4			13.8			0.0	
Approach LOS		B			C			B			A	
Intersection Summary												
HCM 2000 Control Delay			16.0				HCM 2000 Level of Service		B			
HCM 2000 Volume to Capacity ratio			0.43									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)		12.7			
Intersection Capacity Utilization			55.8%				ICU Level of Service		B			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3003: Hamilton St & Harriet St

Road Diet Capacity Analysis

Existing PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↖	↑↑					↖	↑↑↑	
Traffic Volume (vph)	0	217	156	361	289	0	0	0	0	154	1432	38
Future Volume (vph)	0	217	156	361	289	0	0	0	0	154	1432	38
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.8		5.8	5.8					5.6	5.6	
Lane Util. Factor		0.95		1.00	0.95					1.00	0.91	
Frpb, ped/bikes		0.99		1.00	1.00					1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00					1.00	1.00	
Frt		0.94		1.00	1.00					1.00	1.00	
Flt Protected		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (prot)		3521		1893	3800					1898	5435	
Flt Permitted		1.00		0.46	1.00					0.95	1.00	
Satd. Flow (perm)		3521		907	3800					1898	5435	
Peak-hour factor, PHF	0.89	0.89	0.89	0.82	0.82	0.82	0.92	0.92	0.92	0.95	0.95	0.95
Adj. Flow (vph)	0	244	175	440	352	0	0	0	0	162	1507	40
RTOR Reduction (vph)	0	56	0	0	0	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	363	0	440	352	0	0	0	0	162	1544	0
Confl. Peds. (#/hr)			14	14						1		2
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type		NA		D.P+P	NA					Perm	NA	
Protected Phases		4		3	8 3						2	
Permitted Phases				4						2		
Actuated Green, G (s)		22.2		38.4	44.2					24.4	24.4	
Effective Green, g (s)		22.2		38.4	44.2					24.4	24.4	
Actuated g/C Ratio		0.28		0.48	0.55					0.30	0.30	
Clearance Time (s)		5.8		5.8						5.6	5.6	
Vehicle Extension (s)		4.0		4.0						0.2	0.2	
Lane Grp Cap (vph)		977		635	2099					578	1657	
v/s Ratio Prot		0.10		c0.14	0.09						c0.28	
v/s Ratio Perm				c0.19						0.09		
v/c Ratio		0.37		0.69	0.17					0.28	0.93	
Uniform Delay, d1		23.3		18.2	8.8					21.1	27.0	
Progression Factor		1.00		0.94	0.66					0.70	0.79	
Incremental Delay, d2		1.1		3.3	0.0					0.9	8.4	
Delay (s)		24.4		20.5	5.9					15.7	29.6	
Level of Service		C		C	A					B	C	
Approach Delay (s)		24.4			14.0			0.0			28.3	
Approach LOS		C			B			A			C	
Intersection Summary												
HCM 2000 Control Delay			23.9			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.79									
Actuated Cycle Length (s)			80.0			Sum of lost time (s)				17.2		
Intersection Capacity Utilization			77.9%			ICU Level of Service				D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3004: Huron St & Catherine St (PB)

Road Diet Capacity Analysis

Existing PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								  				
Traffic Volume (vph)	14	26	0	0	8	39	4	971	6	0	0	0
Future Volume (vph)	14	26	0	0	8	39	4	971	6	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.3			5.3			5.3				
Lane Util. Factor		1.00			1.00			0.91				
Frpb, ped/bikes		1.00			0.99			1.00				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.89			1.00				
Flt Protected		0.98			1.00			1.00				
Satd. Flow (prot)		1965			1757			5399				
Flt Permitted		0.86			1.00			1.00				
Satd. Flow (perm)		1718			1757			5399				
Peak-hour factor, PHF	0.77	0.77	0.77	0.73	0.73	0.73	0.89	0.89	0.89	0.92	0.92	0.92
Adj. Flow (vph)	18	34	0	0	11	53	4	1091	7	0	0	0
RTOR Reduction (vph)	0	0	0	0	48	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	52	0	0	16	0	0	1102	0	0	0	0
Confl. Peds. (#/hr)	1					1	1		5			
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		2			2			1				
Permitted Phases	2						1					
Actuated Green, G (s)		7.8			7.8			61.6				
Effective Green, g (s)		7.8			7.8			61.6				
Actuated g/C Ratio		0.10			0.10			0.77				
Clearance Time (s)		5.3			5.3			5.3				
Vehicle Extension (s)		3.0			3.0			0.2				
Lane Grp Cap (vph)		167			171			4157				
v/s Ratio Prot					0.01							
v/s Ratio Perm		c0.03						0.20				
v/c Ratio		0.31			0.09			0.26				
Uniform Delay, d1		33.6			32.9			2.7				
Progression Factor		1.00			1.00			1.43				
Incremental Delay, d2		1.1			0.2			0.1				
Delay (s)		34.7			33.1			3.9				
Level of Service		C			C			A				
Approach Delay (s)		34.7			33.1			3.9			0.0	
Approach LOS		C			C			A			A	
Intersection Summary												
HCM 2000 Control Delay		6.8			HCM 2000 Level of Service				A			
HCM 2000 Volume to Capacity ratio		0.27										
Actuated Cycle Length (s)		80.0			Sum of lost time (s)				10.6			
Intersection Capacity Utilization		35.6%			ICU Level of Service				A			
Analysis Period (min)		15										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

9000: Hamilton St & Washtenaw Ave

Road Diet Capacity Analysis

Existing PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗								↖↑	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	0	342	1060	0	0	0	0	0	0	30	641	0
Future Volume (vph)	0	342	1060	0	0	0	0	0	0	30	641	0
Peak Hour Factor	0.95	0.95	0.95	0.92	1.00	0.92	0.92	0.92	0.92	0.85	0.85	0.85
Hourly flow rate (vph)	0	360	1116	0	0	0	0	0	0	35	754	0
Direction, Lane #	EB 1	EB 2	EB 3	SB 1	SB 2							
Volume Total (vph)	180	180	1116	286	503							
Volume Left (vph)	0	0	0	35	0							
Volume Right (vph)	0	0	1116	0	0							
Hadj (s)	0.00	0.00	-0.70	0.06	0.00							
Departure Headway (s)	6.4	6.4	3.2	5.7	5.6							
Degree Utilization, x	0.32	0.32	0.99	0.45	0.78							
Capacity (veh/h)	533	533	1116	622	629							
Control Delay (s)	11.3	11.3	41.0	12.0	24.5							
Approach Delay (s)	33.8			20.0								
Approach LOS	D			C								
Intersection Summary												
Delay			29.0									
Level of Service			D									
Intersection Capacity Utilization			86.9%	ICU Level of Service					E			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

9001: Hamilton St (PB)/Hamilton St & Pearl St

Road Diet Capacity Analysis

Existing PM Peak Hour

																		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR						
Lane Configurations											  							
Traffic Volume (veh/h)	0	0	25	50	54	0	0	0	0	0	1718	12						
Future Volume (Veh/h)	0	0	25	50	54	0	0	0	0	0	1718	12						
Sign Control	Stop				Stop				Free		Free							
Grade	0%				0%				0%		0%							
Peak Hour Factor	0.65	0.65	0.65	0.79	0.79	0.79	0.92	0.92	0.92	0.92	0.92	0.92						
Hourly flow rate (vph)	0	0	38	63	68	0	0	0	0	0	1867	13						
Pedestrians	6								3									
Lane Width (ft)	12.0								0.0									
Walking Speed (ft/s)	4.0								4.0									
Percent Blockage	1								0									
Right turn flare (veh)																		
Median type							None			None								
Median storage veh																		
Upstream signal (ft)							435											
pX, platoon unblocked																		
vC, conflicting volume	1914	1880	638	663	1886	0	1886			0								
vC1, stage 1 conf vol																		
vC2, stage 2 conf vol																		
vCu, unblocked vol	1914	1880	638	663	1886	0	1886			0								
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1								
tC, 2 stage (s)																		
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2								
p0 queue free %	100	100	91	80	4	100	100			100								
cM capacity (veh/h)	6	72	422	318	71	1091	320			1636								
Direction, Lane #	EB 1	WB 1	WB 2	SB 1	SB 2	SB 3												
Volume Total	38	42	89	747	747	386												
Volume Left	0	42	21	0	0	0												
Volume Right	38	0	0	0	0	13												
cSH	422	318	87	1700	1700	1700												
Volume to Capacity	0.09	0.13	1.02	0.44	0.44	0.23												
Queue Length 95th (ft)	7	11	148	0	0	0												
Control Delay (s)	14.4	18.1	189.8	0.0	0.0	0.0												
Lane LOS	B	C	F															
Approach Delay (s)	14.4	134.8		0.0														
Approach LOS	B	F																
Intersection Summary																		
Average Delay			8.9															
Intersection Capacity Utilization			49.4%	ICU Level of Service					A									
Analysis Period (min)			15															

HCM Unsignalized Intersection Capacity Analysis

9002: Hamilton St/Hamilton St (PB) & Ferris St

Road Diet Capacity Analysis

Existing PM Peak Hour

																											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR															
Lane Configurations											  																
Traffic Volume (veh/h)	0	22	28	48	25	0	0	0	0	104	1384	19															
Future Volume (Veh/h)	0	22	28	48	25	0	0	0	0	104	1384	19															
Sign Control		Stop			Stop			Free			Free																
Grade		0%			0%			0%			0%																
Peak Hour Factor	0.69	0.69	0.69	0.76	0.76	0.76	0.92	0.92	0.92	0.93	0.93	0.93															
Hourly flow rate (vph)	0	32	41	63	33	0	0	0	0	112	1488	20															
Pedestrians		4			3			7																			
Lane Width (ft)		12.0			12.0			0.0																			
Walking Speed (ft/s)		4.0			4.0			4.0																			
Percent Blockage		0			0			0																			
Right turn flare (veh)																											
Median type								None			None																
Median storage (veh)																											
Upstream signal (ft)											450																
pX, platoon unblocked	0.76	0.76	0.76	0.76	0.76		0.76																				
vC, conflicting volume	1742	1729	517	787	1739	3	1512			3																	
vC1, stage 1 conf vol																											
vC2, stage 2 conf vol																											
vCu, unblocked vol	893	875	0	0	888	3	591			3																	
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1																	
tC, 2 stage (s)																											
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2																	
p0 queue free %	100	84	95	90	84	100	100			93																	
cM capacity (veh/h)	151	205	831	620	202	1083	758			1628																	
Direction, Lane #	EB 1	WB 1	SB 1	SB 2	SB 3	SB 4																					
Volume Total	73	96	112	595	595	318																					
Volume Left	0	63	112	0	0	0																					
Volume Right	41	0	0	0	0	20																					
cSH	356	362	1628	1700	1700	1700																					
Volume to Capacity	0.21	0.27	0.07	0.35	0.35	0.19																					
Queue Length 95th (ft)	19	26	6	0	0	0																					
Control Delay (s)	17.7	18.5	7.4	0.0	0.0	0.0																					
Lane LOS	C	C	A																								
Approach Delay (s)	17.7	18.5	0.5																								
Approach LOS	C	C																									
Intersection Summary																											
Average Delay			2.2																								
Intersection Capacity Utilization			42.9%	ICU Level of Service					A																		
Analysis Period (min)			15																								

HCM Unsignalized Intersection Capacity Analysis

9003: Huron St/Huron St (PB) & Ferris St

Road Diet Capacity Analysis

Existing PM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	32	0	24	1277	0	0
Future Volume (Veh/h)	32	0	24	1277	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.60	0.60	0.95	0.95	0.92	0.92
Hourly flow rate (vph)	53	0	25	1344	0	0
Pedestrians	8				1	
Lane Width (ft)	12.0				0.0	
Walking Speed (ft/s)	4.0				4.0	
Percent Blockage	1				0	
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (ft)				857	448	
pX, platoon unblocked	0.98					
vC, conflicting volume	507	8	8			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	437	8	8			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	90	100	98			
cM capacity (veh/h)	532	1071	1615			
Direction, Lane #	EB 1	NB 1	NB 2	NB 3		
Volume Total	53	294	538	538		
Volume Left	53	25	0	0		
Volume Right	0	0	0	0		
cSH	532	1615	1700	1700		
Volume to Capacity	0.10	0.02	0.32	0.32		
Queue Length 95th (ft)	8	1	0	0		
Control Delay (s)	12.5	0.7	0.0	0.0		
Lane LOS	B	A				
Approach Delay (s)	12.5	0.2				
Approach LOS	B					
Intersection Summary						
Average Delay			0.6			
Intersection Capacity Utilization			33.9%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

9004: Huron St (PB)/Huron St & Pearl St

Road Diet Capacity Analysis

Existing PM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				 		
Traffic Volume (veh/h)	0	0	139	1100	0	0
Future Volume (Veh/h)	0	0	139	1100	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.88	0.88	0.92	0.92
Hourly flow rate (vph)	0	0	158	1250	0	0
Pedestrians	8					
Lane Width (ft)	0.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (ft)				430		
pX, platoon unblocked	0.77					
vC, conflicting volume	949	8	8			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	323	8	8			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	90			
cM capacity (veh/h)	450	1078	1625			
Direction, Lane #	NB 1	NB 2				
Volume Total	575	833				
Volume Left	158	0				
Volume Right	0	0				
cSH	1625	1700				
Volume to Capacity	0.10	0.49				
Queue Length 95th (ft)	8	0				
Control Delay (s)	2.7	0.0				
Lane LOS	A					
Approach Delay (s)	1.1					
Approach LOS						
Intersection Summary						
Average Delay		1.1				
Intersection Capacity Utilization		36.1%		ICU Level of Service		A
Analysis Period (min)		15				

Appendix I
Background 2022 Condition Synchro Reports

HCM Signalized Intersection Capacity Analysis

1002: Summit & Washtenaw Ave

Road Diet Capacity Analysis

Background 2022 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	687	17	0	0	0	0	139	32	11	10	0
Future Volume (vph)	3	687	17	0	0	0	0	139	32	11	10	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.4						10.8			10.8	
Lane Util. Factor		0.91						1.00			1.00	
Frpb, ped/bikes		1.00						0.99			1.00	
Flpb, ped/bikes		1.00						1.00			0.98	
Frt		1.00						0.97			1.00	
Flt Protected		1.00						1.00			0.97	
Satd. Flow (prot)		5436						1642			1917	
Flt Permitted		1.00						1.00			0.74	
Satd. Flow (perm)		5436						1642			1456	
Peak-hour factor, PHF	0.87	0.87	0.87	0.92	0.92	0.92	0.91	0.91	0.91	0.75	0.75	0.75
Adj. Flow (vph)	3	790	20	0	0	0	0	153	35	15	13	0
RTOR Reduction (vph)	0	3	0	0	0	0	0	10	0	0	0	0
Lane Group Flow (vph)	0	810	0	0	0	0	0	178	0	0	28	0
Confl. Peds. (#/hr)			2						26	26		
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)								10				
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		1						2			2	
Permitted Phases	1									2		
Actuated Green, G (s)		46.6						17.2			17.2	
Effective Green, g (s)		46.6						17.2			17.2	
Actuated g/C Ratio		0.58						0.21			0.21	
Clearance Time (s)		5.4						10.8			10.8	
Lane Grp Cap (vph)		3166						353			313	
v/s Ratio Prot								c0.11				
v/s Ratio Perm		0.15									0.02	
v/c Ratio		0.26						0.50			0.09	
Uniform Delay, d1		8.2						27.6			25.1	
Progression Factor		1.00						1.00			1.35	
Incremental Delay, d2		0.2						5.1			0.6	
Delay (s)		8.4						32.7			34.5	
Level of Service		A						C			C	
Approach Delay (s)		8.4			0.0			32.7			34.5	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM 2000 Control Delay		13.5						HCM 2000 Level of Service		B		
HCM 2000 Volume to Capacity ratio		0.32										
Actuated Cycle Length (s)		80.0						Sum of lost time (s)		16.2		
Intersection Capacity Utilization		45.6%						ICU Level of Service		A		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1004: Ballard St (PB) & Washtenaw Ave

Road Diet Capacity Analysis

Background 2022 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	536	6	0	0	0	0	37	8	9	20	0
Future Volume (vph)	15	536	6	0	0	0	0	37	8	9	20	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.3						5.7		5.7	5.7	
Lane Util. Factor		0.91						1.00		1.00	1.00	
Frpb, ped/bikes		1.00						1.00		1.00	1.00	
Flpb, ped/bikes		1.00						1.00		0.99	1.00	
Frt		1.00						0.98		1.00	1.00	
Flt Protected		1.00						1.00		0.95	1.00	
Satd. Flow (prot)		5442						1945		1887	2000	
Flt Permitted		1.00						1.00		0.72	1.00	
Satd. Flow (perm)		5442						1945		1423	2000	
Peak-hour factor, PHF	0.90	0.90	0.90	0.92	0.92	0.92	0.73	0.73	0.73	0.91	0.91	0.91
Adj. Flow (vph)	17	596	7	0	0	0	0	51	11	10	22	0
RTOR Reduction (vph)	0	1	0	0	0	0	0	10	0	0	0	0
Lane Group Flow (vph)	0	619	0	0	0	0	0	52	0	10	22	0
Confl. Peds. (#/hr)	2		1						9	9		
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	0%	0%	0%	2%	2%	2%	0%	0%	0%	0%	0%	0%
Turn Type	custom	NA						NA		Perm	NA	
Protected Phases	1	1						2			2	
Permitted Phases	1									2		
Actuated Green, G (s)		61.5						7.5		7.5	7.5	
Effective Green, g (s)		61.5						7.5		7.5	7.5	
Actuated g/C Ratio		0.77						0.09		0.09	0.09	
Clearance Time (s)		5.3						5.7		5.7	5.7	
Vehicle Extension (s)		0.2						3.0		3.0	3.0	
Lane Grp Cap (vph)		4183						182		133	187	
v/s Ratio Prot		c0.11						c0.03			0.01	
v/s Ratio Perm										0.01		
v/c Ratio		0.15						0.29		0.08	0.12	
Uniform Delay, d1		2.4						33.8		33.1	33.2	
Progression Factor		0.54						1.00		1.00	1.00	
Incremental Delay, d2		0.1						0.9		0.2	0.3	
Delay (s)		1.4						34.6		33.3	33.5	
Level of Service		A						C		C	C	
Approach Delay (s)		1.4			0.0			34.6			33.4	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM 2000 Control Delay		5.7										
HCM 2000 Volume to Capacity ratio		0.16										
Actuated Cycle Length (s)		80.0								11.0		
Intersection Capacity Utilization		36.4%										
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1013: Hamilton St (PB) & Michigan Ave

Road Diet Capacity Analysis

Background 2022 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	283	78	144	678	0	0	0	0	193	456	39
Future Volume (vph)	0	283	78	144	678	0	0	0	0	193	456	39
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.2		5.2	5.2					6.8	6.8	
Lane Util. Factor		0.95		1.00	0.95					0.86	0.86	
Frpb, ped/bikes		1.00		1.00	1.00					1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00					1.00	1.00	
Frt		0.97		1.00	1.00					1.00	0.99	
Flt Protected		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (prot)		3662		1878	3480					1618	5032	
Flt Permitted		1.00		0.46	1.00					0.95	1.00	
Satd. Flow (perm)		3662		917	3480					1618	5032	
Peak-hour factor, PHF	0.84	0.84	0.84	0.83	0.83	0.83	0.92	0.92	0.92	0.91	0.91	0.91
Adj. Flow (vph)	0	337	93	173	817	0	0	0	0	212	501	43
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	11	0
Lane Group Flow (vph)	0	430	0	173	817	0	0	0	0	184	561	0
Confl. Peds. (#/hr)			6	6						5		6
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Parking (#/hr)				10								
Turn Type		NA		pm+pt	NA					custom		NA
Protected Phases		1		2	1 2					3		3
Permitted Phases				1 2						3		
Actuated Green, G (s)		28.8		37.6	42.8					25.2		25.2
Effective Green, g (s)		28.8		37.6	42.8					25.2		25.2
Actuated g/C Ratio		0.36		0.47	0.53					0.31		0.31
Clearance Time (s)		5.2		5.2						6.8		6.8
Lane Grp Cap (vph)		1318		536	1861					509		1585
v/s Ratio Prot		0.12		0.04	c0.23					c0.11		0.11
v/s Ratio Perm				0.12								
v/c Ratio		0.33		0.32	0.44					0.36		0.35
Uniform Delay, d1		18.6		15.0	11.3					21.2		21.1
Progression Factor		1.00		0.79	0.70					1.00		1.00
Incremental Delay, d2		0.7		1.5	0.7					2.0		0.6
Delay (s)		19.2		13.3	8.7					23.2		21.7
Level of Service		B		B	A					C		C
Approach Delay (s)		19.2			9.5			0.0				22.1
Approach LOS		B			A			A				C
Intersection Summary												
HCM 2000 Control Delay			15.8			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.44									
Actuated Cycle Length (s)			80.0			Sum of lost time (s)				17.2		
Intersection Capacity Utilization			56.9%			ICU Level of Service				B		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1016: Huron St (PB) & Cross St (PB)/Cross St

Road Diet Capacity Analysis

Background 2022 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	423	27	0	535	134	0	0	0
Future Volume (vph)	0	0	0	0	423	27	0	535	134	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)					5.5	5.5		5.6	5.6			
Lane Util. Factor					1.00	1.00		0.95	1.00			
Frpb, ped/bikes					1.00	1.00		1.00	1.00			
Flpb, ped/bikes					1.00	1.00		1.00	1.00			
Frt					1.00	0.85		1.00	0.85			
Flt Protected					1.00	1.00		1.00	1.00			
Satd. Flow (prot)					2000	1700		3800	1700			
Flt Permitted					1.00	1.00		1.00	1.00			
Satd. Flow (perm)					2000	1700		3800	1700			
Peak-hour factor, PHF	0.92	0.92	0.92	0.81	0.81	0.81	0.94	0.94	0.94	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	522	33	0	569	143	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	17	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	522	16	0	569	143	0	0	0
Confl. Peds. (#/hr)						11			3			
Confl. Bikes (#/hr)						4						
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type					NA	custom		NA	custom			
Protected Phases					2	2		8	8			
Permitted Phases						2			8			
Actuated Green, G (s)					38.5	38.5		30.4	30.4			
Effective Green, g (s)					38.5	38.5		30.4	30.4			
Actuated g/C Ratio					0.48	0.48		0.38	0.38			
Clearance Time (s)					5.5	5.5		5.6	5.6			
Lane Grp Cap (vph)					962	818		1444	646			
v/s Ratio Prot					c0.26	0.01		c0.15	0.08			
v/s Ratio Perm												
v/c Ratio					0.54	0.02		0.39	0.22			
Uniform Delay, d1					14.6	10.9		18.1	16.8			
Progression Factor					1.00	1.00		1.47	1.44			
Incremental Delay, d2					2.2	0.0		0.4	0.4			
Delay (s)					16.8	10.9		27.0	24.6			
Level of Service					B	B		C	C			
Approach Delay (s)		0.0			16.4			26.5			0.0	
Approach LOS		A			B			C			A	
Intersection Summary												
HCM 2000 Control Delay			22.1		HCM 2000 Level of Service						C	
HCM 2000 Volume to Capacity ratio			0.48									
Actuated Cycle Length (s)			80.0		Sum of lost time (s)						11.1	
Intersection Capacity Utilization			55.7%		ICU Level of Service						B	
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1023: Huron St (PB) & Michigan Ave

Road Diet Capacity Analysis

Background 2022 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	438	0	0	690	553	87	1110	73	0	0	0
Future Volume (vph)	77	438	0	0	690	553	87	1110	73	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	5.0	5.0			5.0	5.0	5.6	5.6				
Lane Util. Factor	1.00	0.95			0.91	0.91	1.00	0.95				
Frpb, ped/bikes	1.00	1.00			1.00	0.98	1.00	1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00				
Frt	1.00	1.00			0.97	0.85	1.00	0.99				
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00				
Satd. Flow (prot)	1881	3480			3219	1271	1873	3724				
Flt Permitted	0.14	1.00			1.00	1.00	0.95	1.00				
Satd. Flow (perm)	283	3480			3219	1271	1873	3724				
Peak-hour factor, PHF	0.93	0.93	0.93	0.89	0.89	0.89	0.95	0.95	0.95	0.92	0.92	0.92
Adj. Flow (vph)	83	471	0	0	775	621	92	1168	77	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	83	471	0	0	968	428	92	1245	0	0	0	0
Confl. Peds. (#/hr)	10					10	5		2			
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%
Parking (#/hr)		10			10	10						
Turn Type	pm+pt	NA			NA	Perm	Perm	NA				
Protected Phases	2	1 2			1			3				
Permitted Phases	1 2					1	3					
Actuated Green, G (s)	37.0	42.0			28.0	28.0	27.4	27.4				
Effective Green, g (s)	37.0	42.0			28.0	28.0	27.4	27.4				
Actuated g/C Ratio	0.46	0.52			0.35	0.35	0.34	0.34				
Clearance Time (s)	5.0				5.0	5.0	5.6	5.6				
Lane Grp Cap (vph)	310	1827			1126	444	641	1275				
v/s Ratio Prot	0.03	c0.14			0.30			c0.33				
v/s Ratio Perm	0.09					c0.34	0.05					
v/c Ratio	0.27	0.26			0.86	0.96	0.14	0.98				
Uniform Delay, d1	25.3	10.4			24.2	25.5	18.2	26.0				
Progression Factor	0.50	0.43			1.00	1.00	0.28	0.47				
Incremental Delay, d2	2.0	0.3			8.6	34.6	0.4	19.6				
Delay (s)	14.8	4.8			32.8	60.1	5.6	31.8				
Level of Service	B	A			C	E	A	C				
Approach Delay (s)		6.3			41.2			30.0			0.0	
Approach LOS		A			D			C			A	
Intersection Summary												
HCM 2000 Control Delay			30.8				HCM 2000 Level of Service		C			
HCM 2000 Volume to Capacity ratio			0.88									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)		15.6			
Intersection Capacity Utilization			74.1%				ICU Level of Service		D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2000: Michigan Ave & Congress St & Ballard St

Road Diet Capacity Analysis

Background 2022 AM Peak Hour

										
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NEL	NER
Lane Configurations		↔		↔	↔		↔	↔		↔
Traffic Volume (vph)	8	75	1	378	145	32	10	49	0	303
Future Volume (vph)	8	75	1	378	145	32	10	49	0	303
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.9		6.1	6.1		6.3	6.3		6.1
Lane Util. Factor		1.00		0.95	0.95		1.00	1.00		0.88
Frpb, ped/bikes		1.00		1.00	1.00		1.00	1.00		1.00
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00		1.00
Frt		1.00		1.00	0.98		1.00	0.85		0.85
Flt Protected		1.00		0.95	0.98		0.95	1.00		1.00
Satd. Flow (prot)		1987		1787	1538		1900	1700		2992
Flt Permitted		1.00		0.95	0.98		0.95	1.00		1.00
Satd. Flow (perm)		1987		1787	1538		1900	1700		2992
Peak-hour factor, PHF	0.82	0.82	0.82	0.94	0.94	0.94	0.60	0.60	0.93	0.93
Adj. Flow (vph)	10	91	1	402	154	34	17	82	0	326
RTOR Reduction (vph)	0	0	0	0	3	0	0	0	0	158
Lane Group Flow (vph)	0	102	0	293	294	0	17	82	0	168
Confl. Peds. (#/hr)	2		1	1		2	1			1
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	0%	0%	0%	0%
Parking (#/hr)					10					
Turn Type	Split	NA		Split	NA		Prot	Prot		Over
Protected Phases	3	3		1	1		2	2		1
Permitted Phases										
Actuated Green, G (s)		20.0		61.7	61.7		20.0	20.0		61.7
Effective Green, g (s)		20.0		61.7	61.7		20.0	20.0		61.7
Actuated g/C Ratio		0.17		0.51	0.51		0.17	0.17		0.51
Clearance Time (s)		5.9		6.1	6.1		6.3	6.3		6.1
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0		3.0
Lane Grp Cap (vph)		331		918	790		316	283		1538
v/s Ratio Prot		c0.05		0.16	c0.19		0.01	c0.05		0.06
v/s Ratio Perm										
v/c Ratio		0.31		0.32	0.37		0.05	0.29		0.11
Uniform Delay, d1		43.9		16.9	17.5		42.0	43.8		15.0
Progression Factor		1.00		1.00	1.00		1.00	1.00		1.00
Incremental Delay, d2		0.5		0.9	1.3		0.1	0.6		0.1
Delay (s)		44.5		17.9	18.8		42.1	44.4		15.1
Level of Service		D		B	B		D	D		B
Approach Delay (s)		44.5			18.4		44.0		15.1	
Approach LOS		D			B		D		B	
Intersection Summary										
HCM 2000 Control Delay			22.1			HCM 2000 Level of Service			C	
HCM 2000 Volume to Capacity ratio			0.34							
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			18.3	
Intersection Capacity Utilization			64.8%			ICU Level of Service			C	
Analysis Period (min)			15							
c Critical Lane Group										

HCM Signalized Intersection Capacity Analysis

2004: Adams St (PB) & Michigan Ave

Road Diet Capacity Analysis

Background 2022 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔		↔	↔		↔	↔	
Traffic Volume (vph)	0	544	6	0	769	30	44	40	11	21	10	19
Future Volume (vph)	0	544	6	0	769	30	44	40	11	21	10	19
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.1			5.1		6.0	6.0		6.0	6.0	
Lane Util. Factor		0.95			0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		0.99	1.00	
Frt		1.00			0.99		1.00	0.97		1.00	0.90	
Flt Protected		1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3474			3456		1894	1638		1879	1517	
Flt Permitted		1.00			1.00		0.73	1.00		0.70	1.00	
Satd. Flow (perm)		3474			3456		1460	1638		1388	1517	
Peak-hour factor, PHF	0.94	0.94	0.94	0.89	0.89	0.89	0.60	0.60	0.60	0.75	0.75	0.75
Adj. Flow (vph)	0	579	6	0	864	34	73	67	18	28	13	25
RTOR Reduction (vph)	0	1	0	0	3	0	0	12	0	0	21	0
Lane Group Flow (vph)	0	584	0	0	895	0	73	73	0	28	17	0
Confl. Peds. (#/hr)	6		8	8		6	3		12	12		3
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%
Parking (#/hr)		10			10			10			10	
Turn Type		NA			NA		Perm	NA		Perm	NA	
Protected Phases		1			1		2	2		2	2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)		54.9			54.9		14.0	14.0		14.0	14.0	
Effective Green, g (s)		54.9			54.9		14.0	14.0		14.0	14.0	
Actuated g/C Ratio		0.69			0.69		0.18	0.18		0.18	0.18	
Clearance Time (s)		5.1			5.1		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)		2384			2371		255	286		242	265	
v/s Ratio Prot		0.17			0.26			0.04			0.01	
v/s Ratio Perm							0.05			0.02		
v/c Ratio		0.24			0.38		0.29	0.25		0.12	0.07	
Uniform Delay, d1		4.7			5.3		28.7	28.5		27.8	27.5	
Progression Factor		0.44			0.46		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.2			0.4		2.8	2.1		1.0	0.5	
Delay (s)		2.3			2.9		31.5	30.6		28.8	28.0	
Level of Service		A			A		C	C		C	C	
Approach Delay (s)		2.3			2.9			31.0			28.3	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM 2000 Control Delay		6.3			HCM 2000 Level of Service			A				
HCM 2000 Volume to Capacity ratio		0.36										
Actuated Cycle Length (s)		80.0			Sum of lost time (s)			11.1				
Intersection Capacity Utilization		49.5%			ICU Level of Service			A				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2005: Washington St (PB) & Michigan Ave

Road Diet Capacity Analysis

Background 2022 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	543	12	0	716	14	41	90	23	14	5	9
Future Volume (vph)	0	543	12	0	716	14	41	90	23	14	5	9
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.0			5.0			6.0			6.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			1.00			0.99	
Flpb, ped/bikes		1.00			1.00			0.99			1.00	
Frt		1.00			1.00			0.98			0.96	
Flt Protected		1.00			1.00			0.99			0.98	
Satd. Flow (prot)		3502			3467			1628			1771	
Flt Permitted		1.00			1.00			0.90			0.72	
Satd. Flow (perm)		3502			3467			1483			1315	
Peak-hour factor, PHF	0.86	0.86	0.86	0.94	0.94	0.94	0.60	0.60	0.60	0.88	0.88	0.88
Adj. Flow (vph)	0	631	14	0	762	15	68	150	38	16	6	10
RTOR Reduction (vph)	0	2	0	0	2	0	0	8	0	0	8	0
Lane Group Flow (vph)	0	643	0	0	775	0	0	248	0	0	24	0
Confl. Peds. (#/hr)	10		3	3		10	22		9	9		22
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	0%	0%	0%	4%	4%	4%
Parking (#/hr)		10			10			10				
Turn Type		NA			NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)		55.0			55.0			14.0			14.0	
Effective Green, g (s)		55.0			55.0			14.0			14.0	
Actuated g/C Ratio		0.69			0.69			0.18			0.18	
Clearance Time (s)		5.0			5.0			6.0			6.0	
Lane Grp Cap (vph)		2407			2383			259			230	
v/s Ratio Prot		0.18			c0.22							
v/s Ratio Perm								c0.17			0.02	
v/c Ratio		0.27			0.33			0.96			0.10	
Uniform Delay, d1		4.8			5.0			32.7			27.7	
Progression Factor		0.32			0.21			1.00			1.00	
Incremental Delay, d2		0.3			0.2			45.8			0.9	
Delay (s)		1.8			1.3			78.5			28.6	
Level of Service		A			A			E			C	
Approach Delay (s)		1.8			1.3			78.5			28.6	
Approach LOS		A			A			E			C	
Intersection Summary												
HCM 2000 Control Delay			13.5				HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio			0.45									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)			11.0		
Intersection Capacity Utilization			45.9%				ICU Level of Service			A		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3001: Huron St & Harriet St/Spring St

Road Diet Capacity Analysis

Background 2022 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			  				
Traffic Volume (vph)	15	124	0	0	433	32	368	1460	350	0	0	0
Future Volume (vph)	15	124	0	0	433	32	368	1460	350	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	6.6	6.6			6.6			6.1	6.1			
Lane Util. Factor	1.00	0.95			0.95			0.91	1.00			
Frpb, ped/bikes	1.00	1.00			1.00			1.00	0.99			
Flpb, ped/bikes	1.00	1.00			1.00			1.00	1.00			
Frt	1.00	1.00			0.99			1.00	0.85			
Flt Protected	0.95	1.00			1.00			0.99	1.00			
Satd. Flow (prot)	1880	3762			3757			5406	1675			
Flt Permitted	0.37	1.00			1.00			0.99	1.00			
Satd. Flow (perm)	733	3762			3757			5406	1675			
Peak-hour factor, PHF	0.68	0.68	0.68	0.87	0.87	0.87	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	182	0	0	498	37	400	1587	380	0	0	0
RTOR Reduction (vph)	0	0	0	0	6	0	0	0	167	0	0	0
Lane Group Flow (vph)	22	182	0	0	529	0	0	1987	213	0	0	0
Confl. Peds. (#/hr)	1					1			4			
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA	Perm			
Protected Phases		4			8			2				
Permitted Phases	4						2		2			
Actuated Green, G (s)	22.4	22.4			22.4			44.9	44.9			
Effective Green, g (s)	22.4	22.4			22.4			44.9	44.9			
Actuated g/C Ratio	0.28	0.28			0.28			0.56	0.56			
Clearance Time (s)	6.6	6.6			6.6			6.1	6.1			
Lane Grp Cap (vph)	205	1053			1051			3034	940			
v/s Ratio Prot		0.05			0.14							
v/s Ratio Perm	0.03							0.37	0.13			
v/c Ratio	0.11	0.17			0.50			0.65	0.23			
Uniform Delay, d1	21.4	21.8			24.1			12.2	8.8			
Progression Factor	1.02	1.01			1.00			1.00	1.00			
Incremental Delay, d2	1.0	0.4			1.7			1.1	0.6			
Delay (s)	22.9	22.3			25.9			13.3	9.4			
Level of Service	C	C			C			B	A			
Approach Delay (s)		22.4			25.9			12.7			0.0	
Approach LOS		C			C			B			A	
Intersection Summary												
HCM 2000 Control Delay			15.6				HCM 2000 Level of Service		B			
HCM 2000 Volume to Capacity ratio			0.60									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)		12.7			
Intersection Capacity Utilization			62.3%				ICU Level of Service		B			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3003: Hamilton St & Harriet St

Road Diet Capacity Analysis

Background 2022 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↔	↑↑					↔	↑↑↑	
Traffic Volume (vph)	0	104	101	241	492	0	0	0	0	43	519	45
Future Volume (vph)	0	104	101	241	492	0	0	0	0	43	519	45
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.8		5.8	5.8					5.6	5.6	
Lane Util. Factor		0.95		1.00	0.95					1.00	0.91	
Frpb, ped/bikes		0.99		1.00	1.00					1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00					1.00	1.00	
Frt		0.93		1.00	1.00					1.00	0.99	
Flt Protected		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (prot)		3496		1898	3800					1881	5342	
Flt Permitted		1.00		0.58	1.00					0.95	1.00	
Satd. Flow (perm)		3496		1162	3800					1881	5342	
Peak-hour factor, PHF	0.74	0.74	0.74	0.95	0.95	0.95	0.93	0.92	0.92	0.93	0.93	0.93
Adj. Flow (vph)	0	141	136	254	518	0	0	0	0	46	558	48
RTOR Reduction (vph)	0	98	0	0	0	0	0	0	0	0	13	0
Lane Group Flow (vph)	0	179	0	254	518	0	0	0	0	46	593	0
Confl. Peds. (#/hr)			2	2								
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	1%
Turn Type		NA		D.P+P	NA					Perm	NA	
Protected Phases		4		3	8 3						2	
Permitted Phases				4						2		
Actuated Green, G (s)		22.2		36.4	42.2					26.4	26.4	
Effective Green, g (s)		22.2		36.4	42.2					26.4	26.4	
Actuated g/C Ratio		0.28		0.45	0.53					0.33	0.33	
Clearance Time (s)		5.8		5.8						5.6	5.6	
Vehicle Extension (s)		4.0		4.0						0.2	0.2	
Lane Grp Cap (vph)		970		659	2004					620	1762	
v/s Ratio Prot		0.05		c0.07	0.14						c0.11	
v/s Ratio Perm				c0.11						0.02		
v/c Ratio		0.18		0.39	0.26					0.07	0.34	
Uniform Delay, d1		22.0		15.2	10.3					18.4	20.2	
Progression Factor		1.00		0.83	0.77					0.71	0.75	
Incremental Delay, d2		0.4		0.4	0.1					0.2	0.5	
Delay (s)		22.4		13.1	8.0					13.3	15.6	
Level of Service		C		B	A					B	B	
Approach Delay (s)		22.4			9.7			0.0			15.4	
Approach LOS		C			A			A			B	
Intersection Summary												
HCM 2000 Control Delay			13.9			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.36									
Actuated Cycle Length (s)			80.0			Sum of lost time (s)				17.2		
Intersection Capacity Utilization			55.0%			ICU Level of Service				A		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3004: Huron St & Catherine St (PB)

Road Diet Capacity Analysis

Background 2022 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								  				
Traffic Volume (vph)	8	9	0	0	27	43	82	1353	17	0	0	0
Future Volume (vph)	8	9	0	0	27	43	82	1353	17	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.3			5.3			5.3				
Lane Util. Factor		1.00			1.00			0.91				
Frpb, ped/bikes		1.00			0.99			1.00				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.92			1.00				
Flt Protected		0.98			1.00			1.00				
Satd. Flow (prot)		1954			1819			5379				
Flt Permitted		0.81			1.00			1.00				
Satd. Flow (perm)		1617			1819			5379				
Peak-hour factor, PHF	0.71	0.71	0.71	0.77	0.77	0.77	0.94	0.94	0.94	0.92	0.92	0.92
Adj. Flow (vph)	11	13	0	0	35	56	87	1439	18	0	0	0
RTOR Reduction (vph)	0	0	0	0	51	0	0	1	0	0	0	0
Lane Group Flow (vph)	0	24	0	0	40	0	0	1543	0	0	0	0
Confl. Peds. (#/hr)	1					1	1		2			
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		2			2			1				
Permitted Phases	2						1					
Actuated Green, G (s)		6.6			6.6			62.8				
Effective Green, g (s)		6.6			6.6			62.8				
Actuated g/C Ratio		0.08			0.08			0.78				
Clearance Time (s)		5.3			5.3			5.3				
Vehicle Extension (s)		3.0			3.0			0.2				
Lane Grp Cap (vph)		133			150			4222				
v/s Ratio Prot					c0.02							
v/s Ratio Perm		0.01						0.29				
v/c Ratio		0.18			0.26			0.37				
Uniform Delay, d1		34.2			34.4			2.6				
Progression Factor		1.00			1.00			1.24				
Incremental Delay, d2		0.7			0.9			0.2				
Delay (s)		34.8			35.4			3.4				
Level of Service		C			D			A				
Approach Delay (s)		34.8			35.4			3.4			0.0	
Approach LOS		C			D			A			A	
Intersection Summary												
HCM 2000 Control Delay		5.6			HCM 2000 Level of Service				A			
HCM 2000 Volume to Capacity ratio		0.36										
Actuated Cycle Length (s)		80.0			Sum of lost time (s)				10.6			
Intersection Capacity Utilization		42.8%			ICU Level of Service				A			
Analysis Period (min)		15										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

9000: Hamilton St & Washtenaw Ave

Road Diet Capacity Analysis

Background 2022 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗								↑↑	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	0	109	481	0	0	0	0	0	0	27	249	0
Future Volume (vph)	0	109	481	0	0	0	0	0	0	27	249	0
Peak Hour Factor	0.89	0.89	0.89	0.92	0.92	0.92	0.92	0.92	0.92	0.91	0.91	0.91
Hourly flow rate (vph)	0	122	540	0	0	0	0	0	0	30	274	0
Direction, Lane #	EB 1	EB 2	EB 3	SB 1	SB 2							
Volume Total (vph)	61	61	540	121	183							
Volume Left (vph)	0	0	0	30	0							
Volume Right (vph)	0	0	540	0	0							
Hadj (s)	0.00	0.00	-0.70	0.14	0.02							
Departure Headway (s)	5.2	5.2	3.2	5.0	4.8							
Degree Utilization, x	0.09	0.09	0.48	0.17	0.25							
Capacity (veh/h)	649	653	1116	706	725							
Control Delay (s)	7.5	7.5	7.9	7.8	8.2							
Approach Delay (s)	7.8			8.0								
Approach LOS	A			A								
Intersection Summary												
Delay			7.9									
Level of Service			A									
Intersection Capacity Utilization			42.5%	ICU Level of Service	A							
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

9001: Hamilton St & Pearl St

Road Diet Capacity Analysis

Background 2022 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											  	
Traffic Volume (veh/h)	0	0	22	18	12	0	0	0	0	0	727	6
Future Volume (Veh/h)	0	0	22	18	12	0	0	0	0	0	727	6
Sign Control	Stop				Stop				Free		Free	
Grade	0%				0%				0%		0%	
Peak Hour Factor	0.66	0.66	0.66	0.83	0.83	0.83	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	33	22	14	0	0	0	0	0	790	7
Pedestrians	1											
Lane Width (ft)	12.0											
Walking Speed (ft/s)	4.0											
Percent Blockage	0											
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (ft)	435											
pX, platoon unblocked												
vC, conflicting volume	802	794	268	296	798	0	798				0	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	802	794	268	296	798	0	798				0	
tC, single (s)	7.6	6.6	7.0	7.5	6.5	6.9	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	100	100	95	96	96	100	100				100	
cM capacity (veh/h)	261	313	721	609	321	1091	833				1629	
Direction, Lane #	EB 1	WB 1	WB 2	SB 1	SB 2	SB 3						
Volume Total	33	15	21	316	316	165						
Volume Left	0	15	7	0	0	0						
Volume Right	33	0	0	0	0	7						
cSH	721	609	383	1700	1700	1700						
Volume to Capacity	0.05	0.02	0.06	0.19	0.19	0.10						
Queue Length 95th (ft)	4	2	4	0	0	0						
Control Delay (s)	10.2	11.1	14.9	0.0	0.0	0.0						
Lane LOS	B	B	B									
Approach Delay (s)	10.2	13.4	0.0									
Approach LOS	B	B										
Intersection Summary												
Average Delay	0.9											
Intersection Capacity Utilization	30.1%			ICU Level of Service					A			
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis 9002: Hamilton St/Hamilton St (PB) & Ferris St

Road Diet Capacity Analysis
Background 2022 AM Peak Hour

																											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR															
Lane Configurations																											
Traffic Volume (veh/h)	0	14	27	20	13	0	0	0	0	56	559	9															
Future Volume (Veh/h)	0	14	27	20	13	0	0	0	0	56	559	9															
Sign Control		Stop			Stop			Free			Free																
Grade		0%			0%			0%			0%																
Peak Hour Factor	0.77	0.77	0.77	0.69	0.69	0.69	0.92	0.92	0.92	0.95	0.95	0.95															
Hourly flow rate (vph)	0	18	35	29	19	0	0	0	0	59	588	9															
Pedestrians		1			4			1																			
Lane Width (ft)		12.0			12.0			0.0																			
Walking Speed (ft/s)		4.0			4.0			4.0																			
Percent Blockage		0			0			0																			
Right turn flare (veh)																											
Median type								None			None																
Median storage (veh)																											
Upstream signal (ft)											450																
pX, platoon unblocked	0.97	0.97	0.97	0.97	0.97		0.97																				
vC, conflicting volume	721	716	202	363	720	4	598			4																	
vC1, stage 1 conf vol																											
vC2, stage 2 conf vol																											
vCu, unblocked vol	617	612	85	249	616	4	491			4																	
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1																	
tC, 2 stage (s)																											
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2																	
p0 queue free %	100	95	96	95	95	100	100			96																	
cM capacity (veh/h)	343	384	938	601	382	1081	1053			1618																	
Direction, Lane #	EB 1	WB 1	SB 1	SB 2	SB 3	SB 4																					
Volume Total	53	48	59	235	235	127																					
Volume Left	0	29	59	0	0	0																					
Volume Right	35	0	0	0	0	9																					
cSH	629	490	1618	1700	1700	1700																					
Volume to Capacity	0.08	0.10	0.04	0.14	0.14	0.07																					
Queue Length 95th (ft)	7	8	3	0	0	0																					
Control Delay (s)	11.2	13.2	7.3	0.0	0.0	0.0																					
Lane LOS	B	B	A																								
Approach Delay (s)	11.2	13.2	0.7																								
Approach LOS	B	B																									
Intersection Summary																											
Average Delay			2.2																								
Intersection Capacity Utilization			25.6%	ICU Level of Service					A																		
Analysis Period (min)			15																								

HCM Unsignalized Intersection Capacity Analysis

9003: Huron St/Huron St (PB) & Ferris St

Road Diet Capacity Analysis
Background 2022 AM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	18	0	53	1275	0	0
Future Volume (Veh/h)	18	0	53	1275	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.75	0.75	0.94	0.94	0.92	0.92
Hourly flow rate (vph)	24	0	56	1356	0	0
Pedestrians	3					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				857	448	
pX, platoon unblocked	0.95					
vC, conflicting volume	567	3	3			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	348	3	3			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	100	97			
cM capacity (veh/h)	573	1083	1628			
Direction, Lane #	EB 1	NB 1	NB 2	NB 3		
Volume Total	24	327	542	542		
Volume Left	24	56	0	0		
Volume Right	0	0	0	0		
cSH	573	1628	1700	1700		
Volume to Capacity	0.04	0.03	0.32	0.32		
Queue Length 95th (ft)	3	3	0	0		
Control Delay (s)	11.6	1.5	0.0	0.0		
Lane LOS	B	A				
Approach Delay (s)	11.6	0.3				
Approach LOS	B					
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization			34.4%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

9004: Huron St (PB)/Huron St & Pearl St

Road Diet Capacity Analysis
Background 2022 AM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	90	1678	0	0
Future Volume (Veh/h)	0	0	90	1678	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.95	0.95	0.92	0.92
Hourly flow rate (vph)	0	0	95	1766	0	0
Pedestrians	2					
Lane Width (ft)	0.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				430		
pX, platoon unblocked	0.68					
vC, conflicting volume	1075	2	2			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	156	2	2			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	94			
cM capacity (veh/h)	526	1088	1634			
Direction, Lane #	NB 1	NB 2				
Volume Total	684	1177				
Volume Left	95	0				
Volume Right	0	0				
cSH	1634	1700				
Volume to Capacity	0.06	0.69				
Queue Length 95th (ft)	5	0				
Control Delay (s)	1.6	0.0				
Lane LOS	A					
Approach Delay (s)	0.6					
Approach LOS						
Intersection Summary						
Average Delay		0.6				
Intersection Capacity Utilization		49.9%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Signalized Intersection Capacity Analysis

1002: Summit & Washtenaw Ave

Road Diet Capacity Analysis

Background 2022 OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	958	39	0	0	0	0	68	20	33	18	0
Future Volume (vph)	12	958	39	0	0	0	0	68	20	33	18	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.4						10.8			10.8	
Lane Util. Factor		0.91						1.00			1.00	
Frpb, ped/bikes		1.00						0.98			1.00	
Flpb, ped/bikes		1.00						1.00			0.97	
Frt		0.99						0.97			1.00	
Flt Protected		1.00						1.00			0.97	
Satd. Flow (prot)		5418						1619			1869	
Flt Permitted		1.00						1.00			0.72	
Satd. Flow (perm)		5418						1619			1386	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.61	0.61	0.61	0.74	0.74	0.74
Adj. Flow (vph)	13	1041	42	0	0	0	0	111	33	45	24	0
RTOR Reduction (vph)	0	5	0	0	0	0	0	13	0	0	0	0
Lane Group Flow (vph)	0	1091	0	0	0	0	0	131	0	0	69	0
Confl. Peds. (#/hr)			8						45	45		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)								10				
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		1						2			2	
Permitted Phases	1									2		
Actuated Green, G (s)		46.6						17.2			17.2	
Effective Green, g (s)		46.6						17.2			17.2	
Actuated g/C Ratio		0.58						0.21			0.21	
Clearance Time (s)		5.4						10.8			10.8	
Lane Grp Cap (vph)		3155						348			297	
v/s Ratio Prot								c0.08				
v/s Ratio Perm		0.20									0.05	
v/c Ratio		0.35						0.38			0.23	
Uniform Delay, d1		8.7						26.8			25.9	
Progression Factor		1.00						1.00			1.33	
Incremental Delay, d2		0.3						3.1			1.8	
Delay (s)		9.0						29.9			36.4	
Level of Service		A						C			D	
Approach Delay (s)		9.0			0.0			29.9			36.4	
Approach LOS		A			A			C			D	
Intersection Summary												
HCM 2000 Control Delay		12.8						HCM 2000 Level of Service		B		
HCM 2000 Volume to Capacity ratio		0.35										
Actuated Cycle Length (s)		80.0						Sum of lost time (s)		16.2		
Intersection Capacity Utilization		45.9%						ICU Level of Service		A		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1004: Ballard St (PB) & Washtenaw Ave

Road Diet Capacity Analysis

Background 2022 OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑						↑		↑	↑	
Traffic Volume (vph)	19	755	23	0	0	0	0	87	15	15	26	0
Future Volume (vph)	19	755	23	0	0	0	0	87	15	15	26	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.3						5.7		5.7	5.7	
Lane Util. Factor		0.91						1.00		1.00	1.00	
Frpb, ped/bikes		1.00						1.00		1.00	1.00	
Flpb, ped/bikes		1.00						1.00		0.99	1.00	
Frt		1.00						0.98		1.00	1.00	
Flt Protected		1.00						1.00		0.95	1.00	
Satd. Flow (prot)		5425						1954		1890	2000	
Flt Permitted		1.00						1.00		0.67	1.00	
Satd. Flow (perm)		5425						1954		1335	2000	
Peak-hour factor, PHF	0.88	0.88	0.88	0.92	0.92	0.92	0.76	0.76	0.76	0.67	0.67	0.67
Adj. Flow (vph)	22	858	26	0	0	0	0	114	20	22	39	0
RTOR Reduction (vph)	0	3	0	0	0	0	0	9	0	0	0	0
Lane Group Flow (vph)	0	903	0	0	0	0	0	125	0	22	39	0
Confl. Peds. (#/hr)	11		7						8	8		
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	custom	NA						NA		Perm	NA	
Protected Phases	1	1						2			2	
Permitted Phases	1									2		
Actuated Green, G (s)		58.5						10.5		10.5	10.5	
Effective Green, g (s)		58.5						10.5		10.5	10.5	
Actuated g/C Ratio		0.73						0.13		0.13	0.13	
Clearance Time (s)		5.3						5.7		5.7	5.7	
Vehicle Extension (s)		0.2						3.0		3.0	3.0	
Lane Grp Cap (vph)		3967						256		175	262	
v/s Ratio Prot		c0.17						c0.06			0.02	
v/s Ratio Perm										0.02		
v/c Ratio		0.23						0.49		0.13	0.15	
Uniform Delay, d1		3.5						32.3		30.7	30.8	
Progression Factor		0.19						1.00		1.00	1.00	
Incremental Delay, d2		0.1						1.5		0.3	0.3	
Delay (s)		0.8						33.7		31.0	31.1	
Level of Service		A						C		C	C	
Approach Delay (s)		0.8			0.0			33.7			31.0	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM 2000 Control Delay			6.5									HCM 2000 Level of Service A
HCM 2000 Volume to Capacity ratio			0.27									
Actuated Cycle Length (s)			80.0							11.0		
Intersection Capacity Utilization			36.0%									ICU Level of Service A
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1013: Hamilton St (PB) & Michigan Ave

Road Diet Capacity Analysis

Background 2022 OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑↑					↑	↑↑↑	
Traffic Volume (vph)	0	390	105	187	460	0	0	0	0	369	755	41
Future Volume (vph)	0	390	105	187	460	0	0	0	0	369	755	41
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.2		5.2	5.2					6.8	6.8	
Lane Util. Factor		0.95		1.00	0.95					0.86	0.86	
Frpb, ped/bikes		0.99		1.00	1.00					1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00					1.00	1.00	
Frt		0.97		1.00	1.00					1.00	0.99	
Flt Protected		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (prot)		3646		1872	3480					1618	5043	
Flt Permitted		1.00		0.39	1.00					0.95	1.00	
Satd. Flow (perm)		3646		778	3480					1618	5043	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.92	0.92	0.92	0.93	0.93	0.93
Adj. Flow (vph)	0	411	111	197	484	0	0	0	0	397	812	44
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	6	0
Lane Group Flow (vph)	0	522	0	197	484	0	0	0	0	306	941	0
Confl. Peds. (#/hr)			27	27						24		13
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Parking (#/hr)				10								
Turn Type		NA		pm+pt	NA					custom	NA	
Protected Phases		1		2	1 2					3	3	
Permitted Phases				1 2						3		
Actuated Green, G (s)		28.8		37.6	42.8					25.2	25.2	
Effective Green, g (s)		28.8		37.6	42.8					25.2	25.2	
Actuated g/C Ratio		0.36		0.47	0.53					0.31	0.31	
Clearance Time (s)		5.2		5.2						6.8	6.8	
Lane Grp Cap (vph)		1312		486	1861					509	1588	
v/s Ratio Prot		0.14		c0.04	0.14					c0.19	0.19	
v/s Ratio Perm				c0.15								
v/c Ratio		0.40		0.41	0.26					0.60	0.59	
Uniform Delay, d1		19.1		17.2	10.0					23.2	23.1	
Progression Factor		0.94		0.66	0.63					1.00	1.00	
Incremental Delay, d2		0.9		2.4	0.3					5.2	1.6	
Delay (s)		18.9		13.7	6.7					28.3	24.7	
Level of Service		B		B	A					C	C	
Approach Delay (s)		18.9			8.7			0.0			25.6	
Approach LOS		B			A			A			C	
Intersection Summary												
HCM 2000 Control Delay			19.5		HCM 2000 Level of Service				B			
HCM 2000 Volume to Capacity ratio			0.48									
Actuated Cycle Length (s)			80.0		Sum of lost time (s)				17.2			
Intersection Capacity Utilization			59.2%		ICU Level of Service				B			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1016: Huron St (PB) & Cross St (PB)/Cross St

Road Diet Capacity Analysis

Background 2022 OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 				
Traffic Volume (vph)	0	0	0	0	210	12	0	355	215	0	0	0
Future Volume (vph)	0	0	0	0	210	12	0	355	215	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)					5.5	5.5		5.6	5.6			
Lane Util. Factor					1.00	1.00		0.95	1.00			
Frbp, ped/bikes					1.00	1.00		1.00	1.00			
Flpb, ped/bikes					1.00	1.00		1.00	1.00			
Frt					1.00	0.85		1.00	0.85			
Flt Protected					1.00	1.00		1.00	1.00			
Satd. Flow (prot)					2000	1700		3762	1683			
Flt Permitted					1.00	1.00		1.00	1.00			
Satd. Flow (perm)					2000	1700		3762	1683			
Peak-hour factor, PHF	0.92	0.92	0.92	0.84	0.84	0.84	0.95	0.95	0.95	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	250	14	0	374	226	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	8	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	250	6	0	374	226	0	0	0
Confl. Peds. (#/hr)						9			1			
Confl. Bikes (#/hr)						4						
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	0%	0%	0%
Turn Type					NA	custom		NA	custom			
Protected Phases					2	2		8	8			
Permitted Phases						2			8			
Actuated Green, G (s)					35.5	35.5		33.4	33.4			
Effective Green, g (s)					35.5	35.5		33.4	33.4			
Actuated g/C Ratio					0.44	0.44		0.42	0.42			
Clearance Time (s)					5.5	5.5		5.6	5.6			
Lane Grp Cap (vph)					887	754		1570	702			
v/s Ratio Prot					c0.13	0.00		0.10	c0.13			
v/s Ratio Perm												
v/c Ratio					0.28	0.01		0.24	0.32			
Uniform Delay, d1					14.1	12.4		15.1	15.7			
Progression Factor					1.00	1.00		1.36	1.37			
Incremental Delay, d2					0.8	0.0		0.3	1.0			
Delay (s)					14.9	12.4		20.7	22.5			
Level of Service					B	B		C	C			
Approach Delay (s)		0.0			14.8			21.4			0.0	
Approach LOS		A			B			C			A	
Intersection Summary												
HCM 2000 Control Delay			19.4		HCM 2000 Level of Service						B	
HCM 2000 Volume to Capacity ratio			0.30									
Actuated Cycle Length (s)			80.0		Sum of lost time (s)						11.1	
Intersection Capacity Utilization			56.3%		ICU Level of Service						B	
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1023: Huron St (PB) & Michigan Ave

Road Diet Capacity Analysis

Background 2022 OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 				
Traffic Volume (vph)	116	701	0	0	520	328	97	622	152	0	0	0
Future Volume (vph)	116	701	0	0	520	328	97	622	152	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	5.0	5.0			5.0	5.0	5.6	5.6				
Lane Util. Factor	1.00	0.95			0.91	0.91	1.00	0.95				
Frpb, ped/bikes	1.00	1.00			0.99	0.94	1.00	1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00	0.99	1.00				
Frt	1.00	1.00			0.98	0.85	1.00	0.97				
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00				
Satd. Flow (prot)	1891	3515			3247	1219	1857	3638				
Flt Permitted	0.30	1.00			1.00	1.00	0.95	1.00				
Satd. Flow (perm)	603	3515			3247	1219	1857	3638				
Peak-hour factor, PHF	0.93	0.93	0.93	0.94	0.94	0.94	0.86	0.86	0.86	0.92	0.92	0.92
Adj. Flow (vph)	125	754	0	0	553	349	113	723	177	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	125	754	0	0	630	272	113	900	0	0	0	0
Confl. Peds. (#/hr)	44					44	14		7			
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	1%	0%	0%	0%
Parking (#/hr)		10			10	10						
Turn Type	pm+pt	NA			NA	Perm	Perm	NA				
Protected Phases	2	1 2			1			3				
Permitted Phases	1 2					1	3					
Actuated Green, G (s)	38.0	43.0			29.0	29.0	26.4	26.4				
Effective Green, g (s)	38.0	43.0			29.0	29.0	26.4	26.4				
Actuated g/C Ratio	0.48	0.54			0.36	0.36	0.33	0.33				
Clearance Time (s)	5.0				5.0	5.0	5.6	5.6				
Lane Grp Cap (vph)	431	1889			1177	441	612	1200				
v/s Ratio Prot	0.03	c0.21			0.19			c0.25				
v/s Ratio Perm	0.11					c0.22	0.06					
v/c Ratio	0.29	0.40			0.54	0.62	0.18	0.75				
Uniform Delay, d1	17.9	10.9			20.2	20.9	19.1	23.9				
Progression Factor	0.36	0.30			1.00	1.00	0.44	0.56				
Incremental Delay, d2	1.6	0.6			1.7	6.3	0.7	4.3				
Delay (s)	8.0	3.9			21.9	27.3	9.0	17.6				
Level of Service	A	A			C	C	A	B				
Approach Delay (s)		4.5			23.5			16.6			0.0	
Approach LOS		A			C			B			A	
Intersection Summary												
HCM 2000 Control Delay		15.0			HCM 2000 Level of Service			B				
HCM 2000 Volume to Capacity ratio		0.66										
Actuated Cycle Length (s)		80.0			Sum of lost time (s)			15.6				
Intersection Capacity Utilization		58.4%			ICU Level of Service			B				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2000: Michigan Ave & Congress St & Ballard St

Road Diet Capacity Analysis

Background 2022 OP Peak Hour

											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	SBR2	NEL	NER
Lane Configurations											
Traffic Volume (vph)	9	92	4	374	108	28	16	20	10	0	392
Future Volume (vph)	9	92	4	374	108	28	16	20	10	0	392
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.9		6.1	6.1		6.3	6.3			6.1
Lane Util. Factor		1.00		0.95	0.95		1.00	1.00			0.88
Frpb, ped/bikes		1.00		1.00	0.99		1.00	1.00			1.00
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00			1.00
Frt		0.99		1.00	0.98		1.00	0.85			0.85
Flt Protected		1.00		0.95	0.98		0.95	1.00			1.00
Satd. Flow (prot)		1979		1805	1533		1900	1700			2962
Flt Permitted		1.00		0.95	0.98		0.95	1.00			1.00
Satd. Flow (perm)		1979		1805	1533		1900	1700			2962
Peak-hour factor, PHF	0.80	0.80	0.80	0.95	0.95	0.95	0.66	0.66	0.66	0.89	0.89
Adj. Flow (vph)	11	115	5	394	114	29	24	30	15	0	440
RTOR Reduction (vph)	0	2	0	0	5	0	0	34	0	0	321
Lane Group Flow (vph)	0	130	0	268	264	0	24	11	0	0	119
Confl. Peds. (#/hr)	32		11	11		32	1		9		1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%
Parking (#/hr)					10						
Turn Type	Split	NA		Split	NA		Prot	Prot			Over
Protected Phases	3	3		1	1		2	2			1
Permitted Phases											
Actuated Green, G (s)		20.0		21.7	21.7		20.0	20.0			21.7
Effective Green, g (s)		20.0		21.7	21.7		20.0	20.0			21.7
Actuated g/C Ratio		0.25		0.27	0.27		0.25	0.25			0.27
Clearance Time (s)		5.9		6.1	6.1		6.3	6.3			6.1
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0			3.0
Lane Grp Cap (vph)		494		489	415		475	425			803
v/s Ratio Prot		c0.07		0.15	c0.17		c0.01	0.01			0.04
v/s Ratio Perm											
v/c Ratio		0.26		0.55	0.64		0.05	0.03			0.15
Uniform Delay, d1		24.1		25.0	25.7		22.8	22.6			22.1
Progression Factor		1.00		1.03	1.03		1.00	1.00			1.00
Incremental Delay, d2		0.3		4.3	7.1		0.0	0.0			0.4
Delay (s)		24.4		30.0	33.6		22.8	22.7			22.5
Level of Service		C		C	C		C	C			C
Approach Delay (s)		24.4			31.8		22.7			22.5	
Approach LOS		C			C		C			C	
Intersection Summary											
HCM 2000 Control Delay			27.0			HCM 2000 Level of Service				C	
HCM 2000 Volume to Capacity ratio			0.32								
Actuated Cycle Length (s)			80.0			Sum of lost time (s)			18.3		
Intersection Capacity Utilization			63.8%			ICU Level of Service			B		
Analysis Period (min)			15								
c Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

2004: Adams St (PB) & Michigan Ave

Road Diet Capacity Analysis

Background 2022 OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	706	11	14	561	40	38	37	46	33	21	35
Future Volume (vph)	19	706	11	14	561	40	38	37	46	33	21	35
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.1			5.1		6.0	6.0		6.0	6.0	
Lane Util. Factor		0.95			0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			1.00		1.00	0.97		1.00	0.97	
Flpb, ped/bikes		1.00			1.00		0.98	1.00		0.97	1.00	
Frt		1.00			0.99		1.00	0.92		1.00	0.91	
Flt Protected		1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3463			3462		1853	1514		1798	1471	
Flt Permitted		0.93			0.93		0.71	1.00		0.69	1.00	
Satd. Flow (perm)		3229			3232		1394	1514		1298	1471	
Peak-hour factor, PHF	0.93	0.93	0.93	0.89	0.89	0.89	0.76	0.76	0.76	0.86	0.86	0.86
Adj. Flow (vph)	20	759	12	16	630	45	50	49	61	38	24	41
RTOR Reduction (vph)	0	1	0	0	6	0	0	50	0	0	34	0
Lane Group Flow (vph)	0	790	0	0	685	0	50	60	0	38	31	0
Confl. Peds. (#/hr)	18		24	24		18	26		39	39		26
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	0%	0%	0%	2%	2%	2%
Parking (#/hr)		10			10			10			10	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)		54.9			54.9		14.0	14.0		14.0	14.0	
Effective Green, g (s)		54.9			54.9		14.0	14.0		14.0	14.0	
Actuated g/C Ratio		0.69			0.69		0.18	0.18		0.18	0.18	
Clearance Time (s)		5.1			5.1		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)		2215			2217		243	264		227	257	
v/s Ratio Prot							c0.04				0.02	
v/s Ratio Perm		c0.24			0.21		0.04			0.03		
v/c Ratio		0.36			0.31		0.21	0.23		0.17	0.12	
Uniform Delay, d1		5.2			5.0		28.2	28.3		28.0	27.8	
Progression Factor		0.71			0.32		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.4			0.4		1.9	2.0		1.6	1.0	
Delay (s)		4.1			2.0		30.2	30.3		29.6	28.8	
Level of Service		A			A		C	C		C	C	
Approach Delay (s)		4.1			2.0		30.3			29.1		
Approach LOS		A			A		C			C		
Intersection Summary												
HCM 2000 Control Delay		7.1		HCM 2000 Level of Service					A			
HCM 2000 Volume to Capacity ratio		0.33										
Actuated Cycle Length (s)		80.0		Sum of lost time (s)					11.1			
Intersection Capacity Utilization		60.3%		ICU Level of Service					B			
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2005: Washington St (PB) & Michigan Ave

Road Diet Capacity Analysis

Background 2022 OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	770	36	25	575	20	19	31	31	40	32	30
Future Volume (vph)	12	770	36	25	575	20	19	31	31	40	32	30
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.0			5.0			6.0			6.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			0.98			0.98	
Flpb, ped/bikes		1.00			1.00			0.99			0.98	
Frt		0.99			1.00			0.95			0.96	
Flt Protected		1.00			1.00			0.99			0.98	
Satd. Flow (prot)		3476			3445			1541			1818	
Flt Permitted		0.94			0.90			0.90			0.86	
Satd. Flow (perm)		3285			3099			1410			1594	
Peak-hour factor, PHF	0.89	0.89	0.89	0.94	0.94	0.94	0.81	0.81	0.81	0.92	0.92	0.92
Adj. Flow (vph)	13	865	40	27	612	21	23	38	38	43	35	33
RTOR Reduction (vph)	0	4	0	0	3	0	0	28	0	0	19	0
Lane Group Flow (vph)	0	914	0	0	657	0	0	71	0	0	92	0
Confl. Peds. (#/hr)	32		30	30		32	46		43	43		46
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	0%	0%	0%	0%	0%	0%
Parking (#/hr)		10			10			10				
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)		55.0			55.0			14.0			14.0	
Effective Green, g (s)		55.0			55.0			14.0			14.0	
Actuated g/C Ratio		0.69			0.69			0.18			0.18	
Clearance Time (s)		5.0			5.0			6.0			6.0	
Lane Grp Cap (vph)		2258			2130			246			278	
v/s Ratio Prot												
v/s Ratio Perm		c0.28			0.21			0.05			c0.06	
v/c Ratio		0.40			0.31			0.29			0.33	
Uniform Delay, d1		5.4			5.0			28.7			28.9	
Progression Factor		0.25			0.35			1.00			1.00	
Incremental Delay, d2		0.5			0.3			2.9			3.2	
Delay (s)		1.9			2.1			31.6			32.1	
Level of Service		A			A			C			C	
Approach Delay (s)		1.9			2.1			31.6			32.1	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM 2000 Control Delay		5.5			HCM 2000 Level of Service			A				
HCM 2000 Volume to Capacity ratio		0.39										
Actuated Cycle Length (s)		80.0			Sum of lost time (s)			11.0				
Intersection Capacity Utilization		60.0%			ICU Level of Service			B				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3001: Huron St & Harriet St/Spring St

Road Diet Capacity Analysis

Background 2022 OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	174	0	0	297	27	172	820	228	0	0	0
Future Volume (vph)	40	174	0	0	297	27	172	820	228	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	6.6	6.6			6.6			6.1	6.1			
Lane Util. Factor	1.00	0.95			0.95			0.91	1.00			
Frpb, ped/bikes	1.00	1.00			1.00			1.00	0.99			
Flpb, ped/bikes	1.00	1.00			1.00			1.00	1.00			
Frt	1.00	1.00			0.99			1.00	0.85			
Flt Protected	0.95	1.00			1.00			0.99	1.00			
Satd. Flow (prot)	1893	3800			3748			5412	1678			
Flt Permitted	0.55	1.00			1.00			0.99	1.00			
Satd. Flow (perm)	1090	3800			3748			5412	1678			
Peak-hour factor, PHF	0.90	0.90	0.90	0.95	0.95	0.95	0.95	0.95	0.95	0.92	0.92	0.92
Adj. Flow (vph)	44	193	0	0	313	28	181	863	240	0	0	0
RTOR Reduction (vph)	0	0	0	0	8	0	0	0	114	0	0	0
Lane Group Flow (vph)	44	193	0	0	333	0	0	1044	126	0	0	0
Confl. Peds. (#/hr)	5					5	2		1			
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA	Perm			
Protected Phases		4			8			2				
Permitted Phases	4						2		2			
Actuated Green, G (s)	25.4	25.4			25.4			41.9	41.9			
Effective Green, g (s)	25.4	25.4			25.4			41.9	41.9			
Actuated g/C Ratio	0.32	0.32			0.32			0.52	0.52			
Clearance Time (s)	6.6	6.6			6.6			6.1	6.1			
Lane Grp Cap (vph)	346	1206			1189			2834	878			
v/s Ratio Prot		0.05			0.09							
v/s Ratio Perm	0.04							0.19	0.07			
v/c Ratio	0.13	0.16			0.28			0.37	0.14			
Uniform Delay, d1	19.4	19.6			20.4			11.2	9.8			
Progression Factor	0.98	0.96			1.00			1.00	1.00			
Incremental Delay, d2	0.7	0.3			0.6			0.4	0.3			
Delay (s)	19.7	19.1			21.0			11.6	10.2			
Level of Service	B	B			C			B	B			
Approach Delay (s)		19.2			21.0			11.3			0.0	
Approach LOS		B			C			B			A	
Intersection Summary												
HCM 2000 Control Delay			14.1				HCM 2000 Level of Service		B			
HCM 2000 Volume to Capacity ratio			0.33									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)		12.7			
Intersection Capacity Utilization			66.4%				ICU Level of Service		C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3003: Hamilton St & Harriet St

Road Diet Capacity Analysis

Background 2022 OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↖	↑↑					↖	↑↑↑	
Traffic Volume (vph)	0	139	112	262	202	0	0	0	0	78	854	41
Future Volume (vph)	0	139	112	262	202	0	0	0	0	78	854	41
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.8		5.8	5.8					5.6	5.6	
Lane Util. Factor		0.95		1.00	0.95					1.00	0.91	
Frpb, ped/bikes		0.99		1.00	1.00					1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00					1.00	1.00	
Frt		0.93		1.00	1.00					1.00	0.99	
Flt Protected		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (prot)		3518		1896	3800					1881	5362	
Flt Permitted		1.00		0.58	1.00					0.95	1.00	
Satd. Flow (perm)		3518		1152	3800					1881	5362	
Peak-hour factor, PHF	0.88	0.88	0.88	0.87	0.87	0.87	0.92	0.92	0.92	0.87	0.87	0.87
Adj. Flow (vph)	0	158	127	301	232	0	0	0	0	90	982	47
RTOR Reduction (vph)	0	92	0	0	0	0	0	0	0	0	7	0
Lane Group Flow (vph)	0	193	0	301	232	0	0	0	0	90	1022	0
Confl. Peds. (#/hr)			5	5								5
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	1%
Turn Type		NA		D.P+P	NA					Perm	NA	
Protected Phases		4		3	8 3						2	
Permitted Phases				4						2		
Actuated Green, G (s)		22.2		36.4	42.2					26.4	26.4	
Effective Green, g (s)		22.2		36.4	42.2					26.4	26.4	
Actuated g/C Ratio		0.28		0.45	0.53					0.33	0.33	
Clearance Time (s)		5.8		5.8						5.6	5.6	
Vehicle Extension (s)		4.0		4.0						0.2	0.2	
Lane Grp Cap (vph)		976		656	2004					620	1769	
v/s Ratio Prot		0.05		c0.08	0.06						c0.19	
v/s Ratio Perm				c0.13						0.05		
v/c Ratio		0.20		0.46	0.12					0.15	0.58	
Uniform Delay, d1		22.1		16.1	9.5					18.9	22.2	
Progression Factor		1.00		0.74	0.59					0.66	0.73	
Incremental Delay, d2		0.5		0.7	0.0					0.4	1.2	
Delay (s)		22.5		12.6	5.6					12.8	17.4	
Level of Service		C		B	A					B	B	
Approach Delay (s)		22.5			9.6			0.0			17.1	
Approach LOS		C			A			A			B	
Intersection Summary												
HCM 2000 Control Delay			15.8			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.51									
Actuated Cycle Length (s)			80.0			Sum of lost time (s)				17.2		
Intersection Capacity Utilization			65.6%			ICU Level of Service				C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3004: Huron St & Catherine St (PB)

Road Diet Capacity Analysis

Background 2022 OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								  				
Traffic Volume (vph)	12	18	0	0	1	49	9	880	7	0	0	0
Future Volume (vph)	12	18	0	0	1	49	9	880	7	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.3			5.3			5.3				
Lane Util. Factor		1.00			1.00			0.91				
Frpb, ped/bikes		1.00			0.98			1.00				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.87			1.00				
Flt Protected		0.98			1.00			1.00				
Satd. Flow (prot)		1956			1699			5395				
Flt Permitted		0.84			1.00			1.00				
Satd. Flow (perm)		1684			1699			5395				
Peak-hour factor, PHF	0.60	0.60	0.60	0.88	0.88	0.88	0.91	0.91	0.91	0.92	0.92	0.92
Adj. Flow (vph)	20	30	0	0	1	56	10	967	8	0	0	0
RTOR Reduction (vph)	0	0	0	0	51	0	0	1	0	0	0	0
Lane Group Flow (vph)	0	50	0	0	6	0	0	984	0	0	0	0
Confl. Peds. (#/hr)	5					5	3		1			
Confl. Bikes (#/hr)						1			1			
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		2			2			1				
Permitted Phases	2						1					
Actuated Green, G (s)		7.8			7.8			61.6				
Effective Green, g (s)		7.8			7.8			61.6				
Actuated g/C Ratio		0.10			0.10			0.77				
Clearance Time (s)		5.3			5.3			5.3				
Vehicle Extension (s)		3.0			3.0			0.2				
Lane Grp Cap (vph)		164			165			4154				
v/s Ratio Prot					0.00							
v/s Ratio Perm		c0.03						0.18				
v/c Ratio		0.30			0.04			0.24				
Uniform Delay, d1		33.6			32.7			2.6				
Progression Factor		1.00			1.00			1.68				
Incremental Delay, d2		1.1			0.1			0.1				
Delay (s)		34.6			32.8			4.5				
Level of Service		C			C			A				
Approach Delay (s)		34.6			32.8			4.5			0.0	
Approach LOS		C			C			A			A	
Intersection Summary												
HCM 2000 Control Delay		7.3			HCM 2000 Level of Service				A			
HCM 2000 Volume to Capacity ratio		0.24										
Actuated Cycle Length (s)		80.0			Sum of lost time (s)				10.6			
Intersection Capacity Utilization		33.5%			ICU Level of Service				A			
Analysis Period (min)		15										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

9000: Hamilton St & Washtenaw Ave

Road Diet Capacity Analysis

Background 2022 OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗								↖↑	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	0	172	634	0	0	0	0	0	0	29	405	0
Future Volume (vph)	0	172	634	0	0	0	0	0	0	29	405	0
Peak Hour Factor	0.85	0.85	0.85	0.92	0.92	0.92	0.92	0.92	0.92	0.90	0.90	0.90
Hourly flow rate (vph)	0	202	746	0	0	0	0	0	0	32	450	0
Direction, Lane #	EB 1	EB 2	EB 3	SB 1	SB 2							
Volume Total (vph)	101	101	746	182	300							
Volume Left (vph)	0	0	0	32	0							
Volume Right (vph)	0	0	746	0	0							
Hadj (s)	0.00	0.00	-0.70	0.12	0.03							
Departure Headway (s)	5.7	5.7	3.2	5.2	5.1							
Degree Utilization, x	0.16	0.16	0.66	0.26	0.43							
Capacity (veh/h)	597	599	1119	675	689							
Control Delay (s)	8.5	8.5	11.1	8.8	10.6							
Approach Delay (s)	10.5			9.9								
Approach LOS	B			A								
Intersection Summary												
Delay			10.3									
Level of Service			B									
Intersection Capacity Utilization			55.8%	ICU Level of Service	B							
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

9001: Hamilton St & Pearl St

Road Diet Capacity Analysis

Background 2022 OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											  	
Traffic Volume (veh/h)	0	0	22	98	88	0	0	0	0	0	1038	15
Future Volume (Veh/h)	0	0	22	98	88	0	0	0	0	0	1038	15
Sign Control	Stop				Stop				Free		Free	
Grade	0%				0%				0%		0%	
Peak Hour Factor	0.60	0.60	0.60	0.75	0.75	0.75	0.92	0.92	0.92	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	37	131	117	0	0	0	0	0	1153	17
Pedestrians								9				
Lane Width (ft)								0.0				
Walking Speed (ft/s)								4.0				
Percent Blockage								0				
Right turn flare (veh)												
Median type								None	None			
Median storage veh												
Upstream signal (ft)								435				
pX, platoon unblocked												
vC, conflicting volume	1220	1162	402	430	1170	0	1170			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1220	1162	402	430	1170	0	1170			0		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	94	73	40	100	100			100		
cM capacity (veh/h)	72	197	604	482	195	1091	604			1629		
Direction, Lane #	EB 1	WB 1	WB 2	SB 1	SB 2	SB 3						
Volume Total	37	87	161	461	461	248						
Volume Left	0	87	44	0	0	0						
Volume Right	37	0	0	0	0	17						
cSH	604	482	232	1700	1700	1700						
Volume to Capacity	0.06	0.18	0.69	0.27	0.27	0.15						
Queue Length 95th (ft)	5	16	112	0	0	0						
Control Delay (s)	11.4	14.1	49.4	0.0	0.0	0.0						
Lane LOS	B	B	E									
Approach Delay (s)	11.4	36.9	0.0									
Approach LOS	B	E										
Intersection Summary												
Average Delay			6.6									
Intersection Capacity Utilization			40.1%	ICU Level of Service					A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

9002: Hamilton St/Hamilton St (PB) & Ferris St

Road Diet Capacity Analysis

Background 2022 OP Peak Hour

																		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR						
Lane Configurations											  							
Traffic Volume (veh/h)	0	22	30	32	13	0	0	0	0	96	923	19						
Future Volume (Veh/h)	0	22	30	32	13	0	0	0	0	96	923	19						
Sign Control		Stop			Stop			Free			Free							
Grade		0%			0%			0%			0%							
Peak Hour Factor	0.95	0.95	0.95	0.85	0.85	0.85	0.92	0.92	0.92	0.93	0.93	0.93						
Hourly flow rate (vph)	0	23	32	38	15	0	0	0	0	103	992	20						
Pedestrians		5			3			7										
Lane Width (ft)		12.0			12.0			0.0										
Walking Speed (ft/s)		4.0			4.0			4.0										
Percent Blockage		0			0			0										
Right turn flare (veh)																		
Median type								None			None							
Median storage veh																		
Upstream signal (ft)											450							
pX, platoon unblocked	0.88	0.88	0.88	0.88	0.88		0.88											
vC, conflicting volume	1220	1216	353	590	1226	3	1017			3								
vC1, stage 1 conf vol																		
vC2, stage 2 conf vol																		
vCu, unblocked vol	758	753	0	39	764	3	526			3								
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1								
tC, 2 stage (s)																		
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2								
p0 queue free %	100	92	97	95	94	100	100			94								
cM capacity (veh/h)	237	278	952	721	271	1077	917			1628								
Direction, Lane #	EB 1	WB 1	SB 1	SB 2	SB 3	SB 4												
Volume Total	55	53	103	397	397	218												
Volume Left	0	38	103	0	0	0												
Volume Right	32	0	0	0	0	20												
cSH	473	490	1628	1700	1700	1700												
Volume to Capacity	0.12	0.11	0.06	0.23	0.23	0.13												
Queue Length 95th (ft)	10	9	5	0	0	0												
Control Delay (s)	13.6	13.2	7.4	0.0	0.0	0.0												
Lane LOS	B	B	A															
Approach Delay (s)	13.6	13.2	0.7															
Approach LOS	B	B																
Intersection Summary																		
Average Delay			1.8															
Intersection Capacity Utilization			33.0%	ICU Level of Service		A												
Analysis Period (min)			15															

HCM Unsignalized Intersection Capacity Analysis

9003: Huron St/Huron St (PB) & Ferris St

Road Diet Capacity Analysis

Background 2022 OP Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				  		
Traffic Volume (veh/h)	39	0	40	894	0	0
Future Volume (Veh/h)	39	0	40	894	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.79	0.79	0.94	0.94	0.92	0.92
Hourly flow rate (vph)	49	0	43	951	0	0
Pedestrians	5				1	
Lane Width (ft)	12.0				0.0	
Walking Speed (ft/s)	4.0				4.0	
Percent Blockage	0				0	
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				857	448	
pX, platoon unblocked	0.99					
vC, conflicting volume	409	5	5			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	383	5	5			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	91	100	97			
cM capacity (veh/h)	575	1078	1615			
Direction, Lane #	EB 1	NB 1	NB 2	NB 3		
Volume Total	49	233	380	380		
Volume Left	49	43	0	0		
Volume Right	0	0	0	0		
cSH	575	1615	1700	1700		
Volume to Capacity	0.09	0.03	0.22	0.22		
Queue Length 95th (ft)	7	2	0	0		
Control Delay (s)	11.8	1.5	0.0	0.0		
Lane LOS	B	A				
Approach Delay (s)	11.8	0.4				
Approach LOS	B					
Intersection Summary						
Average Delay			0.9			
Intersection Capacity Utilization			27.2%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

9004: Huron St (PB)/Huron St & Pearl St

Road Diet Capacity Analysis

Background 2022 OP Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	111	957	0	0
Future Volume (Veh/h)	0	0	111	957	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.88	0.88	0.92	0.92
Hourly flow rate (vph)	0	0	126	1088	0	0
Pedestrians	8					
Lane Width (ft)	0.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				430		
pX, platoon unblocked	0.80					
vC, conflicting volume	804	8	8			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	264	8	8			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	92			
cM capacity (veh/h)	524	1078	1625			
Direction, Lane #	NB 1	NB 2				
Volume Total	489	725				
Volume Left	126	0				
Volume Right	0	0				
cSH	1625	1700				
Volume to Capacity	0.08	0.43				
Queue Length 95th (ft)	6	0				
Control Delay (s)	2.4	0.0				
Lane LOS	A					
Approach Delay (s)	1.0					
Approach LOS						
Intersection Summary						
Average Delay		1.0				
Intersection Capacity Utilization		31.5%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Signalized Intersection Capacity Analysis

1002: Summit & Washtenaw Ave

Road Diet Capacity Analysis

Background 2022 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  						 			 	
Traffic Volume (vph)	8	1752	85	0	0	0	0	65	26	37	40	0
Future Volume (vph)	8	1752	85	0	0	0	0	65	26	37	40	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.4						10.8			10.8	
Lane Util. Factor		0.91						1.00			1.00	
Frpb, ped/bikes		1.00						0.99			1.00	
Flpb, ped/bikes		1.00						1.00			0.99	
Frt		0.99						0.96			1.00	
Flt Protected		1.00						1.00			0.98	
Satd. Flow (prot)		5413						1612			1925	
Flt Permitted		1.00						1.00			0.79	
Satd. Flow (perm)		5413						1612			1562	
Peak-hour factor, PHF	0.88	0.88	0.88	0.92	0.92	0.92	0.82	0.82	0.82	0.67	0.67	0.67
Adj. Flow (vph)	9	1991	97	0	0	0	0	79	32	55	60	0
RTOR Reduction (vph)	0	7	0	0	0	0	0	8	0	0	0	0
Lane Group Flow (vph)	0	2090	0	0	0	0	0	103	0	0	115	0
Confl. Peds. (#/hr)	4		5						24	24		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)								10				
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		1						2			2	
Permitted Phases	1									2		
Actuated Green, G (s)		46.6						17.2			17.2	
Effective Green, g (s)		46.6						17.2			17.2	
Actuated g/C Ratio		0.58						0.21			0.21	
Clearance Time (s)		5.4						10.8			10.8	
Lane Grp Cap (vph)		3153						346			335	
v/s Ratio Prot								0.06				
v/s Ratio Perm		0.39									c0.07	
v/c Ratio		0.66						0.30			0.34	
Uniform Delay, d1		11.4						26.3			26.6	
Progression Factor		1.00						1.00			1.30	
Incremental Delay, d2		1.1						2.2			2.8	
Delay (s)		12.5						28.5			37.4	
Level of Service		B						C			D	
Approach Delay (s)		12.5			0.0			28.5			37.4	
Approach LOS		B			A			C			D	
Intersection Summary												
HCM 2000 Control Delay		14.5						HCM 2000 Level of Service		B		
HCM 2000 Volume to Capacity ratio		0.58										
Actuated Cycle Length (s)		80.0						Sum of lost time (s)		16.2		
Intersection Capacity Utilization		61.4%						ICU Level of Service		B		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1004: Ballard St (PB) & Washtenaw Ave

Road Diet Capacity Analysis

Background 2022 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	1404	29	0	0	0	0	53	14	16	40	0
Future Volume (vph)	32	1404	29	0	0	0	0	53	14	16	40	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.3						5.7		5.7	5.7	
Lane Util. Factor		0.91						1.00		1.00	1.00	
Frpb, ped/bikes		1.00						1.00		1.00	1.00	
Flpb, ped/bikes		1.00						1.00		0.99	1.00	
Frt		1.00						0.97		1.00	1.00	
Flt Protected		1.00						1.00		0.95	1.00	
Satd. Flow (prot)		5434						1936		1889	2000	
Flt Permitted		1.00						1.00		0.71	1.00	
Satd. Flow (perm)		5434						1936		1405	2000	
Peak-hour factor, PHF	0.94	0.94	0.94	0.92	0.92	0.92	0.87	0.87	0.87	0.72	0.72	0.72
Adj. Flow (vph)	34	1494	31	0	0	0	0	61	16	22	56	0
RTOR Reduction (vph)	0	2	0	0	0	0	0	13	0	0	0	0
Lane Group Flow (vph)	0	1557	0	0	0	0	0	64	0	22	56	0
Confl. Peds. (#/hr)	7		6						8	8		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	custom	NA						NA		Perm	NA	
Protected Phases	1	1						2			2	
Permitted Phases	1									2		
Actuated Green, G (s)		61.3						7.7		7.7	7.7	
Effective Green, g (s)		61.3						7.7		7.7	7.7	
Actuated g/C Ratio		0.77						0.10		0.10	0.10	
Clearance Time (s)		5.3						5.7		5.7	5.7	
Vehicle Extension (s)		0.2						3.0		3.0	3.0	
Lane Grp Cap (vph)		4163						186		135	192	
v/s Ratio Prot		c0.29						c0.03			0.03	
v/s Ratio Perm										0.02		
v/c Ratio		0.37						0.35		0.16	0.29	
Uniform Delay, d1		3.1						33.8		33.2	33.6	
Progression Factor		0.09						1.00		1.00	1.00	
Incremental Delay, d2		0.2						1.1		0.6	0.8	
Delay (s)		0.5						34.9		33.8	34.5	
Level of Service		A						C		C	C	
Approach Delay (s)		0.5			0.0			34.9			34.3	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM 2000 Control Delay		3.6						HCM 2000 Level of Service		A		
HCM 2000 Volume to Capacity ratio		0.37										
Actuated Cycle Length (s)		80.0						Sum of lost time (s)		11.0		
Intersection Capacity Utilization		46.3%						ICU Level of Service		A		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1013: Hamilton St (PB) & Michigan Ave

Road Diet Capacity Analysis

Background 2022 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	470	134	286	529	0	0	0	0	531	1196	39
Future Volume (vph)	0	470	134	286	529	0	0	0	0	531	1196	39
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.2		5.2	5.2					6.8	6.8	
Lane Util. Factor		0.95		1.00	0.95					0.86	0.86	
Frpb, ped/bikes		0.99		1.00	1.00					1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00					1.00	1.00	
Frt		0.97		1.00	1.00					1.00	1.00	
Flt Protected		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (prot)		3652		1898	3515					1634	5115	
Flt Permitted		1.00		0.29	1.00					0.95	1.00	
Satd. Flow (perm)		3652		587	3515					1634	5115	
Peak-hour factor, PHF	0.91	0.91	0.91	0.94	0.94	0.94	0.92	0.92	0.92	0.90	0.90	0.90
Adj. Flow (vph)	0	516	147	304	563	0	0	0	0	590	1329	43
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	663	0	304	563	0	0	0	0	478	1481	0
Confl. Peds. (#/hr)			12	12						10		9
Confl. Bikes (#/hr)			1									1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)				10								
Turn Type		NA		pm+pt	NA					custom		NA
Protected Phases		1		2	1 2					3		3
Permitted Phases				1 2						3		
Actuated Green, G (s)		27.8		36.6	41.8					26.2		26.2
Effective Green, g (s)		27.8		36.6	41.8					26.2		26.2
Actuated g/C Ratio		0.35		0.46	0.52					0.33		0.33
Clearance Time (s)		5.2		5.2						6.8		6.8
Lane Grp Cap (vph)		1269		412	1836					535		1675
v/s Ratio Prot		0.18		c0.08	0.16					c0.29		0.29
v/s Ratio Perm				c0.26								
v/c Ratio		0.52		0.74	0.31					0.89		0.88
Uniform Delay, d1		20.8		23.1	10.9					25.6		25.5
Progression Factor		1.00		0.50	0.55					1.00		1.00
Incremental Delay, d2		1.5		10.7	0.4					19.9		7.2
Delay (s)		22.3		22.2	6.3					45.5		32.7
Level of Service		C		C	A					D		C
Approach Delay (s)		22.3			11.9			0.0				35.8
Approach LOS		C			B			A				D
Intersection Summary												
HCM 2000 Control Delay			27.3			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.80									
Actuated Cycle Length (s)			80.0			Sum of lost time (s)				17.2		
Intersection Capacity Utilization			71.7%			ICU Level of Service				C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1016: Huron St (PB) & Cross St (PB)/Cross St

Road Diet Capacity Analysis

Background 2022 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑	↑		↑↑	↑			
Traffic Volume (vph)	0	0	0	0	259	16	0	396	372	0	0	0
Future Volume (vph)	0	0	0	0	259	16	0	396	372	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)					5.5	5.5		5.6	5.6			
Lane Util. Factor					1.00	1.00		0.95	1.00			
Frpb, ped/bikes					1.00	1.00		1.00	1.00			
Flpb, ped/bikes					1.00	1.00		1.00	1.00			
Frt					1.00	0.85		1.00	0.85			
Flt Protected					1.00	1.00		1.00	1.00			
Satd. Flow (prot)					2000	1700		3800	1700			
Flt Permitted					1.00	1.00		1.00	1.00			
Satd. Flow (perm)					2000	1700		3800	1700			
Peak-hour factor, PHF	0.92	0.92	0.92	0.87	0.87	0.87	0.95	0.95	0.95	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	298	18	0	417	392	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	10	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	298	8	0	417	392	0	0	0
Confl. Peds. (#/hr)						19			3			
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type					NA	custom		NA	custom			
Protected Phases					2	2		8	8			
Permitted Phases						2			8			
Actuated Green, G (s)					36.5	36.5		32.4	32.4			
Effective Green, g (s)					36.5	36.5		32.4	32.4			
Actuated g/C Ratio					0.46	0.46		0.40	0.40			
Clearance Time (s)					5.5	5.5		5.6	5.6			
Lane Grp Cap (vph)					912	775		1539	688			
v/s Ratio Prot					c0.15	0.00		0.11	c0.23			
v/s Ratio Perm												
v/c Ratio					0.33	0.01		0.27	0.57			
Uniform Delay, d1					13.9	11.9		15.9	18.4			
Progression Factor					1.00	1.00		1.47	1.45			
Incremental Delay, d2					1.0	0.0		0.3	2.7			
Delay (s)					14.9	11.9		23.8	29.4			
Level of Service					B	B		C	C			
Approach Delay (s)		0.0			14.7			26.5			0.0	
Approach LOS		A			B			C			A	
Intersection Summary												
HCM 2000 Control Delay			23.2		HCM 2000 Level of Service				C			
HCM 2000 Volume to Capacity ratio			0.44									
Actuated Cycle Length (s)			80.0		Sum of lost time (s)				11.1			
Intersection Capacity Utilization			55.4%		ICU Level of Service				B			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1023: Huron St (PB) & Michigan Ave

Road Diet Capacity Analysis

Background 2022 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 				
Traffic Volume (vph)	154	1002	0	0	670	372	128	761	194	0	0	0
Future Volume (vph)	154	1002	0	0	670	372	128	761	194	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	5.0	5.0			5.0	5.0	5.6	5.6				
Lane Util. Factor	1.00	0.95			0.91	0.91	1.00	0.95				
Frpb, ped/bikes	1.00	1.00			1.00	0.94	1.00	1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00	0.98	1.00				
Frt	1.00	1.00			0.99	0.85	1.00	0.97				
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00				
Satd. Flow (prot)	1896	3515			3311	1241	1867	3666				
Flt Permitted	0.22	1.00			1.00	1.00	0.95	1.00				
Satd. Flow (perm)	433	3515			3311	1241	1867	3666				
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	164	1066	0	0	713	396	139	827	211	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	164	1066	0	0	776	333	139	1038	0	0	0	0
Confl. Peds. (#/hr)	37					37	19		13			
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)		10			10	10						
Turn Type	pm+pt	NA			NA	Perm	Perm	NA				
Protected Phases	2	1 2			1			3				
Permitted Phases	1 2					1	3					
Actuated Green, G (s)	38.0	43.0			29.0	29.0	26.4	26.4				
Effective Green, g (s)	38.0	43.0			29.0	29.0	26.4	26.4				
Actuated g/C Ratio	0.48	0.54			0.36	0.36	0.33	0.33				
Clearance Time (s)	5.0				5.0	5.0	5.6	5.6				
Lane Grp Cap (vph)	370	1889			1200	449	616	1209				
v/s Ratio Prot	0.05	c0.30			0.23			c0.28				
v/s Ratio Perm	0.16					c0.27	0.07					
v/c Ratio	0.44	0.56			0.65	0.74	0.23	0.86				
Uniform Delay, d1	22.9	12.3			21.2	22.2	19.4	25.1				
Progression Factor	0.49	0.38			1.00	1.00	0.48	0.58				
Incremental Delay, d2	3.3	1.1			2.7	10.6	0.8	8.0				
Delay (s)	14.6	5.7			23.9	32.8	10.2	22.6				
Level of Service	B	A			C	C	B	C				
Approach Delay (s)		6.9			26.6			21.1			0.0	
Approach LOS		A			C			C			A	
Intersection Summary												
HCM 2000 Control Delay			17.9				HCM 2000 Level of Service		B			
HCM 2000 Volume to Capacity ratio			0.79									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)		15.6			
Intersection Capacity Utilization			69.1%				ICU Level of Service		C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2000: Michigan Ave & Congress St & Ballard St

Road Diet Capacity Analysis

Background 2022 PM Peak Hour

											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	SBR2	NEL	NER
Lane Configurations											
Traffic Volume (vph)	17	115	0	582	252	38	33	24	11	0	581
Future Volume (vph)	17	115	0	582	252	38	33	24	11	0	581
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.9		6.1	6.1		6.3	6.3			6.1
Lane Util. Factor		1.00		0.95	0.95		1.00	1.00			0.88
Frpb, ped/bikes		1.00		1.00	0.99		1.00	1.00			1.00
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00			1.00
Frt		1.00		1.00	0.99		1.00	0.85			0.85
Flt Protected		0.99		0.95	0.98		0.95	1.00			1.00
Satd. Flow (prot)		1987		1805	1555		1900	1700			2962
Flt Permitted		0.99		0.95	0.98		0.95	1.00			1.00
Satd. Flow (perm)		1987		1805	1555		1900	1700			2962
Peak-hour factor, PHF	0.81	0.81	0.81	0.93	0.93	0.93	0.60	0.60	0.60	0.95	0.95
Adj. Flow (vph)	21	142	0	626	271	41	55	40	18	0	612
RTOR Reduction (vph)	0	0	0	0	2	0	0	48	0	0	297
Lane Group Flow (vph)	0	163	0	463	473	0	55	10	0	0	315
Confl. Peds. (#/hr)	16		5	5		16	1		3		1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%
Parking (#/hr)					10						
Turn Type	Split	NA		Split	NA		Prot	Prot			Over
Protected Phases	3	3		1	1		2	2			1
Permitted Phases											
Actuated Green, G (s)		20.0		61.7	61.7		20.0	20.0			61.7
Effective Green, g (s)		20.0		61.7	61.7		20.0	20.0			61.7
Actuated g/C Ratio		0.17		0.51	0.51		0.17	0.17			0.51
Clearance Time (s)		5.9		6.1	6.1		6.3	6.3			6.1
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0			3.0
Lane Grp Cap (vph)		331		928	799		316	283			1522
v/s Ratio Prot		c0.08		0.26	c0.30		c0.03	0.01			0.11
v/s Ratio Perm											
v/c Ratio		0.49		0.50	0.59		0.17	0.03			0.21
Uniform Delay, d1		45.4		19.0	20.4		42.9	41.9			15.8
Progression Factor		1.00		1.00	1.00		1.00	1.00			1.00
Incremental Delay, d2		1.2		1.9	3.2		0.3	0.0			0.3
Delay (s)		46.5		21.0	23.6		43.2	42.0			16.2
Level of Service		D		C	C		D	D			B
Approach Delay (s)		46.5			22.3		42.5			16.2	
Approach LOS		D			C		D			B	
Intersection Summary											
HCM 2000 Control Delay			23.6			HCM 2000 Level of Service				C	
HCM 2000 Volume to Capacity ratio			0.49								
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			18.3		
Intersection Capacity Utilization			73.1%			ICU Level of Service			D		
Analysis Period (min)			15								
c Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

2004: Adams St (PB) & Michigan Ave

Road Diet Capacity Analysis

Background 2022 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔		↔	↔		↔	↔	
Traffic Volume (vph)	2	1052	9	7	731	30	17	33	37	52	29	39
Future Volume (vph)	2	1052	9	7	731	30	17	33	37	52	29	39
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.1			5.1		6.0	6.0		6.0	6.0	
Lane Util. Factor		0.95			0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			1.00		1.00	0.97		1.00	0.99	
Flpb, ped/bikes		1.00			1.00		0.99	1.00		0.96	1.00	
Frt		1.00			0.99		1.00	0.92		1.00	0.91	
Flt Protected		1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3509			3449		1877	1519		1827	1531	
Flt Permitted		0.95			0.94		0.70	1.00		0.69	1.00	
Satd. Flow (perm)		3349			3259		1382	1519		1334	1531	
Peak-hour factor, PHF	0.95	0.95	0.95	0.91	0.91	0.91	0.71	0.71	0.71	0.77	0.77	0.77
Adj. Flow (vph)	2	1107	9	8	803	33	24	46	52	68	38	51
RTOR Reduction (vph)	0	1	0	0	4	0	0	43	0	0	42	0
Lane Group Flow (vph)	0	1117	0	0	840	0	24	55	0	68	47	0
Confl. Peds. (#/hr)	20		14	14		20	13		42	42		13
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	0%	0%	0%	0%	0%	0%
Parking (#/hr)		10			10			10			10	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)		54.9			54.9		14.0	14.0		14.0	14.0	
Effective Green, g (s)		54.9			54.9		14.0	14.0		14.0	14.0	
Actuated g/C Ratio		0.69			0.69		0.18	0.18		0.18	0.18	
Clearance Time (s)		5.1			5.1		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)		2298			2236		241	265		233	267	
v/s Ratio Prot								0.04			0.03	
v/s Ratio Perm		c0.33			0.26		0.02			c0.05		
v/c Ratio		0.49			0.38		0.10	0.21		0.29	0.18	
Uniform Delay, d1		5.9			5.3		27.7	28.3		28.7	28.1	
Progression Factor		0.48			0.23		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.5			0.5		0.8	1.8		3.2	1.4	
Delay (s)		3.4			1.7		28.5	30.0		31.8	29.5	
Level of Service		A			A		C	C		C	C	
Approach Delay (s)		3.4			1.7			29.7			30.5	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM 2000 Control Delay			6.1									HCM 2000 Level of Service A
HCM 2000 Volume to Capacity ratio			0.45									
Actuated Cycle Length (s)			80.0							11.1		
Intersection Capacity Utilization			57.6%									ICU Level of Service B
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2005: Washington St (PB) & Michigan Ave

Road Diet Capacity Analysis

Background 2022 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1065	50	0	771	28	15	36	35	83	29	38
Future Volume (vph)	0	1065	50	0	771	28	15	36	35	83	29	38
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.0			5.0			6.0			6.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			0.98			0.97	
Flpb, ped/bikes		1.00			1.00			0.99			0.99	
Frt		0.99			0.99			0.95			0.97	
Flt Protected		1.00			1.00			0.99			0.97	
Satd. Flow (prot)		3478			3486			1549			1806	
Flt Permitted		1.00			1.00			0.93			0.77	
Satd. Flow (perm)		3478			3486			1446			1438	
Peak-hour factor, PHF	0.93	0.93	0.93	0.95	0.95	0.95	0.68	0.68	0.68	0.87	0.87	0.87
Adj. Flow (vph)	0	1145	54	0	812	29	22	53	51	95	33	44
RTOR Reduction (vph)	0	4	0	0	3	0	0	31	0	0	16	0
Lane Group Flow (vph)	0	1195	0	0	838	0	0	95	0	0	156	0
Confl. Peds. (#/hr)	35		31	31		35	76		28	28		76
Confl. Bikes (#/hr)			1			1						1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)		10			10			10				
Turn Type		NA			NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)		55.0			55.0			14.0			14.0	
Effective Green, g (s)		55.0			55.0			14.0			14.0	
Actuated g/C Ratio		0.69			0.69			0.18			0.18	
Clearance Time (s)		5.0			5.0			6.0			6.0	
Lane Grp Cap (vph)		2391			2396			253			251	
v/s Ratio Prot		c0.34			0.24							
v/s Ratio Perm								0.07			c0.11	
v/c Ratio		0.50			0.35			0.38			0.62	
Uniform Delay, d1		6.0			5.1			29.2			30.6	
Progression Factor		0.19			0.36			1.00			1.00	
Incremental Delay, d2		0.7			0.3			4.2			11.1	
Delay (s)		1.8			2.2			33.4			41.7	
Level of Service		A			A			C			D	
Approach Delay (s)		1.8			2.2			33.4			41.7	
Approach LOS		A			A			C			D	
Intersection Summary												
HCM 2000 Control Delay			6.6		HCM 2000 Level of Service				A			
HCM 2000 Volume to Capacity ratio			0.52									
Actuated Cycle Length (s)			80.0		Sum of lost time (s)				11.0			
Intersection Capacity Utilization			56.3%		ICU Level of Service				B			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3001: Huron St & Harriet St/Spring St

Road Diet Capacity Analysis

Background 2022 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			  				
Traffic Volume (vph)	32	306	0	0	453	36	192	959	349	0	0	0
Future Volume (vph)	32	306	0	0	453	36	192	959	349	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	6.6	6.6			6.6			6.1	6.1			
Lane Util. Factor	1.00	0.95			0.95			0.91	1.00			
Frpb, ped/bikes	1.00	1.00			1.00			1.00	1.00			
Flpb, ped/bikes	1.00	1.00			1.00			1.00	1.00			
Frt	1.00	1.00			0.99			1.00	0.85			
Flt Protected	0.95	1.00			1.00			0.99	1.00			
Satd. Flow (prot)	1898	3800			3754			5413	1700			
Flt Permitted	0.38	1.00			1.00			0.99	1.00			
Satd. Flow (perm)	762	3800			3754			5413	1700			
Peak-hour factor, PHF	0.83	0.83	0.83	0.86	0.86	0.86	0.95	0.95	0.95	0.92	0.92	0.92
Adj. Flow (vph)	39	369	0	0	527	42	202	1009	367	0	0	0
RTOR Reduction (vph)	0	0	0	0	7	0	0	0	145	0	0	0
Lane Group Flow (vph)	39	369	0	0	562	0	0	1211	222	0	0	0
Confl. Peds. (#/hr)	2					2	3					
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA	Perm			
Protected Phases		4			8			2				
Permitted Phases	4						2		2			
Actuated Green, G (s)	28.4	28.4			28.4			38.9	38.9			
Effective Green, g (s)	28.4	28.4			28.4			38.9	38.9			
Actuated g/C Ratio	0.35	0.35			0.35			0.49	0.49			
Clearance Time (s)	6.6	6.6			6.6			6.1	6.1			
Lane Grp Cap (vph)	270	1349			1332			2632	826			
v/s Ratio Prot		0.10			0.15							
v/s Ratio Perm	0.05							0.22	0.13			
v/c Ratio	0.14	0.27			0.42			0.46	0.27			
Uniform Delay, d1	17.5	18.4			19.6			13.6	12.1			
Progression Factor	0.97	0.97			1.00			1.00	1.00			
Incremental Delay, d2	1.1	0.5			1.0			0.6	0.8			
Delay (s)	18.1	18.4			20.6			14.2	12.9			
Level of Service	B	B			C			B	B			
Approach Delay (s)		18.4			20.6			13.9			0.0	
Approach LOS		B			C			B			A	
Intersection Summary												
HCM 2000 Control Delay			16.1				HCM 2000 Level of Service		B			
HCM 2000 Volume to Capacity ratio			0.44									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)		12.7			
Intersection Capacity Utilization			57.2%				ICU Level of Service		B			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3003: Hamilton St & Harriet St

Road Diet Capacity Analysis

Background 2022 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑↑					↑	↑↑↑	
Traffic Volume (vph)	0	222	160	370	296	0	0	0	0	158	1467	39
Future Volume (vph)	0	222	160	370	296	0	0	0	0	158	1467	39
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.8		5.8	5.8					5.6	5.6	
Lane Util. Factor		0.95		1.00	0.95					1.00	0.91	
Frpb, ped/bikes		0.99		1.00	1.00					1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00					1.00	1.00	
Frt		0.94		1.00	1.00					1.00	1.00	
Flt Protected		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (prot)		3519		1893	3800					1898	5435	
Flt Permitted		1.00		0.45	1.00					0.95	1.00	
Satd. Flow (perm)		3519		888	3800					1898	5435	
Peak-hour factor, PHF	0.89	0.89	0.89	0.82	0.82	0.82	0.92	0.92	0.92	0.95	0.95	0.95
Adj. Flow (vph)	0	249	180	451	361	0	0	0	0	166	1544	41
RTOR Reduction (vph)	0	53	0	0	0	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	376	0	451	361	0	0	0	0	166	1582	0
Confl. Peds. (#/hr)			14	14						1		2
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type		NA		D.P+P	NA					Perm	NA	
Protected Phases		4		3	8 3						2	
Permitted Phases				4						2		
Actuated Green, G (s)		22.2		38.4	44.2					24.4	24.4	
Effective Green, g (s)		22.2		38.4	44.2					24.4	24.4	
Actuated g/C Ratio		0.28		0.48	0.55					0.30	0.30	
Clearance Time (s)		5.8		5.8						5.6	5.6	
Vehicle Extension (s)		4.0		4.0						0.2	0.2	
Lane Grp Cap (vph)		976		629	2099					578	1657	
v/s Ratio Prot		0.11		c0.14	0.10						c0.29	
v/s Ratio Perm				c0.20						0.09		
v/c Ratio		0.38		0.72	0.17					0.29	0.95	
Uniform Delay, d1		23.4		18.5	8.9					21.2	27.3	
Progression Factor		1.00		0.94	0.65					0.70	0.79	
Incremental Delay, d2		1.1		3.9	0.1					0.9	10.6	
Delay (s)		24.5		21.4	5.8					15.7	32.0	
Level of Service		C		C	A					B	C	
Approach Delay (s)		24.5			14.5			0.0			30.5	
Approach LOS		C			B			A			C	
Intersection Summary												
HCM 2000 Control Delay			25.3			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.81									
Actuated Cycle Length (s)			80.0			Sum of lost time (s)				17.2		
Intersection Capacity Utilization			79.1%			ICU Level of Service				D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3004: Huron St & Catherine St (PB)

Road Diet Capacity Analysis

Background 2022 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								  				
Traffic Volume (vph)	14	27	0	0	8	40	4	995	6	0	0	0
Future Volume (vph)	14	27	0	0	8	40	4	995	6	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.3			5.3			5.3				
Lane Util. Factor		1.00			1.00			0.91				
Frpb, ped/bikes		1.00			0.99			1.00				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.89			1.00				
Flt Protected		0.98			1.00			1.00				
Satd. Flow (prot)		1966			1755			5399				
Flt Permitted		0.86			1.00			1.00				
Satd. Flow (perm)		1721			1755			5399				
Peak-hour factor, PHF	0.77	0.77	0.77	0.73	0.73	0.73	0.89	0.89	0.89	0.92	0.92	0.92
Adj. Flow (vph)	18	35	0	0	11	55	4	1118	7	0	0	0
RTOR Reduction (vph)	0	0	0	0	50	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	53	0	0	16	0	0	1129	0	0	0	0
Confl. Peds. (#/hr)	1					1	1		5			
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		2			2			1				
Permitted Phases	2						1					
Actuated Green, G (s)		7.8			7.8			61.6				
Effective Green, g (s)		7.8			7.8			61.6				
Actuated g/C Ratio		0.10			0.10			0.77				
Clearance Time (s)		5.3			5.3			5.3				
Vehicle Extension (s)		3.0			3.0			0.2				
Lane Grp Cap (vph)		167			171			4157				
v/s Ratio Prot					0.01							
v/s Ratio Perm		c0.03						0.21				
v/c Ratio		0.32			0.10			0.27				
Uniform Delay, d1		33.6			32.9			2.7				
Progression Factor		1.00			1.00			1.42				
Incremental Delay, d2		1.1			0.2			0.1				
Delay (s)		34.7			33.1			4.0				
Level of Service		C			C			A				
Approach Delay (s)		34.7			33.1			4.0			0.0	
Approach LOS		C			C			A			A	
Intersection Summary												
HCM 2000 Control Delay		6.8			HCM 2000 Level of Service				A			
HCM 2000 Volume to Capacity ratio		0.28										
Actuated Cycle Length (s)		80.0			Sum of lost time (s)				10.6			
Intersection Capacity Utilization		36.1%			ICU Level of Service				A			
Analysis Period (min)		15										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

9000: Hamilton St & Washtenaw Ave

Road Diet Capacity Analysis

Background 2022 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗								↖↑	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	0	350	1086	0	0	0	0	0	0	31	657	0
Future Volume (vph)	0	350	1086	0	0	0	0	0	0	31	657	0
Peak Hour Factor	0.95	0.95	0.95	0.92	0.92	0.92	0.92	0.92	0.92	0.85	0.85	0.85
Hourly flow rate (vph)	0	368	1143	0	0	0	0	0	0	36	773	0
Direction, Lane #	EB 1	EB 2	EB 3	SB 1	SB 2							
Volume Total (vph)	184	184	1143	294	515							
Volume Left (vph)	0	0	0	36	0							
Volume Right (vph)	0	0	1143	0	0							
Hadj (s)	0.00	0.00	-0.70	0.06	0.00							
Departure Headway (s)	6.5	6.5	3.2	5.7	5.6							
Degree Utilization, x	0.33	0.33	1.02	0.46	0.81							
Capacity (veh/h)	529	529	1130	619	627							
Control Delay (s)	11.5	11.5	47.0	12.3	26.6							
Approach Delay (s)	38.4			21.4								
Approach LOS	E			C								
Intersection Summary												
Delay			32.5									
Level of Service			D									
Intersection Capacity Utilization			88.9%	ICU Level of Service					E			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

9001: Hamilton St & Pearl St

Road Diet Capacity Analysis

Background 2022 PM Peak Hour

																		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR						
Lane Configurations											  							
Traffic Volume (veh/h)	0	0	26	51	55	0	0	0	0	0	1760	12						
Future Volume (Veh/h)	0	0	26	51	55	0	0	0	0	0	1760	12						
Sign Control	Stop				Stop				Free		Free							
Grade	0%				0%				0%		0%							
Peak Hour Factor	0.65	0.65	0.65	0.79	0.79	0.79	0.92	0.92	0.92	0.92	0.92	0.92						
Hourly flow rate (vph)	0	0	40	65	70	0	0	0	0	0	1913	13						
Pedestrians	6								3									
Lane Width (ft)	12.0								0.0									
Walking Speed (ft/s)	4.0								4.0									
Percent Blockage	1								0									
Right turn flare (veh)																		
Median type							None			None								
Median storage (veh)																		
Upstream signal (ft)							435											
pX, platoon unblocked																		
vC, conflicting volume	1960	1926	653	681	1932	0	1932			0								
vC1, stage 1 conf vol																		
vC2, stage 2 conf vol																		
vCu, unblocked vol	1960	1926	653	681	1932	0	1932			0								
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1								
tC, 2 stage (s)																		
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2								
p0 queue free %	0	100	90	79	0	100	100			100								
cM capacity (veh/h)	0	67	413	306	67	1091	307			1636								
Direction, Lane #	EB 1	WB 1	WB 2	SB 1	SB 2	SB 3												
Volume Total	40	43	92	765	765	396												
Volume Left	0	43	22	0	0	0												
Volume Right	40	0	0	0	0	13												
cSH	413	306	82	1700	1700	1700												
Volume to Capacity	0.10	0.14	1.12	0.45	0.45	0.23												
Queue Length 95th (ft)	8	12	163	0	0	0												
Control Delay (s)	14.7	18.7	228.7	0.0	0.0	0.0												
Lane LOS	B	C	F															
Approach Delay (s)	14.7	161.3		0.0														
Approach LOS	B	F																
Intersection Summary																		
Average Delay			10.6															
Intersection Capacity Utilization			50.2%	ICU Level of Service					A									
Analysis Period (min)			15															

HCM Unsignalized Intersection Capacity Analysis

9002: Hamilton St/Hamilton St (PB) & Ferris St

Road Diet Capacity Analysis

Background 2022 PM Peak Hour

																											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR															
Lane Configurations											  																
Traffic Volume (veh/h)	0	23	29	49	26	0	0	0	0	107	1418	19															
Future Volume (Veh/h)	0	23	29	49	26	0	0	0	0	107	1418	19															
Sign Control		Stop			Stop			Free			Free																
Grade		0%			0%			0%			0%																
Peak Hour Factor	0.69	0.69	0.69	0.76	0.76	0.76	0.92	0.92	0.92	0.93	0.93	0.93															
Hourly flow rate (vph)	0	33	42	64	34	0	0	0	0	115	1525	20															
Pedestrians		4			3			7																			
Lane Width (ft)		12.0			12.0			0.0																			
Walking Speed (ft/s)		4.0			4.0			4.0																			
Percent Blockage		0			0			0																			
Right turn flare (veh)																											
Median type								None			None																
Median storage (veh)																											
Upstream signal (ft)											450																
pX, platoon unblocked	0.76	0.76	0.76	0.76	0.76		0.76																				
vC, conflicting volume	1786	1772	529	807	1782	3	1549			3																	
vC1, stage 1 conf vol																											
vC2, stage 2 conf vol																											
vCu, unblocked vol	907	888	0	0	902	3	593			3																	
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1																	
tC, 2 stage (s)																											
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2																	
p0 queue free %	100	83	95	89	83	100	100			93																	
cM capacity (veh/h)	144	199	821	605	195	1083	747			1628																	
Direction, Lane #	EB 1	WB 1	SB 1	SB 2	SB 3	SB 4																					
Volume Total	75	98	115	610	610	325																					
Volume Left	0	64	115	0	0	0																					
Volume Right	42	0	0	0	0	20																					
cSH	345	350	1628	1700	1700	1700																					
Volume to Capacity	0.22	0.28	0.07	0.36	0.36	0.19																					
Queue Length 95th (ft)	20	28	6	0	0	0																					
Control Delay (s)	18.3	19.2	7.4	0.0	0.0	0.0																					
Lane LOS	C	C	A																								
Approach Delay (s)	18.3	19.2	0.5																								
Approach LOS	C	C																									
Intersection Summary																											
Average Delay			2.2																								
Intersection Capacity Utilization			43.6%	ICU Level of Service					A																		
Analysis Period (min)			15																								

HCM Unsignalized Intersection Capacity Analysis

9003: Huron St/Huron St (PB) & Ferris St

Road Diet Capacity Analysis
Background 2022 PM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				  		
Traffic Volume (veh/h)	33	0	25	1308	0	0
Future Volume (Veh/h)	33	0	25	1308	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.60	0.60	0.95	0.95	0.92	0.92
Hourly flow rate (vph)	55	0	26	1377	0	0
Pedestrians	8				1	
Lane Width (ft)	12.0				0.0	
Walking Speed (ft/s)	4.0				4.0	
Percent Blockage	1				0	
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				857	448	
pX, platoon unblocked	0.98					
vC, conflicting volume	520	8	8			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	437	8	8			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	90	100	98			
cM capacity (veh/h)	530	1071	1615			
Direction, Lane #	EB 1	NB 1	NB 2	NB 3		
Volume Total	55	301	551	551		
Volume Left	55	26	0	0		
Volume Right	0	0	0	0		
cSH	530	1615	1700	1700		
Volume to Capacity	0.10	0.02	0.32	0.32		
Queue Length 95th (ft)	9	1	0	0		
Control Delay (s)	12.6	0.8	0.0	0.0		
Lane LOS	B	A				
Approach Delay (s)	12.6	0.2				
Approach LOS	B					
Intersection Summary						
Average Delay			0.6			
Intersection Capacity Utilization			34.5%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

9004: Huron St (PB)/Huron St & Pearl St

Road Diet Capacity Analysis

Background 2022 PM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				 		
Traffic Volume (veh/h)	0	0	142	1127	0	0
Future Volume (Veh/h)	0	0	142	1127	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.88	0.88	0.92	0.92
Hourly flow rate (vph)	0	0	161	1281	0	0
Pedestrians	8					
Lane Width (ft)	0.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				430		
pX, platoon unblocked	0.76					
vC, conflicting volume	970	8	8			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	320	8	8			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	90			
cM capacity (veh/h)	446	1078	1625			
Direction, Lane #	NB 1	NB 2				
Volume Total	588	854				
Volume Left	161	0				
Volume Right	0	0				
cSH	1625	1700				
Volume to Capacity	0.10	0.50				
Queue Length 95th (ft)	8	0				
Control Delay (s)	2.8	0.0				
Lane LOS	A					
Approach Delay (s)	1.1					
Approach LOS						
Intersection Summary						
Average Delay		1.1				
Intersection Capacity Utilization		36.8%		ICU Level of Service		A
Analysis Period (min)		15				

Appendix J
Background 2038 Condition Synchro Reports

HCM Signalized Intersection Capacity Analysis

1002: Summit & Washtenaw Ave

Road Diet Capacity Analysis

Background 2038 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  						 			 	
Traffic Volume (vph)	3	756	19	0	0	0	0	153	35	12	11	0
Future Volume (vph)	3	756	19	0	0	0	0	153	35	12	11	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.4						10.8			10.8	
Lane Util. Factor		0.91						1.00			1.00	
Frpb, ped/bikes		1.00						0.99			1.00	
Flpb, ped/bikes		1.00						1.00			0.99	
Frt		1.00						0.98			1.00	
Flt Protected		1.00						1.00			0.97	
Satd. Flow (prot)		5436						1643			1921	
Flt Permitted		1.00						1.00			0.73	
Satd. Flow (perm)		5436						1643			1448	
Peak-hour factor, PHF	0.87	0.87	0.87	0.92	0.92	0.92	0.91	0.91	0.91	0.75	0.75	0.75
Adj. Flow (vph)	3	869	22	0	0	0	0	168	38	16	15	0
RTOR Reduction (vph)	0	3	0	0	0	0	0	10	0	0	0	0
Lane Group Flow (vph)	0	891	0	0	0	0	0	196	0	0	31	0
Confl. Peds. (#/hr)			2						26	26		
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)								10				
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		1						2			2	
Permitted Phases	1								2			
Actuated Green, G (s)		46.6						17.2			17.2	
Effective Green, g (s)		46.6						17.2			17.2	
Actuated g/C Ratio		0.58						0.21			0.21	
Clearance Time (s)		5.4						10.8			10.8	
Lane Grp Cap (vph)		3166						353			311	
v/s Ratio Prot								c0.12				
v/s Ratio Perm		0.16									0.02	
v/c Ratio		0.28						0.55			0.10	
Uniform Delay, d1		8.3						28.0			25.2	
Progression Factor		1.00						1.00			1.32	
Incremental Delay, d2		0.2						6.2			0.6	
Delay (s)		8.6						34.1			33.9	
Level of Service		A						C			C	
Approach Delay (s)		8.6			0.0			34.1			33.9	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM 2000 Control Delay		13.9						HCM 2000 Level of Service		B		
HCM 2000 Volume to Capacity ratio		0.35										
Actuated Cycle Length (s)		80.0						Sum of lost time (s)		16.2		
Intersection Capacity Utilization		45.6%						ICU Level of Service		A		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1004: Ballard St (PB) & Washtenaw Ave

Road Diet Capacity Analysis

Background 2038 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	589	7	0	0	0	0	41	9	10	23	0
Future Volume (vph)	17	589	7	0	0	0	0	41	9	10	23	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.3						5.7		5.7	5.7	
Lane Util. Factor		0.91						1.00		1.00	1.00	
Frpb, ped/bikes		1.00						1.00		1.00	1.00	
Flpb, ped/bikes		1.00						1.00		0.99	1.00	
Frt		1.00						0.98		1.00	1.00	
Flt Protected		1.00						1.00		0.95	1.00	
Satd. Flow (prot)		5441						1946		1887	2000	
Flt Permitted		1.00						1.00		0.71	1.00	
Satd. Flow (perm)		5441						1946		1416	2000	
Peak-hour factor, PHF	0.90	0.90	0.90	0.92	0.92	0.92	0.73	0.73	0.73	0.91	0.91	0.91
Adj. Flow (vph)	19	654	8	0	0	0	0	56	12	11	25	0
RTOR Reduction (vph)	0	1	0	0	0	0	0	11	0	0	0	0
Lane Group Flow (vph)	0	680	0	0	0	0	0	57	0	11	25	0
Confl. Peds. (#/hr)	2		1						9	9		
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	0%	0%	0%	2%	2%	2%	0%	0%	0%	0%	0%	0%
Turn Type	custom	NA						NA		Perm	NA	
Protected Phases	1	1						2			2	
Permitted Phases	1									2		
Actuated Green, G (s)		61.4						7.6		7.6	7.6	
Effective Green, g (s)		61.4						7.6		7.6	7.6	
Actuated g/C Ratio		0.77						0.09		0.09	0.09	
Clearance Time (s)		5.3						5.7		5.7	5.7	
Vehicle Extension (s)		0.2						3.0		3.0	3.0	
Lane Grp Cap (vph)		4175						184		134	190	
v/s Ratio Prot		c0.12						c0.03			0.01	
v/s Ratio Perm										0.01		
v/c Ratio		0.16						0.31		0.08	0.13	
Uniform Delay, d1		2.5						33.8		33.0	33.2	
Progression Factor		0.54						1.00		1.00	1.00	
Incremental Delay, d2		0.1						1.0		0.3	0.3	
Delay (s)		1.4						34.7		33.3	33.5	
Level of Service		A						C		C	C	
Approach Delay (s)		1.4			0.0			34.7			33.4	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM 2000 Control Delay		5.8						HCM 2000 Level of Service		A		
HCM 2000 Volume to Capacity ratio		0.18										
Actuated Cycle Length (s)		80.0						Sum of lost time (s)		11.0		
Intersection Capacity Utilization		36.4%						ICU Level of Service		A		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1013: Hamilton St (PB) & Michigan Ave

Road Diet Capacity Analysis

Background 2038 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	316	87	161	758	0	0	0	0	212	502	43
Future Volume (vph)	0	316	87	161	758	0	0	0	0	212	502	43
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.2		5.2	5.2					6.8	6.8	
Lane Util. Factor		0.95		1.00	0.95					0.86	0.86	
Frpb, ped/bikes		1.00		1.00	1.00					1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00					1.00	1.00	
Frt		0.97		1.00	1.00					1.00	0.99	
Flt Protected		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (prot)		3662		1879	3480					1618	5033	
Flt Permitted		1.00		0.43	1.00					0.95	1.00	
Satd. Flow (perm)		3662		841	3480					1618	5033	
Peak-hour factor, PHF	0.84	0.84	0.84	0.83	0.83	0.83	0.92	0.92	0.92	0.91	0.91	0.91
Adj. Flow (vph)	0	376	104	194	913	0	0	0	0	233	552	47
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	11	0
Lane Group Flow (vph)	0	480	0	194	913	0	0	0	0	203	618	0
Confl. Peds. (#/hr)			6	6						5		6
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Parking (#/hr)				10								
Turn Type		NA		pm+pt	NA					custom	NA	
Protected Phases		1		2	1 2					3	3	
Permitted Phases				1 2						3		
Actuated Green, G (s)		28.8		37.6	42.8					25.2	25.2	
Effective Green, g (s)		28.8		37.6	42.8					25.2	25.2	
Actuated g/C Ratio		0.36		0.47	0.53					0.31	0.31	
Clearance Time (s)		5.2		5.2						6.8	6.8	
Lane Grp Cap (vph)		1318		509	1861					509	1585	
v/s Ratio Prot		0.13		0.04	c0.26					c0.13	0.12	
v/s Ratio Perm				0.14								
v/c Ratio		0.36		0.38	0.49					0.40	0.39	
Uniform Delay, d1		18.9		16.3	11.7					21.5	21.4	
Progression Factor		1.00		0.81	0.76					1.00	1.00	
Incremental Delay, d2		0.8		2.0	0.9					2.3	0.7	
Delay (s)		19.6		15.3	9.8					23.8	22.1	
Level of Service		B		B	A					C	C	
Approach Delay (s)		19.6			10.8			0.0			22.5	
Approach LOS		B			B			A			C	
Intersection Summary												
HCM 2000 Control Delay			16.6		HCM 2000 Level of Service					B		
HCM 2000 Volume to Capacity ratio			0.49									
Actuated Cycle Length (s)			80.0		Sum of lost time (s)					17.2		
Intersection Capacity Utilization			57.8%		ICU Level of Service					B		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1016: Huron St (PB) & Cross St (PB)/Cross St

Road Diet Capacity Analysis

Background 2038 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑	↗		↑↑	↗			
Traffic Volume (vph)	0	0	0	0	465	29	0	588	148	0	0	0
Future Volume (vph)	0	0	0	0	465	29	0	588	148	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)					5.5	5.5		5.6	5.6			
Lane Util. Factor					1.00	1.00		0.95	1.00			
Frpb, ped/bikes					1.00	1.00		1.00	1.00			
Flpb, ped/bikes					1.00	1.00		1.00	1.00			
Frt					1.00	0.85		1.00	0.85			
Flt Protected					1.00	1.00		1.00	1.00			
Satd. Flow (prot)					2000	1700		3800	1700			
Flt Permitted					1.00	1.00		1.00	1.00			
Satd. Flow (perm)					2000	1700		3800	1700			
Peak-hour factor, PHF	0.92	0.92	0.92	0.81	0.81	0.81	0.94	0.94	0.94	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	574	36	0	626	157	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	18	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	574	18	0	626	157	0	0	0
Confl. Peds. (#/hr)						11			3			
Confl. Bikes (#/hr)						4						
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type					NA	custom		NA	custom			
Protected Phases					2	2		8	8			
Permitted Phases						2			8			
Actuated Green, G (s)					38.5	38.5		30.4	30.4			
Effective Green, g (s)					38.5	38.5		30.4	30.4			
Actuated g/C Ratio					0.48	0.48		0.38	0.38			
Clearance Time (s)					5.5	5.5		5.6	5.6			
Lane Grp Cap (vph)					962	818		1444	646			
v/s Ratio Prot					c0.29	0.01		c0.16	0.09			
v/s Ratio Perm												
v/c Ratio					0.60	0.02		0.43	0.24			
Uniform Delay, d1					15.1	10.9		18.4	16.9			
Progression Factor					1.00	1.00		1.45	1.42			
Incremental Delay, d2					2.7	0.0		0.3	0.3			
Delay (s)					17.8	10.9		26.9	24.4			
Level of Service					B	B		C	C			
Approach Delay (s)		0.0			17.4			26.4			0.0	
Approach LOS		A			B			C			A	
Intersection Summary												
HCM 2000 Control Delay			22.5				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.52									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)			11.1		
Intersection Capacity Utilization			57.8%				ICU Level of Service			B		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1023: Huron St (PB) & Michigan Ave

Road Diet Capacity Analysis

Background 2038 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	86	490	0	0	771	619	96	1222	80	0	0	0
Future Volume (vph)	86	490	0	0	771	619	96	1222	80	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	5.0	5.0			5.0	5.0	5.6	5.6				
Lane Util. Factor	1.00	0.95			0.91	0.91	1.00	0.95				
Frpb, ped/bikes	1.00	1.00			1.00	0.98	1.00	1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00				
Frt	1.00	1.00			0.97	0.85	1.00	0.99				
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00				
Satd. Flow (prot)	1881	3480			3218	1271	1873	3725				
Flt Permitted	0.14	1.00			1.00	1.00	0.95	1.00				
Satd. Flow (perm)	283	3480			3218	1271	1873	3725				
Peak-hour factor, PHF	0.93	0.93	0.93	0.89	0.89	0.89	0.95	0.95	0.95	0.92	0.92	0.92
Adj. Flow (vph)	92	527	0	0	866	696	101	1286	84	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	92	527	0	0	1082	480	101	1370	0	0	0	0
Confl. Peds. (#/hr)	10					10	5		2			
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%
Parking (#/hr)		10			10	10						
Turn Type	pm+pt	NA			NA	Perm	Perm	NA				
Protected Phases	2	1 2			1			3				
Permitted Phases	1 2					1	3					
Actuated Green, G (s)	37.0	42.0			28.0	28.0	27.4	27.4				
Effective Green, g (s)	37.0	42.0			28.0	28.0	27.4	27.4				
Actuated g/C Ratio	0.46	0.52			0.35	0.35	0.34	0.34				
Clearance Time (s)	5.0				5.0	5.0	5.6	5.6				
Lane Grp Cap (vph)	310	1827			1126	444	641	1275				
v/s Ratio Prot	0.03	c0.15			0.34			c0.37				
v/s Ratio Perm	0.10					c0.38	0.05					
v/c Ratio	0.30	0.29			0.96	1.08	0.16	1.07				
Uniform Delay, d1	27.7	10.6			25.5	26.0	18.3	26.3				
Progression Factor	0.51	0.42			1.00	1.00	0.17	0.35				
Incremental Delay, d2	2.3	0.4			18.9	66.3	0.5	47.2				
Delay (s)	16.5	4.9			44.4	92.3	3.7	56.4				
Level of Service	B	A			D	F	A	E				
Approach Delay (s)		6.6			59.1			52.7			0.0	
Approach LOS		A			E			D			A	
Intersection Summary												
HCM 2000 Control Delay			47.6				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.98									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)			15.6		
Intersection Capacity Utilization			80.1%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2000: Michigan Ave & Congress St & Ballard St

Road Diet Capacity Analysis

Background 2038 AM Peak Hour

											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NEL	NER	
Lane Configurations											
Traffic Volume (vph)	9	84	1	423	162	36	11	55	0	339	
Future Volume (vph)	9	84	1	423	162	36	11	55	0	339	
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	
Total Lost time (s)		5.9		6.1	6.1		6.3	6.3		6.1	
Lane Util. Factor		1.00		0.95	0.95		1.00	1.00		0.88	
Frpb, ped/bikes		1.00		1.00	1.00		1.00	1.00		1.00	
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00		1.00	
Frt		1.00		1.00	0.98		1.00	0.85		0.85	
Flt Protected		1.00		0.95	0.98		0.95	1.00		1.00	
Satd. Flow (prot)		1988		1787	1538		1900	1700		2992	
Flt Permitted		1.00		0.95	0.98		0.95	1.00		1.00	
Satd. Flow (perm)		1988		1787	1538		1900	1700		2992	
Peak-hour factor, PHF	0.82	0.82	0.82	0.94	0.94	0.94	0.60	0.60	0.93	0.93	
Adj. Flow (vph)	11	102	1	450	172	38	18	92	0	365	
RTOR Reduction (vph)	0	0	0	0	3	0	0	0	0	177	
Lane Group Flow (vph)	0	114	0	328	329	0	18	92	0	188	
Confl. Peds. (#/hr)	2		1	1		2	1			1	
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	0%	0%	0%	0%	
Parking (#/hr)					10						
Turn Type	Split	NA		Split	NA		Prot	Prot		Over	
Protected Phases	3	3		1	1		2	2		1	
Permitted Phases											
Actuated Green, G (s)		20.0		61.7	61.7		20.0	20.0		61.7	
Effective Green, g (s)		20.0		61.7	61.7		20.0	20.0		61.7	
Actuated g/C Ratio		0.17		0.51	0.51		0.17	0.17		0.51	
Clearance Time (s)		5.9		6.1	6.1		6.3	6.3		6.1	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0		3.0	
Lane Grp Cap (vph)		331		918	790		316	283		1538	
v/s Ratio Prot		c0.06		0.18	c0.21		0.01	c0.05		0.06	
v/s Ratio Perm											
v/c Ratio		0.34		0.36	0.42		0.06	0.33		0.12	
Uniform Delay, d1		44.2		17.3	18.0		42.1	44.1		15.1	
Progression Factor		1.00		1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2		0.6		1.1	1.6		0.1	0.7		0.2	
Delay (s)		44.8		18.4	19.6		42.1	44.7		15.3	
Level of Service		D		B	B		D	D		B	
Approach Delay (s)		44.8			19.0		44.3		15.3		
Approach LOS		D			B		D		B		
Intersection Summary											
HCM 2000 Control Delay			22.5			HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.38								
Actuated Cycle Length (s)			120.0		Sum of lost time (s)				18.3		
Intersection Capacity Utilization			66.6%		ICU Level of Service			C			
Analysis Period (min)			15								
c Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

2004: Adams St (PB) & Michigan Ave

Road Diet Capacity Analysis

Background 2038 AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔		↖	↗		↖	↗	
Traffic Volume (vph)	0	608	7	0	860	33	49	45	13	23	11	21
Future Volume (vph)	0	608	7	0	860	33	49	45	13	23	11	21
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.1			5.1		6.0	6.0		6.0	6.0	
Lane Util. Factor		0.95			0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		0.99	1.00	
Frt		1.00			0.99		1.00	0.97		1.00	0.90	
Flt Protected		1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3473			3457		1894	1633		1879	1519	
Flt Permitted		1.00			1.00		0.73	1.00		0.69	1.00	
Satd. Flow (perm)		3473			3457		1454	1633		1373	1519	
Peak-hour factor, PHF	0.94	0.94	0.94	0.89	0.89	0.89	0.60	0.60	0.60	0.75	0.75	0.75
Adj. Flow (vph)	0	647	7	0	966	37	82	75	22	31	15	28
RTOR Reduction (vph)	0	1	0	0	3	0	0	13	0	0	23	0
Lane Group Flow (vph)	0	653	0	0	1000	0	82	84	0	31	20	0
Confl. Peds. (#/hr)	6		8	8		6	3		12	12		3
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%
Parking (#/hr)		10			10			10			10	
Turn Type		NA			NA		Perm	NA		Perm	NA	
Protected Phases		1			1		2	2		2	2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)		54.9			54.9		14.0	14.0		14.0	14.0	
Effective Green, g (s)		54.9			54.9		14.0	14.0		14.0	14.0	
Actuated g/C Ratio		0.69			0.69		0.18	0.18		0.18	0.18	
Clearance Time (s)		5.1			5.1		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)		2383			2372		254	285		240	265	
v/s Ratio Prot		0.19			0.29			0.05			0.01	
v/s Ratio Perm							0.06			0.02		
v/c Ratio		0.27			0.42		0.32	0.29		0.13	0.08	
Uniform Delay, d1		4.8			5.5		28.9	28.7		27.9	27.6	
Progression Factor		0.42			0.53		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.3			0.5		3.3	2.6		1.1	0.6	
Delay (s)		2.3			3.4		32.2	31.3		29.0	28.1	
Level of Service		A			A		C	C		C	C	
Approach Delay (s)		2.3			3.4			31.7			28.5	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM 2000 Control Delay		6.7			HCM 2000 Level of Service			A				
HCM 2000 Volume to Capacity ratio		0.40										
Actuated Cycle Length (s)		80.0			Sum of lost time (s)			11.1				
Intersection Capacity Utilization		52.0%			ICU Level of Service			A				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2005: Washington St (PB) & Michigan Ave

Road Diet Capacity Analysis

Background 2038 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	607	14	0	800	16	46	101	25	16	6	10
Future Volume (vph)	0	607	14	0	800	16	46	101	25	16	6	10
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.0			5.0			6.0			6.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			1.00			0.99	
Flpb, ped/bikes		1.00			1.00			0.99			1.00	
Frt		1.00			1.00			0.98			0.96	
Flt Protected		1.00			1.00			0.99			0.98	
Satd. Flow (prot)		3501			3467			1629			1774	
Flt Permitted		1.00			1.00			0.90			0.67	
Satd. Flow (perm)		3501			3467			1480			1221	
Peak-hour factor, PHF	0.86	0.86	0.86	0.94	0.94	0.94	0.60	0.60	0.60	0.88	0.88	0.88
Adj. Flow (vph)	0	706	16	0	851	17	77	168	42	18	7	11
RTOR Reduction (vph)	0	2	0	0	2	0	0	7	0	0	9	0
Lane Group Flow (vph)	0	720	0	0	866	0	0	280	0	0	27	0
Confl. Peds. (#/hr)	10		3	3		10	22		9	9		22
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	0%	0%	0%	4%	4%	4%
Parking (#/hr)		10			10			10				
Turn Type		NA			NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)		55.0			55.0			14.0			14.0	
Effective Green, g (s)		55.0			55.0			14.0			14.0	
Actuated g/C Ratio		0.69			0.69			0.18			0.18	
Clearance Time (s)		5.0			5.0			6.0			6.0	
Lane Grp Cap (vph)		2406			2383			259			213	
v/s Ratio Prot		0.21			c0.25							
v/s Ratio Perm								c0.19			0.02	
v/c Ratio		0.30			0.36			1.08			0.13	
Uniform Delay, d1		4.9			5.2			33.0			27.8	
Progression Factor		0.31			0.19			1.00			1.00	
Incremental Delay, d2		0.3			0.2			78.7			1.2	
Delay (s)		1.8			1.2			111.7			29.1	
Level of Service		A			A			F			C	
Approach Delay (s)		1.8			1.2			111.7			29.1	
Approach LOS		A			A			F			C	
Intersection Summary												
HCM 2000 Control Delay		18.5			HCM 2000 Level of Service			B				
HCM 2000 Volume to Capacity ratio		0.51										
Actuated Cycle Length (s)		80.0			Sum of lost time (s)			11.0				
Intersection Capacity Utilization		48.2%			ICU Level of Service			A				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3001: Huron St & Harriet St/Spring St

Road Diet Capacity Analysis

Background 2038 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	136	0	0	477	35	405	1606	385	0	0	0
Future Volume (vph)	17	136	0	0	477	35	405	1606	385	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	6.6	6.6			6.6			6.1	6.1			
Lane Util. Factor	1.00	0.95			0.95			0.91	1.00			
Frpb, ped/bikes	1.00	1.00			1.00			1.00	0.99			
Flpb, ped/bikes	1.00	1.00			1.00			1.00	1.00			
Frt	1.00	1.00			0.99			1.00	0.85			
Flt Protected	0.95	1.00			1.00			0.99	1.00			
Satd. Flow (prot)	1880	3762			3758			5406	1675			
Flt Permitted	0.33	1.00			1.00			0.99	1.00			
Satd. Flow (perm)	648	3762			3758			5406	1675			
Peak-hour factor, PHF	0.68	0.68	0.68	0.87	0.87	0.87	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	25	200	0	0	548	40	440	1746	418	0	0	0
RTOR Reduction (vph)	0	0	0	0	6	0	0	0	183	0	0	0
Lane Group Flow (vph)	25	200	0	0	582	0	0	2186	235	0	0	0
Confl. Peds. (#/hr)	1					1			4			
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA	Perm			
Protected Phases		4			8			2				
Permitted Phases	4						2		2			
Actuated Green, G (s)	22.4	22.4			22.4			44.9	44.9			
Effective Green, g (s)	22.4	22.4			22.4			44.9	44.9			
Actuated g/C Ratio	0.28	0.28			0.28			0.56	0.56			
Clearance Time (s)	6.6	6.6			6.6			6.1	6.1			
Lane Grp Cap (vph)	181	1053			1052			3034	940			
v/s Ratio Prot		0.05			0.15							
v/s Ratio Perm	0.04							0.40	0.14			
v/c Ratio	0.14	0.19			0.55			0.72	0.25			
Uniform Delay, d1	21.6	21.9			24.5			12.9	9.0			
Progression Factor	1.01	1.00			1.00			0.92	1.55			
Incremental Delay, d2	1.6	0.4			2.1			0.1	0.1			
Delay (s)	23.5	22.3			26.6			12.0	14.0			
Level of Service	C	C			C			B	B			
Approach Delay (s)		22.4			26.6			12.4			0.0	
Approach LOS		C			C			B			A	
Intersection Summary												
HCM 2000 Control Delay			15.5				HCM 2000 Level of Service		B			
HCM 2000 Volume to Capacity ratio			0.66									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)		12.7			
Intersection Capacity Utilization			65.7%				ICU Level of Service		C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3003: Hamilton St & Harriet St

Road Diet Capacity Analysis

Background 2038 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑↑					↑	↑↑↑	
Traffic Volume (vph)	0	115	112	265	541	0	0	0	0	47	571	50
Future Volume (vph)	0	115	112	265	541	0	0	0	0	47	571	50
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.8		5.8	5.8					5.6	5.6	
Lane Util. Factor		0.95		1.00	0.95					1.00	0.91	
Frpb, ped/bikes		0.99		1.00	1.00					1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00					1.00	1.00	
Frt		0.93		1.00	1.00					1.00	0.99	
Flt Protected		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (prot)		3494		1898	3800					1881	5340	
Flt Permitted		1.00		0.57	1.00					0.95	1.00	
Satd. Flow (perm)		3494		1130	3800					1881	5340	
Peak-hour factor, PHF	0.74	0.74	0.74	0.95	0.95	0.95	0.93	0.92	0.92	0.93	0.93	0.93
Adj. Flow (vph)	0	155	151	279	569	0	0	0	0	51	614	54
RTOR Reduction (vph)	0	109	0	0	0	0	0	0	0	0	13	0
Lane Group Flow (vph)	0	197	0	279	569	0	0	0	0	51	655	0
Confl. Peds. (#/hr)			2	2								
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	1%
Turn Type		NA		D.P+P	NA					Perm	NA	
Protected Phases		4		3	8 3						2	
Permitted Phases				4						2		
Actuated Green, G (s)		22.2		36.4	42.2					26.4	26.4	
Effective Green, g (s)		22.2		36.4	42.2					26.4	26.4	
Actuated g/C Ratio		0.28		0.45	0.53					0.33	0.33	
Clearance Time (s)		5.8		5.8						5.6	5.6	
Vehicle Extension (s)		4.0		4.0						0.2	0.2	
Lane Grp Cap (vph)		969		650	2004					620	1762	
v/s Ratio Prot		0.06		c0.08	0.15						c0.12	
v/s Ratio Perm				c0.12						0.03		
v/c Ratio		0.20		0.43	0.28					0.08	0.37	
Uniform Delay, d1		22.1		15.8	10.5					18.5	20.5	
Progression Factor		1.00		0.90	0.82					0.73	0.76	
Incremental Delay, d2		0.5		0.5	0.1					0.2	0.6	
Delay (s)		22.6		14.6	8.6					13.8	16.1	
Level of Service		C		B	A					B	B	
Approach Delay (s)		22.6			10.6			0.0			15.9	
Approach LOS		C			B			A			B	
Intersection Summary												
HCM 2000 Control Delay			14.6			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.40									
Actuated Cycle Length (s)			80.0			Sum of lost time (s)				17.2		
Intersection Capacity Utilization			57.3%			ICU Level of Service				B		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3004: Huron St & Catherine St (PB)

Road Diet Capacity Analysis

Background 2038 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								  				
Traffic Volume (vph)	9	10	0	0	29	47	90	1489	19	0	0	0
Future Volume (vph)	9	10	0	0	29	47	90	1489	19	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.3			5.3			5.3				
Lane Util. Factor		1.00			1.00			0.91				
Frpb, ped/bikes		1.00			0.99			1.00				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.92			1.00				
Flt Protected		0.98			1.00			1.00				
Satd. Flow (prot)		1952			1819			5379				
Flt Permitted		0.80			1.00			1.00				
Satd. Flow (perm)		1594			1819			5379				
Peak-hour factor, PHF	0.71	0.71	0.71	0.77	0.77	0.77	0.94	0.94	0.94	0.92	0.92	0.92
Adj. Flow (vph)	13	14	0	0	38	61	96	1584	20	0	0	0
RTOR Reduction (vph)	0	0	0	0	41	0	0	1	0	0	0	0
Lane Group Flow (vph)	0	27	0	0	58	0	0	1699	0	0	0	0
Confl. Peds. (#/hr)	1					1	1		2			
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		2			2			1				
Permitted Phases	2						1					
Actuated Green, G (s)		7.1			7.1			62.3				
Effective Green, g (s)		7.1			7.1			62.3				
Actuated g/C Ratio		0.09			0.09			0.78				
Clearance Time (s)		5.3			5.3			5.3				
Vehicle Extension (s)		3.0			3.0			0.2				
Lane Grp Cap (vph)		141			161			4188				
v/s Ratio Prot					c0.03							
v/s Ratio Perm		0.02						0.32				
v/c Ratio		0.19			0.36			0.41				
Uniform Delay, d1		33.8			34.3			2.9				
Progression Factor		1.00			1.00			1.24				
Incremental Delay, d2		0.7			1.4			0.2				
Delay (s)		34.5			35.7			3.8				
Level of Service		C			D			A				
Approach Delay (s)		34.5			35.7			3.8			0.0	
Approach LOS		C			D			A			A	
Intersection Summary												
HCM 2000 Control Delay		5.9			HCM 2000 Level of Service				A			
HCM 2000 Volume to Capacity ratio		0.40										
Actuated Cycle Length (s)		80.0			Sum of lost time (s)				10.6			
Intersection Capacity Utilization		45.9%			ICU Level of Service				A			
Analysis Period (min)		15										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

9000: Hamilton St & Washtenaw Ave

Road Diet Capacity Analysis

Background 2038 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	0	119	530	0	0	0	0	0	0	29	274	0
Future Volume (vph)	0	119	530	0	0	0	0	0	0	29	274	0
Peak Hour Factor	0.89	0.89	0.89	0.92	0.92	0.92	0.92	0.92	0.92	0.91	0.91	0.91
Hourly flow rate (vph)	0	134	596	0	0	0	0	0	0	32	301	0
Direction, Lane #	EB 1	EB 2	EB 3	SB 1	SB 2							
Volume Total (vph)	67	67	596	132	201							
Volume Left (vph)	0	0	0	32	0							
Volume Right (vph)	0	0	596	0	0							
Hadj (s)	0.00	0.00	-0.70	0.14	0.02							
Departure Headway (s)	5.3	5.3	3.2	5.0	4.9							
Degree Utilization, x	0.10	0.10	0.53	0.18	0.27							
Capacity (veh/h)	640	643	1117	701	719							
Control Delay (s)	7.7	7.7	8.5	7.9	8.5							
Approach Delay (s)	8.4			8.3								
Approach LOS	A			A								
Intersection Summary												
Delay			8.3									
Level of Service			A									
Intersection Capacity Utilization			46.1%	ICU Level of Service	A							
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

9001: Hamilton St & Pearl St

Road Diet Capacity Analysis

Background 2038 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											  	
Traffic Volume (veh/h)	0	0	24	20	14	0	0	0	0	0	800	7
Future Volume (Veh/h)	0	0	24	20	14	0	0	0	0	0	800	7
Sign Control	Stop				Stop				Free		Free	
Grade	0%				0%				0%		0%	
Peak Hour Factor	0.66	0.66	0.66	0.83	0.83	0.83	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	36	24	17	0	0	0	0	0	870	8
Pedestrians	1											
Lane Width (ft)	12.0											
Walking Speed (ft/s)	4.0											
Percent Blockage	0											
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (ft)	435											
pX, platoon unblocked												
vC, conflicting volume	884	875	295	326	879	0	879				0	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	884	875	295	326	879	0	879				0	
tC, single (s)	7.6	6.6	7.0	7.5	6.5	6.9	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	100	100	95	96	94	100	100				100	
cM capacity (veh/h)	224	281	692	577	288	1091	777				1629	
Direction, Lane #	EB 1	WB 1	WB 2	SB 1	SB 2	SB 3						
Volume Total	36	16	25	348	348	182						
Volume Left	0	16	8	0	0	0						
Volume Right	36	0	0	0	0	8						
cSH	692	577	343	1700	1700	1700						
Volume to Capacity	0.05	0.03	0.07	0.20	0.20	0.11						
Queue Length 95th (ft)	4	2	6	0	0	0						
Control Delay (s)	10.5	11.4	16.3	0.0	0.0	0.0						
Lane LOS	B	B	C									
Approach Delay (s)	10.5	14.4	0.0									
Approach LOS	B	B										
Intersection Summary												
Average Delay	1.0											
Intersection Capacity Utilization	31.5%			ICU Level of Service					A			
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis

9002: Hamilton St/Hamilton St (PB) & Ferris St

Road Diet Capacity Analysis

Background 2038 AM Peak Hour

																											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR															
Lane Configurations											  																
Traffic Volume (veh/h)	0	16	29	23	15	0	0	0	0	62	615	10															
Future Volume (Veh/h)	0	16	29	23	15	0	0	0	0	62	615	10															
Sign Control		Stop			Stop			Free			Free																
Grade		0%			0%			0%			0%																
Peak Hour Factor	0.77	0.77	0.77	0.69	0.69	0.69	0.92	0.92	0.92	0.95	0.95	0.95															
Hourly flow rate (vph)	0	21	38	33	22	0	0	0	0	65	647	11															
Pedestrians		1			4			1																			
Lane Width (ft)		12.0			12.0			0.0																			
Walking Speed (ft/s)		4.0			4.0			4.0																			
Percent Blockage		0			0			0																			
Right turn flare (veh)																											
Median type								None			None																
Median storage veh																											
Upstream signal (ft)											450																
pX, platoon unblocked	0.96	0.96	0.96	0.96	0.96		0.96																				
vC, conflicting volume	794	788	223	399	793	4	659			4																	
vC1, stage 1 conf vol																											
vC2, stage 2 conf vol																											
vCu, unblocked vol	654	647	61	244	653	4	514			4																	
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1																	
tC, 2 stage (s)																											
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2																	
p0 queue free %	100	94	96	94	94	100	100			96																	
cM capacity (veh/h)	315	361	960	592	359	1081	1023			1618																	
Direction, Lane #	EB 1	WB 1	SB 1	SB 2	SB 3	SB 4																					
Volume Total	59	55	65	259	259	140																					
Volume Left	0	33	65	0	0	0																					
Volume Right	38	0	0	0	0	11																					
cSH	604	470	1618	1700	1700	1700																					
Volume to Capacity	0.10	0.12	0.04	0.15	0.15	0.08																					
Queue Length 95th (ft)	8	10	3	0	0	0																					
Control Delay (s)	11.6	13.7	7.3	0.0	0.0	0.0																					
Lane LOS	B	B	A																								
Approach Delay (s)	11.6	13.7	0.7																								
Approach LOS	B	B																									
Intersection Summary																											
Average Delay			2.3																								
Intersection Capacity Utilization			26.9%	ICU Level of Service					A																		
Analysis Period (min)			15																								

HCM Unsignalized Intersection Capacity Analysis

9003: Huron St/Huron St (PB) & Ferris St

Road Diet Capacity Analysis
Background 2038 AM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	20	0	59	1403	0	0
Future Volume (Veh/h)	20	0	59	1403	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.75	0.75	0.94	0.94	0.92	0.92
Hourly flow rate (vph)	27	0	63	1493	0	0
Pedestrians	3					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				857	448	
pX, platoon unblocked	0.92					
vC, conflicting volume	627	3	3			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	311	3	3			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	95	100	96			
cM capacity (veh/h)	587	1083	1628			
Direction, Lane #	EB 1	NB 1	NB 2	NB 3		
Volume Total	27	362	597	597		
Volume Left	27	63	0	0		
Volume Right	0	0	0	0		
cSH	587	1628	1700	1700		
Volume to Capacity	0.05	0.04	0.35	0.35		
Queue Length 95th (ft)	4	3	0	0		
Control Delay (s)	11.4	1.6	0.0	0.0		
Lane LOS	B	A				
Approach Delay (s)	11.4	0.4				
Approach LOS	B					
Intersection Summary						
Average Delay			0.6			
Intersection Capacity Utilization			36.9%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

9004: Huron St (PB)/Huron St & Pearl St

Road Diet Capacity Analysis
Background 2038 AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				↕↕		
Traffic Volume (veh/h)	0	0	99	1846	0	0
Future Volume (Veh/h)	0	0	99	1846	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.95	0.95	0.92	0.92
Hourly flow rate (vph)	0	0	104	1943	0	0
Pedestrians	2					
Lane Width (ft)	0.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (ft)				430		
pX, platoon unblocked	0.66					
vC, conflicting volume	1182	2	2			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	259	2	2			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	94			
cM capacity (veh/h)	443	1088	1634			
Direction, Lane #	NB 1	NB 2				
Volume Total	752	1295				
Volume Left	104	0				
Volume Right	0	0				
cSH	1634	1700				
Volume to Capacity	0.06	0.76				
Queue Length 95th (ft)	5	0				
Control Delay (s)	1.7	0.0				
Lane LOS	A					
Approach Delay (s)	0.6					
Approach LOS						
Intersection Summary						
Average Delay		0.6				
Intersection Capacity Utilization		54.5%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Signalized Intersection Capacity Analysis

1002: Summit & Washtenaw Ave

Road Diet Capacity Analysis

Background 2038 OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	1054	43	0	0	0	0	74	23	36	20	0
Future Volume (vph)	14	1054	43	0	0	0	0	74	23	36	20	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.4						10.8			10.8	
Lane Util. Factor		0.91						1.00			1.00	
Frpb, ped/bikes		1.00						0.98			1.00	
Flpb, ped/bikes		1.00						1.00			0.97	
Frt		0.99						0.97			1.00	
Flt Protected		1.00						1.00			0.97	
Satd. Flow (prot)		5418						1615			1872	
Flt Permitted		1.00						1.00			0.71	
Satd. Flow (perm)		5418						1615			1376	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.61	0.61	0.61	0.74	0.74	0.74
Adj. Flow (vph)	15	1146	47	0	0	0	0	121	38	49	27	0
RTOR Reduction (vph)	0	5	0	0	0	0	0	14	0	0	0	0
Lane Group Flow (vph)	0	1203	0	0	0	0	0	145	0	0	76	0
Confl. Peds. (#/hr)			8						45	45		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)								10				
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		1						2			2	
Permitted Phases	1									2		
Actuated Green, G (s)		46.6						17.2			17.2	
Effective Green, g (s)		46.6						17.2			17.2	
Actuated g/C Ratio		0.58						0.21			0.21	
Clearance Time (s)		5.4						10.8			10.8	
Lane Grp Cap (vph)		3155						347			295	
v/s Ratio Prot								c0.09				
v/s Ratio Perm		0.22									0.06	
v/c Ratio		0.38						0.42			0.26	
Uniform Delay, d1		9.0						27.1			26.1	
Progression Factor		1.00						1.00			1.34	
Incremental Delay, d2		0.4						3.7			2.1	
Delay (s)		9.3						30.7			37.1	
Level of Service		A						C			D	
Approach Delay (s)		9.3			0.0			30.7			37.1	
Approach LOS		A			A			C			D	
Intersection Summary												
HCM 2000 Control Delay		13.1						HCM 2000 Level of Service		B		
HCM 2000 Volume to Capacity ratio		0.39										
Actuated Cycle Length (s)		80.0						Sum of lost time (s)		16.2		
Intersection Capacity Utilization		47.8%						ICU Level of Service		A		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1004: Ballard St (PB) & Washtenaw Ave

Road Diet Capacity Analysis

Background 2038 OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  						 		 		
Traffic Volume (vph)	21	831	25	0	0	0	0	96	17	17	28	0
Future Volume (vph)	21	831	25	0	0	0	0	96	17	17	28	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.3						5.7		5.7	5.7	
Lane Util. Factor		0.91						1.00		1.00	1.00	
Frpb, ped/bikes		1.00						1.00		1.00	1.00	
Flpb, ped/bikes		1.00						1.00		0.99	1.00	
Frt		1.00						0.98		1.00	1.00	
Flt Protected		1.00						1.00		0.95	1.00	
Satd. Flow (prot)		5425						1954		1890	2000	
Flt Permitted		1.00						1.00		0.63	1.00	
Satd. Flow (perm)		5425						1954		1258	2000	
Peak-hour factor, PHF	0.88	0.88	0.88	0.92	0.92	0.92	0.76	0.76	0.76	0.67	0.67	0.67
Adj. Flow (vph)	24	944	28	0	0	0	0	126	22	25	42	0
RTOR Reduction (vph)	0	3	0	0	0	0	0	9	0	0	0	0
Lane Group Flow (vph)	0	993	0	0	0	0	0	139	0	25	42	0
Confl. Peds. (#/hr)	11		7						8	8		
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	custom	NA						NA		Perm	NA	
Protected Phases	1	1						2			2	
Permitted Phases	1									2		
Actuated Green, G (s)		58.2						10.8		10.8	10.8	
Effective Green, g (s)		58.2						10.8		10.8	10.8	
Actuated g/C Ratio		0.73						0.14		0.14	0.14	
Clearance Time (s)		5.3						5.7		5.7	5.7	
Vehicle Extension (s)		0.2						3.0		3.0	3.0	
Lane Grp Cap (vph)		3946						263		169	270	
v/s Ratio Prot		c0.18						c0.07			0.02	
v/s Ratio Perm										0.02		
v/c Ratio		0.25						0.53		0.15	0.16	
Uniform Delay, d1		3.6						32.2		30.5	30.6	
Progression Factor		0.20						1.00		1.00	1.00	
Incremental Delay, d2		0.1						1.9		0.4	0.3	
Delay (s)		0.9						34.2		30.9	30.8	
Level of Service		A						C		C	C	
Approach Delay (s)		0.9			0.0			34.2			30.9	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM 2000 Control Delay		6.6						HCM 2000 Level of Service		A		
HCM 2000 Volume to Capacity ratio		0.29										
Actuated Cycle Length (s)		80.0						Sum of lost time (s)		11.0		
Intersection Capacity Utilization		36.0%						ICU Level of Service		A		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1013: Hamilton St (PB) & Michigan Ave

Road Diet Capacity Analysis

Background 2038 OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↔	↑↑					↔	↑↑↑	
Traffic Volume (vph)	0	436	117	209	514	0	0	0	0	406	831	45
Future Volume (vph)	0	436	117	209	514	0	0	0	0	406	831	45
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.2		5.2	5.2					6.8	6.8	
Lane Util. Factor		0.95		1.00	0.95					0.86	0.86	
Frpb, ped/bikes		0.99		1.00	1.00					1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00					1.00	1.00	
Frt		0.97		1.00	1.00					1.00	0.99	
Flt Protected		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (prot)		3647		1874	3480					1618	5043	
Flt Permitted		1.00		0.35	1.00					0.95	1.00	
Satd. Flow (perm)		3647		696	3480					1618	5043	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.92	0.92	0.92	0.93	0.93	0.93
Adj. Flow (vph)	0	459	123	220	541	0	0	0	0	437	894	48
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	6	0
Lane Group Flow (vph)	0	582	0	220	541	0	0	0	0	336	1037	0
Confl. Peds. (#/hr)			27	27						24		13
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Parking (#/hr)				10								
Turn Type		NA		pm+pt	NA					custom	NA	
Protected Phases		1		2	1 2					3	3	
Permitted Phases				1 2						3		
Actuated Green, G (s)		28.8		37.6	42.8					25.2	25.2	
Effective Green, g (s)		28.8		37.6	42.8					25.2	25.2	
Actuated g/C Ratio		0.36		0.47	0.53					0.31	0.31	
Clearance Time (s)		5.2		5.2						6.8	6.8	
Lane Grp Cap (vph)		1312		456	1861					509	1588	
v/s Ratio Prot		0.16		c0.05	0.16					c0.21	0.21	
v/s Ratio Perm				c0.17								
v/c Ratio		0.44		0.48	0.29					0.66	0.65	
Uniform Delay, d1		19.5		19.2	10.2					23.7	23.6	
Progression Factor		0.95		0.70	0.71					1.00	1.00	
Incremental Delay, d2		1.1		3.5	0.4					6.6	2.1	
Delay (s)		19.5		16.8	7.7					30.3	25.7	
Level of Service		B		B	A					C	C	
Approach Delay (s)		19.5			10.3			0.0			26.8	
Approach LOS		B			B			A			C	
Intersection Summary												
HCM 2000 Control Delay			20.7			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.55									
Actuated Cycle Length (s)			80.0			Sum of lost time (s)			17.2			
Intersection Capacity Utilization			60.9%			ICU Level of Service			B			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1016: Huron St (PB) & Cross St (PB)/Cross St

Road Diet Capacity Analysis

Background 2038 OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 				
Traffic Volume (vph)	0	0	0	0	231	14	0	391	237	0	0	0
Future Volume (vph)	0	0	0	0	231	14	0	391	237	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)					5.5	5.5		5.6	5.6			
Lane Util. Factor					1.00	1.00		0.95	1.00			
Frpb, ped/bikes					1.00	1.00		1.00	1.00			
Flpb, ped/bikes					1.00	1.00		1.00	1.00			
Frt					1.00	0.85		1.00	0.85			
Flt Protected					1.00	1.00		1.00	1.00			
Satd. Flow (prot)					2000	1700		3762	1683			
Flt Permitted					1.00	1.00		1.00	1.00			
Satd. Flow (perm)					2000	1700		3762	1683			
Peak-hour factor, PHF	0.92	0.92	0.92	0.84	0.84	0.84	0.95	0.95	0.95	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	275	17	0	412	249	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	9	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	275	8	0	412	249	0	0	0
Confl. Peds. (#/hr)						9			1			
Confl. Bikes (#/hr)						4						
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	0%	0%	0%
Turn Type					NA	custom		NA	custom			
Protected Phases					2	2		8	8			
Permitted Phases						2			8			
Actuated Green, G (s)					35.5	35.5		33.4	33.4			
Effective Green, g (s)					35.5	35.5		33.4	33.4			
Actuated g/C Ratio					0.44	0.44		0.42	0.42			
Clearance Time (s)					5.5	5.5		5.6	5.6			
Lane Grp Cap (vph)					887	754		1570	702			
v/s Ratio Prot					c0.14	0.00		0.11	c0.15			
v/s Ratio Perm												
v/c Ratio					0.31	0.01		0.26	0.35			
Uniform Delay, d1					14.4	12.4		15.2	15.9			
Progression Factor					1.00	1.00		1.32	1.33			
Incremental Delay, d2					0.9	0.0		0.3	1.1			
Delay (s)					15.3	12.5		20.5	22.3			
Level of Service					B	B		C	C			
Approach Delay (s)		0.0			15.1			21.2			0.0	
Approach LOS		A			B			C			A	
Intersection Summary												
HCM 2000 Control Delay			19.3		HCM 2000 Level of Service						B	
HCM 2000 Volume to Capacity ratio			0.33									
Actuated Cycle Length (s)			80.0		Sum of lost time (s)						11.1	
Intersection Capacity Utilization			56.3%		ICU Level of Service						B	
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1023: Huron St (PB) & Michigan Ave

Road Diet Capacity Analysis

Background 2038 OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	784	0	0	582	367	107	684	167	0	0	0
Future Volume (vph)	130	784	0	0	582	367	107	684	167	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	5.0	5.0			5.0	5.0	5.6	5.6				
Lane Util. Factor	1.00	0.95			0.91	0.91	1.00	0.95				
Frpb, ped/bikes	1.00	1.00			0.99	0.94	1.00	1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00	0.99	1.00				
Frt	1.00	1.00			0.98	0.85	1.00	0.97				
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00				
Satd. Flow (prot)	1894	3515			3247	1219	1857	3638				
Flt Permitted	0.26	1.00			1.00	1.00	0.95	1.00				
Satd. Flow (perm)	512	3515			3247	1219	1857	3638				
Peak-hour factor, PHF	0.93	0.93	0.93	0.94	0.94	0.94	0.86	0.86	0.86	0.92	0.92	0.92
Adj. Flow (vph)	140	843	0	0	619	390	124	795	194	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	140	843	0	0	705	304	124	989	0	0	0	0
Confl. Peds. (#/hr)	44					44	14		7			
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	1%	0%	0%	0%
Parking (#/hr)		10			10	10						
Turn Type	pm+pt	NA			NA	Perm	Perm	NA				
Protected Phases	2	1 2			1			3				
Permitted Phases	1 2					1	3					
Actuated Green, G (s)	38.0	43.0			29.0	29.0	26.4	26.4				
Effective Green, g (s)	38.0	43.0			29.0	29.0	26.4	26.4				
Actuated g/C Ratio	0.48	0.54			0.36	0.36	0.33	0.33				
Clearance Time (s)	5.0				5.0	5.0	5.6	5.6				
Lane Grp Cap (vph)	398	1889			1177	441	612	1200				
v/s Ratio Prot	0.04	c0.24			0.22			c0.27				
v/s Ratio Perm	0.13					c0.25	0.07					
v/c Ratio	0.35	0.45			0.60	0.69	0.20	0.82				
Uniform Delay, d1	20.0	11.3			20.8	21.7	19.2	24.7				
Progression Factor	0.38	0.31			1.00	1.00	0.39	0.49				
Incremental Delay, d2	2.2	0.7			2.3	8.5	0.7	6.4				
Delay (s)	9.7	4.1			23.0	30.2	8.2	18.6				
Level of Service	A	A			C	C	A	B				
Approach Delay (s)		4.9			25.2			17.4			0.0	
Approach LOS		A			C			B			A	
Intersection Summary												
HCM 2000 Control Delay			16.0									
HCM 2000 Volume to Capacity ratio			0.73									
Actuated Cycle Length (s)			80.0									
Intersection Capacity Utilization			62.6%									
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2000: Michigan Ave & Congress St & Ballard St

Road Diet Capacity Analysis

Background 2038 OP Peak Hour

											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	SBR2	NEL	NER
Lane Configurations											
Traffic Volume (vph)	10	102	5	418	121	31	18	22	11	0	438
Future Volume (vph)	10	102	5	418	121	31	18	22	11	0	438
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.9		6.1	6.1		6.3	6.3			6.1
Lane Util. Factor		1.00		0.95	0.95		1.00	1.00			0.88
Frpb, ped/bikes		1.00		1.00	0.99		1.00	1.00			1.00
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00			1.00
Frt		0.99		1.00	0.98		1.00	0.85			0.85
Flt Protected		1.00		0.95	0.98		0.95	1.00			1.00
Satd. Flow (prot)		1978		1805	1532		1900	1700			2962
Flt Permitted		1.00		0.95	0.98		0.95	1.00			1.00
Satd. Flow (perm)		1978		1805	1532		1900	1700			2962
Peak-hour factor, PHF	0.80	0.80	0.80	0.95	0.95	0.95	0.66	0.66	0.66	0.89	0.89
Adj. Flow (vph)	12	128	6	440	127	33	27	33	17	0	492
RTOR Reduction (vph)	0	2	0	0	6	0	0	38	0	0	359
Lane Group Flow (vph)	0	145	0	299	295	0	27	13	0	0	133
Confl. Peds. (#/hr)	32		11	11		32	1		9		1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%
Parking (#/hr)					10						
Turn Type	Split	NA		Split	NA		Prot	Prot			Over
Protected Phases	3	3		1	1		2	2			1
Permitted Phases											
Actuated Green, G (s)		20.0		21.7	21.7		20.0	20.0			21.7
Effective Green, g (s)		20.0		21.7	21.7		20.0	20.0			21.7
Actuated g/C Ratio		0.25		0.27	0.27		0.25	0.25			0.27
Clearance Time (s)		5.9		6.1	6.1		6.3	6.3			6.1
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0			3.0
Lane Grp Cap (vph)		494		489	415		475	425			803
v/s Ratio Prot		c0.07		0.17	c0.19		c0.01	0.01			0.05
v/s Ratio Perm											
v/c Ratio		0.29		0.61	0.71		0.06	0.03			0.17
Uniform Delay, d1		24.3		25.5	26.3		22.8	22.7			22.2
Progression Factor		1.00		0.98	0.98		1.00	1.00			1.00
Incremental Delay, d2		0.3		5.4	9.6		0.1	0.0			0.4
Delay (s)		24.6		30.3	35.5		22.9	22.7			22.7
Level of Service		C		C	D		C	C			C
Approach Delay (s)		24.6			32.9		22.8			22.7	
Approach LOS		C			C		C			C	
Intersection Summary											
HCM 2000 Control Delay			27.6			HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.36								
Actuated Cycle Length (s)			80.0			Sum of lost time (s)			18.3		
Intersection Capacity Utilization			65.4%			ICU Level of Service			C		
Analysis Period (min)			15								
c Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

2004: Adams St (PB) & Michigan Ave

Road Diet Capacity Analysis

Background 2038 OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	790	13	16	628	45	43	41	52	37	23	39
Future Volume (vph)	21	790	13	16	628	45	43	41	52	37	23	39
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.1			5.1		6.0	6.0		6.0	6.0	
Lane Util. Factor		0.95			0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			1.00		1.00	0.97		1.00	0.98	
Flpb, ped/bikes		1.00			1.00		0.98	1.00		0.97	1.00	
Frt		1.00			0.99		1.00	0.92		1.00	0.91	
Flt Protected		1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3462			3462		1853	1513		1799	1473	
Flt Permitted		0.93			0.93		0.71	1.00		0.68	1.00	
Satd. Flow (perm)		3208			3215		1385	1513		1285	1473	
Peak-hour factor, PHF	0.93	0.93	0.93	0.89	0.89	0.89	0.76	0.76	0.76	0.86	0.86	0.86
Adj. Flow (vph)	23	849	14	18	706	51	57	54	68	43	27	45
RTOR Reduction (vph)	0	1	0	0	6	0	0	56	0	0	37	0
Lane Group Flow (vph)	0	885	0	0	769	0	57	66	0	43	35	0
Confl. Peds. (#/hr)	18		24	24		18	26		39	39		26
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	0%	0%	0%	2%	2%	2%
Parking (#/hr)		10			10			10			10	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)		54.9			54.9		14.0	14.0		14.0	14.0	
Effective Green, g (s)		54.9			54.9		14.0	14.0		14.0	14.0	
Actuated g/C Ratio		0.69			0.69		0.18	0.18		0.18	0.18	
Clearance Time (s)		5.1			5.1		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)		2201			2206		242	264		224	257	
v/s Ratio Prot								c0.04				0.02
v/s Ratio Perm		c0.28			0.24		0.04			0.03		
v/c Ratio		0.40			0.35		0.24	0.25		0.19	0.14	
Uniform Delay, d1		5.4			5.2		28.4	28.5		28.2	27.9	
Progression Factor		0.67			0.32		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.5			0.4		2.3	2.3		1.9	1.1	
Delay (s)		4.1			2.0		30.7	30.7		30.1	29.0	
Level of Service		A			A		C	C		C	C	
Approach Delay (s)		4.1			2.0			30.7			29.4	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM 2000 Control Delay		7.2			HCM 2000 Level of Service			A				
HCM 2000 Volume to Capacity ratio		0.37										
Actuated Cycle Length (s)		80.0			Sum of lost time (s)			11.1				
Intersection Capacity Utilization		64.0%			ICU Level of Service			B				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2005: Washington St (PB) & Michigan Ave

Road Diet Capacity Analysis

Background 2038 OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	861	40	28	643	22	21	34	34	45	36	33
Future Volume (vph)	14	861	40	28	643	22	21	34	34	45	36	33
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.0			5.0			6.0			6.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			0.98			0.98	
Flpb, ped/bikes		1.00			1.00			0.99			0.98	
Frt		0.99			1.00			0.95			0.96	
Flt Protected		1.00			1.00			0.99			0.98	
Satd. Flow (prot)		3475			3446			1542			1820	
Flt Permitted		0.94			0.89			0.91			0.85	
Satd. Flow (perm)		3272			3060			1423			1575	
Peak-hour factor, PHF	0.89	0.89	0.89	0.94	0.94	0.94	0.81	0.81	0.81	0.92	0.92	0.92
Adj. Flow (vph)	16	967	45	30	684	23	26	42	42	49	39	36
RTOR Reduction (vph)	0	4	0	0	3	0	0	28	0	0	18	0
Lane Group Flow (vph)	0	1024	0	0	734	0	0	82	0	0	106	0
Confl. Peds. (#/hr)	32		30	30		32	46		43	43		46
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	0%	0%	0%	0%	0%	0%
Parking (#/hr)		10			10			10				
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)		55.0			55.0			14.0			14.0	
Effective Green, g (s)		55.0			55.0			14.0			14.0	
Actuated g/C Ratio		0.69			0.69			0.18			0.18	
Clearance Time (s)		5.0			5.0			6.0			6.0	
Lane Grp Cap (vph)		2249			2103			249			275	
v/s Ratio Prot												
v/s Ratio Perm		c0.31			0.24			0.06			c0.07	
v/c Ratio		0.46			0.35			0.33			0.38	
Uniform Delay, d1		5.7			5.1			28.9			29.2	
Progression Factor		0.24			0.35			1.00			1.00	
Incremental Delay, d2		0.6			0.4			3.5			4.0	
Delay (s)		2.0			2.2			32.4			33.2	
Level of Service		A			A			C			C	
Approach Delay (s)		2.0			2.2			32.4			33.2	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM 2000 Control Delay		5.7			HCM 2000 Level of Service			A				
HCM 2000 Volume to Capacity ratio		0.44										
Actuated Cycle Length (s)		80.0			Sum of lost time (s)			11.0				
Intersection Capacity Utilization		63.9%			ICU Level of Service			B				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3001: Huron St & Harriet St/Spring St

Road Diet Capacity Analysis

Background 2038 OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	192	0	0	327	29	189	903	251	0	0	0
Future Volume (vph)	44	192	0	0	327	29	189	903	251	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	6.6	6.6			6.6			6.1	6.1			
Lane Util. Factor	1.00	0.95			0.95			0.91	1.00			
Frpb, ped/bikes	1.00	1.00			1.00			1.00	0.99			
Flpb, ped/bikes	1.00	1.00			1.00			1.00	1.00			
Frt	1.00	1.00			0.99			1.00	0.85			
Flt Protected	0.95	1.00			1.00			0.99	1.00			
Satd. Flow (prot)	1894	3800			3747			5412	1678			
Flt Permitted	0.53	1.00			1.00			0.99	1.00			
Satd. Flow (perm)	1049	3800			3747			5412	1678			
Peak-hour factor, PHF	0.90	0.90	0.90	0.95	0.95	0.95	0.95	0.95	0.95	0.92	0.92	0.92
Adj. Flow (vph)	49	213	0	0	344	31	199	951	264	0	0	0
RTOR Reduction (vph)	0	0	0	0	8	0	0	0	126	0	0	0
Lane Group Flow (vph)	49	213	0	0	367	0	0	1150	138	0	0	0
Confl. Peds. (#/hr)	5					5	2		1			
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA	Perm			
Protected Phases		4			8			2				
Permitted Phases	4						2		2			
Actuated Green, G (s)	25.4	25.4			25.4			41.9	41.9			
Effective Green, g (s)	25.4	25.4			25.4			41.9	41.9			
Actuated g/C Ratio	0.32	0.32			0.32			0.52	0.52			
Clearance Time (s)	6.6	6.6			6.6			6.1	6.1			
Lane Grp Cap (vph)	333	1206			1189			2834	878			
v/s Ratio Prot		0.06			c0.10							
v/s Ratio Perm	0.05							0.21	0.08			
v/c Ratio	0.15	0.18			0.31			0.41	0.16			
Uniform Delay, d1	19.5	19.7			20.7			11.5	9.9			
Progression Factor	1.00	0.98			1.00			0.82	1.05			
Incremental Delay, d2	0.9	0.3			0.7			0.4	0.3			
Delay (s)	20.4	19.7			21.3			9.8	10.7			
Level of Service	C	B			C			A	B			
Approach Delay (s)		19.8			21.3			10.0			0.0	
Approach LOS		B			C			A			A	
Intersection Summary												
HCM 2000 Control Delay		13.3			HCM 2000 Level of Service			B				
HCM 2000 Volume to Capacity ratio		0.37										
Actuated Cycle Length (s)		80.0			Sum of lost time (s)			12.7				
Intersection Capacity Utilization		66.4%			ICU Level of Service			C				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3003: Hamilton St & Harriet St

Road Diet Capacity Analysis

Background 2038 OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑↑					↑	↑↑↑	
Traffic Volume (vph)	0	153	123	289	222	0	0	0	0	86	940	45
Future Volume (vph)	0	153	123	289	222	0	0	0	0	86	940	45
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.8		5.8	5.8					5.6	5.6	
Lane Util. Factor		0.95		1.00	0.95					1.00	0.91	
Frpb, ped/bikes		0.99		1.00	1.00					1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00					1.00	1.00	
Frt		0.93		1.00	1.00					1.00	0.99	
Flt Protected		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (prot)		3518		1896	3800					1881	5362	
Flt Permitted		1.00		0.56	1.00					0.95	1.00	
Satd. Flow (perm)		3518		1118	3800					1881	5362	
Peak-hour factor, PHF	0.88	0.88	0.88	0.87	0.87	0.87	0.92	0.92	0.92	0.87	0.87	0.87
Adj. Flow (vph)	0	174	140	332	255	0	0	0	0	99	1080	52
RTOR Reduction (vph)	0	83	0	0	0	0	0	0	0	0	7	0
Lane Group Flow (vph)	0	231	0	332	255	0	0	0	0	99	1125	0
Confl. Peds. (#/hr)			5	5								5
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	1%
Turn Type		NA		D.P+P	NA					Perm	NA	
Protected Phases		4		3	8 3						2	
Permitted Phases				4						2		
Actuated Green, G (s)		22.2		36.4	42.2					26.4	26.4	
Effective Green, g (s)		22.2		36.4	42.2					26.4	26.4	
Actuated g/C Ratio		0.28		0.45	0.53					0.33	0.33	
Clearance Time (s)		5.8		5.8						5.6	5.6	
Vehicle Extension (s)		4.0		4.0						0.2	0.2	
Lane Grp Cap (vph)		976		646	2004					620	1769	
v/s Ratio Prot		0.07		c0.09	0.07						c0.21	
v/s Ratio Perm				c0.14						0.05		
v/c Ratio		0.24		0.51	0.13					0.16	0.64	
Uniform Delay, d1		22.3		16.9	9.6					19.0	22.7	
Progression Factor		1.00		0.83	0.65					0.67	0.75	
Incremental Delay, d2		0.6		0.9	0.0					0.5	1.5	
Delay (s)		22.9		14.9	6.3					13.2	18.5	
Level of Service		C		B	A					B	B	
Approach Delay (s)		22.9			11.2			0.0			18.1	
Approach LOS		C			B			A			B	
Intersection Summary												
HCM 2000 Control Delay			16.9			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.56									
Actuated Cycle Length (s)			80.0			Sum of lost time (s)				17.2		
Intersection Capacity Utilization			67.0%			ICU Level of Service				C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3004: Huron St & Catherine St (PB)

Road Diet Capacity Analysis

Background 2038 OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								  				
Traffic Volume (vph)	14	20	0	0	1	54	10	968	8	0	0	0
Future Volume (vph)	14	20	0	0	1	54	10	968	8	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.3			5.3			5.3				
Lane Util. Factor		1.00			1.00			0.91				
Frpb, ped/bikes		1.00			0.98			1.00				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.87			1.00				
Flt Protected		0.98			1.00			1.00				
Satd. Flow (prot)		1955			1699			5395				
Flt Permitted		0.84			1.00			1.00				
Satd. Flow (perm)		1672			1699			5395				
Peak-hour factor, PHF	0.60	0.60	0.60	0.88	0.88	0.88	0.91	0.91	0.91	0.92	0.92	0.92
Adj. Flow (vph)	23	33	0	0	1	61	11	1064	9	0	0	0
RTOR Reduction (vph)	0	0	0	0	55	0	0	1	0	0	0	0
Lane Group Flow (vph)	0	56	0	0	7	0	0	1083	0	0	0	0
Confl. Peds. (#/hr)	5					5	3		1			
Confl. Bikes (#/hr)						1			1			
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		2			2			1				
Permitted Phases	2						1					
Actuated Green, G (s)		7.9			7.9			61.5				
Effective Green, g (s)		7.9			7.9			61.5				
Actuated g/C Ratio		0.10			0.10			0.77				
Clearance Time (s)		5.3			5.3			5.3				
Vehicle Extension (s)		3.0			3.0			0.2				
Lane Grp Cap (vph)		165			167			4147				
v/s Ratio Prot					0.00							
v/s Ratio Perm		0.03						0.20				
v/c Ratio		0.34			0.04			0.26				
Uniform Delay, d1		33.6			32.6			2.7				
Progression Factor		1.00			1.00			1.53				
Incremental Delay, d2		1.2			0.1			0.1				
Delay (s)		34.8			32.7			4.3				
Level of Service		C			C			A				
Approach Delay (s)		34.8			32.7			4.3			0.0	
Approach LOS		C			C			A			A	
Intersection Summary												
HCM 2000 Control Delay		7.1			HCM 2000 Level of Service				A			
HCM 2000 Volume to Capacity ratio		0.27										
Actuated Cycle Length (s)		80.0			Sum of lost time (s)				10.6			
Intersection Capacity Utilization		35.4%			ICU Level of Service				A			
Analysis Period (min)		15										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

9000: Hamilton St & Washtenaw Ave

Road Diet Capacity Analysis

Background 2038 OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗								↖↑	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	0	189	698	0	0	0	0	0	0	32	445	0
Future Volume (vph)	0	189	698	0	0	0	0	0	0	32	445	0
Peak Hour Factor	0.85	0.85	0.85	0.92	0.92	0.92	0.92	0.92	0.92	0.90	0.90	0.90
Hourly flow rate (vph)	0	222	821	0	0	0	0	0	0	36	494	0
Direction, Lane #	EB 1	EB 2	EB 3	SB 1	SB 2							
Volume Total (vph)	111	111	821	201	329							
Volume Left (vph)	0	0	0	36	0							
Volume Right (vph)	0	0	821	0	0							
Hadj (s)	0.00	0.00	-0.70	0.12	0.03							
Departure Headway (s)	5.8	5.8	3.2	5.3	5.2							
Degree Utilization, x	0.18	0.18	0.73	0.29	0.47							
Capacity (veh/h)	585	587	1120	667	681							
Control Delay (s)	8.8	8.8	13.1	9.2	11.5							
Approach Delay (s)	12.2			10.6								
Approach LOS	B			B								
Intersection Summary												
Delay			11.7									
Level of Service			B									
Intersection Capacity Utilization			60.7%	ICU Level of Service						B		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

9001: Hamilton St & Pearl St

Road Diet Capacity Analysis

Background 2038 OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											  	
Traffic Volume (veh/h)	0	0	24	108	97	0	0	0	0	0	1142	17
Future Volume (Veh/h)	0	0	24	108	97	0	0	0	0	0	1142	17
Sign Control	Stop				Stop			Free				Free
Grade	0%				0%			0%				0%
Peak Hour Factor	0.60	0.60	0.60	0.75	0.75	0.75	0.92	0.92	0.92	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	40	144	129	0	0	0	0	0	1269	19
Pedestrians								9				
Lane Width (ft)								0.0				
Walking Speed (ft/s)								4.0				
Percent Blockage								0				
Right turn flare (veh)												
Median type								None	None			
Median storage (veh)												
Upstream signal (ft)								435				
pX, platoon unblocked												
vC, conflicting volume	1343	1278	442	472	1288	0	1288			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1343	1278	442	472	1288	0	1288			0		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	93	68	22	100	100			100		
cM capacity (veh/h)	40	168	569	446	165	1091	545			1629		
Direction, Lane #	EB 1	WB 1	WB 2	SB 1	SB 2	SB 3						
Volume Total	40	96	177	508	508	273						
Volume Left	0	96	48	0	0	0						
Volume Right	40	0	0	0	0	19						
cSH	569	446	199	1700	1700	1700						
Volume to Capacity	0.07	0.22	0.89	0.30	0.30	0.16						
Queue Length 95th (ft)	6	20	172	0	0	0						
Control Delay (s)	11.8	15.3	86.3	0.0	0.0	0.0						
Lane LOS	B	C	F									
Approach Delay (s)	11.8	61.3	0.0									
Approach LOS	B	F										
Intersection Summary												
Average Delay			10.8									
Intersection Capacity Utilization			42.5%	ICU Level of Service					A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

9002: Hamilton St/Hamilton St (PB) & Ferris St

Road Diet Capacity Analysis

Background 2038 OP Peak Hour

																											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR															
Lane Configurations											  																
Traffic Volume (veh/h)	0	24	33	35	15	0	0	0	0	106	1016	21															
Future Volume (Veh/h)	0	24	33	35	15	0	0	0	0	106	1016	21															
Sign Control		Stop			Stop			Free			Free																
Grade		0%			0%			0%			0%																
Peak Hour Factor	0.95	0.95	0.95	0.85	0.85	0.85	0.92	0.92	0.92	0.93	0.93	0.93															
Hourly flow rate (vph)	0	25	35	41	18	0	0	0	0	114	1092	23															
Pedestrians		5			3			7																			
Lane Width (ft)		12.0			12.0			0.0																			
Walking Speed (ft/s)		4.0			4.0			4.0																			
Percent Blockage		0			0			0																			
Right turn flare (veh)																											
Median type								None			None																
Median storage (veh)																											
Upstream signal (ft)											450																
pX, platoon unblocked	0.86	0.86	0.86	0.86	0.86		0.86																				
vC, conflicting volume	1346	1340	388	650	1351	3	1120			3																	
vC1, stage 1 conf vol																											
vC2, stage 2 conf vol																											
vCu, unblocked vol	816	809	0	3	822	3	552			3																	
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1																	
tC, 2 stage (s)																											
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2																	
p0 queue free %	100	90	96	94	93	100	100			93																	
cM capacity (veh/h)	206	251	930	729	243	1077	876			1628																	
Direction, Lane #	EB 1	WB 1	SB 1	SB 2	SB 3	SB 4																					
Volume Total	60	59	114	437	437	241																					
Volume Left	0	41	114	0	0	0																					
Volume Right	35	0	0	0	0	23																					
cSH	437	453	1628	1700	1700	1700																					
Volume to Capacity	0.14	0.13	0.07	0.26	0.26	0.14																					
Queue Length 95th (ft)	12	11	6	0	0	0																					
Control Delay (s)	14.6	14.1	7.4	0.0	0.0	0.0																					
Lane LOS	B	B	A																								
Approach Delay (s)	14.6	14.1	0.7																								
Approach LOS	B	B																									
Intersection Summary																											
Average Delay			1.9																								
Intersection Capacity Utilization			35.0%	ICU Level of Service					A																		
Analysis Period (min)			15																								

HCM Unsignalized Intersection Capacity Analysis

9003: Huron St/Huron St (PB) & Ferris St

Road Diet Capacity Analysis

Background 2038 OP Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				  		
Traffic Volume (veh/h)	43	0	44	984	0	0
Future Volume (Veh/h)	43	0	44	984	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.79	0.79	0.94	0.94	0.92	0.92
Hourly flow rate (vph)	54	0	47	1047	0	0
Pedestrians	5				1	
Lane Width (ft)	12.0				0.0	
Walking Speed (ft/s)	4.0				4.0	
Percent Blockage	0				0	
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (ft)				857	448	
pX, platoon unblocked	0.98					
vC, conflicting volume	449	5	5			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	372	5	5			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	91	100	97			
cM capacity (veh/h)	576	1078	1615			
Direction, Lane #	EB 1	NB 1	NB 2	NB 3		
Volume Total	54	256	419	419		
Volume Left	54	47	0	0		
Volume Right	0	0	0	0		
cSH	576	1615	1700	1700		
Volume to Capacity	0.09	0.03	0.25	0.25		
Queue Length 95th (ft)	8	2	0	0		
Control Delay (s)	11.9	1.5	0.0	0.0		
Lane LOS	B	A				
Approach Delay (s)	11.9	0.4				
Approach LOS	B					
Intersection Summary						
Average Delay			0.9			
Intersection Capacity Utilization			28.9%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

9004: Huron St (PB)/Huron St & Pearl St

Road Diet Capacity Analysis

Background 2038 OP Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				 		
Traffic Volume (veh/h)	0	0	122	1053	0	0
Future Volume (Veh/h)	0	0	122	1053	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.88	0.88	0.92	0.92
Hourly flow rate (vph)	0	0	139	1197	0	0
Pedestrians	8					
Lane Width (ft)	0.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (ft)				430		
pX, platoon unblocked	0.77					
vC, conflicting volume	884	8	8			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	260	8	8			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	91			
cM capacity (veh/h)	503	1078	1625			
Direction, Lane #	NB 1	NB 2				
Volume Total	538	798				
Volume Left	139	0				
Volume Right	0	0				
cSH	1625	1700				
Volume to Capacity	0.09	0.47				
Queue Length 95th (ft)	7	0				
Control Delay (s)	2.5	0.0				
Lane LOS	A					
Approach Delay (s)	1.0					
Approach LOS						
Intersection Summary						
Average Delay		1.0				
Intersection Capacity Utilization		34.4%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Signalized Intersection Capacity Analysis

1002: Summit & Washtenaw Ave

Road Diet Capacity Analysis

Background 2038 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  						 			 	
Traffic Volume (vph)	9	1928	94	0	0	0	0	71	28	41	44	0
Future Volume (vph)	9	1928	94	0	0	0	0	71	28	41	44	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.4						10.8			10.8	
Lane Util. Factor		0.91						1.00			1.00	
Frpb, ped/bikes		1.00						0.99			1.00	
Flpb, ped/bikes		1.00						1.00			0.99	
Frt		0.99						0.96			1.00	
Flt Protected		1.00						1.00			0.98	
Satd. Flow (prot)		5413						1614			1925	
Flt Permitted		1.00						1.00			0.79	
Satd. Flow (perm)		5413						1614			1551	
Peak-hour factor, PHF	0.88	0.88	0.88	0.92	0.92	0.92	0.82	0.82	0.82	0.67	0.67	0.67
Adj. Flow (vph)	10	2191	107	0	0	0	0	87	34	61	66	0
RTOR Reduction (vph)	0	7	0	0	0	0	0	5	0	0	0	0
Lane Group Flow (vph)	0	2301	0	0	0	0	0	116	0	0	127	0
Confl. Peds. (#/hr)	4		5						24	24		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)								10				
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		1						2			2	
Permitted Phases	1									2		
Actuated Green, G (s)		46.6						17.2			17.2	
Effective Green, g (s)		46.6						17.2			17.2	
Actuated g/C Ratio		0.58						0.21			0.21	
Clearance Time (s)		5.4						10.8			10.8	
Lane Grp Cap (vph)		3153						347			333	
v/s Ratio Prot								0.07				
v/s Ratio Perm		0.43									c0.08	
v/c Ratio		0.73						0.34			0.38	
Uniform Delay, d1		12.1						26.6			26.9	
Progression Factor		1.00						1.00			1.30	
Incremental Delay, d2		1.5						2.6			3.3	
Delay (s)		13.7						29.2			38.1	
Level of Service		B						C			D	
Approach Delay (s)		13.7			0.0			29.2			38.1	
Approach LOS		B			A			C			D	
Intersection Summary												
HCM 2000 Control Delay		15.6						HCM 2000 Level of Service		B		
HCM 2000 Volume to Capacity ratio		0.64										
Actuated Cycle Length (s)		80.0						Sum of lost time (s)		16.2		
Intersection Capacity Utilization		64.8%						ICU Level of Service		C		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1004: Ballard St (PB) & Washtenaw Ave

Road Diet Capacity Analysis

Background 2038 PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑						↑		↑	↑	
Traffic Volume (vph)	35	1545	32	0	0	0	0	59	16	18	44	0
Future Volume (vph)	35	1545	32	0	0	0	0	59	16	18	44	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.3						5.7		5.7	5.7	
Lane Util. Factor		0.91						1.00		1.00	1.00	
Frpb, ped/bikes		1.00						1.00		1.00	1.00	
Flpb, ped/bikes		1.00						1.00		0.99	1.00	
Frt		1.00						0.97		1.00	1.00	
Flt Protected		1.00						1.00		0.95	1.00	
Satd. Flow (prot)		5434						1936		1889	2000	
Flt Permitted		1.00						1.00		0.70	1.00	
Satd. Flow (perm)		5434						1936		1394	2000	
Peak-hour factor, PHF	0.94	0.94	0.94	0.92	0.92	0.92	0.87	0.87	0.87	0.72	0.72	0.72
Adj. Flow (vph)	37	1644	34	0	0	0	0	68	18	25	61	0
RTOR Reduction (vph)	0	2	0	0	0	0	0	14	0	0	0	0
Lane Group Flow (vph)	0	1713	0	0	0	0	0	72	0	25	61	0
Confl. Peds. (#/hr)	7		6						8	8		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	custom	NA						NA		Perm	NA	
Protected Phases	1	1						2			2	
Permitted Phases	1									2		
Actuated Green, G (s)		61.2						7.8		7.8	7.8	
Effective Green, g (s)		61.2						7.8		7.8	7.8	
Actuated g/C Ratio		0.77						0.10		0.10	0.10	
Clearance Time (s)		5.3						5.7		5.7	5.7	
Vehicle Extension (s)		0.2						3.0		3.0	3.0	
Lane Grp Cap (vph)		4157						188		135	195	
v/s Ratio Prot		c0.32						c0.04			0.03	
v/s Ratio Perm										0.02		
v/c Ratio		0.41						0.39		0.19	0.31	
Uniform Delay, d1		3.2						33.9		33.2	33.6	
Progression Factor		0.09						1.00		1.00	1.00	
Incremental Delay, d2		0.2						1.3		0.7	0.9	
Delay (s)		0.5						35.2		33.8	34.5	
Level of Service		A						D		C	C	
Approach Delay (s)		0.5			0.0			35.2			34.3	
Approach LOS		A			A			D			C	
Intersection Summary												
HCM 2000 Control Delay		3.6										
HCM 2000 Volume to Capacity ratio		0.41										
Actuated Cycle Length (s)		80.0								11.0		
Intersection Capacity Utilization		49.0%								A		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1013: Hamilton St (PB) & Michigan Ave

Road Diet Capacity Analysis

Background 2038 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑↑					↑	↑↑↑	
Traffic Volume (vph)	0	525	149	320	591	0	0	0	0	584	1316	43
Future Volume (vph)	0	525	149	320	591	0	0	0	0	584	1316	43
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.2		5.2	5.2					6.8	6.8	
Lane Util. Factor		0.95		1.00	0.95					0.86	0.86	
Frpb, ped/bikes		0.99		1.00	1.00					1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00					1.00	1.00	
Frt		0.97		1.00	1.00					1.00	1.00	
Flt Protected		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (prot)		3653		1898	3515					1634	5114	
Flt Permitted		1.00		0.25	1.00					0.95	1.00	
Satd. Flow (perm)		3653		494	3515					1634	5114	
Peak-hour factor, PHF	0.91	0.91	0.91	0.94	0.94	0.94	0.92	0.92	0.92	0.90	0.90	0.90
Adj. Flow (vph)	0	577	164	340	629	0	0	0	0	649	1462	48
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	741	0	340	629	0	0	0	0	526	1630	0
Confl. Peds. (#/hr)			12	12						10		9
Confl. Bikes (#/hr)			1									1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)				10								
Turn Type		NA		pm+pt	NA					custom		NA
Protected Phases		1		2	1 2					3		3
Permitted Phases				1 2						3		
Actuated Green, G (s)		27.8		36.6	41.8					26.2		26.2
Effective Green, g (s)		27.8		36.6	41.8					26.2		26.2
Actuated g/C Ratio		0.35		0.46	0.52					0.33		0.33
Clearance Time (s)		5.2		5.2						6.8		6.8
Lane Grp Cap (vph)		1269		380	1836					535		1674
v/s Ratio Prot		0.20		c0.10	0.18					c0.32		0.32
v/s Ratio Perm				c0.31								
v/c Ratio		0.58		0.89	0.34					0.98		0.97
Uniform Delay, d1		21.4		24.8	11.1					26.7		26.6
Progression Factor		1.00		0.55	0.62					1.00		1.00
Incremental Delay, d2		2.0		25.0	0.5					35.0		16.5
Delay (s)		23.3		38.5	7.4					61.7		43.1
Level of Service		C		D	A					E		D
Approach Delay (s)		23.3			18.3			0.0				47.6
Approach LOS		C			B			A				D
Intersection Summary												
HCM 2000 Control Delay			35.6			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			0.93									
Actuated Cycle Length (s)			80.0			Sum of lost time (s)				17.2		
Intersection Capacity Utilization			77.0%			ICU Level of Service				D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1016: Huron St (PB) & Cross St (PB)/Cross St

Road Diet Capacity Analysis

Background 2038 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	285	18	0	436	409	0	0	0
Future Volume (vph)	0	0	0	0	285	18	0	436	409	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)					5.5	5.5		5.6	5.6			
Lane Util. Factor					1.00	1.00		0.95	1.00			
Frpb, ped/bikes					1.00	1.00		1.00	1.00			
Flpb, ped/bikes					1.00	1.00		1.00	1.00			
Frt					1.00	0.85		1.00	0.85			
Flt Protected					1.00	1.00		1.00	1.00			
Satd. Flow (prot)					2000	1700		3800	1700			
Flt Permitted					1.00	1.00		1.00	1.00			
Satd. Flow (perm)					2000	1700		3800	1700			
Peak-hour factor, PHF	0.92	0.92	0.92	0.87	0.87	0.87	0.95	0.95	0.95	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	328	21	0	459	431	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	11	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	328	10	0	459	431	0	0	0
Confl. Peds. (#/hr)						19			3			
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type					NA	custom		NA	custom			
Protected Phases					2	2		8	8			
Permitted Phases						2			8			
Actuated Green, G (s)					36.5	36.5		32.4	32.4			
Effective Green, g (s)					36.5	36.5		32.4	32.4			
Actuated g/C Ratio					0.46	0.46		0.40	0.40			
Clearance Time (s)					5.5	5.5		5.6	5.6			
Lane Grp Cap (vph)					912	775		1539	688			
v/s Ratio Prot					c0.16	0.01		0.12	c0.25			
v/s Ratio Perm												
v/c Ratio					0.36	0.01		0.30	0.63			
Uniform Delay, d1					14.1	11.9		16.1	19.0			
Progression Factor					1.00	1.00		1.44	1.42			
Incremental Delay, d2					1.1	0.0		0.4	3.1			
Delay (s)					15.3	11.9		23.6	30.0			
Level of Service					B	B		C	C			
Approach Delay (s)		0.0			15.1			26.7			0.0	
Approach LOS		A			B			C			A	
Intersection Summary												
HCM 2000 Control Delay			23.4		HCM 2000 Level of Service				C			
HCM 2000 Volume to Capacity ratio			0.48									
Actuated Cycle Length (s)			80.0		Sum of lost time (s)				11.1			
Intersection Capacity Utilization			55.4%		ICU Level of Service				B			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1023: Huron St (PB) & Michigan Ave

Road Diet Capacity Analysis

Background 2038 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	172	1120	0	0	750	416	141	837	213	0	0	0
Future Volume (vph)	172	1120	0	0	750	416	141	837	213	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	5.0	5.0			5.0	5.0	5.6	5.6				
Lane Util. Factor	1.00	0.95			0.91	0.91	1.00	0.95				
Frpb, ped/bikes	1.00	1.00			1.00	0.94	1.00	1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00	0.98	1.00				
Frt	1.00	1.00			0.99	0.85	1.00	0.97				
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00				
Satd. Flow (prot)	1898	3515			3310	1241	1867	3666				
Flt Permitted	0.17	1.00			1.00	1.00	0.95	1.00				
Satd. Flow (perm)	337	3515			3310	1241	1867	3666				
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	183	1191	0	0	798	443	153	910	232	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	183	1191	0	0	869	372	153	1142	0	0	0	0
Confl. Peds. (#/hr)	37					37	19		13			
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)		10			10	10						
Turn Type	pm+pt	NA			NA	Perm	Perm	NA				
Protected Phases	2	1 2			1			3				
Permitted Phases	1 2					1	3					
Actuated Green, G (s)	38.0	43.0			29.0	29.0	26.4	26.4				
Effective Green, g (s)	38.0	43.0			29.0	29.0	26.4	26.4				
Actuated g/C Ratio	0.48	0.54			0.36	0.36	0.33	0.33				
Clearance Time (s)	5.0				5.0	5.0	5.6	5.6				
Lane Grp Cap (vph)	335	1889			1199	449	616	1209				
v/s Ratio Prot	0.06	c0.34			0.26			c0.31				
v/s Ratio Perm	0.20					c0.30	0.08					
v/c Ratio	0.55	0.63			0.72	0.83	0.25	0.94				
Uniform Delay, d1	24.9	12.9			22.0	23.2	19.6	26.1				
Progression Factor	0.59	0.42			1.00	1.00	0.50	0.60				
Incremental Delay, d2	5.2	1.3			3.8	16.0	1.0	15.5				
Delay (s)	19.9	6.7			25.9	39.3	10.7	31.0				
Level of Service	B	A			C	D	B	C				
Approach Delay (s)		8.5			29.9			28.6			0.0	
Approach LOS		A			C			C			A	
Intersection Summary												
HCM 2000 Control Delay			22.0				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.87									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)			15.6		
Intersection Capacity Utilization			75.2%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2000: Michigan Ave & Congress St & Ballard St

Road Diet Capacity Analysis

Background 2038 PM Peak Hour

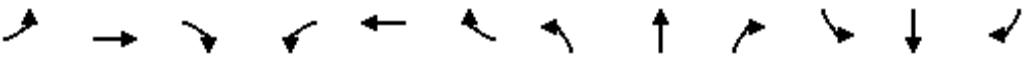
											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	SBR2	NEL	NER
Lane Configurations		↔		↔	↔		↔	↔			↔
Traffic Volume (vph)	20	129	0	651	282	43	37	26	12	0	650
Future Volume (vph)	20	129	0	651	282	43	37	26	12	0	650
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.9		6.1	6.1		6.3	6.3			6.1
Lane Util. Factor		1.00		0.95	0.95		1.00	1.00			0.88
Frpb, ped/bikes		1.00		1.00	0.99		1.00	1.00			1.00
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00			1.00
Frt		1.00		1.00	0.99		1.00	0.85			0.85
Flt Protected		0.99		0.95	0.98		0.95	1.00			1.00
Satd. Flow (prot)		1987		1805	1555		1900	1700			2962
Flt Permitted		0.99		0.95	0.98		0.95	1.00			1.00
Satd. Flow (perm)		1987		1805	1555		1900	1700			2962
Peak-hour factor, PHF	0.81	0.81	0.81	0.93	0.93	0.93	0.60	0.60	0.60	0.95	0.95
Adj. Flow (vph)	25	159	0	700	303	46	62	43	20	0	684
RTOR Reduction (vph)	0	0	0	0	2	0	0	53	0	0	332
Lane Group Flow (vph)	0	184	0	518	529	0	62	11	0	0	352
Confl. Peds. (#/hr)	16		5	5		16	1		3		1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%
Parking (#/hr)					10						
Turn Type	Split	NA		Split	NA		Prot	Prot			Over
Protected Phases	3	3		1	1		2	2			1
Permitted Phases											
Actuated Green, G (s)		20.0		61.7	61.7		20.0	20.0			61.7
Effective Green, g (s)		20.0		61.7	61.7		20.0	20.0			61.7
Actuated g/C Ratio		0.17		0.51	0.51		0.17	0.17			0.51
Clearance Time (s)		5.9		6.1	6.1		6.3	6.3			6.1
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0			3.0
Lane Grp Cap (vph)		331		928	799		316	283			1522
v/s Ratio Prot		c0.09		0.29	c0.34		c0.03	0.01			0.12
v/s Ratio Perm											
v/c Ratio		0.56		0.56	0.66		0.20	0.04			0.23
Uniform Delay, d1		45.9		19.9	21.5		43.1	41.9			16.1
Progression Factor		1.00		1.00	1.00		1.00	1.00			1.00
Incremental Delay, d2		2.0		2.4	4.3		0.3	0.1			0.4
Delay (s)		47.9		22.3	25.7		43.4	42.0			16.4
Level of Service		D		C	C		D	D			B
Approach Delay (s)		47.9			24.0		42.7			16.4	
Approach LOS		D			C		D			B	
Intersection Summary											
HCM 2000 Control Delay			24.8			HCM 2000 Level of Service				C	
HCM 2000 Volume to Capacity ratio			0.55								
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			18.3		
Intersection Capacity Utilization			90.7%			ICU Level of Service			E		
Analysis Period (min)			15								
c Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

2004: Adams St (PB) & Michigan Ave

Road Diet Capacity Analysis

Background 2038 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔		↔	↔		↔	↔	
Traffic Volume (vph)	0	1176	10	0	817	33	20	37	41	59	32	44
Future Volume (vph)	0	1176	10	0	817	33	20	37	41	59	32	44
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.1			5.1		6.0	6.0		6.0	6.0	
Lane Util. Factor		0.95			0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			1.00		1.00	0.97		1.00	0.99	
Flpb, ped/bikes		1.00			1.00		0.99	1.00		0.96	1.00	
Frt		1.00			0.99		1.00	0.92		1.00	0.91	
Flt Protected		1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3509			3452		1878	1520		1829	1531	
Flt Permitted		1.00			1.00		0.69	1.00		0.69	1.00	
Satd. Flow (perm)		3509			3452		1370	1520		1321	1531	
Peak-hour factor, PHF	0.95	0.95	0.95	0.91	0.91	0.91	0.71	0.71	0.71	0.77	0.77	0.77
Adj. Flow (vph)	0	1238	11	0	898	36	28	52	58	77	42	57
RTOR Reduction (vph)	0	1	0	0	3	0	0	48	0	0	47	0
Lane Group Flow (vph)	0	1248	0	0	931	0	28	62	0	77	52	0
Confl. Peds. (#/hr)	20		14	14		20	13		42	42		13
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	0%	0%	0%	0%	0%	0%
Parking (#/hr)		10			10			10			10	
Turn Type		NA			NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)		54.9			54.9		14.0	14.0		14.0	14.0	
Effective Green, g (s)		54.9			54.9		14.0	14.0		14.0	14.0	
Actuated g/C Ratio		0.69			0.69		0.18	0.18		0.18	0.18	
Clearance Time (s)		5.1			5.1		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)		2408			2368		239	266		231	267	
v/s Ratio Prot		c0.36			0.27			0.04			0.03	
v/s Ratio Perm							0.02			c0.06		
v/c Ratio		0.52			0.39		0.12	0.23		0.33	0.19	
Uniform Delay, d1		6.1			5.4		27.8	28.4		28.9	28.2	
Progression Factor		0.46			0.27		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.5			0.5		1.0	2.1		3.8	1.6	
Delay (s)		3.3			1.9		28.8	30.4		32.8	29.8	
Level of Service		A			A		C	C		C	C	
Approach Delay (s)		3.3			1.9			30.1			31.1	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM 2000 Control Delay			6.2				HCM 2000 Level of Service			A		
HCM 2000 Volume to Capacity ratio			0.48									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)			11.1		
Intersection Capacity Utilization			59.6%				ICU Level of Service			B		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2005: Washington St (PB) & Michigan Ave

Road Diet Capacity Analysis

Background 2038 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1191	56	0	862	31	17	40	39	93	32	43
Future Volume (vph)	0	1191	56	0	862	31	17	40	39	93	32	43
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.0			5.0			6.0			6.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			0.98			0.98	
Flpb, ped/bikes		1.00			1.00			0.99			0.99	
Frt		0.99			0.99			0.95			0.97	
Flt Protected		1.00			1.00			0.99			0.97	
Satd. Flow (prot)		3478			3485			1549			1808	
Flt Permitted		1.00			1.00			0.91			0.74	
Satd. Flow (perm)		3478			3485			1427			1384	
Peak-hour factor, PHF	0.93	0.93	0.93	0.95	0.95	0.95	0.68	0.68	0.68	0.87	0.87	0.87
Adj. Flow (vph)	0	1281	60	0	907	33	25	59	57	107	37	49
RTOR Reduction (vph)	0	4	0	0	3	0	0	31	0	0	16	0
Lane Group Flow (vph)	0	1337	0	0	937	0	0	110	0	0	177	0
Confl. Peds. (#/hr)	35		31	31		35	76		28	28		76
Confl. Bikes (#/hr)			1			1						1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)		10			10			10				
Turn Type		NA			NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)		55.0			55.0			14.0			14.0	
Effective Green, g (s)		55.0			55.0			14.0			14.0	
Actuated g/C Ratio		0.69			0.69			0.18			0.18	
Clearance Time (s)		5.0			5.0			6.0			6.0	
Lane Grp Cap (vph)		2391			2395			249			242	
v/s Ratio Prot		c0.38			0.27							
v/s Ratio Perm								0.08			c0.13	
v/c Ratio		0.56			0.39			0.44			0.73	
Uniform Delay, d1		6.3			5.3			29.5			31.2	
Progression Factor		0.22			0.35			1.00			1.00	
Incremental Delay, d2		0.8			0.4			5.6			17.8	
Delay (s)		2.2			2.2			35.2			49.0	
Level of Service		A			A			D			D	
Approach Delay (s)		2.2			2.2			35.2			49.0	
Approach LOS		A			A			D			D	
Intersection Summary												
HCM 2000 Control Delay			7.5				HCM 2000 Level of Service			A		
HCM 2000 Volume to Capacity ratio			0.59									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)			11.0		
Intersection Capacity Utilization			59.8%				ICU Level of Service			B		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3001: Huron St & Harriet St/Spring St

Road Diet Capacity Analysis

Background 2038 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			  				
Traffic Volume (vph)	35	337	0	0	498	39	211	1055	384	0	0	0
Future Volume (vph)	35	337	0	0	498	39	211	1055	384	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	6.6	6.6			6.6			6.1	6.1			
Lane Util. Factor	1.00	0.95			0.95			0.91	1.00			
Frpb, ped/bikes	1.00	1.00			1.00			1.00	1.00			
Flpb, ped/bikes	1.00	1.00			1.00			1.00	1.00			
Frt	1.00	1.00			0.99			1.00	0.85			
Flt Protected	0.95	1.00			1.00			0.99	1.00			
Satd. Flow (prot)	1898	3800			3755			5413	1700			
Flt Permitted	0.34	1.00			1.00			0.99	1.00			
Satd. Flow (perm)	686	3800			3755			5413	1700			
Peak-hour factor, PHF	0.83	0.83	0.83	0.86	0.86	0.86	0.95	0.95	0.95	0.92	0.92	0.92
Adj. Flow (vph)	42	406	0	0	579	45	222	1111	404	0	0	0
RTOR Reduction (vph)	0	0	0	0	7	0	0	0	126	0	0	0
Lane Group Flow (vph)	42	406	0	0	617	0	0	1333	278	0	0	0
Confl. Peds. (#/hr)	2					2	3					
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA	Perm			
Protected Phases		4			8			2				
Permitted Phases	4						2		2			
Actuated Green, G (s)	28.4	28.4			28.4			38.9	38.9			
Effective Green, g (s)	28.4	28.4			28.4			38.9	38.9			
Actuated g/C Ratio	0.35	0.35			0.35			0.49	0.49			
Clearance Time (s)	6.6	6.6			6.6			6.1	6.1			
Lane Grp Cap (vph)	243	1349			1333			2632	826			
v/s Ratio Prot		0.11			0.16							
v/s Ratio Perm	0.06							0.25	0.16			
v/c Ratio	0.17	0.30			0.46			0.51	0.34			
Uniform Delay, d1	17.7	18.6			19.9			14.0	12.6			
Progression Factor	1.00	0.99			1.00			0.61	0.36			
Incremental Delay, d2	1.5	0.5			1.2			0.6	0.9			
Delay (s)	19.3	19.0			21.1			9.1	5.5			
Level of Service	B	B			C			A	A			
Approach Delay (s)		19.0			21.1			8.3			0.0	
Approach LOS		B			C			A			A	
Intersection Summary												
HCM 2000 Control Delay			12.9				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.49									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)			12.7		
Intersection Capacity Utilization			61.6%				ICU Level of Service			B		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3003: Hamilton St & Harriet St

Road Diet Capacity Analysis

Background 2038 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑↑					↑	↑↑↑	
Traffic Volume (vph)	0	245	176	407	326	0	0	0	0	174	1614	43
Future Volume (vph)	0	245	176	407	326	0	0	0	0	174	1614	43
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.8		5.8	5.8					5.6	5.6	
Lane Util. Factor		0.95		1.00	0.95					1.00	0.91	
Frpb, ped/bikes		0.99		1.00	1.00					1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00					1.00	1.00	
Frt		0.94		1.00	1.00					1.00	1.00	
Flt Protected		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (prot)		3520		1895	3800					1898	5435	
Flt Permitted		1.00		0.41	1.00					0.95	1.00	
Satd. Flow (perm)		3520		809	3800					1898	5435	
Peak-hour factor, PHF	0.89	0.89	0.89	0.82	0.82	0.82	0.92	0.92	0.92	0.95	0.95	0.95
Adj. Flow (vph)	0	275	198	496	398	0	0	0	0	183	1699	45
RTOR Reduction (vph)	0	41	0	0	0	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	432	0	496	398	0	0	0	0	183	1741	0
Confl. Peds. (#/hr)			14	14						1		2
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type		NA		D.P+P	NA					Perm	NA	
Protected Phases		4		3	8 3						2	
Permitted Phases				4						2		
Actuated Green, G (s)		22.2		38.4	44.2					24.4	24.4	
Effective Green, g (s)		22.2		38.4	44.2					24.4	24.4	
Actuated g/C Ratio		0.28		0.48	0.55					0.30	0.30	
Clearance Time (s)		5.8		5.8						5.6	5.6	
Vehicle Extension (s)		4.0		4.0						0.2	0.2	
Lane Grp Cap (vph)		976		608	2099					578	1657	
v/s Ratio Prot		0.12		c0.17	0.10						c0.32	
v/s Ratio Perm				c0.23						0.10		
v/c Ratio		0.44		0.82	0.19					0.32	1.05	
Uniform Delay, d1		23.8		19.8	8.9					21.4	27.8	
Progression Factor		1.00		0.94	0.63					0.71	0.79	
Incremental Delay, d2		1.5		8.1	0.1					0.9	32.3	
Delay (s)		25.3		26.7	5.7					16.1	54.3	
Level of Service		C		C	A					B	D	
Approach Delay (s)		25.3			17.3			0.0			50.6	
Approach LOS		C			B			A			D	
Intersection Summary												
HCM 2000 Control Delay			38.0			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			0.91									
Actuated Cycle Length (s)			80.0			Sum of lost time (s)			17.2			
Intersection Capacity Utilization			83.8%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3004: Huron St & Catherine St (PB)

Road Diet Capacity Analysis

Background 2038 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								  				
Traffic Volume (vph)	16	29	0	0	9	44	5	1094	7	0	0	0
Future Volume (vph)	16	29	0	0	9	44	5	1094	7	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.3			5.3			5.3				
Lane Util. Factor		1.00			1.00			0.91				
Frpb, ped/bikes		1.00			0.99			1.00				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.89			1.00				
Flt Protected		0.98			1.00			1.00				
Satd. Flow (prot)		1964			1755			5398				
Flt Permitted		0.85			1.00			1.00				
Satd. Flow (perm)		1705			1755			5398				
Peak-hour factor, PHF	0.77	0.77	0.77	0.73	0.73	0.73	0.89	0.89	0.89	0.92	0.92	0.92
Adj. Flow (vph)	21	38	0	0	12	60	6	1229	8	0	0	0
RTOR Reduction (vph)	0	0	0	0	54	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	59	0	0	18	0	0	1243	0	0	0	0
Confl. Peds. (#/hr)	1					1	1		5			
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		2			2			1				
Permitted Phases	2						1					
Actuated Green, G (s)		8.0			8.0			61.4				
Effective Green, g (s)		8.0			8.0			61.4				
Actuated g/C Ratio		0.10			0.10			0.77				
Clearance Time (s)		5.3			5.3			5.3				
Vehicle Extension (s)		3.0			3.0			0.2				
Lane Grp Cap (vph)		170			175			4142				
v/s Ratio Prot					0.01							
v/s Ratio Perm		c0.03						0.23				
v/c Ratio		0.35			0.10			0.30				
Uniform Delay, d1		33.6			32.7			2.8				
Progression Factor		1.00			1.00			1.41				
Incremental Delay, d2		1.2			0.3			0.2				
Delay (s)		34.8			33.0			4.1				
Level of Service		C			C			A				
Approach Delay (s)		34.8			33.0			4.1			0.0	
Approach LOS		C			C			A			A	
Intersection Summary												
HCM 2000 Control Delay		7.0			HCM 2000 Level of Service				A			
HCM 2000 Volume to Capacity ratio		0.31										
Actuated Cycle Length (s)		80.0			Sum of lost time (s)				10.6			
Intersection Capacity Utilization		38.1%			ICU Level of Service				A			
Analysis Period (min)		15										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

9000: Hamilton St & Washtenaw Ave

Road Diet Capacity Analysis

Background 2038 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗								↖↑	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	0	385	1195	0	0	0	0	0	0	34	722	0
Future Volume (vph)	0	385	1195	0	0	0	0	0	0	34	722	0
Peak Hour Factor	0.95	0.95	0.95	0.92	0.92	0.92	0.92	0.92	0.92	0.85	0.85	0.85
Hourly flow rate (vph)	0	405	1258	0	0	0	0	0	0	40	849	0
Direction, Lane #	EB 1	EB 2	EB 3	SB 1	SB 2							
Volume Total (vph)	203	203	1258	323	566							
Volume Left (vph)	0	0	0	40	0							
Volume Right (vph)	0	0	1258	0	0							
Hadj (s)	0.00	0.00	-0.70	0.06	0.00							
Departure Headway (s)	6.7	6.7	3.2	5.8	5.8							
Degree Utilization, x	0.38	0.38	1.12	0.52	0.91							
Capacity (veh/h)	524	524	1133	607	619							
Control Delay (s)	12.4	12.4	79.7	13.8	39.2							
Approach Delay (s)	63.4			30.0								
Approach LOS	F			D								
Intersection Summary												
Delay			51.7									
Level of Service			F									
Intersection Capacity Utilization			97.1%	ICU Level of Service	F							
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

9001: Hamilton St (PB)/Hamilton St & Pearl St

Road Diet Capacity Analysis
Background 2038 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											  	
Traffic Volume (veh/h)	0	0	28	56	61	0	0	0	0	0	1936	14
Future Volume (Veh/h)	0	0	28	56	61	0	0	0	0	0	1936	14
Sign Control	Stop				Stop				Free		Free	
Grade	0%				0%				0%		0%	
Peak Hour Factor	0.65	0.65	0.65	0.79	0.79	0.79	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	43	71	77	0	0	0	0	0	2104	15
Pedestrians	6								3			
Lane Width (ft)	12.0								0.0			
Walking Speed (ft/s)	4.0								4.0			
Percent Blockage	1								0			
Right turn flare (veh)												
Median type							None			None		
Median storage veh												
Upstream signal (ft)							435					
pX, platoon unblocked												
vC, conflicting volume	2156	2118	718	747	2125	0	2125				0	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2156	2118	718	747	2125	0	2125				0	
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	0	100	89	74	0	100	100				100	
cM capacity (veh/h)	0	51	374	269	50	1091	259				1636	
Direction, Lane #	EB 1	WB 1	WB 2	SB 1	SB 2	SB 3						
Volume Total	43	47	101	842	842	436						
Volume Left	0	47	24	0	0	0						
Volume Right	43	0	0	0	0	15						
cSH	374	269	62	1700	1700	1700						
Volume to Capacity	0.11	0.18	1.62	0.50	0.50	0.26						
Queue Length 95th (ft)	10	16	225	0	0	0						
Control Delay (s)	15.9	21.2	449.7	0.0	0.0	0.0						
Lane LOS	C	C	F									
Approach Delay (s)	15.9	312.6	0.0									
Approach LOS	C	F										
Intersection Summary												
Average Delay			20.3									
Intersection Capacity Utilization			53.5%		ICU Level of Service			A				
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis 9002: Hamilton St/Hamilton St (PB) & Ferris St

Road Diet Capacity Analysis
Background 2038 PM Peak Hour

																											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR															
Lane Configurations											  																
Traffic Volume (veh/h)	0	25	32	54	28	0	0	0	0	117	1560	21															
Future Volume (Veh/h)	0	25	32	54	28	0	0	0	0	117	1560	21															
Sign Control		Stop			Stop			Free			Free																
Grade		0%			0%			0%			0%																
Peak Hour Factor	0.69	0.69	0.69	0.76	0.76	0.76	0.92	0.92	0.92	0.93	0.93	0.93															
Hourly flow rate (vph)	0	36	46	71	37	0	0	0	0	126	1677	23															
Pedestrians		4			3			7																			
Lane Width (ft)		12.0			12.0			0.0																			
Walking Speed (ft/s)		4.0			4.0			4.0																			
Percent Blockage		0			0			0																			
Right turn flare (veh)																											
Median type								None			None																
Median storage (veh)																											
Upstream signal (ft)											450																
pX, platoon unblocked	0.72	0.72	0.72	0.72	0.72		0.72																				
vC, conflicting volume	1963	1948	582	885	1959	3	1704			3																	
vC1, stage 1 conf vol																											
vC2, stage 2 conf vol																											
vCu, unblocked vol	953	932	0	0	948	3	591			3																	
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1																	
tC, 2 stage (s)																											
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2																	
p0 queue free %	100	80	94	87	79	100	100			92																	
cM capacity (veh/h)	121	176	778	546	173	1083	709			1628																	
Direction, Lane #	EB 1	WB 1	SB 1	SB 2	SB 3	SB 4																					
Volume Total	82	108	126	671	671	358																					
Volume Left	0	71	126	0	0	0																					
Volume Right	46	0	0	0	0	23																					
cSH	311	314	1628	1700	1700	1700																					
Volume to Capacity	0.26	0.34	0.08	0.39	0.39	0.21																					
Queue Length 95th (ft)	26	37	6	0	0	0																					
Control Delay (s)	20.6	22.4	7.4	0.0	0.0	0.0																					
Lane LOS	C	C	A																								
Approach Delay (s)	20.6	22.4	0.5																								
Approach LOS	C	C																									
Intersection Summary																											
Average Delay			2.5																								
Intersection Capacity Utilization			46.7%	ICU Level of Service		A																					
Analysis Period (min)			15																								

HCM Unsignalized Intersection Capacity Analysis

9003: Huron St/Huron St (PB) & Ferris St

Road Diet Capacity Analysis
Background 2038 PM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	36	0	27	1439	0	0
Future Volume (Veh/h)	36	0	27	1439	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.60	0.60	0.95	0.95	0.92	0.92
Hourly flow rate (vph)	60	0	28	1515	0	0
Pedestrians	8				1	
Lane Width (ft)	12.0				0.0	
Walking Speed (ft/s)	4.0				4.0	
Percent Blockage	1				0	
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				857	448	
pX, platoon unblocked	0.97					
vC, conflicting volume	570	8	8			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	428	8	8			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	89	100	98			
cM capacity (veh/h)	528	1071	1615			
Direction, Lane #	EB 1	NB 1	NB 2	NB 3		
Volume Total	60	331	606	606		
Volume Left	60	28	0	0		
Volume Right	0	0	0	0		
cSH	528	1615	1700	1700		
Volume to Capacity	0.11	0.02	0.36	0.36		
Queue Length 95th (ft)	10	1	0	0		
Control Delay (s)	12.7	0.8	0.0	0.0		
Lane LOS	B	A				
Approach Delay (s)	12.7	0.2				
Approach LOS	B					
Intersection Summary						
Average Delay			0.6			
Intersection Capacity Utilization			36.9%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

9004: Huron St (PB)/Huron St & Pearl St

Road Diet Capacity Analysis
Background 2038 PM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	157	1240	0	0
Future Volume (Veh/h)	0	0	157	1240	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.88	0.88	0.92	0.92
Hourly flow rate (vph)	0	0	178	1409	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				430		
pX, platoon unblocked	0.72					
vC, conflicting volume	1060	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	297	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	89			
cM capacity (veh/h)	432	1091	1636			
Direction, Lane #	NB 1	NB 2				
Volume Total	648	939				
Volume Left	178	0				
Volume Right	0	0				
cSH	1636	1700				
Volume to Capacity	0.11	0.55				
Queue Length 95th (ft)	9	0				
Control Delay (s)	2.9	0.0				
Lane LOS	A					
Approach Delay (s)	1.2					
Approach LOS						
Intersection Summary						
Average Delay		1.2				
Intersection Capacity Utilization		40.2%		ICU Level of Service		A
Analysis Period (min)		15				

Appendix K
Road Diet 2038 Condition Synchro Reports

HCM Signalized Intersection Capacity Analysis

1002: Summit & Washtenaw Ave

Road Diet Capacity Analysis

Road Diet 2038 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  						 			 	
Traffic Volume (vph)	3	756	19	0	0	0	0	153	35	12	11	0
Future Volume (vph)	3	756	19	0	0	0	0	153	35	12	11	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.4						10.8			10.8	
Lane Util. Factor		0.91						1.00			1.00	
Frpb, ped/bikes		1.00						0.99			1.00	
Flpb, ped/bikes		1.00						1.00			0.99	
Frt		1.00						0.98			1.00	
Flt Protected		1.00						1.00			0.97	
Satd. Flow (prot)		5436						1643			1921	
Flt Permitted		1.00						1.00			0.73	
Satd. Flow (perm)		5436						1643			1448	
Peak-hour factor, PHF	0.87	0.87	0.87	0.92	0.92	0.92	0.91	0.91	0.91	0.75	0.75	0.75
Adj. Flow (vph)	3	869	22	0	0	0	0	168	38	16	15	0
RTOR Reduction (vph)	0	3	0	0	0	0	0	10	0	0	0	0
Lane Group Flow (vph)	0	891	0	0	0	0	0	196	0	0	31	0
Confl. Peds. (#/hr)			2						26	26		
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)								10				
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		1						2			2	
Permitted Phases	1								2			
Actuated Green, G (s)		46.6						17.2			17.2	
Effective Green, g (s)		46.6						17.2			17.2	
Actuated g/C Ratio		0.58						0.21			0.21	
Clearance Time (s)		5.4						10.8			10.8	
Lane Grp Cap (vph)		3166						353			311	
v/s Ratio Prot								c0.12				
v/s Ratio Perm		0.16									0.02	
v/c Ratio		0.28						0.55			0.10	
Uniform Delay, d1		8.3						28.0			25.2	
Progression Factor		1.00						1.00			1.32	
Incremental Delay, d2		0.2						6.2			0.6	
Delay (s)		8.6						34.1			33.9	
Level of Service		A						C			C	
Approach Delay (s)		8.6			0.0			34.1			33.9	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM 2000 Control Delay		13.9						HCM 2000 Level of Service		B		
HCM 2000 Volume to Capacity ratio		0.35										
Actuated Cycle Length (s)		80.0						Sum of lost time (s)		16.2		
Intersection Capacity Utilization		45.6%						ICU Level of Service		A		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1004: Ballard St (PB) & Washtenaw Ave

Road Diet Capacity Analysis

Road Diet 2038 AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔↔						↔		↔	↔	
Traffic Volume (vph)	17	589	7	0	0	0	0	41	9	10	23	0
Future Volume (vph)	17	589	7	0	0	0	0	41	9	10	23	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.3						5.7		5.7	5.7	
Lane Util. Factor		0.95						1.00		1.00	1.00	
Frpb, ped/bikes		1.00						1.00		1.00	1.00	
Flpb, ped/bikes		1.00						1.00		0.99	1.00	
Frt		1.00						0.98		1.00	1.00	
Flt Protected		1.00						1.00		0.95	1.00	
Satd. Flow (prot)		3787						1946		1887	2000	
Flt Permitted		1.00						1.00		0.71	1.00	
Satd. Flow (perm)		3787						1946		1416	2000	
Peak-hour factor, PHF	0.90	0.90	0.90	0.92	0.92	0.92	0.73	0.73	0.73	0.91	0.91	0.91
Adj. Flow (vph)	19	654	8	0	0	0	0	56	12	11	25	0
RTOR Reduction (vph)	0	1	0	0	0	0	0	11	0	0	0	0
Lane Group Flow (vph)	0	680	0	0	0	0	0	57	0	11	25	0
Confl. Peds. (#/hr)	2		1						9	9		
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	0%	0%	0%	2%	2%	2%	0%	0%	0%	0%	0%	0%
Turn Type	custom	NA						NA		Perm	NA	
Protected Phases	1	1						2			2	
Permitted Phases	1									2		
Actuated Green, G (s)		61.4						7.6		7.6	7.6	
Effective Green, g (s)		61.4						7.6		7.6	7.6	
Actuated g/C Ratio		0.77						0.09		0.09	0.09	
Clearance Time (s)		5.3						5.7		5.7	5.7	
Vehicle Extension (s)		0.2						3.0		3.0	3.0	
Lane Grp Cap (vph)		2906						184		134	190	
v/s Ratio Prot		c0.18						c0.03			0.01	
v/s Ratio Perm										0.01		
v/c Ratio		0.23						0.31		0.08	0.13	
Uniform Delay, d1		2.6						33.8		33.0	33.2	
Progression Factor		0.72						1.00		1.00	1.00	
Incremental Delay, d2		0.2						1.0		0.3	0.3	
Delay (s)		2.1						34.7		33.3	33.5	
Level of Service		A						C		C	C	
Approach Delay (s)		2.1			0.0			34.7			33.4	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM 2000 Control Delay			6.4									HCM 2000 Level of Service A
HCM 2000 Volume to Capacity ratio			0.24									
Actuated Cycle Length (s)			80.0							11.0		
Intersection Capacity Utilization			36.4%									ICU Level of Service A
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1013: Hamilton St (PB) & Michigan Ave

Road Diet Capacity Analysis

Road Diet 2038 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	316	87	161	758	0	0	0	0	212	502	43
Future Volume (vph)	0	316	87	161	758	0	0	0	0	212	502	43
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.2		5.2	5.2					6.8	6.8	
Lane Util. Factor		0.95		1.00	0.95					1.00	0.95	
Frpb, ped/bikes		1.00		1.00	1.00					1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00					1.00	1.00	
Frt		0.97		1.00	1.00					1.00	0.99	
Flt Protected		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (prot)		3662		1879	3480					1881	3713	
Flt Permitted		1.00		0.43	1.00					0.95	1.00	
Satd. Flow (perm)		3662		841	3480					1881	3713	
Peak-hour factor, PHF	0.84	0.84	0.84	0.83	0.83	0.83	0.92	0.92	0.92	0.91	0.91	0.91
Adj. Flow (vph)	0	376	104	194	913	0	0	0	0	233	552	47
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	8	0
Lane Group Flow (vph)	0	480	0	194	913	0	0	0	0	233	591	0
Confl. Peds. (#/hr)			6	6						5		6
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Parking (#/hr)				10								
Turn Type		NA		pm+pt	NA					custom	NA	
Protected Phases		1		2	1 2					3	3	
Permitted Phases				1 2						3		
Actuated Green, G (s)		28.8		37.6	42.8					25.2	25.2	
Effective Green, g (s)		28.8		37.6	42.8					25.2	25.2	
Actuated g/C Ratio		0.36		0.47	0.53					0.31	0.31	
Clearance Time (s)		5.2		5.2						6.8	6.8	
Lane Grp Cap (vph)		1318		509	1861					592	1169	
v/s Ratio Prot		0.13		0.04	c0.26					0.12	c0.16	
v/s Ratio Perm				0.14								
v/c Ratio		0.36		0.38	0.49					0.39	0.51	
Uniform Delay, d1		18.9		16.3	11.7					21.4	22.3	
Progression Factor		1.00		0.81	0.76					1.00	1.00	
Incremental Delay, d2		0.8		2.0	0.9					2.0	1.6	
Delay (s)		19.6		15.3	9.8					23.4	23.9	
Level of Service		B		B	A					C	C	
Approach Delay (s)		19.6			10.8			0.0			23.7	
Approach LOS		B			B			A			C	
Intersection Summary												
HCM 2000 Control Delay			17.0		HCM 2000 Level of Service					B		
HCM 2000 Volume to Capacity ratio			0.54									
Actuated Cycle Length (s)			80.0		Sum of lost time (s)					17.2		
Intersection Capacity Utilization			57.8%		ICU Level of Service					B		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1016: Huron St (PB) & Cross St (PB)/Cross St

Road Diet Capacity Analysis

Road Diet 2038 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑	↑		↑↑				
Traffic Volume (vph)	0	0	0	0	465	29	0	588	148	0	0	0
Future Volume (vph)	0	0	0	0	465	29	0	588	148	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)					5.5	5.5		5.6				
Lane Util. Factor					1.00	1.00		0.95				
Frpb, ped/bikes					1.00	1.00		1.00				
Flpb, ped/bikes					1.00	1.00		1.00				
Frt					1.00	0.85		0.97				
Flt Protected					1.00	1.00		1.00				
Satd. Flow (prot)					2000	1700		3668				
Flt Permitted					1.00	1.00		1.00				
Satd. Flow (perm)					2000	1700		3668				
Peak-hour factor, PHF	0.92	0.92	0.92	0.81	0.81	0.81	0.94	0.94	0.94	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	574	36	0	626	157	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	18	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	574	18	0	783	0	0	0	0
Confl. Peds. (#/hr)						11			3			
Confl. Bikes (#/hr)						4						
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type					NA	custom		NA				
Protected Phases					2	2		8				
Permitted Phases						2						
Actuated Green, G (s)					38.5	38.5		30.4				
Effective Green, g (s)					38.5	38.5		30.4				
Actuated g/C Ratio					0.48	0.48		0.38				
Clearance Time (s)					5.5	5.5		5.6				
Lane Grp Cap (vph)					962	818		1393				
v/s Ratio Prot					c0.29	0.01		c0.21				
v/s Ratio Perm												
v/c Ratio					0.60	0.02		0.56				
Uniform Delay, d1					15.1	10.9		19.6				
Progression Factor					1.00	1.00		1.45				
Incremental Delay, d2					2.7	0.0		0.5				
Delay (s)					17.8	10.9		28.9				
Level of Service					B	B		C				
Approach Delay (s)		0.0			17.4			28.9			0.0	
Approach LOS		A			B			C			A	
Intersection Summary												
HCM 2000 Control Delay			23.9				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.58									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)			11.1		
Intersection Capacity Utilization			57.8%				ICU Level of Service			B		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1023: Huron St (PB) & Michigan Ave

Road Diet Capacity Analysis

Road Diet 2038 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 				
Traffic Volume (vph)	86	490	0	0	771	619	96	1222	80	0	0	0
Future Volume (vph)	86	490	0	0	771	619	96	1222	80	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	5.0	5.0			5.0	5.0	5.6	5.6				
Lane Util. Factor	1.00	0.95			0.91	0.91	1.00	0.95				
Frpb, ped/bikes	1.00	1.00			1.00	0.98	1.00	1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00				
Frt	1.00	1.00			0.97	0.85	1.00	0.99				
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00				
Satd. Flow (prot)	1881	3480			3218	1271	1873	3725				
Flt Permitted	0.14	1.00			1.00	1.00	0.95	1.00				
Satd. Flow (perm)	283	3480			3218	1271	1873	3725				
Peak-hour factor, PHF	0.93	0.93	0.93	0.89	0.89	0.89	0.95	0.95	0.95	0.92	0.92	0.92
Adj. Flow (vph)	92	527	0	0	866	696	101	1286	84	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	92	527	0	0	1082	480	101	1370	0	0	0	0
Confl. Peds. (#/hr)	10					10	5		2			
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%
Parking (#/hr)		10			10	10						
Turn Type	pm+pt	NA			NA	Perm	Perm	NA				
Protected Phases	2	1 2			1			3				
Permitted Phases	1 2					1	3					
Actuated Green, G (s)	37.0	42.0			28.0	28.0	27.4	27.4				
Effective Green, g (s)	37.0	42.0			28.0	28.0	27.4	27.4				
Actuated g/C Ratio	0.46	0.52			0.35	0.35	0.34	0.34				
Clearance Time (s)	5.0				5.0	5.0	5.6	5.6				
Lane Grp Cap (vph)	310	1827			1126	444	641	1275				
v/s Ratio Prot	0.03	c0.15			0.34			c0.37				
v/s Ratio Perm	0.10					c0.38	0.05					
v/c Ratio	0.30	0.29			0.96	1.08	0.16	1.07				
Uniform Delay, d1	27.7	10.6			25.5	26.0	18.3	26.3				
Progression Factor	0.51	0.42			1.00	1.00	0.57	0.50				
Incremental Delay, d2	2.3	0.4			18.9	66.3	0.4	46.1				
Delay (s)	16.4	4.9			44.4	92.3	10.9	59.3				
Level of Service	B	A			D	F	B	E				
Approach Delay (s)		6.6			59.1			55.9			0.0	
Approach LOS		A			E			E			A	
Intersection Summary												
HCM 2000 Control Delay		48.9			HCM 2000 Level of Service			D				
HCM 2000 Volume to Capacity ratio		0.98										
Actuated Cycle Length (s)		80.0			Sum of lost time (s)			15.6				
Intersection Capacity Utilization		80.1%			ICU Level of Service			D				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2000: Michigan Ave & Congress St & Ballard St

Road Diet Capacity Analysis

Road Diet 2038 AM Peak Hour

										
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NEL	NER
Lane Configurations		↔		↔	↔		↔	↔		↔
Traffic Volume (vph)	9	84	1	423	162	36	11	55	0	339
Future Volume (vph)	9	84	1	423	162	36	11	55	0	339
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.9		6.1	6.1		6.3	6.3		6.1
Lane Util. Factor		1.00		0.95	0.95		1.00	1.00		0.88
Frpb, ped/bikes		1.00		1.00	1.00		1.00	1.00		1.00
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00		1.00
Frt		1.00		1.00	0.98		1.00	0.85		0.85
Flt Protected		1.00		0.95	0.98		0.95	1.00		1.00
Satd. Flow (prot)		1988		1787	1538		1900	1700		2992
Flt Permitted		1.00		0.95	0.98		0.95	1.00		1.00
Satd. Flow (perm)		1988		1787	1538		1900	1700		2992
Peak-hour factor, PHF	0.82	0.82	0.82	0.94	0.94	0.94	0.60	0.60	0.93	0.93
Adj. Flow (vph)	11	102	1	450	172	38	18	92	0	365
RTOR Reduction (vph)	0	0	0	0	3	0	0	0	0	177
Lane Group Flow (vph)	0	114	0	328	329	0	18	92	0	188
Confl. Peds. (#/hr)	2		1	1		2	1			1
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	0%	0%	0%	0%
Parking (#/hr)					10					
Turn Type	Split	NA		Split	NA		Prot	Prot		Over
Protected Phases	3	3		1	1		2	2		1
Permitted Phases										
Actuated Green, G (s)		20.0		61.7	61.7		20.0	20.0		61.7
Effective Green, g (s)		20.0		61.7	61.7		20.0	20.0		61.7
Actuated g/C Ratio		0.17		0.51	0.51		0.17	0.17		0.51
Clearance Time (s)		5.9		6.1	6.1		6.3	6.3		6.1
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0		3.0
Lane Grp Cap (vph)		331		918	790		316	283		1538
v/s Ratio Prot		c0.06		0.18	c0.21		0.01	c0.05		0.06
v/s Ratio Perm										
v/c Ratio		0.34		0.36	0.42		0.06	0.33		0.12
Uniform Delay, d1		44.2		17.3	18.0		42.1	44.1		15.1
Progression Factor		1.00		1.00	1.00		1.00	1.00		1.00
Incremental Delay, d2		0.6		1.1	1.6		0.1	0.7		0.2
Delay (s)		44.8		18.4	19.6		42.1	44.7		15.3
Level of Service		D		B	B		D	D		B
Approach Delay (s)		44.8			19.0		44.3		15.3	
Approach LOS		D			B		D		B	
Intersection Summary										
HCM 2000 Control Delay			22.5			HCM 2000 Level of Service			C	
HCM 2000 Volume to Capacity ratio			0.38							
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			18.3	
Intersection Capacity Utilization			66.6%			ICU Level of Service			C	
Analysis Period (min)			15							
c Critical Lane Group										

HCM Signalized Intersection Capacity Analysis

2004: Adams St (PB) & Michigan Ave

Road Diet Capacity Analysis

Road Diet 2038 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	608	7	0	860	33	49	45	13	23	11	21
Future Volume (vph)	0	608	7	0	860	33	49	45	13	23	11	21
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.1			5.1		6.0	6.0		6.0	6.0	
Lane Util. Factor		0.95			0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		0.99	1.00	
Frt		1.00			0.99		1.00	0.97		1.00	0.90	
Flt Protected		1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3473			3457		1894	1633		1879	1519	
Flt Permitted		1.00			1.00		0.73	1.00		0.69	1.00	
Satd. Flow (perm)		3473			3457		1454	1633		1373	1519	
Peak-hour factor, PHF	0.94	0.94	0.94	0.89	0.89	0.89	0.60	0.60	0.60	0.75	0.75	0.75
Adj. Flow (vph)	0	647	7	0	966	37	82	75	22	31	15	28
RTOR Reduction (vph)	0	1	0	0	3	0	0	13	0	0	23	0
Lane Group Flow (vph)	0	653	0	0	1000	0	82	84	0	31	20	0
Confl. Peds. (#/hr)	6		8	8		6	3		12	12		3
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%
Parking (#/hr)		10			10			10			10	
Turn Type		NA			NA		Perm	NA		Perm	NA	
Protected Phases		1			1		2	2		2	2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)		54.9			54.9		14.0	14.0		14.0	14.0	
Effective Green, g (s)		54.9			54.9		14.0	14.0		14.0	14.0	
Actuated g/C Ratio		0.69			0.69		0.18	0.18		0.18	0.18	
Clearance Time (s)		5.1			5.1		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)		2383			2372		254	285		240	265	
v/s Ratio Prot		0.19			0.29			0.05			0.01	
v/s Ratio Perm							0.06			0.02		
v/c Ratio		0.27			0.42		0.32	0.29		0.13	0.08	
Uniform Delay, d1		4.8			5.5		28.9	28.7		27.9	27.6	
Progression Factor		0.43			0.53		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.3			0.5		3.3	2.6		1.1	0.6	
Delay (s)		2.3			3.4		32.2	31.3		29.0	28.1	
Level of Service		A			A		C	C		C	C	
Approach Delay (s)		2.3			3.4			31.7			28.5	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM 2000 Control Delay		6.7			HCM 2000 Level of Service			A				
HCM 2000 Volume to Capacity ratio		0.40										
Actuated Cycle Length (s)		80.0			Sum of lost time (s)			11.1				
Intersection Capacity Utilization		52.0%			ICU Level of Service			A				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2005: Washington St (PB) & Michigan Ave

Road Diet Capacity Analysis

Road Diet 2038 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	607	14	0	800	16	46	101	25	16	6	10
Future Volume (vph)	0	607	14	0	800	16	46	101	25	16	6	10
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.0			5.0			6.0			6.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			1.00			0.99	
Flpb, ped/bikes		1.00			1.00			0.99			1.00	
Frt		1.00			1.00			0.98			0.96	
Flt Protected		1.00			1.00			0.99			0.98	
Satd. Flow (prot)		3501			3467			1629			1774	
Flt Permitted		1.00			1.00			0.90			0.67	
Satd. Flow (perm)		3501			3467			1480			1221	
Peak-hour factor, PHF	0.86	0.86	0.86	0.94	0.94	0.94	0.60	0.60	0.60	0.88	0.88	0.88
Adj. Flow (vph)	0	706	16	0	851	17	77	168	42	18	7	11
RTOR Reduction (vph)	0	2	0	0	2	0	0	7	0	0	9	0
Lane Group Flow (vph)	0	720	0	0	866	0	0	280	0	0	27	0
Confl. Peds. (#/hr)	10		3	3		10	22		9	9		22
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	0%	0%	0%	4%	4%	4%
Parking (#/hr)		10			10			10				
Turn Type		NA			NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)		55.0			55.0			14.0			14.0	
Effective Green, g (s)		55.0			55.0			14.0			14.0	
Actuated g/C Ratio		0.69			0.69			0.18			0.18	
Clearance Time (s)		5.0			5.0			6.0			6.0	
Lane Grp Cap (vph)		2406			2383			259			213	
v/s Ratio Prot		0.21			c0.25							
v/s Ratio Perm								c0.19			0.02	
v/c Ratio		0.30			0.36			1.08			0.13	
Uniform Delay, d1		4.9			5.2			33.0			27.8	
Progression Factor		0.31			0.17			1.00			1.00	
Incremental Delay, d2		0.3			0.2			78.7			1.2	
Delay (s)		1.8			1.1			111.7			29.1	
Level of Service		A			A			F			C	
Approach Delay (s)		1.8			1.1			111.7			29.1	
Approach LOS		A			A			F			C	
Intersection Summary												
HCM 2000 Control Delay		18.5			HCM 2000 Level of Service			B				
HCM 2000 Volume to Capacity ratio		0.51										
Actuated Cycle Length (s)		80.0			Sum of lost time (s)			11.0				
Intersection Capacity Utilization		48.2%			ICU Level of Service			A				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3001: Huron St & Harriet St/Spring St

Road Diet Capacity Analysis

Road Diet 2038 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	136	0	0	477	35	405	1606	385	0	0	0
Future Volume (vph)	17	136	0	0	477	35	405	1606	385	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	6.6	6.6			6.6			6.1	6.1			
Lane Util. Factor	1.00	0.95			0.95			0.95	1.00			
Frpb, ped/bikes	1.00	1.00			1.00			1.00	0.99			
Flpb, ped/bikes	1.00	1.00			1.00			1.00	1.00			
Frt	1.00	1.00			0.99			1.00	0.85			
Flt Protected	0.95	1.00			1.00			0.99	1.00			
Satd. Flow (prot)	1880	3762			3758			3762	1675			
Flt Permitted	0.33	1.00			1.00			0.99	1.00			
Satd. Flow (perm)	648	3762			3758			3762	1675			
Peak-hour factor, PHF	0.68	0.68	0.68	0.87	0.87	0.87	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	25	200	0	0	548	40	440	1746	418	0	0	0
RTOR Reduction (vph)	0	0	0	0	6	0	0	0	180	0	0	0
Lane Group Flow (vph)	25	200	0	0	582	0	0	2186	238	0	0	0
Confl. Peds. (#/hr)	1					1			4			
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA	Perm			
Protected Phases		4			8			2				
Permitted Phases	4						2		2			
Actuated Green, G (s)	22.4	22.4			22.4			44.9	44.9			
Effective Green, g (s)	22.4	22.4			22.4			44.9	44.9			
Actuated g/C Ratio	0.28	0.28			0.28			0.56	0.56			
Clearance Time (s)	6.6	6.6			6.6			6.1	6.1			
Lane Grp Cap (vph)	181	1053			1052			2111	940			
v/s Ratio Prot		0.05			0.15							
v/s Ratio Perm	0.04							0.58	0.14			
v/c Ratio	0.14	0.19			0.55			1.04	0.25			
Uniform Delay, d1	21.6	21.9			24.5			17.6	9.0			
Progression Factor	1.01	1.00			1.00			0.98	1.49			
Incremental Delay, d2	1.6	0.4			2.1			18.0	0.1			
Delay (s)	23.5	22.3			26.6			35.3	13.4			
Level of Service	C	C			C			D	B			
Approach Delay (s)		22.4			26.6			31.8			0.0	
Approach LOS		C			C			C			A	
Intersection Summary												
HCM 2000 Control Delay			30.3									
HCM 2000 Volume to Capacity ratio			0.87									
Actuated Cycle Length (s)			80.0									
Intersection Capacity Utilization			81.8%									
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3003: Hamilton St & Harriet St

Road Diet Capacity Analysis

Road Diet 2038 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑↑					↑	↑↑	
Traffic Volume (vph)	0	115	112	265	541	0	0	0	0	47	571	50
Future Volume (vph)	0	115	112	265	541	0	0	0	0	47	571	50
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.8		5.8	5.8					5.6	5.6	
Lane Util. Factor		0.95		1.00	0.95					1.00	0.95	
Frpb, ped/bikes		0.99		1.00	1.00					1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00					1.00	1.00	
Frt		0.93		1.00	1.00					1.00	0.99	
Flt Protected		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (prot)		3494		1898	3800					1881	3717	
Flt Permitted		1.00		0.57	1.00					0.95	1.00	
Satd. Flow (perm)		3494		1130	3800					1881	3717	
Peak-hour factor, PHF	0.74	0.74	0.74	0.95	0.95	0.95	0.93	0.92	0.92	0.93	0.93	0.93
Adj. Flow (vph)	0	155	151	279	569	0	0	0	0	51	614	54
RTOR Reduction (vph)	0	109	0	0	0	0	0	0	0	0	8	0
Lane Group Flow (vph)	0	197	0	279	569	0	0	0	0	51	660	0
Confl. Peds. (#/hr)			2	2								
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	1%
Turn Type		NA		D.P+P	NA					Perm	NA	
Protected Phases		4		3	8 3						2	
Permitted Phases				4						2		
Actuated Green, G (s)		22.2		36.4	42.2					26.4	26.4	
Effective Green, g (s)		22.2		36.4	42.2					26.4	26.4	
Actuated g/C Ratio		0.28		0.45	0.53					0.33	0.33	
Clearance Time (s)		5.8		5.8						5.6	5.6	
Vehicle Extension (s)		4.0		4.0						0.2	0.2	
Lane Grp Cap (vph)		969		650	2004					620	1226	
v/s Ratio Prot		0.06		c0.08	0.15						c0.18	
v/s Ratio Perm				c0.12						0.03		
v/c Ratio		0.20		0.43	0.28					0.08	0.54	
Uniform Delay, d1		22.1		15.8	10.5					18.5	21.8	
Progression Factor		1.00		1.09	1.02					0.70	0.75	
Incremental Delay, d2		0.5		0.4	0.1					0.2	1.6	
Delay (s)		22.6		17.6	10.8					13.2	18.0	
Level of Service		C		B	B					B	B	
Approach Delay (s)		22.6			13.0			0.0			17.6	
Approach LOS		C			B			A			B	
Intersection Summary												
HCM 2000 Control Delay			16.4			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.47									
Actuated Cycle Length (s)			80.0			Sum of lost time (s)				17.2		
Intersection Capacity Utilization			62.3%			ICU Level of Service				B		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3004: Huron St & Catherine St (PB)

Road Diet Capacity Analysis

Road Diet 2038 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	10	0	0	29	47	90	1489	19	0	0	0
Future Volume (vph)	9	10	0	0	29	47	90	1489	19	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.3			5.3			5.3				
Lane Util. Factor		1.00			1.00			0.95				
Frpb, ped/bikes		1.00			0.99			1.00				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.92			1.00				
Flt Protected		0.98			1.00			1.00				
Satd. Flow (prot)		1952			1819			3744				
Flt Permitted		0.80			1.00			1.00				
Satd. Flow (perm)		1594			1819			3744				
Peak-hour factor, PHF	0.71	0.71	0.71	0.77	0.77	0.77	0.94	0.94	0.94	0.92	0.92	0.92
Adj. Flow (vph)	13	14	0	0	38	61	96	1584	20	0	0	0
RTOR Reduction (vph)	0	0	0	0	41	0	0	1	0	0	0	0
Lane Group Flow (vph)	0	27	0	0	58	0	0	1699	0	0	0	0
Confl. Peds. (#/hr)	1					1	1		2			
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		2			2			1				
Permitted Phases	2						1					
Actuated Green, G (s)		7.1			7.1			62.3				
Effective Green, g (s)		7.1			7.1			62.3				
Actuated g/C Ratio		0.09			0.09			0.78				
Clearance Time (s)		5.3			5.3			5.3				
Vehicle Extension (s)		3.0			3.0			0.2				
Lane Grp Cap (vph)		141			161			2915				
v/s Ratio Prot					c0.03							
v/s Ratio Perm		0.02						0.45				
v/c Ratio		0.19			0.36			0.58				
Uniform Delay, d1		33.8			34.3			3.6				
Progression Factor		1.00			1.00			1.15				
Incremental Delay, d2		0.7			1.4			0.1				
Delay (s)		34.5			35.7			4.2				
Level of Service		C			D			A				
Approach Delay (s)		34.5			35.7			4.2			0.0	
Approach LOS		C			D			A			A	
Intersection Summary												
HCM 2000 Control Delay		6.3			HCM 2000 Level of Service			A				
HCM 2000 Volume to Capacity ratio		0.56										
Actuated Cycle Length (s)		80.0			Sum of lost time (s)			10.6				
Intersection Capacity Utilization		58.6%			ICU Level of Service			B				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

9000: Hamilton St & Washtenaw Ave

Road Diet Capacity Analysis

Road Diet 2038 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕	↗								↖↕	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	0	119	530	0	0	0	0	0	0	29	274	0
Future Volume (vph)	0	119	530	0	0	0	0	0	0	29	274	0
Peak Hour Factor	0.89	0.89	0.89	0.92	0.92	0.92	0.92	0.92	0.92	0.91	0.91	0.91
Hourly flow rate (vph)	0	134	596	0	0	0	0	0	0	32	301	0
Direction, Lane #	EB 1	EB 2	EB 3	SB 1	SB 2							
Volume Total (vph)	67	67	596	132	201							
Volume Left (vph)	0	0	0	32	0							
Volume Right (vph)	0	0	596	0	0							
Hadj (s)	0.00	0.00	-0.70	0.14	0.02							
Departure Headway (s)	5.3	5.3	3.2	5.0	4.9							
Degree Utilization, x	0.10	0.10	0.53	0.18	0.27							
Capacity (veh/h)	640	643	1117	701	719							
Control Delay (s)	7.7	7.7	8.5	7.9	8.5							
Approach Delay (s)	8.4			8.3								
Approach LOS	A			A								
Intersection Summary												
Delay			8.3									
Level of Service			A									
Intersection Capacity Utilization			46.1%	ICU Level of Service	A							
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

9001: Hamilton St & Pearl St

Road Diet Capacity Analysis

Road Diet 2038 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	24	20	14	0	0	0	0	0	800	7
Future Volume (Veh/h)	0	0	24	20	14	0	0	0	0	0	800	7
Sign Control	Stop				Stop				Free		Free	
Grade	0%				0%				0%		0%	
Peak Hour Factor	0.66	0.66	0.66	0.83	0.83	0.83	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	36	24	17	0	0	0	0	0	870	8
Pedestrians	1											
Lane Width (ft)	12.0											
Walking Speed (ft/s)	4.0											
Percent Blockage	0											
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (ft)	435											
pX, platoon unblocked												
vC, conflicting volume	880	871	436	471	879	0	879				0	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	880	871	436	471	879	0	879				0	
tC, single (s)	7.6	6.6	7.0	7.5	6.5	6.9	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	100	100	94	95	94	100	100				100	
cM capacity (veh/h)	226	282	560	449	288	1091	777				1629	
Direction, Lane #	EB 1	WB 1	WB 2	SB 1	SB 2	SB 3						
Volume Total	36	16	25	435	435	8						
Volume Left	0	16	8	0	0	0						
Volume Right	36	0	0	0	0	8						
cSH	560	449	325	1700	1700	1700						
Volume to Capacity	0.06	0.04	0.08	0.26	0.26	0.00						
Queue Length 95th (ft)	5	3	6	0	0	0						
Control Delay (s)	11.9	13.3	17.0	0.0	0.0	0.0						
Lane LOS	B	B	C									
Approach Delay (s)	11.9	15.5	0.0									
Approach LOS	B	C										
Intersection Summary												
Average Delay	1.1											
Intersection Capacity Utilization	37.7%			ICU Level of Service					A			
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis 9002: Hamilton St/Hamilton St (PB) & Ferris St

Road Diet Capacity Analysis Road Diet 2038 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											 	
Traffic Volume (veh/h)	0	16	29	23	15	0	0	0	0	62	615	10
Future Volume (Veh/h)	0	16	29	23	15	0	0	0	0	62	615	10
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.77	0.77	0.77	0.69	0.69	0.69	0.92	0.92	0.92	0.95	0.95	0.95
Hourly flow rate (vph)	0	21	38	33	22	0	0	0	0	65	647	11
Pedestrians		1			4			1				
Lane Width (ft)		12.0			12.0			0.0				
Walking Speed (ft/s)		4.0			4.0			4.0				
Percent Blockage		0			0			0				
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)											450	
pX, platoon unblocked	0.89	0.89	0.89	0.89	0.89		0.89					
vC, conflicting volume	794	788	331	507	793	4	659			4		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	522	514	2	199	521	4	370			4		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	95	96	94	94	100	100			96		
cM capacity (veh/h)	364	397	968	591	394	1081	1067			1618		
Direction, Lane #	EB 1	WB 1	SB 1	SB 2								
Volume Total	59	55	388	334								
Volume Left	0	33	65	0								
Volume Right	38	0	0	11								
cSH	640	492	1618	1700								
Volume to Capacity	0.09	0.11	0.04	0.20								
Queue Length 95th (ft)	8	9	3	0								
Control Delay (s)	11.2	13.2	1.5	0.0								
Lane LOS	B	B	A									
Approach Delay (s)	11.2	13.2	0.8									
Approach LOS	B	B										
Intersection Summary												
Average Delay			2.4									
Intersection Capacity Utilization			33.5%		ICU Level of Service					A		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

9003: Huron St/Huron St (PB) & Ferris St

Road Diet Capacity Analysis

Road Diet 2038 AM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				 		
Traffic Volume (veh/h)	20	0	59	1403	0	0
Future Volume (Veh/h)	20	0	59	1403	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.75	0.75	0.94	0.94	0.92	0.92
Hourly flow rate (vph)	27	0	63	1493	0	0
Pedestrians	3					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				857	448	
pX, platoon unblocked	0.80					
vC, conflicting volume	876	3	3			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	355	3	3			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	94	100	96			
cM capacity (veh/h)	479	1083	1628			
Direction, Lane #	EB 1	NB 1	NB 2			
Volume Total	27	561	995			
Volume Left	27	63	0			
Volume Right	0	0	0			
cSH	479	1628	1700			
Volume to Capacity	0.06	0.04	0.59			
Queue Length 95th (ft)	4	3	0			
Control Delay (s)	13.0	1.2	0.0			
Lane LOS	B	A				
Approach Delay (s)	13.0	0.4				
Approach LOS	B					
Intersection Summary						
Average Delay		0.6				
Intersection Capacity Utilization		48.5%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

9004: Huron St (PB)/Huron St & Pearl St

Road Diet Capacity Analysis

Road Diet 2038 AM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				 		
Traffic Volume (veh/h)	0	0	99	1846	0	0
Future Volume (Veh/h)	0	0	99	1846	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.95	0.95	0.92	0.92
Hourly flow rate (vph)	0	0	104	1943	0	0
Pedestrians	2					
Lane Width (ft)	0.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (ft)				430		
pX, platoon unblocked	0.66					
vC, conflicting volume	1182	2	2			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	259	2	2			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	94			
cM capacity (veh/h)	443	1088	1634			
Direction, Lane #	NB 1	NB 2				
Volume Total	752	1295				
Volume Left	104	0				
Volume Right	0	0				
cSH	1634	1700				
Volume to Capacity	0.06	0.76				
Queue Length 95th (ft)	5	0				
Control Delay (s)	1.7	0.0				
Lane LOS	A					
Approach Delay (s)	0.6					
Approach LOS						
Intersection Summary						
Average Delay		0.6				
Intersection Capacity Utilization		54.5%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Signalized Intersection Capacity Analysis

1002: Summit & Washtenaw Ave

Road Diet Capacity Analysis

Road Diet 2038 OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	1054	43	0	0	0	0	74	23	36	20	0
Future Volume (vph)	14	1054	43	0	0	0	0	74	23	36	20	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.4						10.8			10.8	
Lane Util. Factor		0.91						1.00			1.00	
Frpb, ped/bikes		1.00						0.98			1.00	
Flpb, ped/bikes		1.00						1.00			0.97	
Frt		0.99						0.97			1.00	
Flt Protected		1.00						1.00			0.97	
Satd. Flow (prot)		5418						1615			1872	
Flt Permitted		1.00						1.00			0.71	
Satd. Flow (perm)		5418						1615			1376	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.61	0.61	0.61	0.74	0.74	0.74
Adj. Flow (vph)	15	1146	47	0	0	0	0	121	38	49	27	0
RTOR Reduction (vph)	0	5	0	0	0	0	0	14	0	0	0	0
Lane Group Flow (vph)	0	1203	0	0	0	0	0	145	0	0	76	0
Confl. Peds. (#/hr)			8						45	45		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)								10				
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		1						2			2	
Permitted Phases	1									2		
Actuated Green, G (s)		46.6						17.2			17.2	
Effective Green, g (s)		46.6						17.2			17.2	
Actuated g/C Ratio		0.58						0.21			0.21	
Clearance Time (s)		5.4						10.8			10.8	
Lane Grp Cap (vph)		3155						347			295	
v/s Ratio Prot								c0.09				
v/s Ratio Perm		0.22									0.06	
v/c Ratio		0.38						0.42			0.26	
Uniform Delay, d1		9.0						27.1			26.1	
Progression Factor		1.00						1.00			1.34	
Incremental Delay, d2		0.4						3.7			2.1	
Delay (s)		9.3						30.7			37.1	
Level of Service		A						C			D	
Approach Delay (s)		9.3			0.0			30.7			37.1	
Approach LOS		A			A			C			D	
Intersection Summary												
HCM 2000 Control Delay		13.1						HCM 2000 Level of Service		B		
HCM 2000 Volume to Capacity ratio		0.39										
Actuated Cycle Length (s)		80.0						Sum of lost time (s)		16.2		
Intersection Capacity Utilization		47.8%						ICU Level of Service		A		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1004: Ballard St (PB) & Washtenaw Ave

Road Diet Capacity Analysis

Road Diet 2038 OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	831	25	0	0	0	0	96	17	17	28	0
Future Volume (vph)	21	831	25	0	0	0	0	96	17	17	28	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.3						5.7		5.7	5.7	
Lane Util. Factor		0.95						1.00		1.00	1.00	
Frpb, ped/bikes		1.00						1.00		1.00	1.00	
Flpb, ped/bikes		1.00						1.00		0.99	1.00	
Frt		1.00						0.98		1.00	1.00	
Flt Protected		1.00						1.00		0.95	1.00	
Satd. Flow (prot)		3776						1954		1890	2000	
Flt Permitted		1.00						1.00		0.63	1.00	
Satd. Flow (perm)		3776						1954		1258	2000	
Peak-hour factor, PHF	0.88	0.88	0.88	0.92	0.92	0.92	0.76	0.76	0.76	0.67	0.67	0.67
Adj. Flow (vph)	24	944	28	0	0	0	0	126	22	25	42	0
RTOR Reduction (vph)	0	2	0	0	0	0	0	9	0	0	0	0
Lane Group Flow (vph)	0	994	0	0	0	0	0	139	0	25	42	0
Confl. Peds. (#/hr)	11		7						8	8		
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	custom	NA						NA		Perm	NA	
Protected Phases	1	1						2			2	
Permitted Phases	1									2		
Actuated Green, G (s)		58.2						10.8		10.8	10.8	
Effective Green, g (s)		58.2						10.8		10.8	10.8	
Actuated g/C Ratio		0.73						0.14		0.14	0.14	
Clearance Time (s)		5.3						5.7		5.7	5.7	
Vehicle Extension (s)		0.2						3.0		3.0	3.0	
Lane Grp Cap (vph)		2747						263		169	270	
v/s Ratio Prot		c0.26						c0.07			0.02	
v/s Ratio Perm										0.02		
v/c Ratio		0.36						0.53		0.15	0.16	
Uniform Delay, d1		4.0						32.2		30.5	30.6	
Progression Factor		0.35						1.00		1.00	1.00	
Incremental Delay, d2		0.4						1.9		0.4	0.3	
Delay (s)		1.8						34.2		30.9	30.8	
Level of Service		A						C		C	C	
Approach Delay (s)		1.8			0.0			34.2			30.9	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM 2000 Control Delay		7.3						HCM 2000 Level of Service		A		
HCM 2000 Volume to Capacity ratio		0.39										
Actuated Cycle Length (s)		80.0						Sum of lost time (s)		11.0		
Intersection Capacity Utilization		42.5%						ICU Level of Service		A		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1013: Hamilton St (PB) & Michigan Ave

Road Diet Capacity Analysis

Road Diet 2038 OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑↑					↑	↑↑	
Traffic Volume (vph)	0	436	117	209	514	0	0	0	0	406	831	45
Future Volume (vph)	0	436	117	209	514	0	0	0	0	406	831	45
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.2		5.2	5.2					6.8	6.8	
Lane Util. Factor		0.95		1.00	0.95					1.00	0.95	
Frpb, ped/bikes		0.99		1.00	1.00					1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00					1.00	1.00	
Frt		0.97		1.00	1.00					1.00	0.99	
Flt Protected		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (prot)		3647		1874	3480					1881	3728	
Flt Permitted		1.00		0.35	1.00					0.95	1.00	
Satd. Flow (perm)		3647		696	3480					1881	3728	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.92	0.92	0.92	0.93	0.93	0.93
Adj. Flow (vph)	0	459	123	220	541	0	0	0	0	437	894	48
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	5	0
Lane Group Flow (vph)	0	582	0	220	541	0	0	0	0	437	937	0
Confl. Peds. (#/hr)			27	27						24		13
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Parking (#/hr)					10							
Turn Type		NA		pm+pt	NA					custom		NA
Protected Phases		1		2	1 2					3		3
Permitted Phases				1 2						3		
Actuated Green, G (s)		28.8		37.6	42.8					25.2		25.2
Effective Green, g (s)		28.8		37.6	42.8					25.2		25.2
Actuated g/C Ratio		0.36		0.47	0.53					0.31		0.31
Clearance Time (s)		5.2		5.2						6.8		6.8
Lane Grp Cap (vph)		1312		456	1861					592		1174
v/s Ratio Prot		0.16		c0.05	0.16					0.23		c0.25
v/s Ratio Perm				c0.17								
v/c Ratio		0.44		0.48	0.29					0.74		0.80
Uniform Delay, d1		19.5		19.2	10.2					24.5		25.1
Progression Factor		0.95		0.70	0.71					1.00		1.00
Incremental Delay, d2		1.1		3.5	0.4					8.0		5.7
Delay (s)		19.5		16.8	7.7					32.5		30.8
Level of Service		B		B	A					C		C
Approach Delay (s)		19.5			10.3			0.0				31.3
Approach LOS		B			B			A				C
Intersection Summary												
HCM 2000 Control Delay			22.9			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.61									
Actuated Cycle Length (s)			80.0			Sum of lost time (s)			17.2			
Intersection Capacity Utilization			66.1%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1016: Huron St (PB) & Cross St (PB)/Cross St

Road Diet Capacity Analysis

Road Diet 2038 OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑	↑		↑↑				
Traffic Volume (vph)	0	0	0	0	231	14	0	391	237	0	0	0
Future Volume (vph)	0	0	0	0	231	14	0	391	237	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)					5.5	5.5		5.6				
Lane Util. Factor					1.00	1.00		0.95				
Frpb, ped/bikes					1.00	1.00		0.99				
Flpb, ped/bikes					1.00	1.00		1.00				
Frt					1.00	0.85		0.94				
Flt Protected					1.00	1.00		1.00				
Satd. Flow (prot)					2000	1700		3521				
Flt Permitted					1.00	1.00		1.00				
Satd. Flow (perm)					2000	1700		3521				
Peak-hour factor, PHF	0.92	0.92	0.92	0.84	0.84	0.84	0.95	0.95	0.95	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	275	17	0	412	249	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	9	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	275	8	0	661	0	0	0	0
Confl. Peds. (#/hr)						9			1			
Confl. Bikes (#/hr)						4						
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	0%	0%	0%
Turn Type					NA	custom		NA				
Protected Phases					2	2		8				
Permitted Phases						2						
Actuated Green, G (s)					35.5	35.5		33.4				
Effective Green, g (s)					35.5	35.5		33.4				
Actuated g/C Ratio					0.44	0.44		0.42				
Clearance Time (s)					5.5	5.5		5.6				
Lane Grp Cap (vph)					887	754		1470				
v/s Ratio Prot					c0.14	0.00		c0.19				
v/s Ratio Perm												
v/c Ratio					0.31	0.01		0.45				
Uniform Delay, d1					14.4	12.4		16.7				
Progression Factor					1.00	1.00		1.35				
Incremental Delay, d2					0.9	0.0		0.8				
Delay (s)					15.3	12.5		23.4				
Level of Service					B	B		C				
Approach Delay (s)		0.0			15.1			23.4			0.0	
Approach LOS		A			B			C			A	
Intersection Summary												
HCM 2000 Control Delay			20.9				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.38									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)			11.1		
Intersection Capacity Utilization			56.3%				ICU Level of Service			B		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1023: Huron St (PB) & Michigan Ave

Road Diet Capacity Analysis

Road Diet 2038 OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	784	0	0	582	367	107	684	167	0	0	0
Future Volume (vph)	130	784	0	0	582	367	107	684	167	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	5.0	5.0			5.0	5.0	5.6	5.6				
Lane Util. Factor	1.00	0.95			0.91	0.91	1.00	0.95				
Frpb, ped/bikes	1.00	1.00			0.99	0.94	1.00	1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00	0.99	1.00				
Frt	1.00	1.00			0.98	0.85	1.00	0.97				
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00				
Satd. Flow (prot)	1894	3515			3247	1219	1857	3638				
Flt Permitted	0.26	1.00			1.00	1.00	0.95	1.00				
Satd. Flow (perm)	512	3515			3247	1219	1857	3638				
Peak-hour factor, PHF	0.93	0.93	0.93	0.94	0.94	0.94	0.86	0.86	0.86	0.92	0.92	0.92
Adj. Flow (vph)	140	843	0	0	619	390	124	795	194	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	140	843	0	0	705	304	124	989	0	0	0	0
Confl. Peds. (#/hr)	44					44	14		7			
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	1%	0%	0%	0%
Parking (#/hr)		10			10	10						
Turn Type	pm+pt	NA			NA	Perm	Perm	NA				
Protected Phases	2	1 2			1			3				
Permitted Phases	1 2					1	3					
Actuated Green, G (s)	38.0	43.0			29.0	29.0	26.4	26.4				
Effective Green, g (s)	38.0	43.0			29.0	29.0	26.4	26.4				
Actuated g/C Ratio	0.48	0.54			0.36	0.36	0.33	0.33				
Clearance Time (s)	5.0				5.0	5.0	5.6	5.6				
Lane Grp Cap (vph)	398	1889			1177	441	612	1200				
v/s Ratio Prot	0.04	c0.24			0.22			c0.27				
v/s Ratio Perm	0.13					c0.25	0.07					
v/c Ratio	0.35	0.45			0.60	0.69	0.20	0.82				
Uniform Delay, d1	20.0	11.3			20.8	21.7	19.2	24.7				
Progression Factor	0.38	0.31			1.00	1.00	0.42	0.48				
Incremental Delay, d2	2.2	0.7			2.3	8.5	0.7	6.3				
Delay (s)	9.7	4.1			23.0	30.2	8.7	18.1				
Level of Service	A	A			C	C	A	B				
Approach Delay (s)		4.9			25.2			17.1			0.0	
Approach LOS		A			C			B			A	
Intersection Summary												
HCM 2000 Control Delay			15.9				HCM 2000 Level of Service		B			
HCM 2000 Volume to Capacity ratio			0.73									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)		15.6			
Intersection Capacity Utilization			62.6%				ICU Level of Service		B			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2000: Michigan Ave & Congress St & Ballard St

Road Diet Capacity Analysis

Road Diet 2038 OP Peak Hour

											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	SBR2	NEL	NER
Lane Configurations											
Traffic Volume (vph)	10	102	5	418	121	31	18	22	11	0	438
Future Volume (vph)	10	102	5	418	121	31	18	22	11	0	438
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.9		6.1	6.1		6.3	6.3			6.1
Lane Util. Factor		1.00		0.95	0.95		1.00	1.00			0.88
Frpb, ped/bikes		1.00		1.00	0.99		1.00	1.00			1.00
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00			1.00
Frt		0.99		1.00	0.98		1.00	0.85			0.85
Flt Protected		1.00		0.95	0.98		0.95	1.00			1.00
Satd. Flow (prot)		1978		1805	1532		1900	1700			2962
Flt Permitted		1.00		0.95	0.98		0.95	1.00			1.00
Satd. Flow (perm)		1978		1805	1532		1900	1700			2962
Peak-hour factor, PHF	0.80	0.80	0.80	0.95	0.95	0.95	0.66	0.66	0.66	0.89	0.89
Adj. Flow (vph)	12	128	6	440	127	33	27	33	17	0	492
RTOR Reduction (vph)	0	2	0	0	6	0	0	38	0	0	359
Lane Group Flow (vph)	0	145	0	299	295	0	27	13	0	0	133
Confl. Peds. (#/hr)	32		11	11		32	1		9		1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%
Parking (#/hr)					10						
Turn Type	Split	NA		Split	NA		Prot	Prot			Over
Protected Phases	3	3		1	1		2	2			1
Permitted Phases											
Actuated Green, G (s)		20.0		21.7	21.7		20.0	20.0			21.7
Effective Green, g (s)		20.0		21.7	21.7		20.0	20.0			21.7
Actuated g/C Ratio		0.25		0.27	0.27		0.25	0.25			0.27
Clearance Time (s)		5.9		6.1	6.1		6.3	6.3			6.1
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0			3.0
Lane Grp Cap (vph)		494		489	415		475	425			803
v/s Ratio Prot		c0.07		0.17	c0.19		c0.01	0.01			0.05
v/s Ratio Perm											
v/c Ratio		0.29		0.61	0.71		0.06	0.03			0.17
Uniform Delay, d1		24.3		25.5	26.3		22.8	22.7			22.2
Progression Factor		1.00		0.97	0.98		1.00	1.00			1.00
Incremental Delay, d2		0.3		5.4	9.6		0.1	0.0			0.4
Delay (s)		24.6		30.2	35.3		22.9	22.7			22.7
Level of Service		C		C	D		C	C			C
Approach Delay (s)		24.6			32.8		22.8			22.7	
Approach LOS		C			C		C			C	
Intersection Summary											
HCM 2000 Control Delay			27.5			HCM 2000 Level of Service				C	
HCM 2000 Volume to Capacity ratio			0.36								
Actuated Cycle Length (s)			80.0			Sum of lost time (s)			18.3		
Intersection Capacity Utilization			65.4%			ICU Level of Service			C		
Analysis Period (min)			15								
c Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

2004: Adams St (PB) & Michigan Ave

Road Diet Capacity Analysis

Road Diet 2038 OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	790	13	16	628	45	43	41	52	37	23	39
Future Volume (vph)	21	790	13	16	628	45	43	41	52	37	23	39
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.1			5.1		6.0	6.0		6.0	6.0	
Lane Util. Factor		0.95			0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			1.00		1.00	0.97		1.00	0.98	
Flpb, ped/bikes		1.00			1.00		0.98	1.00		0.97	1.00	
Frt		1.00			0.99		1.00	0.92		1.00	0.91	
Flt Protected		1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3462			3462		1853	1513		1799	1473	
Flt Permitted		0.93			0.93		0.71	1.00		0.68	1.00	
Satd. Flow (perm)		3208			3215		1385	1513		1285	1473	
Peak-hour factor, PHF	0.93	0.93	0.93	0.89	0.89	0.89	0.76	0.76	0.76	0.86	0.86	0.86
Adj. Flow (vph)	23	849	14	18	706	51	57	54	68	43	27	45
RTOR Reduction (vph)	0	1	0	0	6	0	0	56	0	0	37	0
Lane Group Flow (vph)	0	885	0	0	769	0	57	66	0	43	35	0
Confl. Peds. (#/hr)	18		24	24		18	26		39	39		26
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	0%	0%	0%	2%	2%	2%
Parking (#/hr)		10			10			10			10	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)		54.9			54.9		14.0	14.0		14.0	14.0	
Effective Green, g (s)		54.9			54.9		14.0	14.0		14.0	14.0	
Actuated g/C Ratio		0.69			0.69		0.18	0.18		0.18	0.18	
Clearance Time (s)		5.1			5.1		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)		2201			2206		242	264		224	257	
v/s Ratio Prot								c0.04				0.02
v/s Ratio Perm		c0.28			0.24		0.04			0.03		
v/c Ratio		0.40			0.35		0.24	0.25		0.19	0.14	
Uniform Delay, d1		5.4			5.2		28.4	28.5		28.2	27.9	
Progression Factor		0.61			0.32		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.5			0.4		2.3	2.3		1.9	1.1	
Delay (s)		3.8			2.0		30.7	30.7		30.1	29.0	
Level of Service		A			A		C	C		C	C	
Approach Delay (s)		3.8			2.0			30.7			29.4	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM 2000 Control Delay		7.1			HCM 2000 Level of Service			A				
HCM 2000 Volume to Capacity ratio		0.37										
Actuated Cycle Length (s)		80.0			Sum of lost time (s)			11.1				
Intersection Capacity Utilization		64.0%			ICU Level of Service			B				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2005: Washington St (PB) & Michigan Ave

Road Diet Capacity Analysis

Road Diet 2038 OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	861	40	28	643	22	21	34	34	45	36	33
Future Volume (vph)	14	861	40	28	643	22	21	34	34	45	36	33
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.0			5.0			6.0			6.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			0.98			0.98	
Flpb, ped/bikes		1.00			1.00			0.99			0.98	
Frt		0.99			1.00			0.95			0.96	
Flt Protected		1.00			1.00			0.99			0.98	
Satd. Flow (prot)		3475			3446			1542			1820	
Flt Permitted		0.94			0.89			0.91			0.85	
Satd. Flow (perm)		3272			3060			1423			1575	
Peak-hour factor, PHF	0.89	0.89	0.89	0.94	0.94	0.94	0.81	0.81	0.81	0.92	0.92	0.92
Adj. Flow (vph)	16	967	45	30	684	23	26	42	42	49	39	36
RTOR Reduction (vph)	0	4	0	0	3	0	0	28	0	0	18	0
Lane Group Flow (vph)	0	1024	0	0	734	0	0	82	0	0	106	0
Confl. Peds. (#/hr)	32		30	30		32	46		43	43		46
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	0%	0%	0%	0%	0%	0%
Parking (#/hr)		10			10			10				
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)		55.0			55.0			14.0			14.0	
Effective Green, g (s)		55.0			55.0			14.0			14.0	
Actuated g/C Ratio		0.69			0.69			0.18			0.18	
Clearance Time (s)		5.0			5.0			6.0			6.0	
Lane Grp Cap (vph)		2249			2103			249			275	
v/s Ratio Prot												
v/s Ratio Perm		c0.31			0.24			0.06			c0.07	
v/c Ratio		0.46			0.35			0.33			0.38	
Uniform Delay, d1		5.7			5.1			28.9			29.2	
Progression Factor		0.24			0.32			1.00			1.00	
Incremental Delay, d2		0.6			0.4			3.5			4.0	
Delay (s)		2.0			2.0			32.4			33.2	
Level of Service		A			A			C			C	
Approach Delay (s)		2.0			2.0			32.4			33.2	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM 2000 Control Delay		5.6			HCM 2000 Level of Service			A				
HCM 2000 Volume to Capacity ratio		0.44										
Actuated Cycle Length (s)		80.0			Sum of lost time (s)			11.0				
Intersection Capacity Utilization		63.9%			ICU Level of Service			B				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3001: Huron St & Harriet St/Spring St

Road Diet Capacity Analysis

Road Diet 2038 OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 				
Traffic Volume (vph)	44	192	0	0	327	29	189	903	251	0	0	0
Future Volume (vph)	44	192	0	0	327	29	189	903	251	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	6.6	6.6			6.6			6.1	6.1			
Lane Util. Factor	1.00	0.95			0.95			0.95	1.00			
Frpb, ped/bikes	1.00	1.00			1.00			1.00	0.99			
Flpb, ped/bikes	1.00	1.00			1.00			1.00	1.00			
Frt	1.00	1.00			0.99			1.00	0.85			
Flt Protected	0.95	1.00			1.00			0.99	1.00			
Satd. Flow (prot)	1894	3800			3747			3766	1678			
Flt Permitted	0.53	1.00			1.00			0.99	1.00			
Satd. Flow (perm)	1049	3800			3747			3766	1678			
Peak-hour factor, PHF	0.90	0.90	0.90	0.95	0.95	0.95	0.95	0.95	0.95	0.92	0.92	0.92
Adj. Flow (vph)	49	213	0	0	344	31	199	951	264	0	0	0
RTOR Reduction (vph)	0	0	0	0	8	0	0	0	126	0	0	0
Lane Group Flow (vph)	49	213	0	0	367	0	0	1150	138	0	0	0
Confl. Peds. (#/hr)	5					5	2		1			
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA	Perm			
Protected Phases		4			8			2				
Permitted Phases	4						2		2			
Actuated Green, G (s)	25.4	25.4			25.4			41.9	41.9			
Effective Green, g (s)	25.4	25.4			25.4			41.9	41.9			
Actuated g/C Ratio	0.32	0.32			0.32			0.52	0.52			
Clearance Time (s)	6.6	6.6			6.6			6.1	6.1			
Lane Grp Cap (vph)	333	1206			1189			1972	878			
v/s Ratio Prot		0.06			c0.10							
v/s Ratio Perm	0.05							0.31	0.08			
v/c Ratio	0.15	0.18			0.31			0.58	0.16			
Uniform Delay, d1	19.5	19.7			20.7			13.1	9.9			
Progression Factor	0.99	0.98			1.00			0.81	1.05			
Incremental Delay, d2	0.9	0.3			0.7			1.1	0.3			
Delay (s)	20.3	19.7			21.3			11.8	10.7			
Level of Service	C	B			C			B	B			
Approach Delay (s)		19.8			21.3			11.6			0.0	
Approach LOS		B			C			B			A	
Intersection Summary												
HCM 2000 Control Delay		14.4			HCM 2000 Level of Service			B				
HCM 2000 Volume to Capacity ratio		0.48										
Actuated Cycle Length (s)		80.0			Sum of lost time (s)			12.7				
Intersection Capacity Utilization		68.7%			ICU Level of Service			C				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3003: Hamilton St & Harriet St

Road Diet Capacity Analysis

Road Diet 2038 OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	153	123	289	222	0	0	0	0	86	940	45
Future Volume (vph)	0	153	123	289	222	0	0	0	0	86	940	45
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.8		5.8	5.8					5.6	5.6	
Lane Util. Factor		0.95		1.00	0.95					1.00	0.95	
Frpb, ped/bikes		0.99		1.00	1.00					1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00					1.00	1.00	
Frt		0.93		1.00	1.00					1.00	0.99	
Flt Protected		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (prot)		3518		1896	3800					1881	3732	
Flt Permitted		1.00		0.56	1.00					0.95	1.00	
Satd. Flow (perm)		3518		1118	3800					1881	3732	
Peak-hour factor, PHF	0.88	0.88	0.88	0.87	0.87	0.87	0.92	0.92	0.92	0.87	0.87	0.87
Adj. Flow (vph)	0	174	140	332	255	0	0	0	0	99	1080	52
RTOR Reduction (vph)	0	83	0	0	0	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	231	0	332	255	0	0	0	0	99	1128	0
Confl. Peds. (#/hr)			5	5								5
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	1%
Turn Type		NA		D.P+P	NA					Perm	NA	
Protected Phases		4		3	8 3						2	
Permitted Phases				4						2		
Actuated Green, G (s)		22.2		36.4	42.2					26.4	26.4	
Effective Green, g (s)		22.2		36.4	42.2					26.4	26.4	
Actuated g/C Ratio		0.28		0.45	0.53					0.33	0.33	
Clearance Time (s)		5.8		5.8						5.6	5.6	
Vehicle Extension (s)		4.0		4.0						0.2	0.2	
Lane Grp Cap (vph)		976		646	2004					620	1231	
v/s Ratio Prot		0.07		c0.09	0.07						c0.30	
v/s Ratio Perm				c0.14						0.05		
v/c Ratio		0.24		0.51	0.13					0.16	0.92	
Uniform Delay, d1		22.3		16.9	9.6					19.0	25.7	
Progression Factor		1.00		0.91	0.72					0.62	0.74	
Incremental Delay, d2		0.6		0.9	0.0					0.4	9.9	
Delay (s)		22.9		16.2	7.0					12.2	28.9	
Level of Service		C		B	A					B	C	
Approach Delay (s)		22.9			12.2			0.0			27.6	
Approach LOS		C			B			A			C	
Intersection Summary												
HCM 2000 Control Delay			22.7			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.68									
Actuated Cycle Length (s)			80.0			Sum of lost time (s)				17.2		
Intersection Capacity Utilization			73.1%			ICU Level of Service				D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3004: Huron St & Catherine St (PB)

Road Diet Capacity Analysis

Road Diet 2038 OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	20	0	0	1	54	10	968	8	0	0	0
Future Volume (vph)	14	20	0	0	1	54	10	968	8	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.3			5.3			5.3				
Lane Util. Factor		1.00			1.00			0.95				
Frpb, ped/bikes		1.00			0.98			1.00				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.87			1.00				
Flt Protected		0.98			1.00			1.00				
Satd. Flow (prot)		1955			1699			3755				
Flt Permitted		0.84			1.00			1.00				
Satd. Flow (perm)		1672			1699			3755				
Peak-hour factor, PHF	0.60	0.60	0.60	0.88	0.88	0.88	0.91	0.91	0.91	0.92	0.92	0.92
Adj. Flow (vph)	23	33	0	0	1	61	11	1064	9	0	0	0
RTOR Reduction (vph)	0	0	0	0	55	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	56	0	0	7	0	0	1084	0	0	0	0
Confl. Peds. (#/hr)	5					5	3		1			
Confl. Bikes (#/hr)						1			1			
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		2			2			1				
Permitted Phases	2						1					
Actuated Green, G (s)		7.9			7.9			61.5				
Effective Green, g (s)		7.9			7.9			61.5				
Actuated g/C Ratio		0.10			0.10			0.77				
Clearance Time (s)		5.3			5.3			5.3				
Vehicle Extension (s)		3.0			3.0			0.2				
Lane Grp Cap (vph)		165			167			2886				
v/s Ratio Prot					0.00							
v/s Ratio Perm		0.03						0.29				
v/c Ratio		0.34			0.04			0.38				
Uniform Delay, d1		33.6			32.6			3.0				
Progression Factor		1.00			1.00			1.46				
Incremental Delay, d2		1.2			0.1			0.3				
Delay (s)		34.8			32.7			4.7				
Level of Service		C			C			A				
Approach Delay (s)		34.8			32.7			4.7			0.0	
Approach LOS		C			C			A			A	
Intersection Summary												
HCM 2000 Control Delay		7.6			HCM 2000 Level of Service			A				
HCM 2000 Volume to Capacity ratio		0.37										
Actuated Cycle Length (s)		80.0			Sum of lost time (s)			10.6				
Intersection Capacity Utilization		43.2%			ICU Level of Service			A				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

9000: Hamilton St & Washtenaw Ave

Road Diet Capacity Analysis

Road Diet 2038 OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗								↖↑	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	0	189	698	0	0	0	0	0	0	32	445	0
Future Volume (vph)	0	189	698	0	0	0	0	0	0	32	445	0
Peak Hour Factor	0.85	0.85	0.85	0.92	0.92	0.92	0.92	0.92	0.92	0.90	0.90	0.90
Hourly flow rate (vph)	0	222	821	0	0	0	0	0	0	36	494	0
Direction, Lane #	EB 1	EB 2	EB 3	SB 1	SB 2							
Volume Total (vph)	111	111	821	201	329							
Volume Left (vph)	0	0	0	36	0							
Volume Right (vph)	0	0	821	0	0							
Hadj (s)	0.00	0.00	-0.70	0.12	0.03							
Departure Headway (s)	5.8	5.8	3.2	5.3	5.2							
Degree Utilization, x	0.18	0.18	0.73	0.29	0.47							
Capacity (veh/h)	585	587	1120	667	681							
Control Delay (s)	8.8	8.8	13.1	9.2	11.5							
Approach Delay (s)	12.2			10.6								
Approach LOS	B			B								
Intersection Summary												
Delay			11.7									
Level of Service			B									
Intersection Capacity Utilization			60.7%	ICU Level of Service	B							
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

9001: Hamilton St & Pearl St

Road Diet Capacity Analysis

Road Diet 2038 OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	24	108	97	0	0	0	0	0	1142	17
Future Volume (Veh/h)	0	0	24	108	97	0	0	0	0	0	1142	17
Sign Control	Stop				Stop				Free		Free	
Grade	0%				0%				0%		0%	
Peak Hour Factor	0.60	0.60	0.60	0.75	0.75	0.75	0.92	0.92	0.92	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	40	144	129	0	0	0	0	0	1269	19
Pedestrians	9											
Lane Width (ft)	0.0											
Walking Speed (ft/s)	4.0											
Percent Blockage	0											
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (ft)	435											
pX, platoon unblocked												
vC, conflicting volume	1334	1269	644	684	1288	0	1288				0	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1334	1269	644	684	1288	0	1288				0	
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	100	100	90	53	22	100	100				100	
cM capacity (veh/h)	41	170	421	307	165	1091	545				1629	
Direction, Lane #	EB 1	WB 1	WB 2	SB 1	SB 2	SB 3						
Volume Total	40	96	177	634	634	19						
Volume Left	0	96	48	0	0	0						
Volume Right	40	0	0	0	0	19						
cSH	421	307	189	1700	1700	1700						
Volume to Capacity	0.10	0.31	0.94	0.37	0.37	0.01						
Queue Length 95th (ft)	8	33	186	0	0	0						
Control Delay (s)	14.5	22.0	100.4	0.0	0.0	0.0						
Lane LOS	B	C	F									
Approach Delay (s)	14.5	72.9	0.0									
Approach LOS	B	F										
Intersection Summary												
Average Delay	12.8											
Intersection Capacity Utilization	51.2%			ICU Level of Service					A			
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis

9002: Hamilton St/Hamilton St (PB) & Ferris St

Road Diet Capacity Analysis

Road Diet 2038 OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											 	
Traffic Volume (veh/h)	0	24	33	35	15	0	0	0	0	106	1016	21
Future Volume (Veh/h)	0	24	33	35	15	0	0	0	0	106	1016	21
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.85	0.85	0.85	0.92	0.92	0.92	0.93	0.93	0.93
Hourly flow rate (vph)	0	25	35	41	18	0	0	0	0	114	1092	23
Pedestrians		5			3			7				
Lane Width (ft)		12.0			12.0			0.0				
Walking Speed (ft/s)		4.0			4.0			4.0				
Percent Blockage		0			0			0				
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)											450	
pX, platoon unblocked	0.77	0.77	0.77	0.77	0.77		0.77					
vC, conflicting volume	1346	1340	570	832	1351	3	1120			3		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	845	837	0	176	852	3	551			3		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	88	96	92	91	100	100			93		
cM capacity (veh/h)	175	216	834	486	209	1077	786			1628		
Direction, Lane #	EB 1	WB 1	SB 1	SB 2								
Volume Total	60	59	660	569								
Volume Left	0	41	114	0								
Volume Right	35	0	0	23								
cSH	381	346	1628	1700								
Volume to Capacity	0.16	0.17	0.07	0.33								
Queue Length 95th (ft)	14	15	6	0								
Control Delay (s)	16.2	17.5	1.9	0.0								
Lane LOS	C	C	A									
Approach Delay (s)	16.2	17.5	1.0									
Approach LOS	C	C										
Intersection Summary												
Average Delay			2.4									
Intersection Capacity Utilization			46.2%		ICU Level of Service					A		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

9003: Huron St/Huron St (PB) & Ferris St

Road Diet Capacity Analysis

Road Diet 2038 OP Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	43	0	44	984	0	0
Future Volume (Veh/h)	43	0	44	984	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.79	0.79	0.94	0.94	0.92	0.92
Hourly flow rate (vph)	54	0	47	1047	0	0
Pedestrians	5				1	
Lane Width (ft)	12.0				0.0	
Walking Speed (ft/s)	4.0				4.0	
Percent Blockage	0				0	
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				857	448	
pX, platoon unblocked	0.92					
vC, conflicting volume	624	5	5			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	406	5	5			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	89	100	97			
cM capacity (veh/h)	512	1078	1615			
Direction, Lane #	EB 1	NB 1	NB 2			
Volume Total	54	396	698			
Volume Left	54	47	0			
Volume Right	0	0	0			
cSH	512	1615	1700			
Volume to Capacity	0.11	0.03	0.41			
Queue Length 95th (ft)	9	2	0			
Control Delay (s)	12.9	1.1	0.0			
Lane LOS	B	A				
Approach Delay (s)	12.9	0.4				
Approach LOS	B					
Intersection Summary						
Average Delay		1.0				
Intersection Capacity Utilization		37.1%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

9004: Huron St (PB)/Huron St & Pearl St

Road Diet Capacity Analysis

Road Diet 2038 OP Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				 		
Traffic Volume (veh/h)	0	0	122	1053	0	0
Future Volume (Veh/h)	0	0	122	1053	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.88	0.88	0.92	0.92
Hourly flow rate (vph)	0	0	139	1197	0	0
Pedestrians	8					
Lane Width (ft)	0.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (ft)				430		
pX, platoon unblocked	0.77					
vC, conflicting volume	884	8	8			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	260	8	8			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	91			
cM capacity (veh/h)	503	1078	1625			
Direction, Lane #	NB 1	NB 2				
Volume Total	538	798				
Volume Left	139	0				
Volume Right	0	0				
cSH	1625	1700				
Volume to Capacity	0.09	0.47				
Queue Length 95th (ft)	7	0				
Control Delay (s)	2.5	0.0				
Lane LOS	A					
Approach Delay (s)	1.0					
Approach LOS						
Intersection Summary						
Average Delay		1.0				
Intersection Capacity Utilization		34.4%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Signalized Intersection Capacity Analysis

1002: Summit & Washtenaw Ave

Road Diet Capacity Analysis

Road Diet 2038 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  						 			 	
Traffic Volume (vph)	9	1928	94	0	0	0	0	71	28	41	44	0
Future Volume (vph)	9	1928	94	0	0	0	0	71	28	41	44	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.4						10.8			10.8	
Lane Util. Factor		0.91						1.00			1.00	
Frpb, ped/bikes		1.00						0.99			1.00	
Flpb, ped/bikes		1.00						1.00			0.99	
Frt		0.99						0.96			1.00	
Flt Protected		1.00						1.00			0.98	
Satd. Flow (prot)		5413						1614			1925	
Flt Permitted		1.00						1.00			0.79	
Satd. Flow (perm)		5413						1614			1551	
Peak-hour factor, PHF	0.88	0.88	0.88	0.92	0.92	0.92	0.82	0.82	0.82	0.67	0.67	0.67
Adj. Flow (vph)	10	2191	107	0	0	0	0	87	34	61	66	0
RTOR Reduction (vph)	0	7	0	0	0	0	0	5	0	0	0	0
Lane Group Flow (vph)	0	2301	0	0	0	0	0	116	0	0	127	0
Confl. Peds. (#/hr)	4		5						24	24		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)								10				
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		1						2			2	
Permitted Phases	1									2		
Actuated Green, G (s)		46.6						17.2			17.2	
Effective Green, g (s)		46.6						17.2			17.2	
Actuated g/C Ratio		0.58						0.21			0.21	
Clearance Time (s)		5.4						10.8			10.8	
Lane Grp Cap (vph)		3153						347			333	
v/s Ratio Prot								0.07				
v/s Ratio Perm		0.43									c0.08	
v/c Ratio		0.73						0.34			0.38	
Uniform Delay, d1		12.1						26.6			26.9	
Progression Factor		1.00						1.00			1.30	
Incremental Delay, d2		1.5						2.6			3.3	
Delay (s)		13.7						29.2			38.1	
Level of Service		B						C			D	
Approach Delay (s)		13.7			0.0			29.2			38.1	
Approach LOS		B			A			C			D	
Intersection Summary												
HCM 2000 Control Delay		15.6						HCM 2000 Level of Service		B		
HCM 2000 Volume to Capacity ratio		0.64										
Actuated Cycle Length (s)		80.0						Sum of lost time (s)		16.2		
Intersection Capacity Utilization		64.8%						ICU Level of Service		C		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1004: Ballard St (PB) & Washtenaw Ave

Road Diet Capacity Analysis

Road Diet 2038 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔↔						↔↔		↔↔	↔	
Traffic Volume (vph)	35	1545	32	0	0	0	0	59	16	18	44	0
Future Volume (vph)	35	1545	32	0	0	0	0	59	16	18	44	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.3						5.7		5.7	5.7	
Lane Util. Factor		0.95						1.00		1.00	1.00	
Frpb, ped/bikes		1.00						1.00		1.00	1.00	
Flpb, ped/bikes		1.00						1.00		0.99	1.00	
Frt		1.00						0.97		1.00	1.00	
Flt Protected		1.00						1.00		0.95	1.00	
Satd. Flow (prot)		3782						1936		1889	2000	
Flt Permitted		1.00						1.00		0.70	1.00	
Satd. Flow (perm)		3782						1936		1394	2000	
Peak-hour factor, PHF	0.94	0.94	0.94	0.92	0.92	0.92	0.87	0.87	0.87	0.72	0.72	0.72
Adj. Flow (vph)	37	1644	34	0	0	0	0	68	18	25	61	0
RTOR Reduction (vph)	0	1	0	0	0	0	0	14	0	0	0	0
Lane Group Flow (vph)	0	1714	0	0	0	0	0	72	0	25	61	0
Confl. Peds. (#/hr)	7		6						8	8		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	custom	NA						NA		Perm	NA	
Protected Phases	1	1						2			2	
Permitted Phases	1									2		
Actuated Green, G (s)		61.2						7.8		7.8	7.8	
Effective Green, g (s)		61.2						7.8		7.8	7.8	
Actuated g/C Ratio		0.77						0.10		0.10	0.10	
Clearance Time (s)		5.3						5.7		5.7	5.7	
Vehicle Extension (s)		0.2						3.0		3.0	3.0	
Lane Grp Cap (vph)		2893						188		135	195	
v/s Ratio Prot		c0.45						c0.04			0.03	
v/s Ratio Perm										0.02		
v/c Ratio		0.59						0.39		0.19	0.31	
Uniform Delay, d1		4.0						33.9		33.2	33.6	
Progression Factor		0.24						1.00		1.00	1.00	
Incremental Delay, d2		0.6						1.3		0.7	0.9	
Delay (s)		1.6						35.2		33.8	34.5	
Level of Service		A						D		C	C	
Approach Delay (s)		1.6			0.0			35.2			34.3	
Approach LOS		A			A			D			C	
Intersection Summary												
HCM 2000 Control Delay		4.6										
HCM 2000 Volume to Capacity ratio		0.57										
Actuated Cycle Length (s)		80.0								11.0		
Intersection Capacity Utilization		61.8%										
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1013: Hamilton St (PB) & Michigan Ave

Road Diet Capacity Analysis

Road Diet 2038 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	525	149	320	591	0	0	0	0	584	1316	43
Future Volume (vph)	0	525	149	320	591	0	0	0	0	584	1316	43
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.2		5.2	5.2					6.8	6.8	
Lane Util. Factor		0.95		1.00	0.95					1.00	0.95	
Frpb, ped/bikes		0.99		1.00	1.00					1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00					1.00	1.00	
Frt		0.97		1.00	1.00					1.00	1.00	
Flt Protected		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (prot)		3653		1898	3515					1900	3779	
Flt Permitted		1.00		0.25	1.00					0.95	1.00	
Satd. Flow (perm)		3653		494	3515					1900	3779	
Peak-hour factor, PHF	0.91	0.91	0.91	0.94	0.94	0.94	0.92	0.92	0.92	0.90	0.90	0.90
Adj. Flow (vph)	0	577	164	340	629	0	0	0	0	649	1462	48
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	741	0	340	629	0	0	0	0	649	1507	0
Confl. Peds. (#/hr)			12	12						10		9
Confl. Bikes (#/hr)			1									1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)				10								
Turn Type		NA		pm+pt	NA					custom		NA
Protected Phases		1		2	1 2					3		3
Permitted Phases				1 2						3		
Actuated Green, G (s)		27.8		36.6	41.8					26.2		26.2
Effective Green, g (s)		27.8		36.6	41.8					26.2		26.2
Actuated g/C Ratio		0.35		0.46	0.52					0.33		0.33
Clearance Time (s)		5.2		5.2						6.8		6.8
Lane Grp Cap (vph)		1269		380	1836					622		1237
v/s Ratio Prot		0.20		c0.10	0.18					0.34		c0.40
v/s Ratio Perm				c0.31								
v/c Ratio		0.58		0.89	0.34					1.04		1.22
Uniform Delay, d1		21.4		24.8	11.1					26.9		26.9
Progression Factor		1.00		0.55	0.62					1.00		1.00
Incremental Delay, d2		2.0		25.0	0.5					47.9		105.9
Delay (s)		23.3		38.5	7.4					74.8		132.8
Level of Service		C		D	A					E		F
Approach Delay (s)		23.3			18.3			0.0				115.3
Approach LOS		C			B			A				F
Intersection Summary												
HCM 2000 Control Delay			73.4			HCM 2000 Level of Service				E		
HCM 2000 Volume to Capacity ratio			1.03									
Actuated Cycle Length (s)			80.0			Sum of lost time (s)				17.2		
Intersection Capacity Utilization			85.6%			ICU Level of Service				E		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1016: Huron St (PB) & Cross St (PB)/Cross St

Road Diet Capacity Analysis

Road Diet 2038 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑	↑		↑↑				
Traffic Volume (vph)	0	0	0	0	285	18	0	436	409	0	0	0
Future Volume (vph)	0	0	0	0	285	18	0	436	409	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)					5.5	5.5		5.6				
Lane Util. Factor					1.00	1.00		0.95				
Frpb, ped/bikes					1.00	1.00		0.99				
Flpb, ped/bikes					1.00	1.00		1.00				
Frt					1.00	0.85		0.93				
Flt Protected					1.00	1.00		1.00				
Satd. Flow (prot)					2000	1700		3484				
Flt Permitted					1.00	1.00		1.00				
Satd. Flow (perm)					2000	1700		3484				
Peak-hour factor, PHF	0.92	0.92	0.92	0.87	0.87	0.87	0.95	0.95	0.95	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	328	21	0	459	431	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	11	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	328	10	0	890	0	0	0	0
Confl. Peds. (#/hr)						19			3			
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type					NA	custom		NA				
Protected Phases					2	2		8				
Permitted Phases						2						
Actuated Green, G (s)					36.5	36.5		32.4				
Effective Green, g (s)					36.5	36.5		32.4				
Actuated g/C Ratio					0.46	0.46		0.40				
Clearance Time (s)					5.5	5.5		5.6				
Lane Grp Cap (vph)					912	775		1411				
v/s Ratio Prot					c0.16	0.01		c0.26				
v/s Ratio Perm												
v/c Ratio					0.36	0.01		0.63				
Uniform Delay, d1					14.1	11.9		19.0				
Progression Factor					1.00	1.00		1.43				
Incremental Delay, d2					1.1	0.0		1.5				
Delay (s)					15.3	11.9		28.7				
Level of Service					B	B		C				
Approach Delay (s)		0.0			15.1			28.7			0.0	
Approach LOS		A			B			C			A	
Intersection Summary												
HCM 2000 Control Delay			24.9				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.49									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)			11.1		
Intersection Capacity Utilization			55.4%				ICU Level of Service			B		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1023: Huron St (PB) & Michigan Ave

Road Diet Capacity Analysis

Road Diet 2038 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	172	1120	0	0	750	416	141	837	213	0	0	0
Future Volume (vph)	172	1120	0	0	750	416	141	837	213	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	5.0	5.0			5.0	5.0	5.6	5.6				
Lane Util. Factor	1.00	0.95			0.91	0.91	1.00	0.95				
Frpb, ped/bikes	1.00	1.00			1.00	0.94	1.00	1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00	0.98	1.00				
Frt	1.00	1.00			0.99	0.85	1.00	0.97				
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00				
Satd. Flow (prot)	1898	3515			3310	1241	1867	3666				
Flt Permitted	0.17	1.00			1.00	1.00	0.95	1.00				
Satd. Flow (perm)	337	3515			3310	1241	1867	3666				
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	183	1191	0	0	798	443	153	910	232	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	183	1191	0	0	869	372	153	1142	0	0	0	0
Confl. Peds. (#/hr)	37					37	19		13			
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)		10			10	10						
Turn Type	pm+pt	NA			NA	Perm	Perm	NA				
Protected Phases	2	1 2			1			3				
Permitted Phases	1 2					1	3					
Actuated Green, G (s)	38.0	43.0			29.0	29.0	26.4	26.4				
Effective Green, g (s)	38.0	43.0			29.0	29.0	26.4	26.4				
Actuated g/C Ratio	0.48	0.54			0.36	0.36	0.33	0.33				
Clearance Time (s)	5.0				5.0	5.0	5.6	5.6				
Lane Grp Cap (vph)	335	1889			1199	449	616	1209				
v/s Ratio Prot	0.06	c0.34			0.26			c0.31				
v/s Ratio Perm	0.20					c0.30	0.08					
v/c Ratio	0.55	0.63			0.72	0.83	0.25	0.94				
Uniform Delay, d1	24.9	12.9			22.0	23.2	19.6	26.1				
Progression Factor	0.59	0.42			1.00	1.00	0.61	0.63				
Incremental Delay, d2	5.2	1.3			3.8	16.0	0.9	15.3				
Delay (s)	19.9	6.7			25.9	39.3	12.9	31.7				
Level of Service	B	A			C	D	B	C				
Approach Delay (s)		8.5			29.9			29.5			0.0	
Approach LOS		A			C			C			A	
Intersection Summary												
HCM 2000 Control Delay		22.2			HCM 2000 Level of Service		C					
HCM 2000 Volume to Capacity ratio		0.87										
Actuated Cycle Length (s)		80.0			Sum of lost time (s)		15.6					
Intersection Capacity Utilization		75.2%			ICU Level of Service		D					
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2000: Michigan Ave & Congress St & Ballard St

Road Diet Capacity Analysis

Road Diet 2038 PM Peak Hour

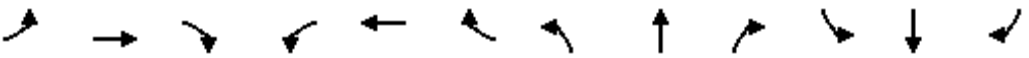
											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	SBR2	NEL	NER
Lane Configurations											
Traffic Volume (vph)	20	129	0	651	282	43	37	26	12	0	650
Future Volume (vph)	20	129	0	651	282	43	37	26	12	0	650
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.9		6.1	6.1		6.3	6.3			6.1
Lane Util. Factor		1.00		0.95	0.95		1.00	1.00			0.88
Frpb, ped/bikes		1.00		1.00	0.99		1.00	1.00			1.00
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00			1.00
Frt		1.00		1.00	0.99		1.00	0.85			0.85
Flt Protected		0.99		0.95	0.98		0.95	1.00			1.00
Satd. Flow (prot)		1987		1805	1555		1900	1700			2962
Flt Permitted		0.99		0.95	0.98		0.95	1.00			1.00
Satd. Flow (perm)		1987		1805	1555		1900	1700			2962
Peak-hour factor, PHF	0.81	0.81	0.81	0.93	0.93	0.93	0.60	0.60	0.60	0.95	0.95
Adj. Flow (vph)	25	159	0	700	303	46	62	43	20	0	684
RTOR Reduction (vph)	0	0	0	0	2	0	0	53	0	0	332
Lane Group Flow (vph)	0	184	0	518	529	0	62	11	0	0	352
Confl. Peds. (#/hr)	16		5	5		16	1		3		1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%
Parking (#/hr)					10						
Turn Type	Split	NA		Split	NA		Prot	Prot			Over
Protected Phases	3	3		1	1		2	2			1
Permitted Phases											
Actuated Green, G (s)		20.0		61.7	61.7		20.0	20.0			61.7
Effective Green, g (s)		20.0		61.7	61.7		20.0	20.0			61.7
Actuated g/C Ratio		0.17		0.51	0.51		0.17	0.17			0.51
Clearance Time (s)		5.9		6.1	6.1		6.3	6.3			6.1
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0			3.0
Lane Grp Cap (vph)		331		928	799		316	283			1522
v/s Ratio Prot		c0.09		0.29	c0.34		c0.03	0.01			0.12
v/s Ratio Perm											
v/c Ratio		0.56		0.56	0.66		0.20	0.04			0.23
Uniform Delay, d1		45.9		19.9	21.5		43.1	41.9			16.1
Progression Factor		1.00		1.00	1.00		1.00	1.00			1.00
Incremental Delay, d2		2.0		2.4	4.3		0.3	0.1			0.4
Delay (s)		47.9		22.3	25.7		43.4	42.0			16.4
Level of Service		D		C	C		D	D			B
Approach Delay (s)		47.9			24.0		42.7			16.4	
Approach LOS		D			C		D			B	
Intersection Summary											
HCM 2000 Control Delay			24.8			HCM 2000 Level of Service				C	
HCM 2000 Volume to Capacity ratio			0.55								
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			18.3		
Intersection Capacity Utilization			90.7%			ICU Level of Service			E		
Analysis Period (min)			15								
c Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

2004: Adams St (PB) & Michigan Ave

Road Diet Capacity Analysis

Road Diet 2038 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔		↔	↔		↔	↔	
Traffic Volume (vph)	0	1176	10	0	817	33	20	37	41	59	32	44
Future Volume (vph)	0	1176	10	0	817	33	20	37	41	59	32	44
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.1			5.1		6.0	6.0		6.0	6.0	
Lane Util. Factor		0.95			0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			1.00		1.00	0.97		1.00	0.99	
Flpb, ped/bikes		1.00			1.00		0.99	1.00		0.96	1.00	
Frt		1.00			0.99		1.00	0.92		1.00	0.91	
Flt Protected		1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3509			3452		1878	1520		1829	1531	
Flt Permitted		1.00			1.00		0.69	1.00		0.69	1.00	
Satd. Flow (perm)		3509			3452		1370	1520		1321	1531	
Peak-hour factor, PHF	0.95	0.95	0.95	0.91	0.91	0.91	0.71	0.71	0.71	0.77	0.77	0.77
Adj. Flow (vph)	0	1238	11	0	898	36	28	52	58	77	42	57
RTOR Reduction (vph)	0	1	0	0	3	0	0	48	0	0	47	0
Lane Group Flow (vph)	0	1248	0	0	931	0	28	62	0	77	52	0
Confl. Peds. (#/hr)	20		14	14		20	13		42	42		13
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	0%	0%	0%	0%	0%	0%
Parking (#/hr)		10			10			10			10	
Turn Type		NA			NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)		54.9			54.9		14.0	14.0		14.0	14.0	
Effective Green, g (s)		54.9			54.9		14.0	14.0		14.0	14.0	
Actuated g/C Ratio		0.69			0.69		0.18	0.18		0.18	0.18	
Clearance Time (s)		5.1			5.1		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)		2408			2368		239	266		231	267	
v/s Ratio Prot		c0.36			0.27			0.04			0.03	
v/s Ratio Perm							0.02			c0.06		
v/c Ratio		0.52			0.39		0.12	0.23		0.33	0.19	
Uniform Delay, d1		6.1			5.4		27.8	28.4		28.9	28.2	
Progression Factor		0.44			0.27		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.5			0.5		1.0	2.1		3.8	1.6	
Delay (s)		3.2			1.9		28.8	30.4		32.8	29.8	
Level of Service		A			A		C	C		C	C	
Approach Delay (s)		3.2			1.9			30.1			31.1	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM 2000 Control Delay			6.2			HCM 2000 Level of Service				A		
HCM 2000 Volume to Capacity ratio			0.48									
Actuated Cycle Length (s)			80.0			Sum of lost time (s)				11.1		
Intersection Capacity Utilization			59.6%			ICU Level of Service				B		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2005: Washington St (PB) & Michigan Ave

Road Diet Capacity Analysis

Road Diet 2038 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1191	56	0	862	31	17	40	39	93	32	43
Future Volume (vph)	0	1191	56	0	862	31	17	40	39	93	32	43
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.0			5.0			6.0			6.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			0.98			0.98	
Flpb, ped/bikes		1.00			1.00			0.99			0.99	
Frt		0.99			0.99			0.95			0.97	
Flt Protected		1.00			1.00			0.99			0.97	
Satd. Flow (prot)		3478			3485			1549			1808	
Flt Permitted		1.00			1.00			0.91			0.74	
Satd. Flow (perm)		3478			3485			1427			1384	
Peak-hour factor, PHF	0.93	0.93	0.93	0.95	0.95	0.95	0.68	0.68	0.68	0.87	0.87	0.87
Adj. Flow (vph)	0	1281	60	0	907	33	25	59	57	107	37	49
RTOR Reduction (vph)	0	4	0	0	3	0	0	31	0	0	16	0
Lane Group Flow (vph)	0	1337	0	0	937	0	0	110	0	0	177	0
Confl. Peds. (#/hr)	35		31	31		35	76		28	28		76
Confl. Bikes (#/hr)			1			1						1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)		10			10			10				
Turn Type		NA			NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)		55.0			55.0			14.0			14.0	
Effective Green, g (s)		55.0			55.0			14.0			14.0	
Actuated g/C Ratio		0.69			0.69			0.18			0.18	
Clearance Time (s)		5.0			5.0			6.0			6.0	
Lane Grp Cap (vph)		2391			2395			249			242	
v/s Ratio Prot		c0.38			0.27							
v/s Ratio Perm								0.08			c0.13	
v/c Ratio		0.56			0.39			0.44			0.73	
Uniform Delay, d1		6.3			5.3			29.5			31.2	
Progression Factor		0.22			0.33			1.00			1.00	
Incremental Delay, d2		0.8			0.4			5.6			17.8	
Delay (s)		2.2			2.1			35.2			49.0	
Level of Service		A			A			D			D	
Approach Delay (s)		2.2			2.1			35.2			49.0	
Approach LOS		A			A			D			D	
Intersection Summary												
HCM 2000 Control Delay			7.4				HCM 2000 Level of Service			A		
HCM 2000 Volume to Capacity ratio			0.59									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)			11.0		
Intersection Capacity Utilization			59.8%				ICU Level of Service			B		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3001: Huron St & Harriet St/Spring St

Road Diet Capacity Analysis

Road Diet 2038 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 				
Traffic Volume (vph)	35	337	0	0	498	39	211	1055	384	0	0	0
Future Volume (vph)	35	337	0	0	498	39	211	1055	384	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	6.6	6.6			6.6			6.1	6.1			
Lane Util. Factor	1.00	0.95			0.95			0.95	1.00			
Frpb, ped/bikes	1.00	1.00			1.00			1.00	1.00			
Flpb, ped/bikes	1.00	1.00			1.00			1.00	1.00			
Frt	1.00	1.00			0.99			1.00	0.85			
Flt Protected	0.95	1.00			1.00			0.99	1.00			
Satd. Flow (prot)	1898	3800			3755			3767	1700			
Flt Permitted	0.34	1.00			1.00			0.99	1.00			
Satd. Flow (perm)	686	3800			3755			3767	1700			
Peak-hour factor, PHF	0.83	0.83	0.83	0.86	0.86	0.86	0.95	0.95	0.95	0.92	0.92	0.92
Adj. Flow (vph)	42	406	0	0	579	45	222	1111	404	0	0	0
RTOR Reduction (vph)	0	0	0	0	7	0	0	0	126	0	0	0
Lane Group Flow (vph)	42	406	0	0	617	0	0	1333	278	0	0	0
Confl. Peds. (#/hr)	2					2	3					
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA	Perm			
Protected Phases		4			8			2				
Permitted Phases	4						2		2			
Actuated Green, G (s)	28.4	28.4			28.4			38.9	38.9			
Effective Green, g (s)	28.4	28.4			28.4			38.9	38.9			
Actuated g/C Ratio	0.35	0.35			0.35			0.49	0.49			
Clearance Time (s)	6.6	6.6			6.6			6.1	6.1			
Lane Grp Cap (vph)	243	1349			1333			1831	826			
v/s Ratio Prot		0.11			0.16							
v/s Ratio Perm	0.06							0.35	0.16			
v/c Ratio	0.17	0.30			0.46			0.73	0.34			
Uniform Delay, d1	17.7	18.6			19.9			16.3	12.6			
Progression Factor	1.00	0.99			1.00			0.67	0.36			
Incremental Delay, d2	1.5	0.5			1.2			2.2	0.9			
Delay (s)	19.3	19.0			21.1			13.1	5.5			
Level of Service	B	B			C			B	A			
Approach Delay (s)		19.0			21.1			11.4			0.0	
Approach LOS		B			C			B			A	
Intersection Summary												
HCM 2000 Control Delay			14.7				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.62									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)			12.7		
Intersection Capacity Utilization			71.7%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3003: Hamilton St & Harriet St

Road Diet Capacity Analysis

Road Diet 2038 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑↑					↑	↑↑	
Traffic Volume (vph)	0	245	176	407	326	0	0	0	0	174	1614	43
Future Volume (vph)	0	245	176	407	326	0	0	0	0	174	1614	43
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.8		5.8	5.8					5.6	5.6	
Lane Util. Factor		0.95		1.00	0.95					1.00	0.95	
Frpb, ped/bikes		0.99		1.00	1.00					1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00					1.00	1.00	
Frt		0.94		1.00	1.00					1.00	1.00	
Flt Protected		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (prot)		3520		1895	3800					1898	3783	
Flt Permitted		1.00		0.41	1.00					0.95	1.00	
Satd. Flow (perm)		3520		809	3800					1898	3783	
Peak-hour factor, PHF	0.89	0.89	0.89	0.82	0.82	0.82	0.92	0.92	0.92	0.95	0.95	0.95
Adj. Flow (vph)	0	275	198	496	398	0	0	0	0	183	1699	45
RTOR Reduction (vph)	0	41	0	0	0	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	432	0	496	398	0	0	0	0	183	1742	0
Confl. Peds. (#/hr)			14	14						1		2
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type		NA		D.P+P	NA					Perm	NA	
Protected Phases		4		3	8 3						2	
Permitted Phases				4						2		
Actuated Green, G (s)		22.2		38.4	44.2					24.4	24.4	
Effective Green, g (s)		22.2		38.4	44.2					24.4	24.4	
Actuated g/C Ratio		0.28		0.48	0.55					0.30	0.30	
Clearance Time (s)		5.8		5.8						5.6	5.6	
Vehicle Extension (s)		4.0		4.0						0.2	0.2	
Lane Grp Cap (vph)		976		608	2099					578	1153	
v/s Ratio Prot		0.12		c0.17	0.10						c0.46	
v/s Ratio Perm				c0.23						0.10		
v/c Ratio		0.44		0.82	0.19					0.32	1.51	
Uniform Delay, d1		23.8		19.8	8.9					21.4	27.8	
Progression Factor		1.00		1.04	0.77					0.70	0.78	
Incremental Delay, d2		1.5		7.8	0.1					0.5	231.5	
Delay (s)		25.3		28.5	6.9					15.5	253.1	
Level of Service		C		C	A					B	F	
Approach Delay (s)		25.3			18.9			0.0			230.5	
Approach LOS		C			B			A			F	
Intersection Summary												
HCM 2000 Control Delay			143.6			HCM 2000 Level of Service				F		
HCM 2000 Volume to Capacity ratio			1.09									
Actuated Cycle Length (s)			80.0			Sum of lost time (s)			17.2			
Intersection Capacity Utilization			96.9%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3004: Huron St & Catherine St (PB)

Road Diet Capacity Analysis

Road Diet 2038 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	29	0	0	9	44	5	1094	7	0	0	0
Future Volume (vph)	16	29	0	0	9	44	5	1094	7	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.3			5.3			5.3				
Lane Util. Factor		1.00			1.00			0.95				
Frpb, ped/bikes		1.00			0.99			1.00				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.89			1.00				
Flt Protected		0.98			1.00			1.00				
Satd. Flow (prot)		1964			1755			3757				
Flt Permitted		0.85			1.00			1.00				
Satd. Flow (perm)		1705			1755			3757				
Peak-hour factor, PHF	0.77	0.77	0.77	0.73	0.73	0.73	0.89	0.89	0.89	0.92	0.92	0.92
Adj. Flow (vph)	21	38	0	0	12	60	6	1229	8	0	0	0
RTOR Reduction (vph)	0	0	0	0	54	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	59	0	0	18	0	0	1243	0	0	0	0
Confl. Peds. (#/hr)	1					1	1		5			
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		2			2			1				
Permitted Phases	2						1					
Actuated Green, G (s)		8.0			8.0			61.4				
Effective Green, g (s)		8.0			8.0			61.4				
Actuated g/C Ratio		0.10			0.10			0.77				
Clearance Time (s)		5.3			5.3			5.3				
Vehicle Extension (s)		3.0			3.0			0.2				
Lane Grp Cap (vph)		170			175			2883				
v/s Ratio Prot					0.01							
v/s Ratio Perm		0.03						0.33				
v/c Ratio		0.35			0.10			0.43				
Uniform Delay, d1		33.6			32.7			3.2				
Progression Factor		1.00			1.00			1.25				
Incremental Delay, d2		1.2			0.3			0.3				
Delay (s)		34.8			33.0			4.4				
Level of Service		C			C			A				
Approach Delay (s)		34.8			33.0			4.4			0.0	
Approach LOS		C			C			A			A	
Intersection Summary												
HCM 2000 Control Delay		7.2			HCM 2000 Level of Service			A				
HCM 2000 Volume to Capacity ratio		0.42										
Actuated Cycle Length (s)		80.0			Sum of lost time (s)			10.6				
Intersection Capacity Utilization		46.9%			ICU Level of Service			A				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

9000: Hamilton St & Washtenaw Ave

Road Diet Capacity Analysis

Road Diet 2038 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗								↖↑	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	0	385	1195	0	0	0	0	0	0	34	722	0
Future Volume (vph)	0	385	1195	0	0	0	0	0	0	34	722	0
Peak Hour Factor	0.95	0.95	0.95	0.92	0.92	0.92	0.92	0.92	0.92	0.85	0.85	0.85
Hourly flow rate (vph)	0	405	1258	0	0	0	0	0	0	40	849	0
Direction, Lane #	EB 1	EB 2	EB 3	SB 1	SB 2							
Volume Total (vph)	203	203	1258	323	566							
Volume Left (vph)	0	0	0	40	0							
Volume Right (vph)	0	0	1258	0	0							
Hadj (s)	0.00	0.00	-0.70	0.06	0.00							
Departure Headway (s)	6.7	6.7	3.2	5.8	5.8							
Degree Utilization, x	0.38	0.38	1.12	0.52	0.91							
Capacity (veh/h)	524	524	1133	607	619							
Control Delay (s)	12.4	12.4	79.7	13.8	39.2							
Approach Delay (s)	63.4			30.0								
Approach LOS	F			D								
Intersection Summary												
Delay			51.7									
Level of Service			F									
Intersection Capacity Utilization			97.1%	ICU Level of Service					F			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

9001: Hamilton St (PB)/Hamilton St & Pearl St

Road Diet Capacity Analysis

Road Diet 2038 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	28	56	61	0	0	0	0	0	1936	14
Future Volume (Veh/h)	0	0	28	56	61	0	0	0	0	0	1936	14
Sign Control	Stop				Stop				Free		Free	
Grade	0%				0%				0%		0%	
Peak Hour Factor	0.65	0.65	0.65	0.79	0.79	0.79	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	43	71	77	0	0	0	0	0	2104	15
Pedestrians	6								3			
Lane Width (ft)	12.0								0.0			
Walking Speed (ft/s)	4.0								4.0			
Percent Blockage	1								0			
Right turn flare (veh)												
Median type							None			None		
Median storage veh												
Upstream signal (ft)							435					
pX, platoon unblocked												
vC, conflicting volume	2148	2110	1061	1098	2125	0	2125				0	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2148	2110	1061	1098	2125	0	2125				0	
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	0	100	81	48	0	100	100				100	
cM capacity (veh/h)	0	51	222	136	50	1091	259				1636	
Direction, Lane #	EB 1	WB 1	WB 2	SB 1	SB 2	SB 3						
Volume Total	43	47	101	1052	1052	15						
Volume Left	0	47	24	0	0	0						
Volume Right	43	0	0	0	0	15						
cSH	222	136	59	1700	1700	1700						
Volume to Capacity	0.19	0.35	1.70	0.62	0.62	0.01						
Queue Length 95th (ft)	17	35	232	0	0	0						
Control Delay (s)	25.1	44.8	491.9	0.0	0.0	0.0						
Lane LOS	D	E	F									
Approach Delay (s)	25.1	348.9	0.0									
Approach LOS	D	F										
Intersection Summary												
Average Delay	22.8											
Intersection Capacity Utilization	68.5%			ICU Level of Service					C			
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis

9002: Hamilton St/Hamilton St (PB) & Ferris St

Road Diet Capacity Analysis

Road Diet 2038 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											 	
Traffic Volume (veh/h)	0	25	32	54	28	0	0	0	0	117	1560	21
Future Volume (Veh/h)	0	25	32	54	28	0	0	0	0	117	1560	21
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.69	0.69	0.69	0.76	0.76	0.76	0.92	0.92	0.92	0.93	0.93	0.93
Hourly flow rate (vph)	0	36	46	71	37	0	0	0	0	126	1677	23
Pedestrians		4			3			7				
Lane Width (ft)		12.0			12.0			0.0				
Walking Speed (ft/s)		4.0			4.0			4.0				
Percent Blockage		0			0			0				
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)											450	
pX, platoon unblocked	0.68	0.68	0.68	0.68	0.68		0.68					
vC, conflicting volume	1963	1948	861	1164	1959	3	1704			3		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1466	1443	0	285	1460	3	1083			3		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	56	94	72	54	100	100			92		
cM capacity (veh/h)	37	83	735	255	81	1083	439			1628		
Direction, Lane #	EB 1	WB 1	SB 1	SB 2								
Volume Total	82	108	964	862								
Volume Left	0	71	126	0								
Volume Right	46	0	0	23								
cSH	165	147	1628	1700								
Volume to Capacity	0.50	0.74	0.08	0.51								
Queue Length 95th (ft)	60	110	6	0								
Control Delay (s)	46.8	78.1	1.9	0.0								
Lane LOS	E	F	A									
Approach Delay (s)	46.8	78.1	1.0									
Approach LOS	E	F										
Intersection Summary												
Average Delay			7.0									
Intersection Capacity Utilization			62.4%		ICU Level of Service					B		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

9003: Huron St/Huron St (PB) & Ferris St

Road Diet Capacity Analysis

Road Diet 2038 PM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				 		
Traffic Volume (veh/h)	36	0	27	1439	0	0
Future Volume (Veh/h)	36	0	27	1439	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.60	0.60	0.95	0.95	0.92	0.92
Hourly flow rate (vph)	60	0	28	1515	0	0
Pedestrians	8				1	
Lane Width (ft)	12.0				0.0	
Walking Speed (ft/s)	4.0				4.0	
Percent Blockage	1				0	
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (ft)				857	448	
pX, platoon unblocked	0.89					
vC, conflicting volume	822	8	8			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	551	8	8			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	85	100	98			
cM capacity (veh/h)	407	1071	1615			
Direction, Lane #	EB 1	NB 1	NB 2			
Volume Total	60	533	1010			
Volume Left	60	28	0			
Volume Right	0	0	0			
cSH	407	1615	1700			
Volume to Capacity	0.15	0.02	0.59			
Queue Length 95th (ft)	13	1	0			
Control Delay (s)	15.4	0.6	0.0			
Lane LOS	C	A				
Approach Delay (s)	15.4	0.2				
Approach LOS	C					
Intersection Summary						
Average Delay		0.8				
Intersection Capacity Utilization		48.5%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

9004: Huron St (PB)/Huron St & Pearl St

Road Diet Capacity Analysis

Road Diet 2038 PM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	157	1240	0	0
Future Volume (Veh/h)	0	0	157	1240	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.88	0.88	0.92	0.92
Hourly flow rate (vph)	0	0	178	1409	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (ft)				430		
pX, platoon unblocked	0.72					
vC, conflicting volume	1060	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	297	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	89			
cM capacity (veh/h)	432	1091	1636			
Direction, Lane #	NB 1	NB 2				
Volume Total	648	939				
Volume Left	178	0				
Volume Right	0	0				
cSH	1636	1700				
Volume to Capacity	0.11	0.55				
Queue Length 95th (ft)	9	0				
Control Delay (s)	2.9	0.0				
Lane LOS	A					
Approach Delay (s)	1.2					
Approach LOS						
Intersection Summary						
Average Delay		1.2				
Intersection Capacity Utilization		40.2%		ICU Level of Service		A
Analysis Period (min)		15				

Appendix L

Road Diet 2038 with Mitigation Condition Synchro Reports

HCM Signalized Intersection Capacity Analysis

1002: Summit & Washtenaw Ave

Road Diet Capacity Analysis

Road Diet Mitigated 2038 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	756	19	0	0	0	0	153	35	12	11	0
Future Volume (vph)	3	756	19	0	0	0	0	153	35	12	11	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.4						10.8			10.8	
Lane Util. Factor		0.91						1.00			1.00	
Frpb, ped/bikes		1.00						0.99			1.00	
Flpb, ped/bikes		1.00						1.00			0.99	
Frt		1.00						0.98			1.00	
Flt Protected		1.00						1.00			0.97	
Satd. Flow (prot)		5436						1643			1921	
Flt Permitted		1.00						1.00			0.73	
Satd. Flow (perm)		5436						1643			1448	
Peak-hour factor, PHF	0.87	0.87	0.87	0.92	0.92	0.92	0.91	0.91	0.91	0.75	0.75	0.75
Adj. Flow (vph)	3	869	22	0	0	0	0	168	38	16	15	0
RTOR Reduction (vph)	0	3	0	0	0	0	0	10	0	0	0	0
Lane Group Flow (vph)	0	891	0	0	0	0	0	196	0	0	31	0
Confl. Peds. (#/hr)			2						26	26		
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)								10				
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		1						2			2	
Permitted Phases	1									2		
Actuated Green, G (s)		46.6						17.2			17.2	
Effective Green, g (s)		46.6						17.2			17.2	
Actuated g/C Ratio		0.58						0.21			0.21	
Clearance Time (s)		5.4						10.8			10.8	
Lane Grp Cap (vph)		3166						353			311	
v/s Ratio Prot								c0.12				
v/s Ratio Perm		0.16									0.02	
v/c Ratio		0.28						0.55			0.10	
Uniform Delay, d1		8.3						28.0			25.2	
Progression Factor		1.00						1.00			1.32	
Incremental Delay, d2		0.2						6.2			0.6	
Delay (s)		8.6						34.1			33.9	
Level of Service		A						C			C	
Approach Delay (s)		8.6			0.0			34.1			33.9	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM 2000 Control Delay		13.9						HCM 2000 Level of Service		B		
HCM 2000 Volume to Capacity ratio		0.35										
Actuated Cycle Length (s)		80.0						Sum of lost time (s)		16.2		
Intersection Capacity Utilization		45.6%						ICU Level of Service		A		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1004: Ballard St (PB) & Washtenaw Ave

Road Diet Capacity Analysis

Road Diet Mitigated 2038 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔↔						↔		↔	↔	
Traffic Volume (vph)	17	589	7	0	0	0	0	41	9	10	23	0
Future Volume (vph)	17	589	7	0	0	0	0	41	9	10	23	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.3						5.7		5.7	5.7	
Lane Util. Factor		0.95						1.00		1.00	1.00	
Frpb, ped/bikes		1.00						1.00		1.00	1.00	
Flpb, ped/bikes		1.00						1.00		0.99	1.00	
Frt		1.00						0.98		1.00	1.00	
Flt Protected		1.00						1.00		0.95	1.00	
Satd. Flow (prot)		3787						1946		1887	2000	
Flt Permitted		1.00						1.00		0.71	1.00	
Satd. Flow (perm)		3787						1946		1416	2000	
Peak-hour factor, PHF	0.90	0.90	0.90	0.92	0.92	0.92	0.73	0.73	0.73	0.91	0.91	0.91
Adj. Flow (vph)	19	654	8	0	0	0	0	56	12	11	25	0
RTOR Reduction (vph)	0	1	0	0	0	0	0	11	0	0	0	0
Lane Group Flow (vph)	0	680	0	0	0	0	0	57	0	11	25	0
Confl. Peds. (#/hr)	2		1						9	9		
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	0%	0%	0%	2%	2%	2%	0%	0%	0%	0%	0%	0%
Turn Type	custom	NA						NA		Perm	NA	
Protected Phases	1	1						2			2	
Permitted Phases	1									2		
Actuated Green, G (s)		61.4						7.6		7.6	7.6	
Effective Green, g (s)		61.4						7.6		7.6	7.6	
Actuated g/C Ratio		0.77						0.09		0.09	0.09	
Clearance Time (s)		5.3						5.7		5.7	5.7	
Vehicle Extension (s)		0.2						3.0		3.0	3.0	
Lane Grp Cap (vph)		2906						184		134	190	
v/s Ratio Prot		c0.18						c0.03			0.01	
v/s Ratio Perm										0.01		
v/c Ratio		0.23						0.31		0.08	0.13	
Uniform Delay, d1		2.6						33.8		33.0	33.2	
Progression Factor		0.72						1.00		1.00	1.00	
Incremental Delay, d2		0.2						1.0		0.3	0.3	
Delay (s)		2.1						34.7		33.3	33.5	
Level of Service		A						C		C	C	
Approach Delay (s)		2.1			0.0			34.7			33.4	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM 2000 Control Delay		6.4										
HCM 2000 Volume to Capacity ratio		0.24										
Actuated Cycle Length (s)		80.0								11.0		
Intersection Capacity Utilization		36.4%										
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1013: Hamilton St (PB) & Michigan Ave

Road Diet Capacity Analysis

Road Diet Mitigated 2038 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	316	87	161	758	0	0	0	0	212	502	43
Future Volume (vph)	0	316	87	161	758	0	0	0	0	212	502	43
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.2		5.2	5.2					6.8	6.8	
Lane Util. Factor		0.95		1.00	0.95					1.00	0.95	
Frpb, ped/bikes		1.00		1.00	1.00					1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00					1.00	1.00	
Frt		0.97		1.00	1.00					1.00	0.99	
Flt Protected		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (prot)		3662		1879	3480					1881	3713	
Flt Permitted		1.00		0.41	1.00					0.95	1.00	
Satd. Flow (perm)		3662		819	3480					1881	3713	
Peak-hour factor, PHF	0.84	0.84	0.84	0.83	0.83	0.83	0.92	0.92	0.92	0.91	0.91	0.91
Adj. Flow (vph)	0	376	104	194	913	0	0	0	0	233	552	47
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	8	0
Lane Group Flow (vph)	0	480	0	194	913	0	0	0	0	233	591	0
Confl. Peds. (#/hr)			6	6						5		6
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Parking (#/hr)					10							
Turn Type		NA		pm+pt	NA					custom	NA	
Protected Phases		1		2	1 2					3	3	
Permitted Phases				1 2						3		
Actuated Green, G (s)		26.5		35.3	40.5					27.5	27.5	
Effective Green, g (s)		26.5		35.3	40.5					27.5	27.5	
Actuated g/C Ratio		0.33		0.44	0.51					0.34	0.34	
Clearance Time (s)		5.2		5.2						6.8	6.8	
Vehicle Extension (s)		3.0		3.0						0.2	0.2	
Lane Grp Cap (vph)		1213		477	1761					646	1276	
v/s Ratio Prot		0.13		0.04	c0.26					0.12	c0.16	
v/s Ratio Perm				0.13								
v/c Ratio		0.40		0.41	0.52					0.36	0.46	
Uniform Delay, d1		20.6		18.3	13.2					19.7	20.5	
Progression Factor		1.00		0.89	0.90					1.00	1.00	
Incremental Delay, d2		0.2		0.5	0.2					1.6	1.2	
Delay (s)		20.8		16.7	12.1					21.2	21.7	
Level of Service		C		B	B					C	C	
Approach Delay (s)		20.8			12.9			0.0			21.6	
Approach LOS		C			B			A			C	
Intersection Summary												
HCM 2000 Control Delay			17.5		HCM 2000 Level of Service					B		
HCM 2000 Volume to Capacity ratio			0.54									
Actuated Cycle Length (s)			80.0		Sum of lost time (s)					17.2		
Intersection Capacity Utilization			52.5%		ICU Level of Service					A		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1016: Huron St (PB) & Cross St (PB)/Cross St

Road Diet Capacity Analysis

Road Diet Mitigated 2038 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑	↑		↑↑				
Traffic Volume (vph)	0	0	0	0	465	29	0	588	148	0	0	0
Future Volume (vph)	0	0	0	0	465	29	0	588	148	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)					5.5	5.5		5.6				
Lane Util. Factor					1.00	1.00		0.95				
Frpb, ped/bikes					1.00	1.00		1.00				
Flpb, ped/bikes					1.00	1.00		1.00				
Frt					1.00	0.85		0.97				
Flt Protected					1.00	1.00		1.00				
Satd. Flow (prot)					2000	1700		3668				
Flt Permitted					1.00	1.00		1.00				
Satd. Flow (perm)					2000	1700		3668				
Peak-hour factor, PHF	0.92	0.92	0.92	0.81	0.81	0.81	0.94	0.94	0.94	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	574	36	0	626	157	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	18	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	574	18	0	783	0	0	0	0
Confl. Peds. (#/hr)						11			3			
Confl. Bikes (#/hr)						4						
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type					NA	custom		NA				
Protected Phases					2	2		8				
Permitted Phases						2						
Actuated Green, G (s)					38.5	38.5		30.4				
Effective Green, g (s)					38.5	38.5		30.4				
Actuated g/C Ratio					0.48	0.48		0.38				
Clearance Time (s)					5.5	5.5		5.6				
Lane Grp Cap (vph)					962	818		1393				
v/s Ratio Prot					c0.29	0.01		c0.21				
v/s Ratio Perm												
v/c Ratio					0.60	0.02		0.56				
Uniform Delay, d1					15.1	10.9		19.6				
Progression Factor					1.00	1.00		0.71				
Incremental Delay, d2					2.7	0.0		0.6				
Delay (s)					17.8	10.9		14.5				
Level of Service					B	B		B				
Approach Delay (s)		0.0			17.4			14.5			0.0	
Approach LOS		A			B			B			A	
Intersection Summary												
HCM 2000 Control Delay			15.8				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.58									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)			11.1		
Intersection Capacity Utilization			57.8%				ICU Level of Service			B		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1023: Huron St (PB) & Michigan Ave

Road Diet Capacity Analysis

Road Diet Mitigated 2038 AM Peak Hour

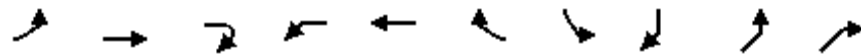
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 				
Traffic Volume (vph)	86	490	0	0	771	619	96	1222	80	0	0	0
Future Volume (vph)	86	490	0	0	771	619	96	1222	80	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	5.0	5.0			5.0	5.0	5.6	5.6				
Lane Util. Factor	1.00	0.95			0.91	0.91	1.00	0.95				
Frpb, ped/bikes	1.00	1.00			1.00	0.98	1.00	1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00				
Frt	1.00	1.00			0.97	0.85	1.00	0.99				
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00				
Satd. Flow (prot)	1881	3480			3218	1271	1873	3725				
Flt Permitted	0.14	1.00			1.00	1.00	0.95	1.00				
Satd. Flow (perm)	283	3480			3218	1271	1873	3725				
Peak-hour factor, PHF	0.93	0.93	0.93	0.89	0.89	0.89	0.95	0.95	0.95	0.92	0.92	0.92
Adj. Flow (vph)	92	527	0	0	866	696	101	1286	84	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	92	527	0	0	1082	480	101	1370	0	0	0	0
Confl. Peds. (#/hr)	10					10	5		2			
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%
Parking (#/hr)		10			10	10						
Turn Type	pm+pt	NA			NA	Perm	Perm	NA				
Protected Phases	2	1 2			1			3				
Permitted Phases	1 2					1	3					
Actuated Green, G (s)	35.0	40.0			28.0	28.0	29.4	29.4				
Effective Green, g (s)	35.0	40.0			28.0	28.0	29.4	29.4				
Actuated g/C Ratio	0.44	0.50			0.35	0.35	0.37	0.37				
Clearance Time (s)	5.0				5.0	5.0	5.6	5.6				
Lane Grp Cap (vph)	263	1740			1126	444	688	1368				
v/s Ratio Prot	0.03	c0.15			0.34			c0.37				
v/s Ratio Perm	0.12					c0.38	0.05					
v/c Ratio	0.35	0.30			0.96	1.08	0.15	1.00				
Uniform Delay, d1	29.4	11.8			25.5	26.0	16.9	25.3				
Progression Factor	0.48	0.38			1.00	1.00	0.57	0.48				
Incremental Delay, d2	3.5	0.4			18.9	66.3	0.4	22.8				
Delay (s)	17.6	4.8			44.4	92.3	10.1	34.9				
Level of Service	B	A			D	F	B	C				
Approach Delay (s)		6.7			59.1			33.2			0.0	
Approach LOS		A			E			C			A	
Intersection Summary												
HCM 2000 Control Delay			39.8				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.97									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)			15.6		
Intersection Capacity Utilization			80.1%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2000: Michigan Ave & Congress St & Ballard St

Road Diet Capacity Analysis

Road Diet Mitigated 2038 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NEL	NER
Lane Configurations		↔		↔	↔		↔	↔		↔
Traffic Volume (vph)	9	84	1	423	162	36	11	55	0	339
Future Volume (vph)	9	84	1	423	162	36	11	55	0	339
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.9		6.1	6.1		6.3	6.3		6.1
Lane Util. Factor		1.00		0.95	0.95		1.00	1.00		0.88
Frpb, ped/bikes		1.00		1.00	1.00		1.00	1.00		1.00
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00		1.00
Frt		1.00		1.00	0.98		1.00	0.85		0.85
Flt Protected		1.00		0.95	0.98		0.95	1.00		1.00
Satd. Flow (prot)		1988		1787	1538		1900	1700		2992
Flt Permitted		1.00		0.95	0.98		0.95	1.00		1.00
Satd. Flow (perm)		1988		1787	1538		1900	1700		2992
Peak-hour factor, PHF	0.82	0.82	0.82	0.94	0.94	0.94	0.60	0.60	0.93	0.93
Adj. Flow (vph)	11	102	1	450	172	38	18	92	0	365
RTOR Reduction (vph)	0	0	0	0	3	0	0	0	0	177
Lane Group Flow (vph)	0	114	0	328	329	0	18	92	0	188
Confl. Peds. (#/hr)	2		1	1		2	1			1
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	0%	0%	0%	0%
Parking (#/hr)					10					
Turn Type	Split	NA		Split	NA		Prot	Prot		Over
Protected Phases	3	3		1	1		2	2		1
Permitted Phases										
Actuated Green, G (s)		20.0		61.7	61.7		20.0	20.0		61.7
Effective Green, g (s)		20.0		61.7	61.7		20.0	20.0		61.7
Actuated g/C Ratio		0.17		0.51	0.51		0.17	0.17		0.51
Clearance Time (s)		5.9		6.1	6.1		6.3	6.3		6.1
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0		3.0
Lane Grp Cap (vph)		331		918	790		316	283		1538
v/s Ratio Prot		c0.06		0.18	c0.21		0.01	c0.05		0.06
v/s Ratio Perm										
v/c Ratio		0.34		0.36	0.42		0.06	0.33		0.12
Uniform Delay, d1		44.2		17.3	18.0		42.1	44.1		15.1
Progression Factor		1.00		1.00	1.00		1.00	1.00		1.00
Incremental Delay, d2		0.6		1.1	1.6		0.1	0.7		0.2
Delay (s)		44.8		18.4	19.6		42.1	44.7		15.3
Level of Service		D		B	B		D	D		B
Approach Delay (s)		44.8			19.0		44.3		15.3	
Approach LOS		D			B		D		B	
Intersection Summary										
HCM 2000 Control Delay			22.5			HCM 2000 Level of Service			C	
HCM 2000 Volume to Capacity ratio			0.38							
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			18.3	
Intersection Capacity Utilization			66.6%			ICU Level of Service			C	
Analysis Period (min)			15							
c Critical Lane Group										

HCM Signalized Intersection Capacity Analysis

2004: Adams St (PB) & Michigan Ave

Road Diet Capacity Analysis

Road Diet Mitigated 2038 AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔		↔	↔		↔	↔	
Traffic Volume (vph)	0	608	7	0	860	33	49	45	13	23	11	21
Future Volume (vph)	0	608	7	0	860	33	49	45	13	23	11	21
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.1			5.1		6.0	6.0		6.0	6.0	
Lane Util. Factor		0.95			0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		0.99	1.00	
Frt		1.00			0.99		1.00	0.97		1.00	0.90	
Flt Protected		1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3473			3457		1894	1633		1879	1519	
Flt Permitted		1.00			1.00		0.73	1.00		0.69	1.00	
Satd. Flow (perm)		3473			3457		1454	1633		1373	1519	
Peak-hour factor, PHF	0.94	0.94	0.94	0.89	0.89	0.89	0.60	0.60	0.60	0.75	0.75	0.75
Adj. Flow (vph)	0	647	7	0	966	37	82	75	22	31	15	28
RTOR Reduction (vph)	0	1	0	0	3	0	0	13	0	0	23	0
Lane Group Flow (vph)	0	653	0	0	1000	0	82	84	0	31	20	0
Confl. Peds. (#/hr)	6		8	8		6	3		12	12		3
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%
Parking (#/hr)		10			10			10			10	
Turn Type		NA			NA		Perm	NA		Perm	NA	
Protected Phases		1			1		2	2		2	2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)		54.9			54.9		14.0	14.0		14.0	14.0	
Effective Green, g (s)		54.9			54.9		14.0	14.0		14.0	14.0	
Actuated g/C Ratio		0.69			0.69		0.18	0.18		0.18	0.18	
Clearance Time (s)		5.1			5.1		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)		2383			2372		254	285		240	265	
v/s Ratio Prot		0.19			0.29			0.05			0.01	
v/s Ratio Perm							0.06			0.02		
v/c Ratio		0.27			0.42		0.32	0.29		0.13	0.08	
Uniform Delay, d1		4.8			5.5		28.9	28.7		27.9	27.6	
Progression Factor		0.51			0.57		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.3			0.5		3.3	2.6		1.1	0.6	
Delay (s)		2.7			3.6		32.2	31.3		29.0	28.1	
Level of Service		A			A		C	C		C	C	
Approach Delay (s)		2.7			3.6			31.7			28.5	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM 2000 Control Delay		6.9			HCM 2000 Level of Service			A				
HCM 2000 Volume to Capacity ratio		0.40										
Actuated Cycle Length (s)		80.0			Sum of lost time (s)			11.1				
Intersection Capacity Utilization		52.0%			ICU Level of Service			A				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2005: Washington St (PB) & Michigan Ave

Road Diet Capacity Analysis

Road Diet Mitigated 2038 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	607	14	0	800	16	46	101	25	16	6	10
Future Volume (vph)	0	607	14	0	800	16	46	101	25	16	6	10
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.0			5.0			6.0			6.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			1.00			0.99	
Flpb, ped/bikes		1.00			1.00			0.99			1.00	
Frt		1.00			1.00			0.98			0.96	
Flt Protected		1.00			1.00			0.99			0.98	
Satd. Flow (prot)		3501			3467			1629			1774	
Flt Permitted		1.00			1.00			0.90			0.79	
Satd. Flow (perm)		3501			3467			1480			1429	
Peak-hour factor, PHF	0.86	0.86	0.86	0.94	0.94	0.94	0.60	0.60	0.60	0.88	0.88	0.88
Adj. Flow (vph)	0	706	16	0	851	17	77	168	42	18	7	11
RTOR Reduction (vph)	0	2	0	0	2	0	0	8	0	0	9	0
Lane Group Flow (vph)	0	720	0	0	866	0	0	279	0	0	27	0
Confl. Peds. (#/hr)	10		3	3		10	22		9	9		22
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	0%	0%	0%	4%	4%	4%
Parking (#/hr)		10			10			10				
Turn Type		NA			NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)		51.0			51.0			18.0			18.0	
Effective Green, g (s)		51.0			51.0			18.0			18.0	
Actuated g/C Ratio		0.64			0.64			0.22			0.22	
Clearance Time (s)		5.0			5.0			6.0			6.0	
Lane Grp Cap (vph)		2231			2210			333			321	
v/s Ratio Prot		0.21			c0.25							
v/s Ratio Perm								c0.19			0.02	
v/c Ratio		0.32			0.39			0.84			0.09	
Uniform Delay, d1		6.6			7.0			29.6			24.5	
Progression Factor		0.34			0.14			1.00			1.00	
Incremental Delay, d2		0.4			0.2			21.6			0.5	
Delay (s)		2.6			1.2			51.2			25.0	
Level of Service		A			A			D			C	
Approach Delay (s)		2.6			1.2			51.2			25.0	
Approach LOS		A			A			D			C	
Intersection Summary												
HCM 2000 Control Delay			9.7				HCM 2000 Level of Service				A	
HCM 2000 Volume to Capacity ratio			0.51									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)			11.0		
Intersection Capacity Utilization			48.2%				ICU Level of Service			A		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3001: Huron St & Harriet St/Spring St

Road Diet Capacity Analysis

Road Diet Mitigated 2038 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 				
Traffic Volume (vph)	17	136	0	0	477	35	405	1606	385	0	0	0
Future Volume (vph)	17	136	0	0	477	35	405	1606	385	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	6.6	6.6			6.6			6.1	6.1			
Lane Util. Factor	1.00	0.95			0.95			0.95	1.00			
Frpb, ped/bikes	1.00	1.00			1.00			1.00	0.99			
Flpb, ped/bikes	1.00	1.00			1.00			1.00	1.00			
Frt	1.00	1.00			0.99			1.00	0.85			
Flt Protected	0.95	1.00			1.00			0.99	1.00			
Satd. Flow (prot)	1880	3762			3758			3762	1675			
Flt Permitted	0.33	1.00			1.00			0.99	1.00			
Satd. Flow (perm)	648	3762			3758			3762	1675			
Peak-hour factor, PHF	0.68	0.68	0.68	0.87	0.87	0.87	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	25	200	0	0	548	40	440	1746	418	0	0	0
RTOR Reduction (vph)	0	0	0	0	6	0	0	0	180	0	0	0
Lane Group Flow (vph)	25	200	0	0	582	0	0	2186	238	0	0	0
Confl. Peds. (#/hr)	1					1			4			
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA	Perm			
Protected Phases		4			8			2				
Permitted Phases	4						2		2			
Actuated Green, G (s)	22.4	22.4			22.4			44.9	44.9			
Effective Green, g (s)	22.4	22.4			22.4			44.9	44.9			
Actuated g/C Ratio	0.28	0.28			0.28			0.56	0.56			
Clearance Time (s)	6.6	6.6			6.6			6.1	6.1			
Lane Grp Cap (vph)	181	1053			1052			2111	940			
v/s Ratio Prot		0.05			0.15							
v/s Ratio Perm	0.04							0.58	0.14			
v/c Ratio	0.14	0.19			0.55			1.04	0.25			
Uniform Delay, d1	21.6	21.9			24.5			17.6	9.0			
Progression Factor	1.02	1.01			1.00			0.98	1.49			
Incremental Delay, d2	1.6	0.4			2.1			18.0	0.1			
Delay (s)	23.6	22.6			26.6			35.3	13.4			
Level of Service	C	C			C			D	B			
Approach Delay (s)		22.7			26.6			31.8			0.0	
Approach LOS		C			C			C			A	
Intersection Summary												
HCM 2000 Control Delay			30.3									
HCM 2000 Volume to Capacity ratio			0.87									
Actuated Cycle Length (s)			80.0									
Intersection Capacity Utilization			81.8%									
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3003: Hamilton St & Harriet St

Road Diet Capacity Analysis

Road Diet Mitigated 2038 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑↑					↑	↑↑	
Traffic Volume (vph)	0	115	112	265	541	0	0	0	0	47	571	50
Future Volume (vph)	0	115	112	265	541	0	0	0	0	47	571	50
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.8		5.8	5.8					5.6	5.6	
Lane Util. Factor		0.95		1.00	0.95					1.00	0.95	
Frpb, ped/bikes		0.99		1.00	1.00					1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00					1.00	1.00	
Frt		0.93		1.00	1.00					1.00	0.99	
Flt Protected		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (prot)		3494		1899	3800					1881	3717	
Flt Permitted		1.00		0.51	1.00					0.95	1.00	
Satd. Flow (perm)		3494		1015	3800					1881	3717	
Peak-hour factor, PHF	0.74	0.74	0.74	0.95	0.95	0.95	0.93	0.92	0.92	0.93	0.93	0.93
Adj. Flow (vph)	0	155	151	279	569	0	0	0	0	51	614	54
RTOR Reduction (vph)	0	132	0	0	0	0	0	0	0	0	6	0
Lane Group Flow (vph)	0	174	0	279	569	0	0	0	0	51	662	0
Confl. Peds. (#/hr)			2	2								
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	1%
Turn Type		NA		D.P+P	NA					Perm	NA	
Protected Phases		4		3	8 3						2	
Permitted Phases				4						2		
Actuated Green, G (s)		10.3		23.2	29.0					39.6	39.6	
Effective Green, g (s)		10.3		23.2	29.0					39.6	39.6	
Actuated g/C Ratio		0.13		0.29	0.36					0.50	0.50	
Clearance Time (s)		5.8		5.8						5.6	5.6	
Vehicle Extension (s)		4.0		4.0						0.2	0.2	
Lane Grp Cap (vph)		449		436	1377					931	1839	
v/s Ratio Prot		0.05		c0.10	0.15						c0.18	
v/s Ratio Perm				c0.08						0.03		
v/c Ratio		0.39		0.64	0.41					0.05	0.36	
Uniform Delay, d1		32.0		25.3	19.1					10.5	12.4	
Progression Factor		1.00		1.01	0.97					0.52	0.61	
Incremental Delay, d2		0.8		2.1	0.2					0.1	0.5	
Delay (s)		32.7		27.7	18.7					5.6	8.0	
Level of Service		C		C	B					A	A	
Approach Delay (s)		32.7			21.7			0.0			7.9	
Approach LOS		C			C			A			A	
Intersection Summary												
HCM 2000 Control Delay			18.2			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.46									
Actuated Cycle Length (s)			80.0			Sum of lost time (s)				17.2		
Intersection Capacity Utilization			52.0%			ICU Level of Service				A		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3004: Huron St & Catherine St (PB)

Road Diet Capacity Analysis

Road Diet Mitigated 2038 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	10	0	0	29	47	90	1489	19	0	0	0
Future Volume (vph)	9	10	0	0	29	47	90	1489	19	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.3			5.3			5.3				
Lane Util. Factor		1.00			1.00			0.95				
Frpb, ped/bikes		1.00			0.99			1.00				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.92			1.00				
Flt Protected		0.98			1.00			1.00				
Satd. Flow (prot)		1952			1819			3744				
Flt Permitted		0.80			1.00			1.00				
Satd. Flow (perm)		1594			1819			3744				
Peak-hour factor, PHF	0.71	0.71	0.71	0.77	0.77	0.77	0.94	0.94	0.94	0.92	0.92	0.92
Adj. Flow (vph)	13	14	0	0	38	61	96	1584	20	0	0	0
RTOR Reduction (vph)	0	0	0	0	41	0	0	1	0	0	0	0
Lane Group Flow (vph)	0	27	0	0	58	0	0	1699	0	0	0	0
Confl. Peds. (#/hr)	1					1	1		2			
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		2			2			1				
Permitted Phases	2						1					
Actuated Green, G (s)		7.1			7.1			62.3				
Effective Green, g (s)		7.1			7.1			62.3				
Actuated g/C Ratio		0.09			0.09			0.78				
Clearance Time (s)		5.3			5.3			5.3				
Vehicle Extension (s)		3.0			3.0			0.2				
Lane Grp Cap (vph)		141			161			2915				
v/s Ratio Prot					c0.03							
v/s Ratio Perm		0.02						0.45				
v/c Ratio		0.19			0.36			0.58				
Uniform Delay, d1		33.8			34.3			3.6				
Progression Factor		1.00			1.00			1.14				
Incremental Delay, d2		0.7			1.4			0.1				
Delay (s)		34.5			35.7			4.2				
Level of Service		C			D			A				
Approach Delay (s)		34.5			35.7			4.2			0.0	
Approach LOS		C			D			A			A	
Intersection Summary												
HCM 2000 Control Delay		6.3			HCM 2000 Level of Service			A				
HCM 2000 Volume to Capacity ratio		0.56										
Actuated Cycle Length (s)		80.0			Sum of lost time (s)			10.6				
Intersection Capacity Utilization		58.6%			ICU Level of Service			B				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

9000: Hamilton St & Washtenaw Ave

Road Diet Capacity Analysis

Road Diet Mitigated 2038 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	0	119	530	0	0	0	0	0	0	29	274	0
Future Volume (vph)	0	119	530	0	0	0	0	0	0	29	274	0
Peak Hour Factor	0.89	0.89	0.89	0.92	0.92	0.92	0.92	0.92	0.92	0.91	0.91	0.91
Hourly flow rate (vph)	0	134	596	0	0	0	0	0	0	32	301	0
Direction, Lane #	EB 1	EB 2	EB 3	SB 1	SB 2							
Volume Total (vph)	67	67	596	132	201							
Volume Left (vph)	0	0	0	32	0							
Volume Right (vph)	0	0	596	0	0							
Hadj (s)	0.00	0.00	-0.70	0.14	0.02							
Departure Headway (s)	5.3	5.3	3.2	5.0	4.9							
Degree Utilization, x	0.10	0.10	0.53	0.18	0.27							
Capacity (veh/h)	640	643	1117	701	719							
Control Delay (s)	7.7	7.7	8.5	7.9	8.5							
Approach Delay (s)	8.4			8.3								
Approach LOS	A			A								
Intersection Summary												
Delay			8.3									
Level of Service			A									
Intersection Capacity Utilization			46.1%	ICU Level of Service	A							
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

9001: Hamilton St & Pearl St

Road Diet Capacity Analysis

Road Diet Mitigated 2038 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	24	20	14	0	0	0	0	0	800	7
Future Volume (Veh/h)	0	0	24	20	14	0	0	0	0	0	800	7
Sign Control	Stop				Stop				Free		Free	
Grade	0%				0%				0%		0%	
Peak Hour Factor	0.66	0.66	0.66	0.83	0.83	0.83	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	36	24	17	0	0	0	0	0	870	8
Pedestrians	1											
Lane Width (ft)	12.0											
Walking Speed (ft/s)	4.0											
Percent Blockage	0											
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (ft)	435											
pX, platoon unblocked												
vC, conflicting volume	880	871	436	471	879	0	879				0	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	880	871	436	471	879	0	879				0	
tC, single (s)	7.6	6.6	7.0	7.5	6.5	6.9	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	100	100	94	95	94	100	100				100	
cM capacity (veh/h)	226	282	560	449	288	1091	777				1629	
Direction, Lane #	EB 1	WB 1	WB 2	SB 1	SB 2	SB 3						
Volume Total	36	16	25	435	435	8						
Volume Left	0	16	8	0	0	0						
Volume Right	36	0	0	0	0	8						
cSH	560	449	325	1700	1700	1700						
Volume to Capacity	0.06	0.04	0.08	0.26	0.26	0.00						
Queue Length 95th (ft)	5	3	6	0	0	0						
Control Delay (s)	11.9	13.3	17.0	0.0	0.0	0.0						
Lane LOS	B	B	C									
Approach Delay (s)	11.9	15.5	0.0									
Approach LOS	B	C										
Intersection Summary												
Average Delay	1.1											
Intersection Capacity Utilization	37.7%			ICU Level of Service					A			
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis

9002: Hamilton St/Hamilton St (PB) & Ferris St

Road Diet Capacity Analysis

Road Diet Mitigated 2038 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											 	
Traffic Volume (veh/h)	0	16	29	23	15	0	0	0	0	62	615	10
Future Volume (Veh/h)	0	16	29	23	15	0	0	0	0	62	615	10
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.77	0.77	0.77	0.69	0.69	0.69	0.92	0.92	0.92	0.95	0.95	0.95
Hourly flow rate (vph)	0	21	38	33	22	0	0	0	0	65	647	11
Pedestrians		1			4			1				
Lane Width (ft)		12.0			12.0			0.0				
Walking Speed (ft/s)		4.0			4.0			4.0				
Percent Blockage		0			0			0				
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)											450	
pX, platoon unblocked	0.90	0.90	0.90	0.90	0.90		0.90					
vC, conflicting volume	794	788	331	507	793	4	659			4		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	538	530	20	217	536	4	387			4		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	95	96	94	94	100	100			96		
cM capacity (veh/h)	356	392	948	577	388	1081	1059			1618		
Direction, Lane #	EB 1	WB 1	SB 1	SB 2								
Volume Total	59	55	388	334								
Volume Left	0	33	65	0								
Volume Right	38	0	0	11								
cSH	629	483	1618	1700								
Volume to Capacity	0.09	0.11	0.04	0.20								
Queue Length 95th (ft)	8	10	3	0								
Control Delay (s)	11.3	13.4	1.5	0.0								
Lane LOS	B	B	A									
Approach Delay (s)	11.3	13.4	0.8									
Approach LOS	B	B										
Intersection Summary												
Average Delay			2.4									
Intersection Capacity Utilization			33.5%	ICU Level of Service					A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

9003: Huron St/Huron St (PB) & Ferris St

Road Diet Capacity Analysis
Road Diet Mitigated 2038 AM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				 		
Traffic Volume (veh/h)	20	0	59	1403	0	0
Future Volume (Veh/h)	20	0	59	1403	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.75	0.75	0.94	0.94	0.92	0.92
Hourly flow rate (vph)	27	0	63	1493	0	0
Pedestrians	3					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				857	448	
pX, platoon unblocked	0.80					
vC, conflicting volume	876	3	3			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	355	3	3			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	94	100	96			
cM capacity (veh/h)	479	1083	1628			
Direction, Lane #	EB 1	NB 1	NB 2			
Volume Total	27	561	995			
Volume Left	27	63	0			
Volume Right	0	0	0			
cSH	479	1628	1700			
Volume to Capacity	0.06	0.04	0.59			
Queue Length 95th (ft)	4	3	0			
Control Delay (s)	13.0	1.2	0.0			
Lane LOS	B	A				
Approach Delay (s)	13.0	0.4				
Approach LOS	B					
Intersection Summary						
Average Delay		0.6				
Intersection Capacity Utilization		48.5%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

9004: Huron St (PB)/Huron St & Pearl St

Road Diet Capacity Analysis
Road Diet Mitigated 2038 AM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	99	1846	0	0
Future Volume (Veh/h)	0	0	99	1846	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.95	0.95	0.92	0.92
Hourly flow rate (vph)	0	0	104	1943	0	0
Pedestrians	2					
Lane Width (ft)	0.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (ft)				430		
pX, platoon unblocked	0.64					
vC, conflicting volume	1182	2	2			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	178	2	2			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	94			
cM capacity (veh/h)	483	1088	1634			
Direction, Lane #	NB 1	NB 2				
Volume Total	752	1295				
Volume Left	104	0				
Volume Right	0	0				
cSH	1634	1700				
Volume to Capacity	0.06	0.76				
Queue Length 95th (ft)	5	0				
Control Delay (s)	1.7	0.0				
Lane LOS	A					
Approach Delay (s)	0.6					
Approach LOS						
Intersection Summary						
Average Delay		0.6				
Intersection Capacity Utilization		54.5%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Signalized Intersection Capacity Analysis

1002: Summit & Washtenaw Ave

Road Diet Capacity Analysis

Road Diet Mitigated 2038 OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	1054	43	0	0	0	0	74	23	36	20	0
Future Volume (vph)	14	1054	43	0	0	0	0	74	23	36	20	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.4						10.8			10.8	
Lane Util. Factor		0.91						1.00			1.00	
Frpb, ped/bikes		1.00						0.98			1.00	
Flpb, ped/bikes		1.00						1.00			0.97	
Frt		0.99						0.97			1.00	
Flt Protected		1.00						1.00			0.97	
Satd. Flow (prot)		5418						1615			1872	
Flt Permitted		1.00						1.00			0.71	
Satd. Flow (perm)		5418						1615			1376	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.61	0.61	0.61	0.74	0.74	0.74
Adj. Flow (vph)	15	1146	47	0	0	0	0	121	38	49	27	0
RTOR Reduction (vph)	0	5	0	0	0	0	0	14	0	0	0	0
Lane Group Flow (vph)	0	1203	0	0	0	0	0	145	0	0	76	0
Confl. Peds. (#/hr)			8						45	45		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)								10				
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		1						2			2	
Permitted Phases	1									2		
Actuated Green, G (s)		46.6						17.2			17.2	
Effective Green, g (s)		46.6						17.2			17.2	
Actuated g/C Ratio		0.58						0.21			0.21	
Clearance Time (s)		5.4						10.8			10.8	
Lane Grp Cap (vph)		3155						347			295	
v/s Ratio Prot								c0.09				
v/s Ratio Perm		0.22									0.06	
v/c Ratio		0.38						0.42			0.26	
Uniform Delay, d1		9.0						27.1			26.1	
Progression Factor		1.00						1.00			1.34	
Incremental Delay, d2		0.4						3.7			2.1	
Delay (s)		9.3						30.7			37.1	
Level of Service		A						C			D	
Approach Delay (s)		9.3			0.0			30.7			37.1	
Approach LOS		A			A			C			D	
Intersection Summary												
HCM 2000 Control Delay		13.1						HCM 2000 Level of Service		B		
HCM 2000 Volume to Capacity ratio		0.39										
Actuated Cycle Length (s)		80.0						Sum of lost time (s)		16.2		
Intersection Capacity Utilization		47.8%						ICU Level of Service		A		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1004: Ballard St (PB) & Washtenaw Ave

Road Diet Capacity Analysis

Road Diet Mitigated 2038 OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	831	25	0	0	0	0	96	17	17	28	0
Future Volume (vph)	21	831	25	0	0	0	0	96	17	17	28	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.3						5.7		5.7	5.7	
Lane Util. Factor		0.95						1.00		1.00	1.00	
Frpb, ped/bikes		1.00						1.00		1.00	1.00	
Flpb, ped/bikes		1.00						1.00		0.99	1.00	
Frt		1.00						0.98		1.00	1.00	
Flt Protected		1.00						1.00		0.95	1.00	
Satd. Flow (prot)		3776						1954		1890	2000	
Flt Permitted		1.00						1.00		0.63	1.00	
Satd. Flow (perm)		3776						1954		1258	2000	
Peak-hour factor, PHF	0.88	0.88	0.88	0.92	0.92	0.92	0.76	0.76	0.76	0.67	0.67	0.67
Adj. Flow (vph)	24	944	28	0	0	0	0	126	22	25	42	0
RTOR Reduction (vph)	0	2	0	0	0	0	0	9	0	0	0	0
Lane Group Flow (vph)	0	994	0	0	0	0	0	139	0	25	42	0
Confl. Peds. (#/hr)	11		7							8	8	
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	custom	NA						NA		Perm	NA	
Protected Phases	1	1						2			2	
Permitted Phases	1									2		
Actuated Green, G (s)		58.2						10.8		10.8	10.8	
Effective Green, g (s)		58.2						10.8		10.8	10.8	
Actuated g/C Ratio		0.73						0.14		0.14	0.14	
Clearance Time (s)		5.3						5.7		5.7	5.7	
Vehicle Extension (s)		0.2						3.0		3.0	3.0	
Lane Grp Cap (vph)		2747						263		169	270	
v/s Ratio Prot		c0.26						c0.07			0.02	
v/s Ratio Perm										0.02		
v/c Ratio		0.36						0.53		0.15	0.16	
Uniform Delay, d1		4.0						32.2		30.5	30.6	
Progression Factor		0.35						1.00		1.00	1.00	
Incremental Delay, d2		0.4						1.9		0.4	0.3	
Delay (s)		1.8						34.2		30.9	30.8	
Level of Service		A						C		C	C	
Approach Delay (s)		1.8			0.0			34.2			30.9	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM 2000 Control Delay			7.3									
HCM 2000 Volume to Capacity ratio			0.39									
Actuated Cycle Length (s)			80.0							11.0		
Intersection Capacity Utilization			42.5%									
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1013: Hamilton St (PB) & Michigan Ave

Road Diet Capacity Analysis

Road Diet Mitigated 2038 OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑↑					↑	↑↑	
Traffic Volume (vph)	0	436	117	209	514	0	0	0	0	406	831	45
Future Volume (vph)	0	436	117	209	514	0	0	0	0	406	831	45
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.2		5.2	5.2					6.8	6.8	
Lane Util. Factor		0.95		1.00	0.95					1.00	0.95	
Frpb, ped/bikes		0.99		1.00	1.00					1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00					1.00	1.00	
Frt		0.97		1.00	1.00					1.00	0.99	
Flt Protected		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (prot)		3647		1875	3480					1881	3728	
Flt Permitted		1.00		0.30	1.00					0.95	1.00	
Satd. Flow (perm)		3647		602	3480					1881	3728	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.92	0.92	0.92	0.93	0.93	0.93
Adj. Flow (vph)	0	459	123	220	541	0	0	0	0	437	894	48
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	582	0	220	541	0	0	0	0	437	938	0
Confl. Peds. (#/hr)			27	27						24		13
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Parking (#/hr)					10							
Turn Type		NA		pm+pt	NA					custom		NA
Protected Phases		1		2	1 2					3		3
Permitted Phases				1 2						3		
Actuated Green, G (s)		22.4		30.8	36.0					32.0		32.0
Effective Green, g (s)		22.4		30.8	36.0					32.0		32.0
Actuated g/C Ratio		0.28		0.39	0.45					0.40		0.40
Clearance Time (s)		5.2		5.2						6.8		6.8
Vehicle Extension (s)		3.0		3.0						0.2		0.2
Lane Grp Cap (vph)		1021		365	1566					752		1491
v/s Ratio Prot		0.16		c0.06	0.16					0.23		c0.25
v/s Ratio Perm				c0.17								
v/c Ratio		0.57		0.60	0.35					0.58		0.63
Uniform Delay, d1		24.7		25.2	14.3					18.8		19.2
Progression Factor		0.92		0.98	1.22					1.00		1.00
Incremental Delay, d2		0.8		2.7	0.1					3.3		2.0
Delay (s)		23.4		27.5	17.7					22.0		21.3
Level of Service		C		C	B					C		C
Approach Delay (s)		23.4			20.5			0.0				21.5
Approach LOS		C			C			A				C
Intersection Summary												
HCM 2000 Control Delay			21.6			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.62									
Actuated Cycle Length (s)			80.0			Sum of lost time (s)				17.2		
Intersection Capacity Utilization			65.3%			ICU Level of Service				C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1016: Huron St (PB) & Cross St (PB)/Cross St

Road Diet Capacity Analysis

Road Diet Mitigated 2038 OP Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑	↑		↑↑				
Traffic Volume (vph)	0	0	0	0	231	14	0	391	237	0	0	0
Future Volume (vph)	0	0	0	0	231	14	0	391	237	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)					5.5	5.5		5.6				
Lane Util. Factor					1.00	1.00		0.95				
Frpb, ped/bikes					1.00	1.00		0.99				
Flpb, ped/bikes					1.00	1.00		1.00				
Frt					1.00	0.85		0.94				
Flt Protected					1.00	1.00		1.00				
Satd. Flow (prot)					2000	1700		3521				
Flt Permitted					1.00	1.00		1.00				
Satd. Flow (perm)					2000	1700		3521				
Peak-hour factor, PHF	0.92	0.92	0.92	0.84	0.84	0.84	0.95	0.95	0.95	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	275	17	0	412	249	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	9	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	275	8	0	661	0	0	0	0
Confl. Peds. (#/hr)						9			1			
Confl. Bikes (#/hr)						4						
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	0%	0%	0%
Turn Type					NA	custom		NA				
Protected Phases					2	2		8				
Permitted Phases						2						
Actuated Green, G (s)					35.5	35.5		33.4				
Effective Green, g (s)					35.5	35.5		33.4				
Actuated g/C Ratio					0.44	0.44		0.42				
Clearance Time (s)					5.5	5.5		5.6				
Lane Grp Cap (vph)					887	754		1470				
v/s Ratio Prot					c0.14	0.00		c0.19				
v/s Ratio Perm												
v/c Ratio					0.31	0.01		0.45				
Uniform Delay, d1					14.4	12.4		16.7				
Progression Factor					1.00	1.00		1.35				
Incremental Delay, d2					0.9	0.0		0.8				
Delay (s)					15.3	12.5		23.4				
Level of Service					B	B		C				
Approach Delay (s)		0.0			15.1			23.4			0.0	
Approach LOS		A			B			C			A	
Intersection Summary												
HCM 2000 Control Delay			20.8		HCM 2000 Level of Service						C	
HCM 2000 Volume to Capacity ratio			0.38									
Actuated Cycle Length (s)			80.0		Sum of lost time (s)						11.1	
Intersection Capacity Utilization			56.3%		ICU Level of Service						B	
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

1023: Huron St (PB) & Michigan Ave

Road Diet Capacity Analysis

Road Diet Mitigated 2038 OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 				
Traffic Volume (vph)	130	784	0	0	582	367	107	684	167	0	0	0
Future Volume (vph)	130	784	0	0	582	367	107	684	167	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	5.0	5.0			5.0	5.0	5.6	5.6				
Lane Util. Factor	1.00	0.95			0.91	0.91	1.00	0.95				
Frpb, ped/bikes	1.00	1.00			0.99	0.94	1.00	1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00	0.99	1.00				
Frt	1.00	1.00			0.98	0.85	1.00	0.97				
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00				
Satd. Flow (prot)	1894	3515			3247	1219	1857	3638				
Flt Permitted	0.26	1.00			1.00	1.00	0.95	1.00				
Satd. Flow (perm)	512	3515			3247	1219	1857	3638				
Peak-hour factor, PHF	0.93	0.93	0.93	0.94	0.94	0.94	0.86	0.86	0.86	0.92	0.92	0.92
Adj. Flow (vph)	140	843	0	0	619	390	124	795	194	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	140	843	0	0	705	304	124	989	0	0	0	0
Confl. Peds. (#/hr)	44					44	14		7			
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	1%	0%	0%	0%
Parking (#/hr)		10			10	10						
Turn Type	pm+pt	NA			NA	Perm	Perm	NA				
Protected Phases	2	1 2			1			3				
Permitted Phases	1 2					1	3					
Actuated Green, G (s)	38.0	43.0			29.0	29.0	26.4	26.4				
Effective Green, g (s)	38.0	43.0			29.0	29.0	26.4	26.4				
Actuated g/C Ratio	0.48	0.54			0.36	0.36	0.33	0.33				
Clearance Time (s)	5.0				5.0	5.0	5.6	5.6				
Lane Grp Cap (vph)	398	1889			1177	441	612	1200				
v/s Ratio Prot	0.04	c0.24			0.22			c0.27				
v/s Ratio Perm	0.13					c0.25	0.07					
v/c Ratio	0.35	0.45			0.60	0.69	0.20	0.82				
Uniform Delay, d1	20.0	11.3			20.8	21.7	19.2	24.7				
Progression Factor	0.34	0.25			1.00	1.00	0.42	0.48				
Incremental Delay, d2	2.2	0.7			2.3	8.5	0.7	6.3				
Delay (s)	8.9	3.5			23.0	30.2	8.8	18.2				
Level of Service	A	A			C	C	A	B				
Approach Delay (s)		4.3			25.2			17.1			0.0	
Approach LOS		A			C			B			A	
Intersection Summary												
HCM 2000 Control Delay			15.7				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.73									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)			15.6		
Intersection Capacity Utilization			62.6%				ICU Level of Service			B		
Analysis Period (min)			15									
c Critical Lane Group												

Intersection Sign configuration not allowed in HCM analysis.

HCM Signalized Intersection Capacity Analysis

1902: Summit & Dummy F

Road Diet Capacity Analysis

Road Diet Mitigated 2038 OP Peak Hour

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				↔↔↔	↖	
Traffic Volume (vph)	0	0	56	0	88	0
Future Volume (vph)	0	0	56	0	88	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000
Total Lost time (s)				5.4	5.8	
Lane Util. Factor				0.91	1.00	
Frt				1.00	1.00	
Flt Protected				0.95	0.95	
Satd. Flow (prot)				5187	1900	
Flt Permitted				0.95	0.95	
Satd. Flow (perm)				5187	1900	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	61	0	96	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	61	96	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type			Perm	NA	Prot	
Protected Phases				1	3	
Permitted Phases			1			
Actuated Green, G (s)				46.6	22.2	
Effective Green, g (s)				46.6	22.2	
Actuated g/C Ratio				0.58	0.28	
Clearance Time (s)				5.4	5.8	
Lane Grp Cap (vph)				3021	527	
v/s Ratio Prot					c0.05	
v/s Ratio Perm				0.01		
v/c Ratio				0.02	0.18	
Uniform Delay, d1				7.1	22.0	
Progression Factor				1.00	0.25	
Incremental Delay, d2				0.0	0.7	
Delay (s)				7.1	6.3	
Level of Service				A	A	
Approach Delay (s)	0.0			7.1	6.3	
Approach LOS	A			A	A	
Intersection Summary						
HCM 2000 Control Delay			6.6	HCM 2000 Level of Service		A
HCM 2000 Volume to Capacity ratio			0.08			
Actuated Cycle Length (s)			80.0	Sum of lost time (s)		16.2
Intersection Capacity Utilization			23.5%	ICU Level of Service		A
Analysis Period (min)			15			
c Critical Lane Group						

Intersection Sign configuration not allowed in HCM analysis.

HCM Signalized Intersection Capacity Analysis

2000: Michigan Ave & Congress St & Ballard St

Road Diet Capacity Analysis

Road Diet Mitigated 2038 OP Peak Hour

											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	SBR2	NEL	NER
Lane Configurations											
Traffic Volume (vph)	10	102	5	418	121	31	18	22	11	0	438
Future Volume (vph)	10	102	5	418	121	31	18	22	11	0	438
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.9		6.1	6.1		6.3	6.3			6.1
Lane Util. Factor		1.00		0.95	0.95		1.00	1.00			0.88
Frpb, ped/bikes		1.00		1.00	0.99		1.00	1.00			1.00
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00			1.00
Frt		0.99		1.00	0.98		1.00	0.85			0.85
Flt Protected		1.00		0.95	0.98		0.95	1.00			1.00
Satd. Flow (prot)		1978		1805	1532		1900	1700			2962
Flt Permitted		1.00		0.95	0.98		0.95	1.00			1.00
Satd. Flow (perm)		1978		1805	1532		1900	1700			2962
Peak-hour factor, PHF	0.80	0.80	0.80	0.95	0.95	0.95	0.66	0.66	0.66	0.89	0.89
Adj. Flow (vph)	12	128	6	440	127	33	27	33	17	0	492
RTOR Reduction (vph)	0	2	0	0	6	0	0	38	0	0	359
Lane Group Flow (vph)	0	145	0	299	295	0	27	13	0	0	133
Confl. Peds. (#/hr)	32		11	11		32	1		9		1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%
Parking (#/hr)					10						
Turn Type	Split	NA		Split	NA		Prot	Prot			Over
Protected Phases	3	3		1	1		2	2			1
Permitted Phases											
Actuated Green, G (s)		20.0		21.7	21.7		20.0	20.0			21.7
Effective Green, g (s)		20.0		21.7	21.7		20.0	20.0			21.7
Actuated g/C Ratio		0.25		0.27	0.27		0.25	0.25			0.27
Clearance Time (s)		5.9		6.1	6.1		6.3	6.3			6.1
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0			3.0
Lane Grp Cap (vph)		494		489	415		475	425			803
v/s Ratio Prot		c0.07		0.17	c0.19		c0.01	0.01			0.05
v/s Ratio Perm											
v/c Ratio		0.29		0.61	0.71		0.06	0.03			0.17
Uniform Delay, d1		24.3		25.5	26.3		22.8	22.7			22.2
Progression Factor		1.00		0.70	0.70		1.00	1.00			1.00
Incremental Delay, d2		0.3		5.3	9.5		0.1	0.0			0.4
Delay (s)		24.6		23.3	28.0		22.9	22.7			22.7
Level of Service		C		C	C		C	C			C
Approach Delay (s)		24.6			25.6		22.8			22.7	
Approach LOS		C			C		C			C	
Intersection Summary											
HCM 2000 Control Delay			24.2			HCM 2000 Level of Service				C	
HCM 2000 Volume to Capacity ratio			0.36								
Actuated Cycle Length (s)			80.0			Sum of lost time (s)			18.3		
Intersection Capacity Utilization			65.4%			ICU Level of Service			C		
Analysis Period (min)			15								
c Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

2004: Adams St (PB) & Michigan Ave

Road Diet Capacity Analysis

Road Diet Mitigated 2038 OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	790	13	16	628	45	43	41	52	37	23	39
Future Volume (vph)	21	790	13	16	628	45	43	41	52	37	23	39
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.1			5.1		6.0	6.0		6.0	6.0	
Lane Util. Factor		0.95			0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			1.00		1.00	0.97		1.00	0.98	
Flpb, ped/bikes		1.00			1.00		0.98	1.00		0.97	1.00	
Frt		1.00			0.99		1.00	0.92		1.00	0.91	
Flt Protected		1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3462			3462		1853	1513		1799	1473	
Flt Permitted		0.93			0.93		0.71	1.00		0.68	1.00	
Satd. Flow (perm)		3208			3215		1385	1513		1285	1473	
Peak-hour factor, PHF	0.93	0.93	0.93	0.89	0.89	0.89	0.76	0.76	0.76	0.86	0.86	0.86
Adj. Flow (vph)	23	849	14	18	706	51	57	54	68	43	27	45
RTOR Reduction (vph)	0	1	0	0	6	0	0	56	0	0	37	0
Lane Group Flow (vph)	0	885	0	0	769	0	57	66	0	43	35	0
Confl. Peds. (#/hr)	18		24	24		18	26		39	39		26
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	0%	0%	0%	2%	2%	2%
Parking (#/hr)		10			10			10			10	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)		54.9			54.9		14.0	14.0		14.0	14.0	
Effective Green, g (s)		54.9			54.9		14.0	14.0		14.0	14.0	
Actuated g/C Ratio		0.69			0.69		0.18	0.18		0.18	0.18	
Clearance Time (s)		5.1			5.1		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)		2201			2206		242	264		224	257	
v/s Ratio Prot							c0.04					0.02
v/s Ratio Perm		c0.28			0.24		0.04			0.03		
v/c Ratio		0.40			0.35		0.24	0.25		0.19	0.14	
Uniform Delay, d1		5.4			5.2		28.4	28.5		28.2	27.9	
Progression Factor		0.93			0.32		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.5			0.4		2.3	2.3		1.9	1.1	
Delay (s)		5.5			2.0		30.7	30.7		30.1	29.0	
Level of Service		A			A		C	C		C	C	
Approach Delay (s)		5.5			2.0		30.7			29.4		
Approach LOS		A			A		C			C		
Intersection Summary												
HCM 2000 Control Delay			7.9		HCM 2000 Level of Service					A		
HCM 2000 Volume to Capacity ratio			0.37									
Actuated Cycle Length (s)			80.0		Sum of lost time (s)					11.1		
Intersection Capacity Utilization			64.0%		ICU Level of Service					B		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2005: Washington St (PB) & Michigan Ave

Road Diet Capacity Analysis

Road Diet Mitigated 2038 OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	861	40	28	643	22	21	34	34	45	36	33
Future Volume (vph)	14	861	40	28	643	22	21	34	34	45	36	33
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.0			5.0			6.0			6.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			0.98			0.98	
Flpb, ped/bikes		1.00			1.00			0.99			0.98	
Frt		0.99			1.00			0.95			0.96	
Flt Protected		1.00			1.00			0.99			0.98	
Satd. Flow (prot)		3475			3446			1542			1820	
Flt Permitted		0.94			0.89			0.91			0.85	
Satd. Flow (perm)		3272			3060			1423			1575	
Peak-hour factor, PHF	0.89	0.89	0.89	0.94	0.94	0.94	0.81	0.81	0.81	0.92	0.92	0.92
Adj. Flow (vph)	16	967	45	30	684	23	26	42	42	49	39	36
RTOR Reduction (vph)	0	4	0	0	3	0	0	28	0	0	18	0
Lane Group Flow (vph)	0	1024	0	0	734	0	0	82	0	0	106	0
Confl. Peds. (#/hr)	32		30	30		32	46		43	43		46
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	0%	0%	0%	0%	0%	0%
Parking (#/hr)		10			10			10				
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)		55.0			55.0			14.0			14.0	
Effective Green, g (s)		55.0			55.0			14.0			14.0	
Actuated g/C Ratio		0.69			0.69			0.18			0.18	
Clearance Time (s)		5.0			5.0			6.0			6.0	
Lane Grp Cap (vph)		2249			2103			249			275	
v/s Ratio Prot												
v/s Ratio Perm		c0.31			0.24			0.06			c0.07	
v/c Ratio		0.46			0.35			0.33			0.38	
Uniform Delay, d1		5.7			5.1			28.9			29.2	
Progression Factor		0.27			0.31			1.00			1.00	
Incremental Delay, d2		0.6			0.4			3.5			4.0	
Delay (s)		2.2			2.0			32.4			33.2	
Level of Service		A			A			C			C	
Approach Delay (s)		2.2			2.0			32.4			33.2	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM 2000 Control Delay		5.7			HCM 2000 Level of Service			A				
HCM 2000 Volume to Capacity ratio		0.44										
Actuated Cycle Length (s)		80.0			Sum of lost time (s)			11.0				
Intersection Capacity Utilization		63.9%			ICU Level of Service			B				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3001: Huron St & Harriet St/Spring St

Road Diet Capacity Analysis

Road Diet Mitigated 2038 OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	192	0	0	327	29	189	903	251	0	0	0
Future Volume (vph)	44	192	0	0	327	29	189	903	251	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	6.6	6.6			6.6			6.1	6.1			
Lane Util. Factor	1.00	0.95			0.95			0.95	1.00			
Frpb, ped/bikes	1.00	1.00			1.00			1.00	0.99			
Flpb, ped/bikes	1.00	1.00			1.00			1.00	1.00			
Frt	1.00	1.00			0.99			1.00	0.85			
Flt Protected	0.95	1.00			1.00			0.99	1.00			
Satd. Flow (prot)	1894	3800			3747			3766	1678			
Flt Permitted	0.53	1.00			1.00			0.99	1.00			
Satd. Flow (perm)	1049	3800			3747			3766	1678			
Peak-hour factor, PHF	0.90	0.90	0.90	0.95	0.95	0.95	0.95	0.95	0.95	0.92	0.92	0.92
Adj. Flow (vph)	49	213	0	0	344	31	199	951	264	0	0	0
RTOR Reduction (vph)	0	0	0	0	8	0	0	0	126	0	0	0
Lane Group Flow (vph)	49	213	0	0	367	0	0	1150	138	0	0	0
Confl. Peds. (#/hr)	5					5	2		1			
Confl. Bikes (#/hr)									1			
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA	Perm			
Protected Phases		4			8			2				
Permitted Phases	4						2		2			
Actuated Green, G (s)	25.4	25.4			25.4			41.9	41.9			
Effective Green, g (s)	25.4	25.4			25.4			41.9	41.9			
Actuated g/C Ratio	0.32	0.32			0.32			0.52	0.52			
Clearance Time (s)	6.6	6.6			6.6			6.1	6.1			
Lane Grp Cap (vph)	333	1206			1189			1972	878			
v/s Ratio Prot		0.06			c0.10							
v/s Ratio Perm	0.05							0.31	0.08			
v/c Ratio	0.15	0.18			0.31			0.58	0.16			
Uniform Delay, d1	19.5	19.7			20.7			13.1	9.9			
Progression Factor	1.03	1.04			1.00			0.81	1.05			
Incremental Delay, d2	0.9	0.3			0.7			1.1	0.3			
Delay (s)	21.1	20.9			21.3			11.8	10.7			
Level of Service	C	C			C			B	B			
Approach Delay (s)		20.9			21.3			11.6			0.0	
Approach LOS		C			C			B			A	
Intersection Summary												
HCM 2000 Control Delay		14.6			HCM 2000 Level of Service			B				
HCM 2000 Volume to Capacity ratio		0.48										
Actuated Cycle Length (s)		80.0			Sum of lost time (s)			12.7				
Intersection Capacity Utilization		68.7%			ICU Level of Service			C				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3003: Hamilton St & Harriet St

Road Diet Capacity Analysis

Road Diet Mitigated 2038 OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑↑					↑	↑↑	
Traffic Volume (vph)	0	153	123	289	222	0	0	0	0	86	940	45
Future Volume (vph)	0	153	123	289	222	0	0	0	0	86	940	45
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.8		5.8	5.8					5.6	5.6	
Lane Util. Factor		0.95		1.00	0.95					1.00	0.95	
Frpb, ped/bikes		0.99		1.00	1.00					1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00					1.00	1.00	
Frt		0.93		1.00	1.00					1.00	0.99	
Flt Protected		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (prot)		3518		1897	3800					1881	3732	
Flt Permitted		1.00		0.50	1.00					0.95	1.00	
Satd. Flow (perm)		3518		1007	3800					1881	3732	
Peak-hour factor, PHF	0.88	0.88	0.88	0.87	0.87	0.87	0.92	0.92	0.92	0.87	0.87	0.87
Adj. Flow (vph)	0	174	140	332	255	0	0	0	0	99	1080	52
RTOR Reduction (vph)	0	93	0	0	0	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	221	0	332	255	0	0	0	0	99	1129	0
Confl. Peds. (#/hr)			5	5								5
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	1%
Turn Type		NA		D.P+P	NA					Perm	NA	
Protected Phases		4		3	8 3						2	
Permitted Phases				4						2		
Actuated Green, G (s)		11.3		24.3	30.1					38.5	38.5	
Effective Green, g (s)		11.3		24.3	30.1					38.5	38.5	
Actuated g/C Ratio		0.14		0.30	0.38					0.48	0.48	
Clearance Time (s)		5.8		5.8						5.6	5.6	
Vehicle Extension (s)		4.0		4.0						0.2	0.2	
Lane Grp Cap (vph)		496		450	1429					905	1796	
v/s Ratio Prot		0.06		c0.12	0.07						c0.30	
v/s Ratio Perm				c0.10						0.05		
v/c Ratio		0.45		0.74	0.18					0.11	0.63	
Uniform Delay, d1		31.5		25.3	16.7					11.4	15.4	
Progression Factor		1.00		0.97	0.84					0.60	0.77	
Incremental Delay, d2		0.9		6.3	0.1					0.2	1.4	
Delay (s)		32.4		30.7	14.1					7.1	13.4	
Level of Service		C		C	B					A	B	
Approach Delay (s)		32.4			23.5			0.0			12.9	
Approach LOS		C			C			A			B	
Intersection Summary												
HCM 2000 Control Delay			18.7			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.67									
Actuated Cycle Length (s)			80.0			Sum of lost time (s)				17.2		
Intersection Capacity Utilization			65.1%			ICU Level of Service				C		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

3004: Huron St & Catherine St (PB)

Road Diet Capacity Analysis

Road Diet Mitigated 2038 OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	20	0	0	1	54	10	968	8	0	0	0
Future Volume (vph)	14	20	0	0	1	54	10	968	8	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.3			5.3			5.3				
Lane Util. Factor		1.00			1.00			0.95				
Frpb, ped/bikes		1.00			0.98			1.00				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.87			1.00				
Flt Protected		0.98			1.00			1.00				
Satd. Flow (prot)		1955			1699			3755				
Flt Permitted		0.84			1.00			1.00				
Satd. Flow (perm)		1672			1699			3755				
Peak-hour factor, PHF	0.60	0.60	0.60	0.88	0.88	0.88	0.91	0.91	0.91	0.92	0.92	0.92
Adj. Flow (vph)	23	33	0	0	1	61	11	1064	9	0	0	0
RTOR Reduction (vph)	0	0	0	0	55	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	56	0	0	7	0	0	1084	0	0	0	0
Confl. Peds. (#/hr)	5					5	3		1			
Confl. Bikes (#/hr)						1			1			
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		2			2			1				
Permitted Phases	2						1					
Actuated Green, G (s)		7.9			7.9			61.5				
Effective Green, g (s)		7.9			7.9			61.5				
Actuated g/C Ratio		0.10			0.10			0.77				
Clearance Time (s)		5.3			5.3			5.3				
Vehicle Extension (s)		3.0			3.0			0.2				
Lane Grp Cap (vph)		165			167			2886				
v/s Ratio Prot					0.00							
v/s Ratio Perm		0.03						0.29				
v/c Ratio		0.34			0.04			0.38				
Uniform Delay, d1		33.6			32.6			3.0				
Progression Factor		1.00			1.00			1.46				
Incremental Delay, d2		1.2			0.1			0.3				
Delay (s)		34.8			32.7			4.7				
Level of Service		C			C			A				
Approach Delay (s)		34.8			32.7			4.7			0.0	
Approach LOS		C			C			A			A	
Intersection Summary												
HCM 2000 Control Delay		7.6			HCM 2000 Level of Service			A				
HCM 2000 Volume to Capacity ratio		0.37										
Actuated Cycle Length (s)		80.0			Sum of lost time (s)			10.6				
Intersection Capacity Utilization		43.2%			ICU Level of Service			A				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

4005: Huron St/US-12 Br (Hamilton St) & I-94 EB Off-Ramp

Road Diet Capacity Analysis
Road Diet Mitigated 2038 OP Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	WT	RT		TT	TT	RT
Traffic Volume (vph)	260	359	0	1075	845	224
Future Volume (vph)	260	359	0	1075	845	224
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000
Lane Width	12	12	12	12	11	11
Total Lost time (s)	5.5	5.5		6.1	6.1	6.1
Lane Util. Factor	0.97	0.91		0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00
Frt	0.94	0.85		1.00	1.00	0.85
Flt Protected	0.97	1.00		1.00	1.00	1.00
Satd. Flow (prot)	3444	1502		3455	3566	1562
Flt Permitted	0.97	1.00		1.00	1.00	1.00
Satd. Flow (perm)	3444	1502		3455	3566	1562
Peak-hour factor, PHF	0.91	0.91	0.88	0.88	0.91	0.91
Adj. Flow (vph)	286	395	0	1222	929	246
RTOR Reduction (vph)	64	64	0	0	0	0
Lane Group Flow (vph)	400	153	0	1222	929	246
Confl. Peds. (#/hr)						1
Heavy Vehicles (%)	3%	3%	10%	10%	3%	3%
Turn Type	Prot	Perm		NA	NA	Perm
Protected Phases	4			2	2	
Permitted Phases		4				2
Actuated Green, G (s)	27.5	27.5		40.9	40.9	40.9
Effective Green, g (s)	27.5	27.5		40.9	40.9	40.9
Actuated g/C Ratio	0.34	0.34		0.51	0.51	0.51
Clearance Time (s)	5.5	5.5		6.1	6.1	6.1
Lane Grp Cap (vph)	1183	516		1766	1823	798
v/s Ratio Prot	c0.12			c0.35	0.26	
v/s Ratio Perm		0.10				0.16
v/c Ratio	0.34	0.30		0.69	0.51	0.31
Uniform Delay, d1	19.5	19.2		14.8	12.9	11.3
Progression Factor	1.00	1.00		1.00	0.94	1.01
Incremental Delay, d2	0.8	1.5		2.3	0.9	0.9
Delay (s)	20.3	20.7		17.0	13.0	12.4
Level of Service	C	C		B	B	B
Approach Delay (s)	20.4			17.0	12.9	
Approach LOS	C			B	B	
Intersection Summary						
HCM 2000 Control Delay			16.2		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.55			
Actuated Cycle Length (s)			80.0		Sum of lost time (s)	11.6
Intersection Capacity Utilization			51.2%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

4105: US-12 Br (Huron St) & I-94 WB Off-Ramp

Road Diet Capacity Analysis

Road Diet Mitigated 2038 OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	221	341	0	891	0	0	0	0
Future Volume (vph)	0	0	0	0	221	341	0	891	0	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)					12.2	12.2		6.2				
Lane Util. Factor					0.91	0.91		0.95				
Frpb, ped/bikes					0.99	0.98		1.00				
Flpb, ped/bikes					1.00	1.00		1.00				
Frt					0.94	0.85		1.00				
Flt Protected					1.00	1.00		1.00				
Satd. Flow (prot)					3316	1491		3725				
Flt Permitted					1.00	1.00		1.00				
Satd. Flow (perm)					3316	1491		3725				
Peak-hour factor, PHF	0.92	0.92	0.92	0.76	0.76	0.76	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	291	449	0	968	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	71	71	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	436	162	0	968	0	0	0	0
Confl. Peds. (#/hr)						4			11			
Turn Type					NA	Perm		NA				
Protected Phases					2			1				
Permitted Phases						2						
Actuated Green, G (s)					18.8	18.8		42.8				
Effective Green, g (s)					18.8	18.8		42.8				
Actuated g/C Ratio					0.24	0.24		0.53				
Clearance Time (s)					12.2	12.2		6.2				
Lane Grp Cap (vph)					779	350		1992				
v/s Ratio Prot					c0.13			c0.26				
v/s Ratio Perm						0.11						
v/c Ratio					0.56	0.46		0.49				
Uniform Delay, d1					27.0	26.3		11.7				
Progression Factor					1.00	1.00		0.85				
Incremental Delay, d2					2.9	4.3		0.7				
Delay (s)					29.8	30.6		10.6				
Level of Service					C	C		B				
Approach Delay (s)		0.0			30.1			10.6			0.0	
Approach LOS		A			C			B			A	
Intersection Summary												
HCM 2000 Control Delay			19.1		HCM 2000 Level of Service						B	
HCM 2000 Volume to Capacity ratio			0.53									
Actuated Cycle Length (s)			80.0		Sum of lost time (s)						21.4	
Intersection Capacity Utilization			52.5%		ICU Level of Service						A	
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

4905: US-12 BR (Hamilton St) & I-94 WB Off-Ramp

Road Diet Capacity Analysis

Road Diet Mitigated 2038 OP Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	221	0	0	0	0	848
Future Volume (vph)	221	0	0	0	0	848
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000
Lane Width	12	12	11	11	11	11
Total Lost time (s)	5.2					6.2
Lane Util. Factor	0.97					0.95
Frt	1.00					1.00
Flt Protected	0.95					1.00
Satd. Flow (prot)	3614					3601
Flt Permitted	0.95					1.00
Satd. Flow (perm)	3614					3601
Peak-hour factor, PHF	0.76	0.76	0.92	0.92	0.85	0.85
Adj. Flow (vph)	291	0	0	0	0	998
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	291	0	0	0	0	998
Turn Type	Prot					NA
Protected Phases	3					1
Permitted Phases						
Actuated Green, G (s)	25.8					42.8
Effective Green, g (s)	25.8					42.8
Actuated g/C Ratio	0.32					0.53
Clearance Time (s)	5.2					6.2
Lane Grp Cap (vph)	1165					1926
v/s Ratio Prot	c0.08					c0.28
v/s Ratio Perm						
v/c Ratio	0.25					0.52
Uniform Delay, d1	20.0					12.0
Progression Factor	0.17					0.05
Incremental Delay, d2	0.4					0.9
Delay (s)	3.7					1.5
Level of Service	A					A
Approach Delay (s)	3.7		0.0			1.5
Approach LOS	A		A			A
Intersection Summary						
HCM 2000 Control Delay			2.0		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.49			
Actuated Cycle Length (s)			80.0		Sum of lost time (s)	21.4
Intersection Capacity Utilization			52.5%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Unsignalized Intersection Capacity Analysis

9000: Hamilton St & Washtenaw Ave

Road Diet Capacity Analysis

Road Diet Mitigated 2038 OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗								↖↑	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	0	189	698	0	0	0	0	0	0	32	445	0
Future Volume (vph)	0	189	698	0	0	0	0	0	0	32	445	0
Peak Hour Factor	0.85	0.85	0.85	0.92	0.92	0.92	0.92	0.92	0.92	0.90	0.90	0.90
Hourly flow rate (vph)	0	222	821	0	0	0	0	0	0	36	494	0
Direction, Lane #	EB 1	EB 2	EB 3	SB 1	SB 2							
Volume Total (vph)	111	111	821	201	329							
Volume Left (vph)	0	0	0	36	0							
Volume Right (vph)	0	0	821	0	0							
Hadj (s)	0.00	0.00	-0.70	0.12	0.03							
Departure Headway (s)	5.8	5.8	3.2	5.3	5.2							
Degree Utilization, x	0.18	0.18	0.73	0.29	0.47							
Capacity (veh/h)	585	587	1120	667	681							
Control Delay (s)	8.8	8.8	13.1	9.2	11.5							
Approach Delay (s)	12.2			10.6								
Approach LOS	B			B								
Intersection Summary												
Delay	11.7											
Level of Service	B											
Intersection Capacity Utilization	60.7%		ICU Level of Service			B						
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis

9001: Hamilton St & Pearl St

Road Diet Capacity Analysis

Road Diet Mitigated 2038 OP Peak Hour

																		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR						
Lane Configurations																		
Traffic Volume (veh/h)	0	0	24	108	97	0	0	0	0	0	1142	17						
Future Volume (Veh/h)	0	0	24	108	97	0	0	0	0	0	1142	17						
Sign Control	Stop				Stop				Free		Free							
Grade	0%				0%				0%		0%							
Peak Hour Factor	0.60	0.60	0.60	0.75	0.75	0.75	0.92	0.92	0.92	0.90	0.90	0.90						
Hourly flow rate (vph)	0	0	40	144	129	0	0	0	0	0	1269	19						
Pedestrians	9																	
Lane Width (ft)	0.0																	
Walking Speed (ft/s)	4.0																	
Percent Blockage	0																	
Right turn flare (veh)																		
Median type							None			None								
Median storage (veh)																		
Upstream signal (ft)	435																	
pX, platoon unblocked																		
vC, conflicting volume	1334	1269	644	684	1288	0	1288				0							
vC1, stage 1 conf vol																		
vC2, stage 2 conf vol																		
vCu, unblocked vol	1334	1269	644	684	1288	0	1288				0							
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1				4.1							
tC, 2 stage (s)																		
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				2.2							
p0 queue free %	100	100	90	53	22	100	100				100							
cM capacity (veh/h)	41	170	421	307	165	1091	545				1629							
Direction, Lane #	EB 1	WB 1	WB 2	SB 1	SB 2	SB 3												
Volume Total	40	96	177	634	634	19												
Volume Left	0	96	48	0	0	0												
Volume Right	40	0	0	0	0	19												
cSH	421	307	189	1700	1700	1700												
Volume to Capacity	0.10	0.31	0.94	0.37	0.37	0.01												
Queue Length 95th (ft)	8	33	186	0	0	0												
Control Delay (s)	14.5	22.0	100.4	0.0	0.0	0.0												
Lane LOS	B	C	F															
Approach Delay (s)	14.5	72.9	0.0															
Approach LOS	B	F																
Intersection Summary																		
Average Delay	12.8																	
Intersection Capacity Utilization	51.2%			ICU Level of Service					A									
Analysis Period (min)	15																	

HCM Unsignalized Intersection Capacity Analysis

9002: Hamilton St/Hamilton St (PB) & Ferris St

Road Diet Capacity Analysis

Road Diet Mitigated 2038 OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											 	
Traffic Volume (veh/h)	0	24	33	35	15	0	0	0	0	106	1016	21
Future Volume (Veh/h)	0	24	33	35	15	0	0	0	0	106	1016	21
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.85	0.85	0.85	0.92	0.92	0.92	0.93	0.93	0.93
Hourly flow rate (vph)	0	25	35	41	18	0	0	0	0	114	1092	23
Pedestrians		5			3			7				
Lane Width (ft)		12.0			12.0			0.0				
Walking Speed (ft/s)		4.0			4.0			4.0				
Percent Blockage		0			0			0				
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)											450	
pX, platoon unblocked	0.80	0.80	0.80	0.80	0.80		0.80					
vC, conflicting volume	1346	1340	570	832	1351	3	1120			3		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	923	915	0	278	930	3	640			3		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	88	96	90	91	100	100			93		
cM capacity (veh/h)	158	202	865	425	196	1077	757			1628		
Direction, Lane #	EB 1	WB 1	SB 1	SB 2								
Volume Total	60	59	660	569								
Volume Left	0	41	114	0								
Volume Right	35	0	0	23								
cSH	365	313	1628	1700								
Volume to Capacity	0.16	0.19	0.07	0.33								
Queue Length 95th (ft)	15	17	6	0								
Control Delay (s)	16.8	19.2	1.9	0.0								
Lane LOS	C	C	A									
Approach Delay (s)	16.8	19.2	1.0									
Approach LOS	C	C										
Intersection Summary												
Average Delay			2.5									
Intersection Capacity Utilization			46.2%		ICU Level of Service					A		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

9003: Huron St/Huron St (PB) & Ferris St

Road Diet Capacity Analysis

Road Diet Mitigated 2038 OP Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	43	0	44	984	0	0
Future Volume (Veh/h)	43	0	44	984	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.79	0.79	0.94	0.94	0.92	0.92
Hourly flow rate (vph)	54	0	47	1047	0	0
Pedestrians	5				1	
Lane Width (ft)	12.0				0.0	
Walking Speed (ft/s)	4.0				4.0	
Percent Blockage	0				0	
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				857	448	
pX, platoon unblocked	0.92					
vC, conflicting volume	624	5	5			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	406	5	5			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	89	100	97			
cM capacity (veh/h)	512	1078	1615			
Direction, Lane #	EB 1	NB 1	NB 2			
Volume Total	54	396	698			
Volume Left	54	47	0			
Volume Right	0	0	0			
cSH	512	1615	1700			
Volume to Capacity	0.11	0.03	0.41			
Queue Length 95th (ft)	9	2	0			
Control Delay (s)	12.9	1.1	0.0			
Lane LOS	B	A				
Approach Delay (s)	12.9	0.4				
Approach LOS	B					
Intersection Summary						
Average Delay			1.0			
Intersection Capacity Utilization		37.1%		ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

9004: Huron St (PB)/Huron St & Pearl St

Road Diet Capacity Analysis

Road Diet Mitigated 2038 OP Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	122	1053	0	0
Future Volume (Veh/h)	0	0	122	1053	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.88	0.88	0.92	0.92
Hourly flow rate (vph)	0	0	139	1197	0	0
Pedestrians	8					
Lane Width (ft)	0.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (ft)				430		
pX, platoon unblocked	0.77					
vC, conflicting volume	884	8	8			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	260	8	8			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	91			
cM capacity (veh/h)	503	1078	1625			
Direction, Lane #	NB 1	NB 2				
Volume Total	538	798				
Volume Left	139	0				
Volume Right	0	0				
cSH	1625	1700				
Volume to Capacity	0.09	0.47				
Queue Length 95th (ft)	7	0				
Control Delay (s)	2.5	0.0				
Lane LOS	A					
Approach Delay (s)	1.0					
Approach LOS						
Intersection Summary						
Average Delay		1.0				
Intersection Capacity Utilization		34.4%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

9005: Dummy A & Washtenaw Ave

Road Diet Capacity Analysis

Road Diet Mitigated 2038 OP Peak Hour

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	877	236	0	0	0	0
Future Volume (Veh/h)	877	236	0	0	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.92	0.92	0.90	0.90
Hourly flow rate (vph)	974	262	0	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	785					
pX, platoon unblocked						
vC, conflicting volume			1236	1105		618
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1236	1105		618
tC, single (s)			4.1	6.8		6.9
tC, 2 stage (s)						
tF (s)			2.2	3.5		3.3
p0 queue free %			100	100		100
cM capacity (veh/h)			571	208		437
Direction, Lane #	EB 1	EB 2	NB 1			
Volume Total	649	587	0			
Volume Left	0	0	0			
Volume Right	0	262	0			
cSH	1700	1700	1700			
Volume to Capacity	0.38	0.35	0.00			
Queue Length 95th (ft)	0	0	0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS			A			
Approach Delay (s)	0.0	0.0				
Approach LOS			A			
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			33.5%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

9006: Hamilton St (PB)/Hamilton St & Dummy B

Road Diet Capacity Analysis

Road Diet Mitigated 2038 OP Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	8	0	0	1274	0
Future Volume (Veh/h)	0	8	0	0	1274	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	9	0	0	1385	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (ft)				320		
pX, platoon unblocked						
vC, conflicting volume	1385	692	1385			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1385	692	1385			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	98	100			
cM capacity (veh/h)	136	388	501			
Direction, Lane #	EB 1	SB 1	SB 2			
Volume Total	9	923	462			
Volume Left	0	0	0			
Volume Right	9	0	0			
cSH	388	1700	1700			
Volume to Capacity	0.02	0.54	0.27			
Queue Length 95th (ft)	2	0	0			
Control Delay (s)	14.5	0.0	0.0			
Lane LOS	B					
Approach Delay (s)	14.5	0.0				
Approach LOS	B					
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization			43.5%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

9007: Dummy C & Michigan Ave

Road Diet Capacity Analysis

Road Diet Mitigated 2038 OP Peak Hour

														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Traffic Volume (veh/h)	0	553	6	0	560	0	0	0	0	0	0	10		
Future Volume (Veh/h)	0	553	6	0	560	0	0	0	0	0	0	10		
Sign Control		Free			Free			Stop			Stop			
Grade		0%			0%			0%			0%			
Peak Hour Factor	0.88	0.88	0.88	0.95	0.95	0.95	0.88	0.88	0.88	0.95	0.95	0.95		
Hourly flow rate (vph)	0	628	7	0	589	0	0	0	0	0	0	11		
Pedestrians														
Lane Width (ft)														
Walking Speed (ft/s)														
Percent Blockage														
Right turn flare (veh)														
Median type	None			None										
Median storage (veh)														
Upstream signal (ft)	225			225										
pX, platoon unblocked	0.90						0.90	0.90				0.90	0.90	0.90
vC, conflicting volume	589			635			937	1220	318	903	1224	294		
vC1, stage 1 conf vol														
vC2, stage 2 conf vol														
vCu, unblocked vol	328			635			714	1028	318	676	1032	2		
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9		
tC, 2 stage (s)														
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3		
p0 queue free %	100			100			100	100	100	100	100	99		
cM capacity (veh/h)	1121			951			288	213	684	308	210	979		
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1								
Volume Total	419	216	393	196	0	11								
Volume Left	0	0	0	0	0	0								
Volume Right	0	7	0	0	0	11								
cSH	1700	1700	1700	1700	1700	979								
Volume to Capacity	0.25	0.13	0.23	0.12	0.00	0.01								
Queue Length 95th (ft)	0	0	0	0	0	1								
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	8.7								
Lane LOS						A	A							
Approach Delay (s)	0.0			0.0			0.0	8.7						
Approach LOS						A	A							
Intersection Summary														
Average Delay			0.1											
Intersection Capacity Utilization			24.7%	ICU Level of Service				A						
Analysis Period (min)			15											

HCM Unsignalized Intersection Capacity Analysis

9008: Dummy D & Michigan Ave

Road Diet Capacity Analysis

Road Diet Mitigated 2038 OP Peak Hour

																		
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR						
Lane Configurations		 			 													
Traffic Volume (veh/h)	0	824	25	0	709	0	0	0	0	0	0	14						
Future Volume (Veh/h)	0	824	25	0	709	0	0	0	0	0	0	14						
Sign Control		Free			Free			Stop			Stop							
Grade		0%			0%			0%			0%							
Peak Hour Factor	0.94	0.94	0.94	0.92	0.92	0.92	0.94	0.94	0.94	0.92	0.92	0.92						
Hourly flow rate (vph)	0	877	27	0	771	0	0	0	0	0	0	15						
Pedestrians																		
Lane Width (ft)																		
Walking Speed (ft/s)																		
Percent Blockage																		
Right turn flare (veh)																		
Median type	None				None													
Median storage veh																		
Upstream signal (ft)	170				210													
pX, platoon unblocked	0.92			0.88			0.92	0.92	0.88	0.92	0.92	0.92						
vC, conflicting volume	771			904			1291	1662	452	1210	1675	386						
vC1, stage 1 conf vol																		
vC2, stage 2 conf vol																		
vCu, unblocked vol	580			609			747	1151	94	658	1166	161						
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9						
tC, 2 stage (s)																		
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3						
p0 queue free %	100			100			100	100	100	100	100	98						
cM capacity (veh/h)	918			852			273	181	831	322	178	790						
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1												
Volume Total	585	319	514	257	0	15												
Volume Left	0	0	0	0	0	0												
Volume Right	0	27	0	0	0	15												
cSH	1700	1700	1700	1700	1700	790												
Volume to Capacity	0.34	0.19	0.30	0.15	0.00	0.02												
Queue Length 95th (ft)	0	0	0	0	0	1												
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	9.6												
Lane LOS					A	A												
Approach Delay (s)	0.0		0.0		0.0	9.6												
Approach LOS					A	A												
Intersection Summary																		
Average Delay	0.1																	
Intersection Capacity Utilization	28.6%				ICU Level of Service				A									
Analysis Period (min)	15																	

HCM Unsignalized Intersection Capacity Analysis

9009: Dummy E & Michigan Ave

Road Diet Capacity Analysis

Road Diet Mitigated 2038 OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑				↑			↑
Traffic Volume (veh/h)	0	914	26	0	691	0	0	0	0	0	0	1
Future Volume (Veh/h)	0	914	26	0	691	0	0	0	0	0	0	1
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.94	0.94	0.94	0.91	0.91	0.91	0.94	0.94	0.94
Hourly flow rate (vph)	0	1004	29	0	735	0	0	0	0	0	0	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (ft)	190			189								
pX, platoon unblocked	0.84			0.87			0.90	0.90	0.87	0.90	0.90	0.84
vC, conflicting volume	735			1033			1387	1754	516	1237	1768	368
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	298			747			578	985	156	412	1001	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	100
cM capacity (veh/h)	1069			754			363	226	758	475	219	912
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	669	364	490	245	0	1						
Volume Left	0	0	0	0	0	0						
Volume Right	0	29	0	0	0	1						
cSH	1700	1700	1700	1700	1700	912						
Volume to Capacity	0.39	0.21	0.29	0.14	0.00	0.00						
Queue Length 95th (ft)	0	0	0	0	0	0						
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	9.0						
Lane LOS					A	A						
Approach Delay (s)	0.0		0.0		0.0	9.0						
Approach LOS					A	A						
Intersection Summary												
Average Delay	0.0											
Intersection Capacity Utilization	28.1%			ICU Level of Service					A			
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis

9011: Huron St (PB)/Huron St & Dummy G

Road Diet Capacity Analysis

Road Diet Mitigated 2038 OP Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	184	1053	0	0	0
Future Volume (Veh/h)	0	184	1053	0	0	0
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	200	1145	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)			975			776
pX, platoon unblocked	0.84	0.84			0.84	
vC, conflicting volume	1145	572			1145	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	805	127			805	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	74			100	
cM capacity (veh/h)	272	763			689	
Direction, Lane #	WB 1	NB 1	NB 2			
Volume Total	200	763	382			
Volume Left	0	0	0			
Volume Right	200	0	0			
cSH	763	1700	1700			
Volume to Capacity	0.26	0.45	0.22			
Queue Length 95th (ft)	26	0	0			
Control Delay (s)	11.4	0.0	0.0			
Lane LOS	B					
Approach Delay (s)	11.4	0.0				
Approach LOS	B					
Intersection Summary						
Average Delay		1.7				
Intersection Capacity Utilization		45.1%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

9012: Hamilton St & Dummy H

Road Diet Capacity Analysis

Road Diet Mitigated 2038 OP Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	0	1071	12
Future Volume (Veh/h)	0	0	0	0	1071	12
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.92	0.92	0.90	0.90
Hourly flow rate (vph)	0	0	0	0	1190	13
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)					1310	
pX, platoon unblocked	0.83	0.83	0.83			
vC, conflicting volume	1196	602	1203			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	838	125	846			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	256	755	656			
Direction, Lane #	EB 1	SB 1	SB 2			
Volume Total	0	793	410			
Volume Left	0	0	0			
Volume Right	0	0	13			
cSH	1700	1700	1700			
Volume to Capacity	0.00	0.47	0.24			
Queue Length 95th (ft)	0	0	0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	0.0	0.0				
Approach LOS	A					
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			31.8%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

9013: Dummy I & Harriet St

Road Diet Capacity Analysis

Road Diet Mitigated 2038 OP Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	236	3	0	511	6	0	0	0	0	0	0
Future Volume (Veh/h)	0	236	3	0	511	6	0	0	0	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.89	0.89	0.89	0.91	0.91	0.91	0.89	0.89	0.89	0.91	0.91	0.91
Hourly flow rate (vph)	0	265	3	0	562	7	0	0	0	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	TWLTL			TWLTL								
Median storage (veh)	2			2								
Upstream signal (ft)	425			440								
pX, platoon unblocked	0.94						0.94	0.94		0.94	0.94	0.94
vC, conflicting volume	569			268			548	836	134	698	834	284
vC1, stage 1 conf vol							266	266		566	566	
vC2, stage 2 conf vol							281	569		132	268	
vCu, unblocked vol	414			268			391	697	134	551	695	111
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	100
cM capacity (veh/h)	1087			1307			664	507	897	533	508	872
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	177	91	375	194	0	0						
Volume Left	0	0	0	0	0	0						
Volume Right	0	3	0	7	0	0						
cSH	1700	1700	1700	1700	1700	1700						
Volume to Capacity	0.10	0.05	0.22	0.11	0.00	0.00						
Queue Length 95th (ft)	0	0	0	0	0	0						
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0						
Lane LOS					A	A						
Approach Delay (s)	0.0		0.0		0.0	0.0						
Approach LOS					A	A						
Intersection Summary												
Average Delay				0.0								
Intersection Capacity Utilization				16.9%	ICU Level of Service				A			
Analysis Period (min)				15								

HCM Unsignalized Intersection Capacity Analysis

9014: Huron St & Dummy J

Road Diet Capacity Analysis

Road Diet Mitigated 2038 OP Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	1028	8	0	0
Future Volume (Veh/h)	0	0	1028	8	0	0
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.93	0.93	0.93	0.93	0.92	0.92
Hourly flow rate (vph)	0	0	1105	9	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)			446			859
pX, platoon unblocked	0.90	0.90			0.90	
vC, conflicting volume	1110	557			1114	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	908	297			913	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	250	635			671	
Direction, Lane #	WB 1	NB 1	NB 2			
Volume Total	0	737	377			
Volume Left	0	0	0			
Volume Right	0	0	9			
cSH	1700	1700	1700			
Volume to Capacity	0.00	0.43	0.22			
Queue Length 95th (ft)	0	0	0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	0.0	0.0				
Approach LOS	A					
Intersection Summary						
Average Delay		0.0				
Intersection Capacity Utilization		30.6%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

9015: Huron St (PB) & Dummy K

Road Diet Capacity Analysis

Road Diet Mitigated 2038 OP Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			
Traffic Volume (veh/h)	0	0	958	69	0	0
Future Volume (Veh/h)	0	0	958	69	0	0
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.92	0.92
Hourly flow rate (vph)	0	0	1064	77	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)			1000			305
pX, platoon unblocked	0.94	0.94			0.94	
vC, conflicting volume	1102	570			1141	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	971	402			1012	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	236	562			637	
Direction, Lane #	WB 1	NB 1	NB 2			
Volume Total	0	709	432			
Volume Left	0	0	0			
Volume Right	0	0	77			
cSH	1700	1700	1700			
Volume to Capacity	0.00	0.42	0.25			
Queue Length 95th (ft)	0	0	0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	0.0	0.0				
Approach LOS	A					
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			30.6%	ICU Level of Service		A
Analysis Period (min)			15			

Intersection Sign configuration not allowed in HCM analysis.

HCM Signalized Intersection Capacity Analysis

9034: I-94 WB On-Ramp & US-12 BR (Hamilton St)

Road Diet Capacity Analysis

Road Diet Mitigated 2038 OP Peak Hour



Movement	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations			↑↑	↑		
Traffic Volume (vph)	0	0	848	372	0	0
Future Volume (vph)	0	0	848	372	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000
Total Lost time (s)			9.2	9.2		
Lane Util. Factor			0.95	1.00		
Frt			1.00	0.85		
Flt Protected			1.00	1.00		
Satd. Flow (prot)			3689	1650		
Flt Permitted			1.00	1.00		
Satd. Flow (perm)			3689	1650		
Peak-hour factor, PHF	0.92	0.92	0.89	0.89	0.92	0.92
Adj. Flow (vph)	0	0	953	418	0	0
RTOR Reduction (vph)	0	0	0	210	0	0
Lane Group Flow (vph)	0	0	953	208	0	0
Heavy Vehicles (%)	2%	2%	3%	3%	2%	2%
Turn Type			NA	Perm		
Protected Phases			4			
Permitted Phases				4		
Actuated Green, G (s)			39.8	39.8		
Effective Green, g (s)			39.8	39.8		
Actuated g/C Ratio			0.50	0.50		
Clearance Time (s)			9.2	9.2		
Lane Grp Cap (vph)			1835	820		
v/s Ratio Prot			c0.26			
v/s Ratio Perm				0.13		
v/c Ratio			0.52	0.25		
Uniform Delay, d1			13.6	11.6		
Progression Factor			0.84	1.43		
Incremental Delay, d2			0.9	0.6		
Delay (s)			12.3	17.2		
Level of Service			B	B		
Approach Delay (s)		0.0	13.8		0.0	
Approach LOS		A	B		A	
Intersection Summary						
HCM 2000 Control Delay			13.8		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.35			
Actuated Cycle Length (s)			80.0		Sum of lost time (s)	21.4
Intersection Capacity Utilization			29.9%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

Intersection Sign configuration not allowed in HCM analysis.

HCM Unsignalized Intersection Capacity Analysis

9040: US-12 Br (Hamilton St)

Road Diet Capacity Analysis

Road Diet Mitigated 2038 OP Peak Hour

						
Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	0	1336	0	1069	0	0
Future Volume (Veh/h)	0	1336	0	1069	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.84	0.84	0.91	0.91	0.92	0.92
Hourly flow rate (vph)	0	1590	0	1175	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (ft)	444			926		
pX, platoon unblocked					0.83	
vC, conflicting volume			1590		588	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1590		110	0
tC, single (s)			4.2		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			404		731	1084
Direction, Lane #	NB 1	NB 2	SB 1	SB 2		
Volume Total	795	795	588	588		
Volume Left	0	0	0	0		
Volume Right	795	795	0	0		
cSH	1700	1700	1700	1700		
Volume to Capacity	0.47	0.47	0.35	0.35		
Queue Length 95th (ft)	0	0	0	0		
Control Delay (s)	0.0	0.0	0.0	0.0		
Lane LOS						
Approach Delay (s)	0.0		0.0			
Approach LOS						
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			47.7%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

9043: Huron/Whittaker/Huron St & I-94 EB On-Ramp

Road Diet Capacity Analysis

Road Diet Mitigated 2038 OP Peak Hour

						
Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	1075	249	0	1204	0	0
Future Volume (Veh/h)	1075	249	0	1204	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.91	0.91	0.92	0.92
Hourly flow rate (vph)	1222	283	0	1323	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (ft)				175		
pX, platoon unblocked					0.83	
vC, conflicting volume			1222		2025	752
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1222		1821	752
tC, single (s)			4.2		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			561		57	353
Direction, Lane #	NB 1	NB 2	SB 1	SB 2		
Volume Total	815	690	662	662		
Volume Left	0	0	0	0		
Volume Right	0	283	0	0		
cSH	1700	1700	1700	1700		
Volume to Capacity	0.48	0.41	0.39	0.39		
Queue Length 95th (ft)	0	0	0	0		
Control Delay (s)	0.0	0.0	0.0	0.0		
Lane LOS						
Approach Delay (s)	0.0		0.0			
Approach LOS						
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			39.1%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

9100: Huron St/US-12 Br (Huron St) & Dummy M

Road Diet Capacity Analysis

Road Diet Mitigated 2038 OP Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	111	1232	0	0	0
Future Volume (Veh/h)	0	111	1232	0	0	0
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.94	0.94	0.94	0.94	0.92	0.92
Hourly flow rate (vph)	0	118	1311	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)			530			579
pX, platoon unblocked	0.90	0.90			0.90	
vC, conflicting volume	1311	437			1311	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	965	0			965	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	88			100	
cM capacity (veh/h)	229	981			640	
Direction, Lane #	WB 1	NB 1	NB 2	NB 3		
Volume Total	118	524	524	262		
Volume Left	0	0	0	0		
Volume Right	118	0	0	0		
cSH	981	1700	1700	1700		
Volume to Capacity	0.12	0.31	0.31	0.15		
Queue Length 95th (ft)	10	0	0	0		
Control Delay (s)	9.2	0.0	0.0	0.0		
Lane LOS	A					
Approach Delay (s)	9.2	0.0				
Approach LOS	A					
Intersection Summary						
Average Delay			0.8			
Intersection Capacity Utilization			35.8%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

9101: Hamilton St/US-12 BR (Hamilton St) & Dummy L

Road Diet Capacity Analysis

Road Diet Mitigated 2038 OP Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	0	1220	132
Future Volume (Veh/h)	0	0	0	0	1220	132
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	1326	143
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				396	515	
pX, platoon unblocked	0.77	0.77	0.77			
vC, conflicting volume	1398	734	1469			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	932	77	1024			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	206	751	522			
Direction, Lane #	EB 1	SB 1	SB 2			
Volume Total	0	884	585			
Volume Left	0	0	0			
Volume Right	0	0	143			
cSH	1700	1700	1700			
Volume to Capacity	0.00	0.52	0.34			
Queue Length 95th (ft)	0	0	0			
Control Delay (s)	0.0	0.0	0.0			
Lane LOS	A					
Approach Delay (s)	0.0	0.0				
Approach LOS	A					
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			39.4%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

1002: Summit & Washtenaw Ave

Road Diet Capacity Analysis

Future Mitigated 2038 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	1928	94	0	0	0	0	71	28	41	44	0
Future Volume (vph)	9	1928	94	0	0	0	0	71	28	41	44	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.4						10.8			10.8	
Lane Util. Factor		0.91						1.00			1.00	
Frpb, ped/bikes		1.00						0.99			1.00	
Flpb, ped/bikes		1.00						1.00			0.99	
Frt		0.99						0.96			1.00	
Flt Protected		1.00						1.00			0.98	
Satd. Flow (prot)		5413						1614			1925	
Flt Permitted		1.00						1.00			0.79	
Satd. Flow (perm)		5413						1614			1551	
Peak-hour factor, PHF	0.88	0.88	0.88	0.92	0.92	0.92	0.82	0.82	0.82	0.67	0.67	0.67
Adj. Flow (vph)	10	2191	107	0	0	0	0	87	34	61	66	0
RTOR Reduction (vph)	0	7	0	0	0	0	0	5	0	0	0	0
Lane Group Flow (vph)	0	2301	0	0	0	0	0	116	0	0	127	0
Confl. Peds. (#/hr)	4		5						24	24		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)								10				
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		1						2			2	
Permitted Phases	1									2		
Actuated Green, G (s)		46.6						17.2			17.2	
Effective Green, g (s)		46.6						17.2			17.2	
Actuated g/C Ratio		0.58						0.21			0.21	
Clearance Time (s)		5.4						10.8			10.8	
Lane Grp Cap (vph)		3153						347			333	
v/s Ratio Prot								0.07				
v/s Ratio Perm		0.43									c0.08	
v/c Ratio		0.73						0.34			0.38	
Uniform Delay, d1		12.1						26.6			26.9	
Progression Factor		1.00						1.00			1.30	
Incremental Delay, d2		1.5						2.6			3.3	
Delay (s)		13.7						29.2			38.1	
Level of Service		B						C			D	
Approach Delay (s)		13.7			0.0			29.2			38.1	
Approach LOS		B			A			C			D	
Intersection Summary												
HCM 2000 Control Delay		15.6						HCM 2000 Level of Service		B		
HCM 2000 Volume to Capacity ratio		0.64										
Actuated Cycle Length (s)		80.0						Sum of lost time (s)		16.2		
Intersection Capacity Utilization		64.8%						ICU Level of Service		C		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1004: Ballard St (PB) & Washtenaw Ave

Road Diet Capacity Analysis

Future Mitigated 2038 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	1545	32	0	0	0	0	59	16	18	44	0
Future Volume (vph)	35	1545	32	0	0	0	0	59	16	18	44	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.3						5.7		5.7	5.7	
Lane Util. Factor		0.95						1.00		1.00	1.00	
Frpb, ped/bikes		1.00						1.00		1.00	1.00	
Flpb, ped/bikes		1.00						1.00		0.99	1.00	
Frt		1.00						0.97		1.00	1.00	
Flt Protected		1.00						1.00		0.95	1.00	
Satd. Flow (prot)		3782						1936		1889	2000	
Flt Permitted		1.00						1.00		0.70	1.00	
Satd. Flow (perm)		3782						1936		1394	2000	
Peak-hour factor, PHF	0.94	0.94	0.94	0.92	0.92	0.92	0.87	0.87	0.87	0.72	0.72	0.72
Adj. Flow (vph)	37	1644	34	0	0	0	0	68	18	25	61	0
RTOR Reduction (vph)	0	1	0	0	0	0	0	14	0	0	0	0
Lane Group Flow (vph)	0	1714	0	0	0	0	0	72	0	25	61	0
Confl. Peds. (#/hr)	7		6						8	8		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	custom	NA						NA		Perm	NA	
Protected Phases	1	1						2			2	
Permitted Phases	1									2		
Actuated Green, G (s)		61.2						7.8		7.8	7.8	
Effective Green, g (s)		61.2						7.8		7.8	7.8	
Actuated g/C Ratio		0.77						0.10		0.10	0.10	
Clearance Time (s)		5.3						5.7		5.7	5.7	
Vehicle Extension (s)		0.2						3.0		3.0	3.0	
Lane Grp Cap (vph)		2893						188		135	195	
v/s Ratio Prot		c0.45						c0.04			0.03	
v/s Ratio Perm										0.02		
v/c Ratio		0.59						0.39		0.19	0.31	
Uniform Delay, d1		4.0						33.9		33.2	33.6	
Progression Factor		0.24						1.00		1.00	1.00	
Incremental Delay, d2		0.6						1.3		0.7	0.9	
Delay (s)		1.6						35.2		33.8	34.5	
Level of Service		A						D		C	C	
Approach Delay (s)		1.6			0.0			35.2			34.3	
Approach LOS		A			A			D			C	
Intersection Summary												
HCM 2000 Control Delay		4.6						HCM 2000 Level of Service		A		
HCM 2000 Volume to Capacity ratio		0.57										
Actuated Cycle Length (s)		80.0						Sum of lost time (s)		11.0		
Intersection Capacity Utilization		61.8%						ICU Level of Service		B		
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1013: Hamilton St (PB) & Michigan Ave

Road Diet Capacity Analysis

Future Mitigated 2038 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	525	149	320	591	0	0	0	0	584	1316	43
Future Volume (vph)	0	525	149	320	591	0	0	0	0	584	1316	43
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.2		5.2	5.2					6.8	6.8	
Lane Util. Factor		0.95		1.00	0.95					1.00	0.95	
Frpb, ped/bikes		0.99		1.00	1.00					1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00					1.00	1.00	
Frt		0.97		1.00	1.00					1.00	1.00	
Flt Protected		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (prot)		3653		1899	3515					1900	3779	
Flt Permitted		1.00		0.19	1.00					0.95	1.00	
Satd. Flow (perm)		3653		374	3515					1900	3779	
Peak-hour factor, PHF	0.91	0.91	0.91	0.94	0.94	0.94	0.92	0.92	0.92	0.90	0.90	0.90
Adj. Flow (vph)	0	577	164	340	629	0	0	0	0	649	1462	48
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	741	0	340	629	0	0	0	0	649	1507	0
Confl. Peds. (#/hr)			12	12						10		9
Confl. Bikes (#/hr)			1									1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)				10								
Turn Type		NA		pm+pt	NA					custom		NA
Protected Phases		1		2	1 2					3		3
Permitted Phases				1 2						3		
Actuated Green, G (s)		21.4		31.2	36.4					31.6		31.6
Effective Green, g (s)		21.4		31.2	36.4					31.6		31.6
Actuated g/C Ratio		0.27		0.39	0.45					0.40		0.40
Clearance Time (s)		5.2		5.2						6.8		6.8
Vehicle Extension (s)		3.0		3.0						0.2		0.2
Lane Grp Cap (vph)		977		332	1599					750		1492
v/s Ratio Prot		0.20		c0.13	0.18					0.34		c0.40
v/s Ratio Perm				c0.27								
v/c Ratio		0.76		1.02	0.39					0.87		1.01
Uniform Delay, d1		26.9		29.1	14.5					22.2		24.2
Progression Factor		1.00		0.78	0.69					1.00		1.00
Incremental Delay, d2		3.4		54.3	0.2					12.7		25.8
Delay (s)		30.3		76.9	10.1					35.0		50.0
Level of Service		C		E	B					C		D
Approach Delay (s)		30.3			33.5			0.0				45.5
Approach LOS		C			C			A				D
Intersection Summary												
HCM 2000 Control Delay			39.6			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			1.02									
Actuated Cycle Length (s)			80.0			Sum of lost time (s)				17.2		
Intersection Capacity Utilization			85.6%			ICU Level of Service				E		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1016: Huron St (PB) & Cross St (PB)/Cross St

Road Diet Capacity Analysis

Future Mitigated 2038 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑	↑		↑↑				
Traffic Volume (vph)	0	0	0	0	285	18	0	436	409	0	0	0
Future Volume (vph)	0	0	0	0	285	18	0	436	409	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)					5.5	5.5		5.6				
Lane Util. Factor					1.00	1.00		0.95				
Frpb, ped/bikes					1.00	1.00		0.99				
Flpb, ped/bikes					1.00	1.00		1.00				
Frt					1.00	0.85		0.93				
Flt Protected					1.00	1.00		1.00				
Satd. Flow (prot)					2000	1700		3484				
Flt Permitted					1.00	1.00		1.00				
Satd. Flow (perm)					2000	1700		3484				
Peak-hour factor, PHF	0.92	0.92	0.92	0.87	0.87	0.87	0.95	0.95	0.95	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	328	21	0	459	431	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	11	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	328	10	0	890	0	0	0	0
Confl. Peds. (#/hr)						19			3			
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type					NA	custom		NA				
Protected Phases					2	2		8				
Permitted Phases						2						
Actuated Green, G (s)					36.5	36.5		32.4				
Effective Green, g (s)					36.5	36.5		32.4				
Actuated g/C Ratio					0.46	0.46		0.40				
Clearance Time (s)					5.5	5.5		5.6				
Lane Grp Cap (vph)					912	775		1411				
v/s Ratio Prot					c0.16	0.01		c0.26				
v/s Ratio Perm												
v/c Ratio					0.36	0.01		0.63				
Uniform Delay, d1					14.1	11.9		19.0				
Progression Factor					1.00	1.00		1.27				
Incremental Delay, d2					1.1	0.0		1.5				
Delay (s)					15.3	11.9		25.8				
Level of Service					B	B		C				
Approach Delay (s)		0.0			15.1			25.8			0.0	
Approach LOS		A			B			C			A	
Intersection Summary												
HCM 2000 Control Delay			22.7				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.49									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)			11.1		
Intersection Capacity Utilization			55.4%				ICU Level of Service			B		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

1023: Huron St (PB) & Michigan Ave

Road Diet Capacity Analysis

Future Mitigated 2038 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	172	1120	0	0	750	416	141	837	213	0	0	0
Future Volume (vph)	172	1120	0	0	750	416	141	837	213	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	5.0	5.0			5.0	5.0	5.6	5.6				
Lane Util. Factor	1.00	0.95			0.91	0.91	1.00	0.95				
Frpb, ped/bikes	1.00	1.00			1.00	0.94	1.00	1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00	0.98	1.00				
Frt	1.00	1.00			0.99	0.85	1.00	0.97				
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00				
Satd. Flow (prot)	1898	3515			3310	1241	1867	3666				
Flt Permitted	0.17	1.00			1.00	1.00	0.95	1.00				
Satd. Flow (perm)	337	3515			3310	1241	1867	3666				
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	183	1191	0	0	798	443	153	910	232	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	183	1191	0	0	869	372	153	1142	0	0	0	0
Confl. Peds. (#/hr)	37					37	19		13			
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)		10			10	10						
Turn Type	pm+pt	NA			NA	Perm	Perm	NA				
Protected Phases	2	1 2			1			3				
Permitted Phases	1 2					1	3					
Actuated Green, G (s)	38.0	43.0			29.0	29.0	26.4	26.4				
Effective Green, g (s)	38.0	43.0			29.0	29.0	26.4	26.4				
Actuated g/C Ratio	0.48	0.54			0.36	0.36	0.33	0.33				
Clearance Time (s)	5.0				5.0	5.0	5.6	5.6				
Lane Grp Cap (vph)	335	1889			1199	449	616	1209				
v/s Ratio Prot	0.06	c0.34			0.26			c0.31				
v/s Ratio Perm	0.20					c0.30	0.08					
v/c Ratio	0.55	0.63			0.72	0.83	0.25	0.94				
Uniform Delay, d1	24.9	12.9			22.0	23.2	19.6	26.1				
Progression Factor	0.98	0.92			1.00	1.00	0.81	0.72				
Incremental Delay, d2	5.2	1.3			3.8	16.0	0.9	15.3				
Delay (s)	29.6	13.3			25.9	39.3	16.8	34.0				
Level of Service	C	B			C	D	B	C				
Approach Delay (s)		15.4			29.9			32.0			0.0	
Approach LOS		B			C			C			A	
Intersection Summary												
HCM 2000 Control Delay			25.5									
HCM 2000 Volume to Capacity ratio			0.87									
Actuated Cycle Length (s)			80.0									
Intersection Capacity Utilization			75.2%									
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2000: Michigan Ave & Congress St & Ballard St

Road Diet Capacity Analysis

Future Mitigated 2038 PM Peak Hour

											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	SBR2	NEL	NER
Lane Configurations											
Traffic Volume (vph)	20	129	0	651	282	43	37	26	12	0	650
Future Volume (vph)	20	129	0	651	282	43	37	26	12	0	650
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.9		6.1	6.1		6.3	6.3			6.1
Lane Util. Factor		1.00		0.95	0.95		1.00	1.00			0.88
Frpb, ped/bikes		1.00		1.00	0.99		1.00	1.00			1.00
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00			1.00
Frt		1.00		1.00	0.99		1.00	0.85			0.85
Flt Protected		0.99		0.95	0.98		0.95	1.00			1.00
Satd. Flow (prot)		1987		1805	1555		1900	1700			2962
Flt Permitted		0.99		0.95	0.98		0.95	1.00			1.00
Satd. Flow (perm)		1987		1805	1555		1900	1700			2962
Peak-hour factor, PHF	0.81	0.81	0.81	0.93	0.93	0.93	0.60	0.60	0.60	0.95	0.95
Adj. Flow (vph)	25	159	0	700	303	46	62	43	20	0	684
RTOR Reduction (vph)	0	0	0	0	2	0	0	53	0	0	332
Lane Group Flow (vph)	0	184	0	518	529	0	62	11	0	0	352
Confl. Peds. (#/hr)	16		5	5		16	1		3		1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%
Parking (#/hr)					10						
Turn Type	Split	NA		Split	NA		Prot	Prot			Over
Protected Phases	3	3		1	1		2	2			1
Permitted Phases											
Actuated Green, G (s)		20.0		61.7	61.7		20.0	20.0			61.7
Effective Green, g (s)		20.0		61.7	61.7		20.0	20.0			61.7
Actuated g/C Ratio		0.17		0.51	0.51		0.17	0.17			0.51
Clearance Time (s)		5.9		6.1	6.1		6.3	6.3			6.1
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0			3.0
Lane Grp Cap (vph)		331		928	799		316	283			1522
v/s Ratio Prot		c0.09		0.29	c0.34		c0.03	0.01			0.12
v/s Ratio Perm											
v/c Ratio		0.56		0.56	0.66		0.20	0.04			0.23
Uniform Delay, d1		45.9		19.9	21.5		43.1	41.9			16.1
Progression Factor		1.00		1.00	1.00		1.00	1.00			1.00
Incremental Delay, d2		2.0		2.4	4.3		0.3	0.1			0.4
Delay (s)		47.9		22.3	25.7		43.4	42.0			16.4
Level of Service		D		C	C		D	D			B
Approach Delay (s)		47.9			24.0		42.7			16.4	
Approach LOS		D			C		D			B	
Intersection Summary											
HCM 2000 Control Delay			24.8			HCM 2000 Level of Service				C	
HCM 2000 Volume to Capacity ratio			0.55								
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			18.3		
Intersection Capacity Utilization			90.7%			ICU Level of Service			E		
Analysis Period (min)			15								
c Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

2004: Adams St (PB) & Michigan Ave

Road Diet Capacity Analysis

Future Mitigated 2038 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1176	10	0	817	33	20	37	41	59	32	44
Future Volume (vph)	0	1176	10	0	817	33	20	37	41	59	32	44
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.1			5.1		6.0	6.0		6.0	6.0	
Lane Util. Factor		0.95			0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			1.00		1.00	0.97		1.00	0.99	
Flpb, ped/bikes		1.00			1.00		0.99	1.00		0.96	1.00	
Frt		1.00			0.99		1.00	0.92		1.00	0.91	
Flt Protected		1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3509			3452		1878	1520		1829	1531	
Flt Permitted		1.00			1.00		0.69	1.00		0.69	1.00	
Satd. Flow (perm)		3509			3452		1370	1520		1321	1531	
Peak-hour factor, PHF	0.95	0.95	0.95	0.91	0.91	0.91	0.71	0.71	0.71	0.77	0.77	0.77
Adj. Flow (vph)	0	1238	11	0	898	36	28	52	58	77	42	57
RTOR Reduction (vph)	0	1	0	0	3	0	0	48	0	0	47	0
Lane Group Flow (vph)	0	1248	0	0	931	0	28	62	0	77	52	0
Confl. Peds. (#/hr)	20		14	14		20	13		42	42		13
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	0%	0%	0%	0%	0%	0%
Parking (#/hr)		10			10			10			10	
Turn Type		NA			NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)		54.9			54.9		14.0	14.0		14.0	14.0	
Effective Green, g (s)		54.9			54.9		14.0	14.0		14.0	14.0	
Actuated g/C Ratio		0.69			0.69		0.18	0.18		0.18	0.18	
Clearance Time (s)		5.1			5.1		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)		2408			2368		239	266		231	267	
v/s Ratio Prot		c0.36			0.27			0.04			0.03	
v/s Ratio Perm							0.02			c0.06		
v/c Ratio		0.52			0.39		0.12	0.23		0.33	0.19	
Uniform Delay, d1		6.1			5.4		27.8	28.4		28.9	28.2	
Progression Factor		0.77			0.95		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.5			0.5		1.0	2.1		3.8	1.6	
Delay (s)		5.2			5.6		28.8	30.4		32.8	29.8	
Level of Service		A			A		C	C		C	C	
Approach Delay (s)		5.2			5.6			30.1			31.1	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM 2000 Control Delay		8.5			HCM 2000 Level of Service			A				
HCM 2000 Volume to Capacity ratio		0.48										
Actuated Cycle Length (s)		80.0			Sum of lost time (s)			11.1				
Intersection Capacity Utilization		59.6%			ICU Level of Service			B				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2005: Washington St (PB) & Michigan Ave

Road Diet Capacity Analysis

Future Mitigated 2038 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1191	56	0	862	31	17	40	39	93	32	43
Future Volume (vph)	0	1191	56	0	862	31	17	40	39	93	32	43
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.0			5.0			6.0			6.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			0.98			0.98	
Flpb, ped/bikes		1.00			1.00			0.99			0.99	
Frt		0.99			0.99			0.95			0.97	
Flt Protected		1.00			1.00			0.99			0.97	
Satd. Flow (prot)		3478			3485			1549			1808	
Flt Permitted		1.00			1.00			0.91			0.74	
Satd. Flow (perm)		3478			3485			1427			1384	
Peak-hour factor, PHF	0.93	0.93	0.93	0.95	0.95	0.95	0.68	0.68	0.68	0.87	0.87	0.87
Adj. Flow (vph)	0	1281	60	0	907	33	25	59	57	107	37	49
RTOR Reduction (vph)	0	4	0	0	3	0	0	31	0	0	16	0
Lane Group Flow (vph)	0	1337	0	0	937	0	0	110	0	0	177	0
Confl. Peds. (#/hr)	35		31	31		35	76		28	28		76
Confl. Bikes (#/hr)			1			1						1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)		10			10			10				
Turn Type		NA			NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)		55.0			55.0			14.0			14.0	
Effective Green, g (s)		55.0			55.0			14.0			14.0	
Actuated g/C Ratio		0.69			0.69			0.18			0.18	
Clearance Time (s)		5.0			5.0			6.0			6.0	
Lane Grp Cap (vph)		2391			2395			249			242	
v/s Ratio Prot		c0.38			0.27							
v/s Ratio Perm								0.08			c0.13	
v/c Ratio		0.56			0.39			0.44			0.73	
Uniform Delay, d1		6.3			5.3			29.5			31.2	
Progression Factor		0.68			0.09			1.00			1.00	
Incremental Delay, d2		0.8			0.4			5.6			17.8	
Delay (s)		5.1			0.9			35.2			49.0	
Level of Service		A			A			D			D	
Approach Delay (s)		5.1			0.9			35.2			49.0	
Approach LOS		A			A			D			D	
Intersection Summary												
HCM 2000 Control Delay			8.5				HCM 2000 Level of Service			A		
HCM 2000 Volume to Capacity ratio			0.59									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)			11.0		
Intersection Capacity Utilization			59.8%				ICU Level of Service			B		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3001: Huron St & Harriet St/Spring St

Road Diet Capacity Analysis

Future Mitigated 2038 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 				
Traffic Volume (vph)	35	337	0	0	498	39	211	1055	384	0	0	0
Future Volume (vph)	35	337	0	0	498	39	211	1055	384	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	6.6	6.6			6.6			6.1	6.1			
Lane Util. Factor	1.00	0.95			0.95			0.95	1.00			
Frpb, ped/bikes	1.00	1.00			1.00			1.00	1.00			
Flpb, ped/bikes	1.00	1.00			1.00			1.00	1.00			
Frt	1.00	1.00			0.99			1.00	0.85			
Flt Protected	0.95	1.00			1.00			0.99	1.00			
Satd. Flow (prot)	1898	3800			3755			3767	1700			
Flt Permitted	0.34	1.00			1.00			0.99	1.00			
Satd. Flow (perm)	674	3800			3755			3767	1700			
Peak-hour factor, PHF	0.83	0.83	0.83	0.86	0.86	0.86	0.95	0.95	0.95	0.92	0.92	0.92
Adj. Flow (vph)	42	406	0	0	579	45	222	1111	404	0	0	0
RTOR Reduction (vph)	0	0	0	0	7	0	0	0	116	0	0	0
Lane Group Flow (vph)	42	406	0	0	617	0	0	1333	288	0	0	0
Confl. Peds. (#/hr)	2					2	3					
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA	Perm			
Protected Phases		4			8			2				
Permitted Phases	4						2		2			
Actuated Green, G (s)	27.4	27.4			27.4			39.9	39.9			
Effective Green, g (s)	27.4	27.4			27.4			39.9	39.9			
Actuated g/C Ratio	0.34	0.34			0.34			0.50	0.50			
Clearance Time (s)	6.6	6.6			6.6			6.1	6.1			
Lane Grp Cap (vph)	230	1301			1286			1878	847			
v/s Ratio Prot		0.11			0.16							
v/s Ratio Perm	0.06							0.35	0.17			
v/c Ratio	0.18	0.31			0.48			0.71	0.34			
Uniform Delay, d1	18.4	19.4			20.7			15.6	12.1			
Progression Factor	1.43	1.45			1.00			1.04	1.40			
Incremental Delay, d2	1.7	0.6			1.3			2.0	0.9			
Delay (s)	28.1	28.6			22.0			18.2	17.9			
Level of Service	C	C			C			B	B			
Approach Delay (s)		28.6			22.0			18.1			0.0	
Approach LOS		C			C			B			A	
Intersection Summary												
HCM 2000 Control Delay			20.6				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.62									
Actuated Cycle Length (s)			80.0				Sum of lost time (s)			12.7		
Intersection Capacity Utilization			71.7%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3003: Hamilton St & Harriet St (PB)

Road Diet Capacity Analysis

Future Mitigated 2038 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↔	↑↑					↔	↑↑	
Traffic Volume (vph)	0	245	176	407	326	0	0	0	0	174	1614	43
Future Volume (vph)	0	245	176	407	326	0	0	0	0	174	1614	43
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.8		5.8	5.8					5.6	5.6	
Lane Util. Factor		0.95		1.00	0.95					1.00	0.95	
Frpb, ped/bikes		0.99		1.00	1.00					1.00	1.00	
Flpb, ped/bikes		1.00		1.00	1.00					1.00	1.00	
Frt		0.94		1.00	1.00					1.00	1.00	
Flt Protected		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (prot)		3520		1895	3800					1898	3783	
Flt Permitted		1.00		0.36	1.00					0.95	1.00	
Satd. Flow (perm)		3520		723	3800					1898	3783	
Peak-hour factor, PHF	0.89	0.89	0.89	0.82	0.82	0.82	0.92	0.92	0.92	0.95	0.95	0.95
Adj. Flow (vph)	0	275	198	496	398	0	0	0	0	183	1699	45
RTOR Reduction (vph)	0	10	0	0	0	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	463	0	496	398	0	0	0	0	183	1742	0
Confl. Peds. (#/hr)			14	14						1		2
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type		NA		D.P+P	NA					Perm	NA	
Protected Phases		4		3	8 3						2	
Permitted Phases				4						2		
Actuated Green, G (s)		17.3		26.5	32.3					36.3	36.3	
Effective Green, g (s)		17.3		26.5	32.3					36.3	36.3	
Actuated g/C Ratio		0.22		0.33	0.40					0.45	0.45	
Clearance Time (s)		5.8		5.8						5.6	5.6	
Vehicle Extension (s)		4.0		4.0						0.2	0.2	
Lane Grp Cap (vph)		761		374	1534					861	1716	
v/s Ratio Prot		0.13		c0.15	0.10						c0.46	
v/s Ratio Perm				c0.29						0.10		
v/c Ratio		0.61		1.33	0.26					0.21	1.02	
Uniform Delay, d1		28.3		27.8	15.9					13.2	21.9	
Progression Factor		1.00		0.66	0.56					0.47	0.48	
Incremental Delay, d2		1.6		162.5	0.1					0.3	19.6	
Delay (s)		29.9		180.9	9.0					6.5	30.1	
Level of Service		C		F	A					A	C	
Approach Delay (s)		29.9			104.4			0.0			27.9	
Approach LOS		C			F			A			C	
Intersection Summary												
HCM 2000 Control Delay			48.9			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			1.15									
Actuated Cycle Length (s)			80.0			Sum of lost time (s)				17.2		
Intersection Capacity Utilization			93.7%			ICU Level of Service				F		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

3004: Huron St & Catherine St (PB)

Road Diet Capacity Analysis

Future Mitigated 2038 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	29	0	0	9	44	5	1094	7	0	0	0
Future Volume (vph)	16	29	0	0	9	44	5	1094	7	0	0	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.3			5.3			5.3				
Lane Util. Factor		1.00			1.00			0.95				
Frpb, ped/bikes		1.00			0.99			1.00				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.89			1.00				
Flt Protected		0.98			1.00			1.00				
Satd. Flow (prot)		1964			1755			3757				
Flt Permitted		0.85			1.00			1.00				
Satd. Flow (perm)		1705			1755			3757				
Peak-hour factor, PHF	0.77	0.77	0.77	0.73	0.73	0.73	0.89	0.89	0.89	0.92	0.92	0.92
Adj. Flow (vph)	21	38	0	0	12	60	6	1229	8	0	0	0
RTOR Reduction (vph)	0	0	0	0	54	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	59	0	0	18	0	0	1243	0	0	0	0
Confl. Peds. (#/hr)	1					1	1		5			
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		2			2			1				
Permitted Phases	2						1					
Actuated Green, G (s)		8.0			8.0			61.4				
Effective Green, g (s)		8.0			8.0			61.4				
Actuated g/C Ratio		0.10			0.10			0.77				
Clearance Time (s)		5.3			5.3			5.3				
Vehicle Extension (s)		3.0			3.0			0.2				
Lane Grp Cap (vph)		170			175			2883				
v/s Ratio Prot					0.01							
v/s Ratio Perm		0.03						0.33				
v/c Ratio		0.35			0.10			0.43				
Uniform Delay, d1		33.6			32.7			3.2				
Progression Factor		1.00			1.00			0.22				
Incremental Delay, d2		1.2			0.3			0.4				
Delay (s)		34.8			33.0			1.1				
Level of Service		C			C			A				
Approach Delay (s)		34.8			33.0			1.1			0.0	
Approach LOS		C			C			A			A	
Intersection Summary												
HCM 2000 Control Delay		4.2			HCM 2000 Level of Service			A				
HCM 2000 Volume to Capacity ratio		0.42										
Actuated Cycle Length (s)		80.0			Sum of lost time (s)			10.6				
Intersection Capacity Utilization		46.9%			ICU Level of Service			A				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

9000: Hamilton St & Washtenaw Ave

Road Diet Capacity Analysis

Future Mitigated 2038 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	0	385	1195	0	0	0	0	0	0	34	722	0
Future Volume (vph)	0	385	1195	0	0	0	0	0	0	34	722	0
Peak Hour Factor	0.95	0.95	0.95	0.92	0.92	0.92	0.92	0.92	0.92	0.85	0.85	0.85
Hourly flow rate (vph)	0	405	1258	0	0	0	0	0	0	40	849	0
Direction, Lane #	EB 1	EB 2	EB 3	SB 1	SB 2							
Volume Total (vph)	203	203	1258	323	566							
Volume Left (vph)	0	0	0	40	0							
Volume Right (vph)	0	0	1258	0	0							
Hadj (s)	0.00	0.00	-0.70	0.06	0.00							
Departure Headway (s)	6.7	6.7	3.2	5.8	5.8							
Degree Utilization, x	0.38	0.38	1.12	0.52	0.91							
Capacity (veh/h)	524	524	1133	607	619							
Control Delay (s)	12.4	12.4	79.7	13.8	39.2							
Approach Delay (s)	63.4			30.0								
Approach LOS	F			D								
Intersection Summary												
Delay			51.7									
Level of Service			F									
Intersection Capacity Utilization			97.1%	ICU Level of Service	F							
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

9001: Hamilton St (PB)/Hamilton St & Pearl St

Road Diet Capacity Analysis

Future Mitigated 2038 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	28	56	61	0	0	0	0	0	1936	14
Future Volume (Veh/h)	0	0	28	56	61	0	0	0	0	0	1936	14
Sign Control	Stop				Stop				Free		Free	
Grade	0%				0%				0%		0%	
Peak Hour Factor	0.65	0.65	0.65	0.79	0.79	0.79	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	43	71	77	0	0	0	0	0	2104	15
Pedestrians	6								3			
Lane Width (ft)	12.0								0.0			
Walking Speed (ft/s)	4.0								4.0			
Percent Blockage	1								0			
Right turn flare (veh)												
Median type							None			None		
Median storage (veh)												
Upstream signal (ft)							435					
pX, platoon unblocked												
vC, conflicting volume	2148	2110	1061	1098	2125	0	2125			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2148	2110	1061	1098	2125	0	2125			0		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	100	81	48	0	100	100			100		
cM capacity (veh/h)	0	51	222	136	50	1091	259			1636		
Direction, Lane #	EB 1	WB 1	WB 2	SB 1	SB 2	SB 3						
Volume Total	43	47	101	1052	1052	15						
Volume Left	0	47	24	0	0	0						
Volume Right	43	0	0	0	0	15						
cSH	222	136	59	1700	1700	1700						
Volume to Capacity	0.19	0.35	1.70	0.62	0.62	0.01						
Queue Length 95th (ft)	17	35	232	0	0	0						
Control Delay (s)	25.1	44.8	491.9	0.0	0.0	0.0						
Lane LOS	D	E	F									
Approach Delay (s)	25.1	348.9	0.0									
Approach LOS	D	F										
Intersection Summary												
Average Delay	22.8											
Intersection Capacity Utilization	68.5%			ICU Level of Service					C			
Analysis Period (min)	15											

HCM Unsignalized Intersection Capacity Analysis

9002: Hamilton St/Hamilton St (PB) & Ferris St

Road Diet Capacity Analysis

Future Mitigated 2038 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											 	
Traffic Volume (veh/h)	0	25	32	54	28	0	0	0	0	117	1560	21
Future Volume (Veh/h)	0	25	32	54	28	0	0	0	0	117	1560	21
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.69	0.69	0.69	0.76	0.76	0.76	0.92	0.92	0.92	0.93	0.93	0.93
Hourly flow rate (vph)	0	36	46	71	37	0	0	0	0	126	1677	23
Pedestrians		4			3			7				
Lane Width (ft)		12.0			12.0			0.0				
Walking Speed (ft/s)		4.0			4.0			4.0				
Percent Blockage		0			0			0				
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)											450	
pX, platoon unblocked	0.62	0.62	0.62	0.62	0.62		0.62					
vC, conflicting volume	1963	1948	861	1164	1959	3	1704			3		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1314	1289	0	16	1308	3	893			3		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	61	93	81	59	100	100			92		
cM capacity (veh/h)	46	93	669	377	91	1083	471			1628		
Direction, Lane #	EB 1	WB 1	SB 1	SB 2								
Volume Total	82	108	964	862								
Volume Left	0	71	126	0								
Volume Right	46	0	0	23								
cSH	180	181	1628	1700								
Volume to Capacity	0.46	0.60	0.08	0.51								
Queue Length 95th (ft)	53	82	6	0								
Control Delay (s)	40.7	50.5	1.9	0.0								
Lane LOS	E	F	A									
Approach Delay (s)	40.7	50.5	1.0									
Approach LOS	E	F										
Intersection Summary												
Average Delay			5.3									
Intersection Capacity Utilization			62.4%		ICU Level of Service					B		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

9003: Huron St/Huron St (PB) & Ferris St

Road Diet Capacity Analysis

Future Mitigated 2038 PM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				 		
Traffic Volume (veh/h)	36	0	27	1439	0	0
Future Volume (Veh/h)	36	0	27	1439	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.60	0.60	0.95	0.95	0.92	0.92
Hourly flow rate (vph)	60	0	28	1515	0	0
Pedestrians	8				1	
Lane Width (ft)	12.0				0.0	
Walking Speed (ft/s)	4.0				4.0	
Percent Blockage	1				0	
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (ft)				857	448	
pX, platoon unblocked	0.89					
vC, conflicting volume	822	8	8			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	551	8	8			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	85	100	98			
cM capacity (veh/h)	407	1071	1615			
Direction, Lane #	EB 1	NB 1	NB 2			
Volume Total	60	533	1010			
Volume Left	60	28	0			
Volume Right	0	0	0			
cSH	407	1615	1700			
Volume to Capacity	0.15	0.02	0.59			
Queue Length 95th (ft)	13	1	0			
Control Delay (s)	15.4	0.6	0.0			
Lane LOS	C	A				
Approach Delay (s)	15.4	0.2				
Approach LOS	C					
Intersection Summary						
Average Delay			0.8			
Intersection Capacity Utilization		48.5%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

9004: Huron St (PB)/Huron St & Pearl St

Road Diet Capacity Analysis

Future Mitigated 2038 PM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				 		
Traffic Volume (veh/h)	0	0	157	1240	0	0
Future Volume (Veh/h)	0	0	157	1240	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.88	0.88	0.92	0.92
Hourly flow rate (vph)	0	0	178	1409	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (ft)				430		
pX, platoon unblocked	0.72					
vC, conflicting volume	1060	0	0			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	297	0	0			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	89			
cM capacity (veh/h)	432	1091	1636			
Direction, Lane #	NB 1	NB 2				
Volume Total	648	939				
Volume Left	178	0				
Volume Right	0	0				
cSH	1636	1700				
Volume to Capacity	0.11	0.55				
Queue Length 95th (ft)	9	0				
Control Delay (s)	2.9	0.0				
Lane LOS	A					
Approach Delay (s)	1.2					
Approach LOS						
Intersection Summary						
Average Delay		1.2				
Intersection Capacity Utilization		40.2%		ICU Level of Service		A
Analysis Period (min)		15				

Appendix M
Signal Timing Permits

TRAFFIC SIGNAL TIMING PERMIT

	PHASE	1	2	3	4	5	6	7	8		TIMING INSTALLED	
APPROACH		EB	WB Left	SB							REMARKS CLEARANCE VALUES UPDATED BY WSP AS PART OF JN 201868OPS.	
MINIMUM GREEN		10	7	7								
PASSAGE		0.0	0.0	0.0								
MAXIMUM NO. 1		34	14	33								
MAXIMUM NO. 2		0	0	0								
YELLOW CHANGE		3.2	3.2	3.0								
RED CLEARANCE		2.0	2.0	3.8								
WALK		7	0	7								
PEDESTRIAN CLEARANCE		14	0	17								
EXTENDED PED. CLEARANCE		0	0	2								
REST IN WALK		0	0	0								
INITIALIZATION		4	1	1								
NON-ACT RESPONSE		0	0	0								
VEHICLE RECALL		3	3	3								
PEDESTRIAN RECALL		2	0	0								
NON-LOCK MEMORY		0	0	0								
DUAL ENTRY		0	0	0								
	CYCLE									O1 O2 O3	PREPARED BY: DBC DATE: 07/11/18	
DIAL 1 SPLIT 1	80	34	14	32						47	FLASH HOURS:	
DIAL 2 SPLIT 1	80	34	14	32						49	to DAILY ☐ NONE ☒	
DIAL 3 SPLIT 1	80	33	14	33						42	to	
DIAL SPLIT											NIGHT FLASH:	
DIAL SPLIT											FY = None FR = None	
DIAL SPLIT											CONFLICT FLASH:	
	MODE	1	0	0							FY = US-12BR (Michigan) FR = M-17 (Hamilton St)	
PHASE		*Hours of Operation*									CONTROLLER TYPE:	
1 EB US-12BR (Michigan Avenue)		D1/S1/O1: Normal									☒ EPAC PRE-EMPT ☐	
2 WB US-12BR (Michigan Avenue) Left		D2/S1/O1: AM Peak 06:00 - 10:00 Monday - Friday									☐ Other: COUNTDOWN PEDS ☐	
3 SB M-17 (Hamilton Street)		D3/S1/O1: PM Peak 15:00 - 19:00 Monday - Friday									LOCATION:	
4											US-12BR (Michigan Ave) at M-17 (Hamilton St)	
5											CITY/TWP: Ypsilanti	
6											COUNTY : Washtenaw	
7											MILE POINT CONTROL SECTION-SPOT #	
8											3.63 81081-01-013	
Job # (If Applicable): 201868OPS												

OVERLAPS

Overlap Phase	Load Bays	Phases Overlapped	T.G. (s)	Y (s)	R (s)	-G/Y	+GRN
A = US-12BR (Michigan) WB Thrus		1 & 2	0.0	3.9	1.8		
=							
=							
=							

ADVANCED TIMING PARAMETERS FORM

SYSTEM INFORMATION	LEFT-TURN PHASING										RING AND BARRIER STRUCTURE															
	Phase # / Description		Permissive-Protected		Protected-Only				B1			B2			B3			B4								
			Lead	Lag	Split	Lead	Lag		1	2		3														
Controller Type: ☒ EPAC ☐ Other:	Phase #2 / WB US-12BR (Michigan Ave) Left		☐	☒	☐	☐	☐		R1																	
			☐	☐	☐	☐	☐		R2																	
			☐	☐	☐	☐	☐		R3																	
			☐	☐	☐	☐	☐		R4																	
System Type: ☒ Closed Loop ☐ Stand By ☐ Group 1 ☐ Group 2 Address: ☐ TBC ☐ TBC/GPS ☐ None ☐ Other: If TBC, Synch by: ☐ TOD ☐ Event Interconnect Type: ☐ Hardwire ☐ Fiber-Optic ☐ Radio ☐ Phone Drop ☐ None ☐ Other: If Phone Drop, Phone # Controller Status: ☐ Master ☐ Slave ☐ Isolated ☐ TBC If Slave, Master Location: Master Spot # :	VEHICULAR AND PEDESTRIAN DETECTION										DISAPPEARING LEGEND CASE SIGNS															
			Vehicular Detection						Pedestrian Detection																	
	Approach		Movements and Call Delay (s)			Type			Push-Button Crossing Locations																	
			Left	Thru	Right	Loop	Video	Other																		
	SB M-17 (Hamilton Street)		☐	☐	☐	☐	☐	☐	☐	Crossing W leg of US-12BR																
	NB Hamilton Ped		☐	☐	☐	☐	☐	☐	☐	Crossing E leg of US-12BR																
			☐	☐	☐	☐	☐	☐	☐																	
			☐	☐	☐	☐	☐	☐	☐																	
			☐	☐	☐	☐	☐	☐	☐																	
			☐	☐	☐	☐	☐	☐	☐																	
ADDITIONAL DIAL SPLIT DATA																COORDINATION DATA										
PHASE			1	2	3	4	5	6	7	8	O1	O2	O3	Operation Mode		1										
DIAL	SPLIT	CYCLE												Coordination Mode		0										
DIAL	SPLIT	CYCLE												Maximum Mode		0										
DIAL	SPLIT	CYCLE												Correction Mode		2										
DIAL	SPLIT	CYCLE												Offset Mode		0										
DIAL	SPLIT	CYCLE												Force Mode		0										
DIAL	SPLIT	CYCLE												Max Dwell		0										
DIAL	SPLIT	CYCLE												Yield Period		0										
REMARKS:										ADDITIONAL OVERLAP DATA																
										Overlap Phase								Load Bays	Phases Overlapped	T.G. (s)	Y (s)	R (s)	-G/Y	+GRN		
										=																
										=																
										=																
										=																
										PREPARED BY: DBC DATE: 07/11/18					LOCATION: US-12BR (Michigan Ave) at M-17 (Hamilton St)											
										☐ MDOT ☐ County ☐ City ☒ Consultant					CONTROL SECTION-SPOT # 81081-01-013											

CLEAR PAGE 2

SOLID STATE TRAFFIC SIGNAL TIMING PERMIT

CYCLE LENGTH	OFF-SET	HOURS OF OPERATION	INTERVAL TIMING (SECONDS)																							
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
SEC	SEC	MINIMUM TIME °	5.0	3.5	2.3	7.0	16.0	3.0	2.5	7.0	17.7	3.6	2.0	7.0	16.0	3.0	2.5	7.0	17.7	3.6	2.0					
80	52	Normal																								
			6.7	3.5	2.3	7.0	16.0	3.0	2.5	15.7	17.7	3.6	2.0	12.8	16.0	3.0	2.5	15.7	17.7	3.6	2.0					
		D 1 S 1 SPLITS 41/39																								
80	52	AM Peak 06:00 - 10:00 Monday - Friday																								
			9.7	3.5	2.3	7.0	16.0	3.0	2.5	12.7	17.7	3.6	2.0	12.8	16.0	3.0	2.5	12.7	17.7	3.6	2.0					
		D 2 S 1 SPLITS 44/36																								
80	52	PM Peak 15:00 - 19:00 Monday - Friday																								
			7.7	3.5	2.3	7.0	16.0	3.0	2.5	14.7	17.7	3.6	2.0	12.8	16.0	3.0	2.5	14.7	17.7	3.6	2.0					
		D 3 S 1 SPLITS 42/38																								
		D S SPLITS																								
LOAD SWITCH	DESCRIPTION	SIGNAL PLAN -- CYCLE SEQUENCE CHART																								FLASH
	WB M-17 (Cross Street)	G	G	G	G	G	Y	R	R	R	R	R	R	G	G	Y	R	R	R	R	R					R
	NB M-17 (Huron Street)	R	R	R	R	R	R	R	G	G	Y	R	R	R	R	R	G	G	Y	R						R
	WB M-17 (Cross Street) Peds	D	D	D	W	FD	D	D	D	D	D	D	D	W	FD	D	D	D	D	D	D					
	NB M-17 (Huron Street) Peds	D	D	D	D	D	D	D	W	FD	D	D	D	D	D	D	W	FD	D	D						
	NB M-17 (Huron Street) Lefts	GL	YL	R	R	R	R	R	R	R	R	R	R	GL	GL	GL	GL	GL	GL	GL	GL					
	EB M-17 (Cross Street) Peds	D	D	D	W	FD	D	D	D	D	D	D	D	D	D	D	D	D	D	D						
	SB M-17 (Huron Street) Peds	D	D	D	D	D	D	D	W	FD	D	D	D	D	D	D	D	D	D	D						
	Both Calls	XX	X	X	X	X	X	X	X	X	X	X	X													
	No Calls	XX												X	X	X	X	X	X	X						
C=Correction, I=Enter Flash, O=Exit Flash		C											I	CO							I					
REMARKS 08/21/18 - Added correction, enter/exit flash & conflict flash info. CLEARANCE VALUES UPDATED BY WSP AS PART OF JN 201868OPS. Conflict Flash = Red in ALL directions.						Controller Type: ☒ EPIC ☐ EF140 ☐ Other:								FLASH HOURS: None to None DAILY ☐ NONE ☒								PRE-EMPT COUNTDOWN PEDS ☐				
						DATE TIMING INSTALLED								LOCATION: M-17 (Cross Street) @ M-17 (Huron Street)												
						JOB # (IF APPLICABLE): 201868OPS								CITY/TWP.: Ypsilanti COUNTY: Washtenaw												
						PREPARED BY: DBC DATE: 07/11/18								MILE POINT: 83.660								CONTROL SECTION - SPOT # 81081-01-016				

ADVANCED TIMING PARAMETERS FORM

SYSTEM INFORMATION	LEFT-TURN PHASING						COORDINATION DATA				DISAPPEARING LEGEND CASE SIGNS											
Controller Type: ☒ EPIC ☐ EF140 ☐ Other: System Type: ☐ Closed Loop ☐ Stand By ☐ Group 1 ☐ Group 2 Address: ☒ TBC ☐ TBC/GPS ☐ None ☐ Other: If TBC, Synch by: ☒ TOD ☐ Event Interconnect Type: ☐ Hardwire ☐ Fiber-Optic ☐ Radio ☐ Phone Drop ☒ None ☐ Other: If Phone Drop, Phone # Controller Status: ☐ Master ☐ Slave ☐ Isolated ☒ TBC If Slave, Master Location: Master Spot #	Description		Permissive-Protected		Protected-Only		Operation Mode		1													
			Lead	Lag	Split	Lead	Lag	Correction Mode		2												
			☐	☐	☐	☐	☐	Maximum Dwell (s)														
			☐	☐	☐	☐	☐	Min Duration (m)														
			☐	☐	☐	☐	☐															
			☐	☐	☐	☐	☐															
	VEHICULAR AND PEDESTRIAN DETECTION																					
	Vehicular Detection							Pedestrian Detection														
	Approach		Movements and Call Delay (s)				Type			Push-Button Crossing Locations												
			Left	Thru	Right	Loop	Video	Other														
SB M-17 (Huron Street)		☐		☐		☐		☐		Crossing W leg of M-17 (Cross St)												
		☐		☐		☐		☐		Crossing S leg of M-17 (Huron St)												
		☐		☐		☐		☐														
		☐		☐		☐		☐														
		☐		☐		☐		☐														
		☐		☐		☐		☐														
		☐		☐		☐		☐														
ADDITIONAL DIAL SPLIT DATA																						
CYCLE LENGTH (SEC)	OFF-SET (SEC)	HOURS OF OPERATION	INTERVAL TIMING (SECONDS)																			
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
		D S SPLITS																				
		D S SPLITS																				
		D S SPLITS																				
		D S SPLITS																				
Remarks:			Prepared by: DBC										Location:									
Conflict Flash - Red in all directions.			Date: 07/11/18										M-17 (Cross Street) @ M-17 (Huron Street)									
			☐ MDOT ☐ County ☐ City ☒ Consultant										Control Section-Spot #									
													81081-01-016									

TRAFFIC SIGNAL TIMING PERMIT

APPROACH	PHASE	1	2	3	4	5	6	7	8		TIMING INSTALLED																																																																																																														
		WB	EB Left	NB							REMARKS CLEARANCE VALUES UPDATED BY WSP AS PART OF JN 201868OPS.																																																																																																														
MINIMUM GREEN		10	7	10																																																																																																																					
PASSAGE		0.0	0.0	0.0																																																																																																																					
MAXIMUM NO. 1		34	14	33																																																																																																																					
MAXIMUM NO. 2		0	0	0																																																																																																																					
YELLOW CHANGE		3.2	3.2	3.2																																																																																																																					
RED CLEARANCE		1.8	1.8	2.4																																																																																																																					
WALK		7	0	8																																																																																																																					
PEDESTRIAN CLEARANCE		13	0	18																																																																																																																					
EXTENDED PED. CLEARANCE		0	0	0																																																																																																																					
REST IN WALK		0	0	0																																																																																																																					
INITIALIZATION		4	1	1																																																																																																																					
NON-ACT RESPONSE		0	0	0																																																																																																																					
VEHICLE RECALL		3	3	3																																																																																																																					
PEDESTRIAN RECALL		2	0	0																																																																																																																					
NON-LOCK MEMORY		0	0	0																																																																																																																					
DUAL ENTRY		0	0	0																																																																																																																					
		CYCLE								O1 O2 O3	PREPARED BY: DBC DATE: 07/11/18																																																																																																														
DIAL 1	SPLIT 1	80	34	14	32					49	FLASH HOURS: [] to [] DAILY ☐ NONE ☒ [] to []																																																																																																														
DIAL 2	SPLIT 1	80	33	14	33					47																																																																																																															
DIAL 3	SPLIT 1	80	34	14	32					40																																																																																																															
DIAL	SPLIT																																																																																																																								
DIAL	SPLIT																																																																																																																								
DIAL	SPLIT										NIGHT FLASH:																																																																																																														
		MODE	1	0	0						FY = None FR = None																																																																																																														
PHASE		*Hours of Operation*									CONFLICT FLASH:																																																																																																														
1 WB US-12BR / M-17 (Michigan)		D1/S1/O1: Normal									FY = Michigan Avenue FR = Huron Street																																																																																																														
2 EB US-12BR / M-17 (Michigan) Left		D2/S1/O1: AM Peak 06:00 - 10:00 Monday - Friday									CONTROLLER TYPE: ☒ EPAC PRE-EMPT ☐ ☐ Other: COUNTDOWN PEDS ☐																																																																																																														
3 NB M-17 (Huron Street)		D3/S1/O1: PM Peak 15:00 - 19:00 Monday - Friday																																																																																																																							
4		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="8">OVERLAPS</th> </tr> <tr> <th>Overlap Phase</th> <th>Load Bays</th> <th>Phases Overlapped</th> <th>T.G. (s)</th> <th>Y (s)</th> <th>R (s)</th> <th>-G/Y</th> <th>+GRN</th> </tr> <tr> <td>A = EB US-12BR (Michigan) Thru</td> <td></td> <td>1 & 2</td> <td>0.0</td> <td>3.2</td> <td>1.8</td> <td></td> <td></td> </tr> <tr> <td>=</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>5</td> <td colspan="2"></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>LOCATION:</td> </tr> <tr> <td>6</td> <td colspan="2"></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>US12BR/M17 (Mich) at US12BR/M17 (Huron)</td> </tr> <tr> <td>7</td> <td colspan="2"></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>CITY/TWP: Ypsilanti</td> </tr> <tr> <td>8</td> <td colspan="2"></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>COUNTY : Washtenaw</td> </tr> <tr> <td colspan="2"></td> <td colspan="2">MILE POINT</td> <td colspan="8">CONTROL SECTION-SPOT #</td> </tr> <tr> <td colspan="2"></td> <td colspan="2">0.80</td> <td colspan="8">81081-01-023</td> </tr> <tr> <td colspan="11">Job # (If Applicable): 201868OPS</td> </tr> </table>									OVERLAPS								Overlap Phase	Load Bays	Phases Overlapped	T.G. (s)	Y (s)	R (s)	-G/Y	+GRN	A = EB US-12BR (Michigan) Thru		1 & 2	0.0	3.2	1.8			=								5										LOCATION:	6										US12BR/M17 (Mich) at US12BR/M17 (Huron)	7										CITY/TWP: Ypsilanti	8										COUNTY : Washtenaw			MILE POINT		CONTROL SECTION-SPOT #										0.80		81081-01-023								Job # (If Applicable): 201868OPS										
OVERLAPS																																																																																																																									
Overlap Phase	Load Bays										Phases Overlapped	T.G. (s)	Y (s)	R (s)	-G/Y	+GRN																																																																																																									
A = EB US-12BR (Michigan) Thru											1 & 2	0.0	3.2	1.8																																																																																																											
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6										US12BR/M17 (Mich) at US12BR/M17 (Huron)																																																																																																															
7										CITY/TWP: Ypsilanti																																																																																																															
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		MILE POINT		CONTROL SECTION-SPOT #																																																																																																																					
		0.80		81081-01-023																																																																																																																					
Job # (If Applicable): 201868OPS																																																																																																																									

ADVANCED TIMING PARAMETERS FORM

SYSTEM INFORMATION	LEFT-TURN PHASING										RING AND BARRIER STRUCTURE																		
	Phase # / Description		Permissive-Protected		Protected-Only				B1			B2			B3			B4											
			Lead	Lag	Split	Lead	Lag		1	2		3																	
Controller Type: ☒ EPAC ☐ Other:	Phase #2 / EB US12BR/M17 (Michigan) Left		☐	☒	☐	☐	☐		R1																				
			☐	☐	☐	☐	☐		R2																				
			☐	☐	☐	☐	☐		R3																				
			☐	☐	☐	☐	☐		R4																				
VEHICULAR AND PEDESTRIAN DETECTION																			DISAPPEARING LEGEND CASE SIGNS										
Approach		Vehicular Detection						Pedestrian Detection																					
		Movements and Call Delay (s)			Type			Push-Button Crossing Locations																					
	Left	Thru	Right	Loop	Video	Other																							
NB US12BR (Huron St)		☐	☐	☐	☐	☐	☐	Crossing E leg of Michigan																					
SB US12BR (Huron) Peds		☐	☐	☐	☐	☐	☐	Crossing W leg of Michigan																					
		☐	☐	☐	☐	☐	☐																						
		☐	☐	☐	☐	☐	☐																						
		☐	☐	☐	☐	☐	☐																						
		☐	☐	☐	☐	☐	☐																						
ADDITIONAL DIAL SPLIT DATA																			COORDINATION DATA										
PHASE			1	2	3	4	5	6	7	8	O1	O2	O3	Operation Mode		1													
DIAL	SPLIT	CYCLE												Coordination Mode		0													
DIAL	SPLIT	CYCLE												Maximum Mode		0													
DIAL	SPLIT	CYCLE												Correction Mode		2													
DIAL	SPLIT	CYCLE												Offset Mode		0													
DIAL	SPLIT	CYCLE												Force Mode		0													
DIAL	SPLIT	CYCLE												Max Dwell		0													
DIAL	SPLIT	CYCLE												Yield Period		0													
DIAL			SPLIT	CYCLE																									
REMARKS:															ADDITIONAL OVERLAP DATA														
															Overlap Phase								Load Bays	Phases Overlapped	T.G. (s)	Y (s)	R (s)	-G/Y	+GRN
															=														
															=														
															=														
PREPARED BY: DBC DATE: 07/11/18 ☐ MDOT ☐ County ☐ City ☒ Consultant															LOCATION: US12BR/M17 (Mich) at US12BR/M17 (Huron)														
															CONTROL SECTION-SPOT # 81081-01-023														

CLEAR PAGE 2

TRAFFIC SIGNAL TIMING PERMIT

APPROACH	PHASE	1	2	3	4	5	6	7	8		TIMING INSTALLED	
			SB	WB Left	EB				WB		REMARKS CLEARANCE VALUES UPDATED BY WSP AS PART OF JN 201868OPS. 16-Load-Switch, Mod 60, Base-Mounted Epac Type Controller. Equipped with WIRELESS loops in the Westbound Harriet Street Left-Turn Approach Lane. This subject intersection is equipped with RADIO interconnect and is incorporated within a CLOSED-LOOP system.	
MINIMUM GREEN			10	7	7				7			
PASSAGE			0.0	4.0	4.0				4.0			
MAXIMUM NO. 1			35	22	35				35			
MAXIMUM NO. 2			35	22	35				35			
YELLOW CHANGE			3.9	3.2	3.2				3.2			
RED CLEARANCE			1.7	2.6	2.6				2.6			
WALK			7	0	7				7			
PEDESTRIAN CLEARANCE			17	0	14				14			
EXTENDED PED. CLEARANCE			0	0	0				0			
REST IN WALK			0	0	0				0			
INITIALIZATION			4	1	1				1			
NON-ACT RESPONSE			0	0	0				0			
VEHICLE RECALL			3	0	3				3			
PEDESTRIAN RECALL			2	0	2				2			
NON-LOCK MEMORY			0	1	1				1			
DUAL ENTRY			0	0	1				1			
	CYCLE									O1 O2 O3	PREPARED BY: DBC DATE: 07/12/18	
DIAL 1	SPLIT 1	80	32	20	28				28	75	FLASH HOURS: to DAILY ☐ NONE ☒	
DIAL 2	SPLIT 1	80	32	20	28				28	79		
DIAL 3	SPLIT 1	80	30	22	28				28	72		
DIAL	SPLIT											
DIAL	SPLIT											
DIAL	SPLIT										NIGHT FLASH:	
	MODE		1	0	0				0		FY = None FR = None CONFLICT FLASH: FY = None FR = All Directions	
PHASE		*Hours of Operation*									CONTROLLER TYPE: ☒ EPAC PRE-EMPT ☐ ☐ Other: COUNTDOWN PEDS ☒	
1		D1/S1/O1: Normal									LOCATION: US-12 BR (Hamilton Street) at Harriet Street CITY/TWP: Ypsilanti City COUNTY : Washtenaw MILE POINT 0.36 CONTROL SECTION-SPOT # 81083-01-003 Job # (If Applicable): 201868OPS	
2 SB US-12 BR (Hamilton Street)		D2/S1/O1: AM Peak 06:00 - 10:00 Monday - Friday										
3 WB Harriet Street Lefts		D3/S1/O1: PM Peak 15:00 - 19:00 Monday - Friday										
4 EB Harriet Street												
5												
6												
7												
8 WB Harriet Street												

OVERLAPS								
Overlap Phase	Load Bays	Phases Overlapped	T.G. (s)	Y (s)	R (s)	-G/Y	+GRN	
B = WB Harriet Street Lefts (FYA)	10		0.0	3.2	0.0	3	4	
=								
=								
=								

ADVANCED TIMING PARAMETERS FORM

SYSTEM INFORMATION	LEFT-TURN PHASING										RING AND BARRIER STRUCTURE												
	Phase # / Description		Permissive-Protected		Protected-Only				B1			B2			B3			B4					
			Lead	Lag	Split	Lead	Lag			2			4	3									
Controller Type: ☒ EPAC ☐ Other:	Phase #3 / Westbound Harriet Street Lefts		☐	☒	☐	☐	☐		R1														
			☐	☐	☐	☐	☐		R2					8									
			☐	☐	☐	☐	☐		R3														
			☐	☐	☐	☐	☐		R4														
VEHICULAR AND PEDESTRIAN DETECTION																				DISAPPEARING LEGEND CASE SIGNS			
Approach		Vehicular Detection						Pedestrian Detection															
		Movements and Call Delay (s)			Type			Push-Button Crossing Locations															
ADDITIONAL DIAL SPLIT DATA																				COORDINATION DATA			
PHASE			1	2	3	4	5	6	7	8	O1	O2	O3	Operation Mode		1							
DIAL	SPLIT	CYCLE												Coordination Mode		0							
DIAL	SPLIT	CYCLE												Maximum Mode		0							
DIAL	SPLIT	CYCLE												Correction Mode		2							
DIAL	SPLIT	CYCLE												Offset Mode		0							
DIAL	SPLIT	CYCLE												Force Mode		0							
DIAL	SPLIT	CYCLE												Max Dwell		0							
DIAL	SPLIT	CYCLE												Yield Period		0							
REMARKS: This subject intersection is equipped with RADIO interconnect and is incorporated within a CLOSED-LOOP system. The MASTER controller is located at the subject intersection of US-12BR/M-17 (Michigan Avenue) at River Street (81132-01-007).										ADDITIONAL OVERLAP DATA													
										Overlap Phase			Load Bays	Phases Overlapped	T.G. (s)	Y (s)	R (s)	-G/Y	+GRN				
										=													
										=													
										=													
										PREPARED BY: DBC			DATE: 07/12/18			LOCATION: US-12 BR (Hamilton Street) at Harriet Street							
										☐ MDOT ☐ County ☐ City ☒ Consultant						CONTROL SECTION-SPOT # 81083-01-003							

CLEAR PAGE 2

TRAFFIC SIGNAL TIMING PERMIT

APPROACH	PHASE	1	2	3	4	5	6	7	8		TIMING INSTALLED																																																
MINIMUM GREEN	NB	10	7								REMARKS CLEARANCE VALUES UPDATED BY WSP AS PART OF JN 201868OPS.																																																
PASSAGE	EB & WB	0.0	3.0																																																								
MAXIMUM NO. 1		59	21																																																								
MAXIMUM NO. 2		0	0																																																								
YELLOW CHANGE		3.9	3.0																																																								
RED CLEARANCE		1.4	2.3																																																								
WALK		7	7																																																								
PEDESTRIAN CLEARANCE		11	11																																																								
EXTENDED PED. CLEARANCE		0	0																																																								
REST IN WALK		0	0																																																								
INITIALIZATION		4	1																																																								
NON-ACT RESPONSE		0	0																																																								
VEHICLE RECALL		3	0																																																								
PEDESTRIAN RECALL		2	0																																																								
NON-LOCK MEMORY		0	0																																																								
DUAL ENTRY		0	0																																																								
	CYCLE									O1 O2 O3	PREPARED BY: DBC																																																
DIAL 1 SPLIT 1		80	59	21						74	DATE: 07/12/18																																																
DIAL 2 SPLIT 1		80	59	21						71	FLASH HOURS:																																																
DIAL 3 SPLIT 1		80	59	21						67	22:00 to 06:00 DAILY ☒ NONE ☐																																																
DIAL SPLIT																																																											
DIAL SPLIT																																																											
DIAL SPLIT																																																											
	MODE	1	0								NIGHT FLASH:																																																
PHASE 1 NB/SB US-12BR (Huron Street) 2 EB/WB Catherine Street 3 4 5 6 7 8											FY = US-12 BR (Huron Street) FR = Catherine Street CONFLICT FLASH: FY = US-12 BR (Huron Street) FR = Catherine Street CONTROLLER TYPE: ☒ EPAC ☐ Other:																																																
Hours of Operation D1/S1/O1: Normal D2/S1/O1: AM Peak 06:00 - 10:00 Monday - Friday D3/S1/O1: PM Peak 15:00 - 19:00 Monday - Friday											PRE-EMPT ☐ COUNTDOWN PEDS ☐																																																
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="8">OVERLAPS</th> </tr> <tr> <th>Overlap Phase</th> <th>Load Bays</th> <th>Phases Overlapped</th> <th>T.G. (s)</th> <th>Y (s)</th> <th>R (s)</th> <th>-G/Y</th> <th>+GRN</th> </tr> </thead> <tbody> <tr> <td>=</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>=</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>=</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>=</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>											OVERLAPS								Overlap Phase	Load Bays	Phases Overlapped	T.G. (s)	Y (s)	R (s)	-G/Y	+GRN	=								=								=								=								LOCATION: US-12 Br (Huron) at Catherine Street CITY/TWP: Ypsilanti COUNTY : Washtenaw MILE POINT 0.64 CONTROL SECTION-SPOT # 81083-01-004 Job # (If Applicable): 201868OPS
OVERLAPS																																																											
Overlap Phase	Load Bays	Phases Overlapped	T.G. (s)	Y (s)	R (s)	-G/Y	+GRN																																																				
=																																																											
=																																																											
=																																																											
=																																																											

ADVANCED TIMING PARAMETERS FORM

SYSTEM INFORMATION	LEFT-TURN PHASING										RING AND BARRIER STRUCTURE															
	Phase # / Description		Permissive-Protected		Protected-Only			B1				B2				B3				B4						
			Lead	Lag	Split	Lead	Lag	R1	1				2													
Controller Type:			☐	☐	☐	☐	☐	R1																		
☒ EPAC			☐	☐	☐	☐	☐	R2																		
☐ Other:			☐	☐	☐	☐	☐	R3																		
			☐	☐	☐	☐	☐	R4																		
			☐	☐	☐	☐	☐																			
VEHICULAR AND PEDESTRIAN DETECTION										DISAPPEARING LEGEND CASE SIGNS																
System Type:		Vehicular Detection							Pedestrian Detection																	
		Approach	Movements and Call Delay (s)			Type			Push-Button Crossing Locations																	
	Left		Thru	Right	Loop	Video	Other																			
WB Catherine Street	☐	☒	☐	☒	☐	☐	Crossing N leg of US-12BR																			
EB Catherine Street	☐	☒	☐	☒	☐	☐	Crossing S leg of US-12BR																			
	☐	☐	☐	☐	☐	☐																				
	☐	☐	☐	☐	☐	☐																				
	☐	☐	☐	☐	☐	☐																				
	☐	☐	☐	☐	☐	☐																				
ADDITIONAL DIAL SPLIT DATA										COORDINATION DATA																
PHASE			1	2	3	4	5	6	7	8	O1	O2	O3	Operation Mode		1										
DIAL	SPLIT	CYCLE												Coordination Mode		0										
DIAL	SPLIT	CYCLE												Maximum Mode		0										
DIAL	SPLIT	CYCLE												Correction Mode		2										
DIAL	SPLIT	CYCLE												Offset Mode		0										
DIAL	SPLIT	CYCLE												Force Mode		0										
DIAL	SPLIT	CYCLE												Max Dwell		0										
DIAL	SPLIT	CYCLE												Yield Period		0										
REMARKS:										ADDITIONAL OVERLAP DATA																
										Overlap Phase		Load Bays	Phases Overlapped	T.G. (s)	Y (s)	R (s)	-G/Y	+GRN								
										=																
										=																
										=																
										=																
										PREPARED BY: DBC DATE: 07/12/18								LOCATION:								
										☐ MDOT ☐ County ☐ City ☒ Consultant								US-12 Br (Huron) at Catherine Street								
																		CONTROL SECTION-SPOT # 81083-01-004								

CLEAR PAGE 2

TRAFFIC SIGNAL TIMING PERMIT

APPROACH	PHASE	1	2	3	4	5	6	7	8				TIMING INSTALLED
MINIMUM GREEN PASSAGE		10	7										REMARKS CLEARANCE VALUES UPDATED BY WSP AS PART OF JN 201868OPS.
MAXIMUM NO. 1		60	20										
MAXIMUM NO. 2		0	0										
YELLOW CHANGE		3.2	3.0										
RED CLEARANCE		1.9	3.0										
WALK		7	7										
PEDESTRIAN CLEARANCE		11	19										
EXTENDED PED. CLEARANCE		0	2										
REST IN WALK		0	0										
INITIALIZATION		4	1										
NON-ACT RESPONSE		0	0										
VEHICLE RECALL		3	3										
PEDESTRIAN RECALL		2	0										
NON-LOCK MEMORY		0	0										
DUAL ENTRY		0	0										
		CYCLE								O1	O2	O3	PREPARED BY: DBC
DIAL 1 SPLIT 1		80	60	20						35			DATE: 07/12/18
DIAL 2 SPLIT 1		80	60	20						33			FLASH HOURS:
DIAL 3 SPLIT 1		80	60	20						27			23:00 to 06:00 DAILY ☒ NONE ☐
DIAL SPLIT													
DIAL SPLIT													
DIAL SPLIT													
		MODE	1	0									NIGHT FLASH:
													FY = US-12BR/M-17 (Michigan) FR = Adams Street
													CONFLICT FLASH:
													FY = US-12BR/M-17 (Michigan) FR = Adams Street
													CONTROLLER TYPE:
													☒ EPAC
													PRE-EMPT ☐
													COUNTDOWN PEDS ☐
													LOCATION:
													US-12Br/M-17 (Michigan) @ Adams Street
													CITY/TWP: Ypsilanti
													COUNTY : Washtenaw
													MILE POINT
													CONTROL SECTION-SPOT #
													1.96
													81132-01-004
													Job # (If Applicable): 201868OPS

PHASE	*Hours of Operation*
1 EB/WB US12BR/M17 (Michigan Ave)	D1/S1/O1: Normal
2 NB/SB Adams Street	D2/S1/O1 : AM Peak 06:00 - 10:00 Monday - Friday
	D3/S1/O1 : PM Peak 15:00 - 19:00 Monday - Friday
3	
4	
5	
6	
7	
8	

OVERLAPS							
Overlap Phase	Load Bays	Phases Overlapped	T.G. (s)	Y (s)	R (s)	-G/Y	+GRN
=							
=							
=							
=							

ADVANCED TIMING PARAMETERS FORM

SYSTEM INFORMATION	LEFT-TURN PHASING										RING AND BARRIER STRUCTURE																						
	Phase # / Description		Permissive-Protected		Protected-Only			B1				B2				B3				B4													
			Lead	Lag	Split	Lead	Lag	R1	1				2																				
Controller Type:			☐	☐	☐	☐	☐	R1																									
☒ EPAC			☐	☐	☐	☐	☐	R2																									
☐ Other:			☐	☐	☐	☐	☐	R3																									
			☐	☐	☐	☐	☐	R4																									
			☐	☐	☐	☐	☐																										
VEHICULAR AND PEDESTRIAN DETECTION																										DISAPPEARING LEGEND CASE SIGNS							
System Type:		Vehicular Detection										Pedestrian Detection																					
		Approach		Movements and Call Delay (s)			Type			Push-Button Crossing Locations																							
				Left	Thru	Right	Loop	Video	Other																								
NB Adams Street	☐		☐		☐		☐	☐	☐	Crossing E leg of Michigan																							
SB Adams Street	☐		☐		☐		☐	☐	☐	Crossing W leg of Michigan																							
Address:		☐		☐		☐		☐	☐	☐																							
☐ TBC		☐		☐		☐		☐	☐	☐																							
☐ TBC/GPS		☐		☐		☐		☐	☐	☐																							
☐ None		☐		☐		☐		☐	☐	☐																							
☐ Other:		☐		☐		☐		☐	☐	☐																							
If TBC, Synch by:																																	
☐ TOD																																	
☐ Event																																	
Interconnect Type:																																	
☐ Hardwire																																	
☐ Fiber-Optic																																	
☐ Radio																																	
☐ Phone Drop																																	
☐ None																																	
☐ Other:																																	
If Phone Drop, Phone #																																	
Controller Status:																																	
☐ Master																																	
☐ Slave																																	
☐ Isolated																																	
☐ TBC																																	
If Slave, Master Location:																																	
Master Spot # :																																	
		ADDITIONAL DIAL SPLIT DATA										COORDINATION DATA																					
		PHASE		1	2	3	4	5	6	7	8	O1	O2	O3	Operation Mode		1																
		DIAL	SPLIT	CYCLE											Coordination Mode		0																
		DIAL	SPLIT	CYCLE											Maximum Mode		0																
		DIAL	SPLIT	CYCLE											Correction Mode		2																
		DIAL	SPLIT	CYCLE											Offset Mode		0																
		DIAL	SPLIT	CYCLE											Force Mode		0																
		DIAL	SPLIT	CYCLE											Max Dwell		0																
		DIAL	SPLIT	CYCLE											Yield Period		0																
		DIAL	SPLIT	CYCLE																													
REMARKS:																																	
		ADDITIONAL OVERLAP DATA																															
		Overlap Phase										Load Bays	Phases Overlapped	T.G. (s)	Y (s)	R (s)	-G/Y	+GRN															
		=																															
		=																															
		=																															
		=																															
		PREPARED BY: DBC DATE: 07/12/18										LOCATION:																					
		☐ MDOT ☐ County ☐ City ☒ Consultant										US-12Br/M-17 (Michigan) @ Adams Street																					
		CONTROL SECTION-SPOT # 81132-01-004																															

CLEAR PAGE 2

TRAFFIC SIGNAL TIMING PERMIT

						PHASE		1	2	3	4	5	6	7	8		TIMING INSTALLED			
APPROACH						EB & WB		NB & SB										REMARKS CLEARANCE VALUES UPDATED BY WSP AS PART OF JN 201868OPS.		
MINIMUM GREEN						10		7												
PASSAGE						0.0		0.0												
MAXIMUM NO. 1						60		20												
MAXIMUM NO. 2						0		0												
YELLOW CHANGE						3.2		3.0												
RED CLEARANCE						1.8		3.0												
WALK						7		7												
PEDESTRIAN CLEARANCE						12		17												
EXTENDED PED. CLEARANCE						0		2												
REST IN WALK						0		0												
INITIALIZATION						4		1												
NON-ACT RESPONSE						0		0												
VEHICLE RECALL						3		3												
PEDESTRIAN RECALL						2		0												
NON-LOCK MEMORY						0		0												
DUAL ENTRY						0		0												
CYCLE													O1	O2	O3	PREPARED BY: DBC DATE: 07/12/18				
DIAL 1 SPLIT 1	80	60	20										40			FLASH HOURS:				
DIAL 2 SPLIT 1	80	60	20										38			23:00 to 06:00 DAILY ☒ NONE ☐				
DIAL 3 SPLIT 1	80	60	20										33			to				
DIAL SPLIT																NIGHT FLASH:				
DIAL SPLIT																FY = US-12BR (Michigan) FR = Washington Street				
DIAL SPLIT																CONFLICT FLASH:				
MODE						1	0										FY = US-12BR (Michigan) FR = Washington Street			
PHASE						*Hours of Operarton*											CONTROLLER TYPE:			
1 EB/WB US12BR/M17 (Michigan Ave)						D1/S1/O1: Normal											☒ EPAC			
2 NB/SB Washington Street						D2/S1/O1: AM Peak 06:00 - 10:00 Monday - Friday											☐ Other:			
						D3/S1/O1: PM Peak 15:00 - 19:00 Monday - Friday											PRE-EMPT ☐			
																	COUNTDOWN PEDS ☐			
																	LOCATION:			
																	US-12BR/M-17 (Michigan) @ Washington			
																	CITY/TWP: Ypsilanti			
																	COUNTY : Washtenaw			
																	MILE POINT		CONTROL SECTION-SPOT #	
																	2.04		81132-01-005	
																	Job # (If Applicable): 201868OPS			

ADVANCED TIMING PARAMETERS FORM

SYSTEM INFORMATION	LEFT-TURN PHASING										RING AND BARRIER STRUCTURE															
	Phase # / Description		Permissive-Protected		Protected-Only			B1				B2				B3				B4						
			Lead	Lag	Split	Lead	Lag	R1	1				2													
Controller Type:			☐	☐	☐	☐	☐	R1																		
☒ EPAC			☐	☐	☐	☐	☐	R2																		
☐ Other:			☐	☐	☐	☐	☐	R3																		
			☐	☐	☐	☐	☐	R4																		
			☐	☐	☐	☐	☐																			
VEHICULAR AND PEDESTRIAN DETECTION																	DISAPPEARING LEGEND CASE SIGNS									
System Type:	Approach		Vehicular Detection						Pedestrian Detection																	
☒ Closed Loop			Movements and Call Delay (s)			Type			Push-Button Crossing Locations																	
☒ Stand By	Left	Thru	Right	Loop	Video	Other																				
☐ Group 1	NB Washington Street	☐	☐	☐	☐	☐	☐	Crossing E leg of Michigan																		
☐ Group 2	SB Washington Street	☐	☐	☐	☐	☐	☐	Crossing W leg of Michigan																		
Address:		☐	☐	☐	☐	☐	☐																			
☐ TBC		☐	☐	☐	☐	☐	☐																			
☐ TBC/GPS		☐	☐	☐	☐	☐	☐																			
☐ None		☐	☐	☐	☐	☐	☐																			
☐ Other:		☐	☐	☐	☐	☐	☐																			
If TBC, Synch by:																										
☐ TOD																										
☐ Event																										
Interconnect Type:																										
☐ Hardwire																										
☐ Fiber-Optic																										
☐ Radio																										
☐ Phone Drop																										
☐ None																										
☐ Other:																										
If Phone Drop, Phone #																										
Controller Status:																										
☐ Master																										
☐ Slave																										
☐ Isolated																										
☐ TBC																										
If Slave, Master Location:																										
Master Spot # :																										
ADDITIONAL DIAL SPLIT DATA																										
PHASE			1	2	3	4	5	6	7	8	O1	O2	O3	COORDINATION DATA												
DIAL	SPLIT	CYCLE																								
DIAL	SPLIT	CYCLE												Operation Mode	1											
DIAL	SPLIT	CYCLE												Coordination Mode	0											
DIAL	SPLIT	CYCLE												Maximum Mode	0											
DIAL	SPLIT	CYCLE												Correction Mode	2											
DIAL	SPLIT	CYCLE												Offset Mode	0											
DIAL	SPLIT	CYCLE												Force Mode	0											
DIAL	SPLIT	CYCLE												Max Dwell	0											
DIAL	SPLIT	CYCLE												Yield Period	0											
ADDITIONAL OVERLAP DATA																										
Overlap Phase										Load Bays	Phases Overlapped	T.G. (s)	Y (s)	R (s)	-G/Y	+GRN										
=																										
=																										
=																										
=																										
PREPARED BY: DBC DATE: 07/12/18										LOCATION: US-12BR/M-17 (Michigan) @ Washington																
☐ MDOT ☐ County ☐ City ☒ Consultant										CONTROL SECTION-SPOT # 81132-01-005																

CLEAR PAGE 2

TRAFFIC SIGNAL TIMING PERMIT

APPROACH	PHASE	1	2	3	4	5	6	7	8		TIMING INSTALLED 08/15/16																																							
			NB		EB				WB		REMARKS Traffic Signal Modernization in conjunction with Job Number 116265 A. 16-Load-Switch, Mod 60, Base-Mounted, Epac-Type Controller. This subject intersection is equipped with RADIO interconnect and is incorporated within a CLOSED-LOOP system. The MASTER controller is located at the subject intersection of US-12BR/M-17 (Michigan Av.) at River St. (81132-01-007).																																							
MINIMUM GREEN			10		7				7																																									
PASSAGE			0.0		4.0				4.0																																									
MAXIMUM NO. 1			51		35				35																																									
MAXIMUM NO. 2			51		35				35																																									
YELLOW CHANGE			4.0		3.6				3.6																																									
RED CLEARANCE			2.1		3.0				3.0																																									
WALK			7		7				7																																									
PEDESTRIAN CLEARANCE			25		18				18																																									
EXTENDED PED. CLEARANCE			0		2				2																																									
REST IN WALK			0		0				0																																									
INITIALIZATION			4		1				1																																									
NON-ACT RESPONSE			0		0				0																																									
VEHICLE RECALL			3		3				3																																									
PEDESTRIAN RECALL			2		2				2																																									
NON-LOCK MEMORY			0		0				0																																									
DUAL ENTRY			0		0				0																																									
	CYCLE									O1 O2 O3	PREPARED BY: HHH DATE: 07/28/14																																							
DIAL 1 SPLIT 1	80		48		32				32	34	FLASH HOURS: 00:01 to 06:00 DAILY ☒ NONE ☐ to NIGHT FLASH: FY = US-12BR (Huron Street) FR = Harriet Street and Spring Street CONFLICT FLASH: FY = US-12BR (Huron Street) FR = Harriet Street and Spring Street CONTROLLER TYPE: ☒ EPAC ☐ PRE-EMPT ☐ Other: COUNTDOWN PEDS ☒																																							
DIAL 2 SPLIT 1	80		51		29				29	31																																								
DIAL 3 SPLIT 1	80		45		35				35	29																																								
DIAL SPLIT																																																		
DIAL SPLIT																																																		
DIAL SPLIT																																																		
	MODE		1		0				0																																									
PHASE		D1/S1/O1: Normal D2/S1/O1: 06:00 - 10:00 Monday - Friday D3/S1/O1: 15:00 - 19:00 Monday - Friday 2 Northbound US-12 BR (Huron Street) The Pedestrian Clearance Times are based on a walking speed of 3.5 feet per second. The Calculated Pedestrian Clearance Time (CPCT) for the Harriet and Spring Streets Pedestrians is 21.0 seconds, but a value of 18.0 seconds [CPCT - Buffer Interval (3.0 seconds)] has been used in order to minimize impacts on US-12BR coordination. 3 4 Eastbound Harriet Street 5 6 7 8 Westbound Spring Street																																																
		OVERLAPS <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Overlap Phase</th> <th>Load Bays</th> <th>Phases Overlapped</th> <th>T.G. (s)</th> <th>Y (s)</th> <th>R (s)</th> <th>-G/Y</th> <th>+GRN</th> </tr> </thead> <tbody> <tr><td>=</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>=</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>=</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>=</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </tbody> </table>									Overlap Phase	Load Bays	Phases Overlapped	T.G. (s)	Y (s)	R (s)	-G/Y	+GRN	=								=								=								=							
Overlap Phase	Load Bays	Phases Overlapped	T.G. (s)	Y (s)	R (s)	-G/Y	+GRN																																											
=																																																		
=																																																		
=																																																		
=																																																		
		LOCATION: US-12 BR (Huron St.) at Harriet St./Spring St. CITY/TWP: Ypsilanti City COUNTY : Washtenaw MILE POINT 50.52 CONTROL SECTION-SPOT # 81083-01-001 Job # (If Applicable): 116265 A																																																

ADVANCED TIMING PARAMETERS FORM

SYSTEM INFORMATION	LEFT-TURN PHASING										RING AND BARRIER STRUCTURE											
	Phase # / Description		Permissive-Protected		Protected-Only			R1	B1			B2			B3			B4				
			Lead	Lag	Split	Lead	Lag			2			4									
Controller Type:			☐	☐	☐	☐	☐	R1														
☒ EPAC			☐	☐	☐	☐	☐	R2														
☐ Other:			☐	☐	☐	☐	☐	R3														
			☐	☐	☐	☐	☐	R4														
			☐	☐	☐	☐	☐															
VEHICULAR AND PEDESTRIAN DETECTION										DISAPPEARING LEGEND CASE SIGNS												
System Type:	Approach		Vehicular Detection					Pedestrian Detection														
☒ Closed Loop			Movements and Call Delay (s)			Type		Push-Button Crossing Locations														
☐ Stand By	Left	Thru	Right	Loop	Video	Other																
☐ Group 1	☐	☐	☐	☐	☐	☐																
☐ Group 2	☐	☐	☐	☐	☐	☐																
Address:	☐	☐	☐	☐	☐	☐																
☐ TBC	☐	☐	☐	☐	☐	☐																
☐ TBC/GPS	☐	☐	☐	☐	☐	☐																
☐ None	☐	☐	☐	☐	☐	☐																
☐ Other:	☐	☐	☐	☐	☐	☐																
ADDITIONAL DIAL SPLIT DATA										COORDINATION DATA												
PHASE			1	2	3	4	5	6	7	8	O1	O2	O3	Operation Mode		1						
DIAL	SPLIT	CYCLE												Coordination Mode		0						
DIAL	SPLIT	CYCLE												Maximum Mode		0						
DIAL	SPLIT	CYCLE												Correction Mode		2						
DIAL	SPLIT	CYCLE												Offset Mode		0						
DIAL	SPLIT	CYCLE												Force Mode		0						
DIAL	SPLIT	CYCLE												Max Dwell		0						
DIAL	SPLIT	CYCLE												Yield Period		0						
REMARKS:			ADDITIONAL OVERLAP DATA																			
This subject intersection is equipped with RADIO interconnect and is incorporated within a CLOSED-LOOP system. The MASTER controller is located at the subject intersection of US-12BR/M-17 (Michigan Avenue) at River Street (81132-01-007).			Overlap Phase								Load Bays	Phases Overlapped	T.G. (s)	Y (s)	R (s)	-G/Y	+GRN					
			=																			
			=																			
			=																			
			=																			
PREPARED BY: HHH DATE: 07/28/14 ☒ MDOT ☐ County ☐ City ☐ Consultant			LOCATION: US-12 BR (Huron St.) at Harriet St./Spring St. CONTROL SECTION-SPOT # 81083-01-001																			

CLEAR PAGE 2

PREEMPTION INFORMATION FORM

Preemption Description:																				Preempt System Data								
Preempt # =	Time (s)	Phases	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16			Ring	1	2	3	4			
SEL Ped CI		Vehicle	Track																	☐ Locking ☐ Non-Locking	MIN GRN/WLK (s)							
SEL Yellow	Dwell																											
SEL Red CI			Cycle																									
TRACK Green		Ped	Exit																	Delay (s) Extend (s) Duration (s)	Priority	PE/FL	PE1/2	PE2/3	PE3/4	PE4/5	PE5/6	
TRACK Ped CI	Track																											
TRACK Yellow			Dwell																									
TRACK Red CL			Cycle																	Max Call (s)								
DWELL Green		Overlap Vehicle	Overlap	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Lockout (s) Link PE #	Status							
RET Ped CI	Track																											
RET Yellow			Dwell																									
RET Red CI			Cycle																									
Preemption Description:																												
Preempt # =	Time (s)	Phases	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16			☐ Locking ☐ Non-Locking	MIN GRN/WLK (s)						
SEL Ped CI		Vehicle	Track																									
SEL Yellow			Dwell																									
SEL Red CI			Cycle																									
TRACK Green		Ped	Exit																	Delay (s) Extend (s) Duration (s)	Priority	PE/FL	PE1/2	PE2/3	PE3/4	PE4/5	PE5/6	
TRACK Ped CI			Track																									
TRACK Yellow			Dwell																									
TRACK Red CL			Cycle																	Max Call (s)								
DWELL Green		Overlap Vehicle	Overlap	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Lockout (s) Link PE #	Status							
RET Ped CI			Track																									
RET Yellow			Dwell																									
RET Red CI			Cycle																									
Preemption Description:																												
Preempt # =	Time (s)	Phases	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16			☐ Locking ☐ Non-Locking	MIN GRN/WLK (s)						
SEL Ped CI		Vehicle	Track																									
SEL Yellow			Dwell																									
SEL Red CI			Cycle																									
TRACK Green		Ped	Exit																	Delay (s) Extend (s) Duration (s)	Priority	PE/FL	PE1/2	PE2/3	PE3/4	PE4/5	PE5/6	
TRACK Ped CI			Track																									
TRACK Yellow			Dwell																									
TRACK Red CL			Cycle																	Max Call (s)								
DWELL Green		Overlap Vehicle	Overlap	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Lockout (s) Link PE #	Status							
RET Ped CI			Track																									
RET Yellow			Dwell																									
RET Red CI			Cycle																									
Preemption Description:																												
Preempt # =	Time (s)	Phases	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16			☐ Locking ☐ Non-Locking	MIN GRN/WLK (s)						
SEL Ped CI		Vehicle	Track																									
SEL Yellow			Dwell																									
SEL Red CI			Cycle																									
TRACK Green		Ped	Exit																	Delay (s) Extend (s) Duration (s)	Priority	PE/FL	PE1/2	PE2/3	PE3/4	PE4/5	PE5/6	
TRACK Ped CI			Track																									
TRACK Yellow			Dwell																									
TRACK Red CL			Cycle																	Max Call (s)								
DWELL Green		Overlap Vehicle	Overlap	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Lockout (s) Link PE #	Status							
RET Ped CI			Track																									
RET Yellow			Dwell																									
RET Red CI			Cycle																									

REMARKS :

PREPARED BY: HHH DATE: 07/28/14
 LOCATION:
 US-12 BR (Huron St.) at Harriet St./Spring St.

CONTROL SECTION-SPOT #
81083-01-001

CLEAR PAGE 3

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TRAFFIC SIGNAL TIMING PERMIT

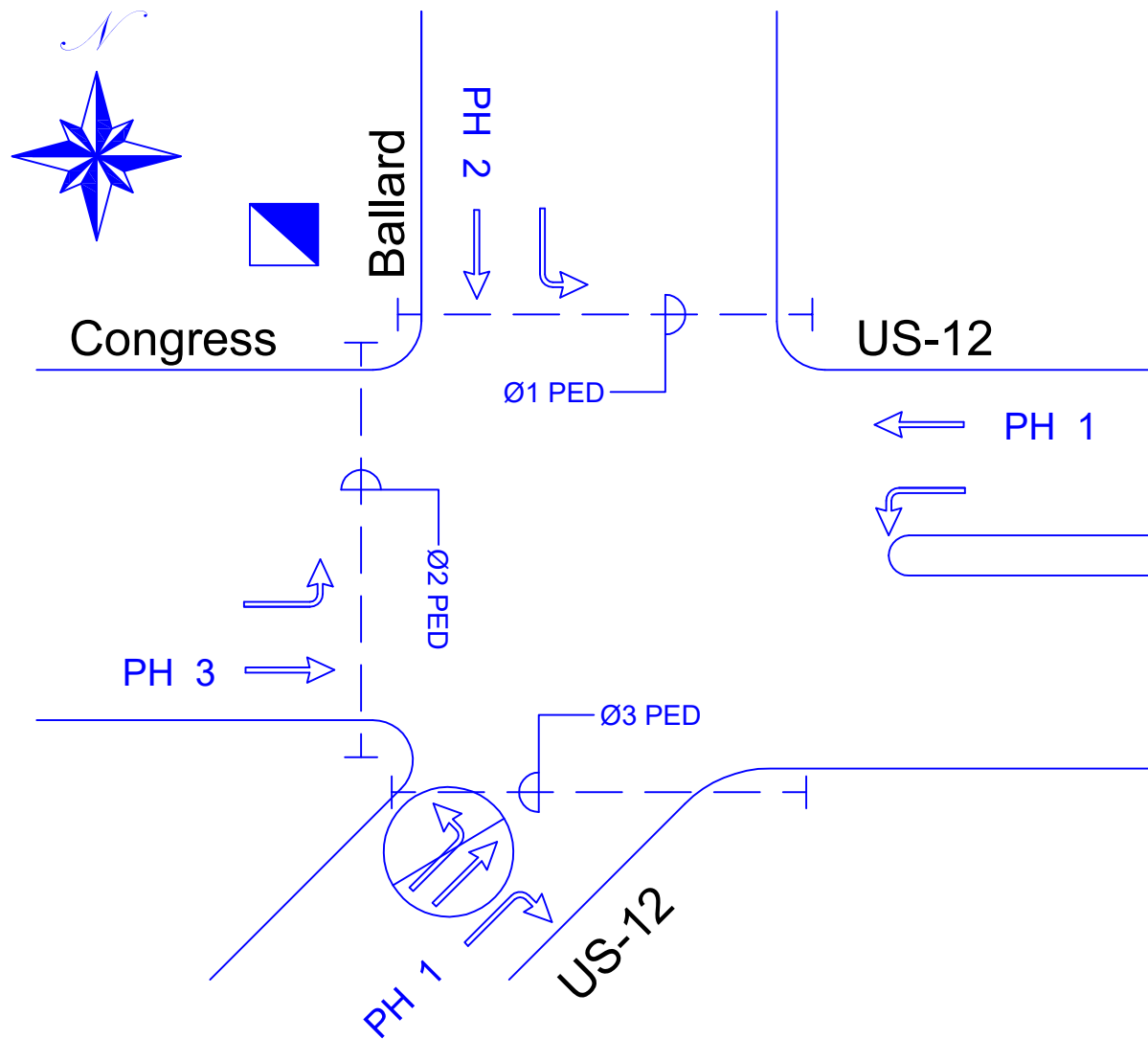
	PHASE	1	2	3	4	5	6	7	8		TIMING INSTALLED	
APPROACH		US-12	Ballard	Congress							REMARKS	
MINIMUM GREEN		20	20	20								
PASSAGE												
MAXIMUM NO. 1												
MAXIMUM NO. 2												
YELLOW CHANGE		3.2	3.0	3.0								
RED CLEARANCE		2.9	3.3	2.9								
WALK		7	7	7								
PEDESTRIAN CLEARANCE		12	12	12								
EXTENDED PED. CLEARANCE		1	1	1								
REST IN WALK												
INITIALIZATION		4	1	1								
NON-ACT RESPONSE												
VEHICLE RECALL		3	2	2								
PEDESTRIAN RECALL												
NON-LOCK MEMORY												
DUAL ENTRY												
	CYCLE									O1 O2 O3	PREPARED BY: EY DATE: 11/20/18	
DIAL 1 SPLIT	120	58	34	28						85	FLASH HOURS: 23:00 to 6:30 DAILY ☐ NONE ☐ to	
DIAL 2 SPLIT	120	60	34	26						30		
DIAL 3 SPLIT	80	27	27	26						55		
DIAL SPLIT												
DIAL SPLIT												
DIAL SPLIT											NIGHT FLASH:	
	MODE										FY = FR =	
PHASE		06:30 - 09:30 = Dial 1									CONFLICT FLASH:	
		09:30 - 15:00 & 19:00 - 23:00 = Dial 3									FY = FR =	
1 US-12		15:00 - 19:00 Action Plan 13 = Dial 2									CONTROLLER TYPE:	
2 Ballard		23:00 - 6:30 = Night Flash									☒ EPAC PRE-EMPT ☐ ☐ Other: COUNTDOWN PEDS ☐	
3 Congress											LOCATION:	
4											Michigan @ Congress & Ballard	
5											CITY/TWP: Ypsilanti	
6											COUNTY : Washtenaw	
7											MILE POINT CONTROL SECTION-SPOT #	
8											Job # (If Applicable):	

OVERLAPS							
Overlap Phase	Load Bays	Phases Overlapped	T.G. (s)	Y (s)	R (s)	-G/Y	+GRN
=							
=							
=							
=							

ADVANCED TIMING PARAMETERS FORM

SYSTEM INFORMATION	LEFT-TURN PHASING										RING AND BARRIER STRUCTURE											
	Phase # / Description		Permissive-Protected		Protected-Only			R1	B1			B2			B3			B4				
			Lead	Lag	Split	Lead	Lag		1	2	3											
Controller Type:			☐	☐	☐	☐	☐	R1														
☒ EPAC			☐	☐	☐	☐	☐	R2														
☐ Other:			☐	☐	☐	☐	☐	R3														
			☐	☐	☐	☐	☐	R4														
			☐	☐	☐	☐	☐															
VEHICULAR AND PEDESTRIAN DETECTION										DISAPPEARING LEGEND CASE SIGNS												
System Type:	Approach		Vehicular Detection					Pedestrian Detection														
☐ Closed Loop			Movements and Call Delay (s)			Type		Push-Button Crossing Locations														
☐ Stand By	Left	Thru	Right	Loop	Video	Other																
☐ Group 1	☐	☐	☐	☐	☐	☐																
☐ Group 2	☐	☐	☐	☐	☐	☐																
Address:	☐	☐	☐	☐	☐	☐																
☒ TBC	☐	☐	☐	☐	☐	☐																
☐ None	☐	☐	☐	☐	☐	☐																
☐ Other:	☐	☐	☐	☐	☐	☐																
ADDITIONAL DIAL SPLIT DATA										COORDINATION DATA												
PHASE			1	2	3	4	5	6	7	8	O1	O2	O3	Operation Mode								
DIAL	SPLIT	CYCLE												Coordination Mode								
DIAL	SPLIT	CYCLE												Maximum Mode								
DIAL	SPLIT	CYCLE												Correction Mode								
DIAL	SPLIT	CYCLE												Offset Mode								
DIAL	SPLIT	CYCLE												Force Mode								
DIAL	SPLIT	CYCLE												Max Dwell								
DIAL	SPLIT	CYCLE												Yield Period								
REMARKS:			ADDITIONAL OVERLAP DATA																			
			Overlap Phase							Load Bays	Phases Overlapped	T.G. (s)	Y (s)	R (s)	-G/Y	+GRN						
			=																			
			=																			
			=																			
			=																			
			PREPARED BY: EY DATE: 11/20/18							LOCATION: Michigan @ Congress & Ballard												
			☐ MDOT ☐ County ☒ City ☐ Consultant							CONTROL SECTION-SPOT #												

CLEAR PAGE 2



PHASE DIAGRAM

TRAFFIC SIGNAL TIMING PERMIT

APPROACH	PHASE	1	2	3	4	5	6	7	8				TIMING INSTALLED
	EB	NB & SB											REMARKS Job Number 121186 A. A Mod 50, Pole-Mounted Epac Type Controller with updated firmware has been installed in conjunction with this project. The Master Controller that had been located at the subject intersection of M-17 (Washtenaw Avenue) at Hewitt Road (81081-01-007) has undergone removal in conjunction with Job Number 118648 A. This subject intersection is equipped with radio interconnect and is no longer incorporated within a closed-loop system.
MINIMUM GREEN		10	7										
PASSAGE		0.0	3.0										
MAXIMUM NO. 1		60	20										
MAXIMUM NO. 2		0	0										
YELLOW CHANGE		3.5	3.5										
RED CLEARANCE		1.8	2.2										
WALK		7	16										
PEDESTRIAN CLEARANCE		13	13										
EXTENDED PED. CLEARANCE		0	0										
REST IN WALK		0	0										
INITIALIZATION		4	1										
NON-ACT RESPONSE		0	0										
VEHICLE RECALL		3	0										
PEDESTRIAN RECALL		2	0										
NON-LOCK MEMORY		0	0										
DUAL ENTRY		0	0										
	CYCLE									O1	O2	O3	PREPARED BY: HHH DATE: 07/19/13
DIAL 1 SPLIT 1		80	60	20						55			FLASH HOURS: 23:00 to 06:00 DAILY ☒ NONE ☐
DIAL 2 SPLIT 1		80	60	20						55			
DIAL 3 SPLIT 1		80	60	20						55			
DIAL SPLIT													
DIAL SPLIT													
DIAL SPLIT													NIGHT FLASH:
	MODE	1	0										FY = M-17 (Washtenaw Avenue) FR = Ballard Street CONFLICT FLASH: FY = M-17 (Washtenaw Avenue) FR = Ballard Street
PHASE		D1/S1/O1 NORMAL D2/S1/O1 06:00 - 10:00 MONDAY - FRIDAY D3/S1/O1 15:00 - 19:00 MONDAY - FRIDAY											
1 M-17 (Washtenaw Avenue)													
2 Ballard Street		The pedestrian clearance times are based on a walking speed of 3.5 feet per second. The Extended Pedestrian Clearance Codes have been revised to Mode "0".											
3													
4													
5													
6													
7													
8													
OVERLAPS													
		<i>Overlap Phase</i>	<i>Load Bays</i>	<i>Phases Overlapped</i>	<i>T.G. (s)</i>	<i>Y (s)</i>	<i>R (s)</i>	<i>-G/Y</i>	<i>+GRN</i>				
		=											
		=											
		=											
		=											

LOCATION:
 M-17 (Washtenaw Avenue) at Ballard Street
CITY/TWP: Ypsilanti City
COUNTY : Washtenaw

MILE POINT 3.37	CONTROL SECTION-SPOT # 81081-01-004
---------------------------	---

Job # (If Applicable): 121186 A

ADVANCED TIMING PARAMETERS FORM

SYSTEM INFORMATION		LEFT-TURN PHASING						RING AND BARRIER STRUCTURE																					
Phase # / Description		Permissive-Protected		Protected-Only		B1				B2				B3				B4											
		Lead	Lag	Split	Lead	Lag	R1	1				2																	
Controller Type:		☐	☐	☐	☐	☐	R1																						
☒ EPAC		☐	☐	☐	☐	☐	R2																						
☐ Other:		☐	☐	☐	☐	☐	R3																						
		☐	☐	☐	☐	☐	R4																						
		☐	☐	☐	☐	☐																							
VEHICULAR AND PEDESTRIAN DETECTION												DISAPPEARING LEGEND CASE SIGNS																	
Approach		Vehicular Detection						Pedestrian Detection																					
		Movements and Call Delay (s)			Type			Push-Button Crossing Locations																					
		Left	Thru	Right	Loop	Video	Other																						
NB Ballard Street		☐	☒	☒	10	☒	☐	☐	M-17 (Washtenaw) at E. Leg																				
SB Ballard Street		☒	☒	☐		☒	☐	☐	M-17 (Washtenaw) at W. Leg																				
		☐	☐	☐		☐	☐	☐																					
		☐	☐	☐		☐	☐	☐																					
		☐	☐	☐		☐	☐	☐																					
		☐	☐	☐		☐	☐	☐																					
ADDITIONAL DIAL SPLIT DATA																COORDINATION DATA													
PHASE			1	2	3	4	5	6	7	8	O1	O2	O3	Operation Mode		1													
DIAL	SPLIT	CYCLE												Coordination Mode		0													
DIAL	SPLIT	CYCLE												Maximum Mode		0													
DIAL	SPLIT	CYCLE												Correction Mode		3													
DIAL	SPLIT	CYCLE												Offset Mode		0													
DIAL	SPLIT	CYCLE												Force Mode		0													
DIAL	SPLIT	CYCLE												Max Dwell		0													
DIAL	SPLIT	CYCLE												Yield Period		0													
REMARKS:																ADDITIONAL OVERLAP DATA													
The Master Controller that had been located at the subject intersection of M-17 (Washtenaw Avenue) at Hewitt Road (81081-01-007) has undergone removal in conjunction with Job Number 118648 A. This subject intersection is equipped with radio interconnect and is no longer incorporated within a closed-loop system.																Overlap Phase						Load Bays	Phases Overlapped	T.G. (s)	Y (s)	R (s)	-G/Y	+GRN	
																=													
																=													
																=													
PREPARED BY: HHH DATE: 07/19/13 ☒ MDOT ☐ County ☐ City ☐ Consultant																LOCATION: M-17 (Washtenaw Avenue) at Ballard Street													
Master Spot # :																CONTROL SECTION-SPOT # 81081-01-004													

CLEAR PAGE 2

PREEMPTION INFORMATION FORM

Preemption Description:																				Preempt System Data								
Preempt # =	Time (s)	Phases	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16			Ring	1	2	3	4			
SEL Ped CI		Vehicle	Track																	☐ Locking ☐ Non-Locking	MIN GRN/WLK (s)							
SEL Yellow	Dwell																											
SEL Red CI			Cycle																									
TRACK Green		Ped	Exit																	Delay (s) Extend (s) Duration (s)	Priority	PE/FL	PE1/2	PE2/3	PE3/4	PE4/5	PE5/6	
TRACK Ped CI	Track																											
TRACK Yellow			Dwell																									
TRACK Red CL		Overlap Vehicle	Cycle																	Max Call (s) Lockout (s) Link PE #	Status							
DWELL Green	Overlap		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P										
RET Ped CI			Track																									
RET Yellow		Overlap Vehicle	Dwell																	Link PE #								
RET Red CI			Cycle																									
Preemption Description:																												
Preempt # =	Time (s)	Phases	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16			☐ Locking ☐ Non-Locking	MIN GRN/WLK (s)						
SEL Ped CI		Vehicle	Track																Delay (s) Extend (s) Duration (s)	Priority			PE/FL	PE1/2	PE2/3	PE3/4	PE4/5	PE5/6
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RET Red CI			Cycle																									

REMARKS :

PREPARED BY: HHH DATE: 07/19/13
 LOCATION:
 M-17 (Washtenaw Avenue) at Ballard Street
 CONTROL SECTION-SPOT #
 81081-01-004

CLEAR PAGE 3

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TRAFFIC SIGNAL TIMING PERMIT

APPROACH	PHASE	1	2	3	4	5	6	7	8				TIMING INSTALLED																																							
		EB & WB	NB & SB										REMARKS Job Number 121185 A. A Mod 50, Pole-Mounted Epac Type Controller with updated firmware has been installed in conjunction with this project. The Master Controller that had been located at the subject intersection of M-17 (Washtenaw Avenue) at Hewitt Road (81081-01-007) has undergone removal in conjunction with Job Number 118648 A. This subject intersection is equipped with radio interconnect and is no longer incorporated within a closed-loop system.																																							
MINIMUM GREEN		10	7																																																	
PASSAGE		0.0	0.0																																																	
MAXIMUM NO. 1		58	25																																																	
MAXIMUM NO. 2		0	0																																																	
YELLOW CHANGE		3.6	3.5																																																	
RED CLEARANCE		1.8	7.3																																																	
WALK		7	7																																																	
PEDESTRIAN CLEARANCE		15	13																																																	
EXTENDED PED. CLEARANCE		0	2																																																	
REST IN WALK		0	0																																																	
INITIALIZATION		4	1																																																	
NON-ACT RESPONSE		0	0																																																	
VEHICLE RECALL		3	3																																																	
PEDESTRIAN RECALL		2	2																																																	
NON-LOCK MEMORY		0	0																																																	
DUAL ENTRY		0	0																																																	
	CYCLE									O1	O2	O3	PREPARED BY: HHH DATE: 07/19/13																																							
DIAL 1 SPLIT 1	80	52	28							20			FLASH HOURS: 23:00 to 06:00 DAILY ☒ NONE ☐																																							
DIAL 2 SPLIT 1	80	52	28							15																																										
DIAL 3 SPLIT 1	80	52	28							22																																										
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DIAL SPLIT																																																				
DIAL SPLIT													NIGHT FLASH:																																							
	MODE	1	7										FY = M-17 (Washtenaw Avenue) FR = Summit Street CONFLICT FLASH: FY = M-17 (Washtenaw Avenue) FR = Summit Street																																							
PHASE		D1/S1/O1 NORMAL D2/S1/O1 06:00 - 10:00 MONDAY - FRIDAY D3/S1/O1 15:00 - 19:00 MONDAY - FRIDAY																																																		
1 M-17 (Washtenaw Avenue)		The pedestrian clearance times are based on a walking speed of 3.5 feet per second. The Extended Pedestrian Clearance Codes have been revised to "0" and "2". The Split Times have been adjusted for all dials in order to accommodate the pedestrians associated with Phase # 2 (Summit Street Pedestrians).																																																		
2 Summit Street "Near"																																																				
3																																																				
4																																																				
5		OVERLAPS																																																		
6		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%;">Overlap Phase</th> <th style="width: 5%;">Load Bays</th> <th style="width: 10%;">Phases Overlapped</th> <th style="width: 10%;">T.G. (s)</th> <th style="width: 10%;">Y (s)</th> <th style="width: 10%;">R (s)</th> <th style="width: 10%;">-G/Y</th> <th style="width: 10%;">+GRN</th> </tr> </thead> <tbody> <tr> <td>A = Summit Street "Far"</td> <td></td> <td>2</td> <td>5.0</td> <td>3.5</td> <td>2.3</td> <td></td> <td></td> </tr> <tr> <td>=</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>=</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>=</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>											Overlap Phase	Load Bays	Phases Overlapped	T.G. (s)	Y (s)	R (s)	-G/Y	+GRN	A = Summit Street "Far"		2	5.0	3.5	2.3			=								=								=							
Overlap Phase	Load Bays	Phases Overlapped	T.G. (s)	Y (s)	R (s)	-G/Y	+GRN																																													
A = Summit Street "Far"		2	5.0	3.5	2.3																																															
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8																																																				
LOCATION: M-17 (Cross/Washtenaw) at Summit Street CITY/TWP: Ypsilanti City COUNTY : Washtenaw <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">MILE POINT</td> <td style="width: 50%;">CONTROL SECTION-SPOT #</td> </tr> <tr> <td style="text-align: center;">3.04</td> <td style="text-align: center;">81081-01-002</td> </tr> </table> Job # (If Applicable): 121185 A													MILE POINT	CONTROL SECTION-SPOT #	3.04	81081-01-002																																				
MILE POINT	CONTROL SECTION-SPOT #																																																			
3.04	81081-01-002																																																			

ADVANCED TIMING PARAMETERS FORM

SYSTEM INFORMATION		LEFT-TURN PHASING						RING AND BARRIER STRUCTURE																																																	
Phase # / Description		Permissive-Protected		Protected-Only		B1				B2				B3				B4																																							
		Lead	Lag	Split	Lead	Lag	R1	1				2																																													
Controller Type:		☐	☐	☐	☐	☐	R1																																																		
☒ EPAC		☐	☐	☐	☐	☐	R2																																																		
☐ Other:		☐	☐	☐	☐	☐	R3																																																		
		☐	☐	☐	☐	☐	R4																																																		
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VEHICULAR AND PEDESTRIAN DETECTION														DISAPPEARING LEGEND CASE SIGNS																																											
Approach		Vehicular Detection						Pedestrian Detection																																																	
		Movements and Call Delay (s)			Type			Push-Button Crossing Locations																																																	
		Left	Thru	Right	Loop	Video	Other																																																		
		☐	☐	☐	☐	☐	☐																																																		
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System Type: ☐ Closed Loop ☐ Stand By ☐ Group 1 ☐ Group 2 Address: ☒ TBC ☐ TBC/GPS ☐ None ☐ Other:																																																									
If TBC, Synch by: ☒ TOD ☐ Event																																																									
Interconnect Type: ☐ Hardwire ☐ Fiber-Optic ☒ Radio ☐ Phone Drop ☐ None ☐ Other:																																																									
If Phone Drop, Phone #																																																									
Controller Status: ☐ Master ☐ Slave ☐ Isolated ☒ TBC If Slave, Master Location:																																																									
Master Spot # :																																																									
ADDITIONAL DIAL SPLIT DATA														COORDINATION DATA																																											
PHASE			1	2	3	4	5	6	7	8	O1	O2	O3																																												
DIAL	SPLIT	CYCLE												Operation Mode	1																																										
DIAL	SPLIT	CYCLE												Coordination Mode	0																																										
DIAL	SPLIT	CYCLE												Maximum Mode	0																																										
DIAL	SPLIT	CYCLE												Correction Mode	3																																										
DIAL	SPLIT	CYCLE												Offset Mode	0																																										
DIAL	SPLIT	CYCLE												Force Mode	0																																										
DIAL	SPLIT	CYCLE												Max Dwell	0																																										
DIAL	SPLIT	CYCLE												Yield Period	0																																										
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PREPARED BY: HHH DATE: 07/19/13 ☒ MDOT ☐ County ☐ City ☐ Consultant										LOCATION: M-17 (Cross/Washtenaw) at Summit Street CONTROL SECTION-SPOT # 81081-01-002																																															

CLEAR PAGE 2

PREEMPTION INFORMATION FORM

Preemption Description:																				Preempt System Data								
Preempt # =	Time (s)	Phases	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16			Ring	1	2	3	4			
SEL Ped CI		Vehicle	Track																	☐ Locking ☐ Non-Locking	MIN GRN/WLK (s)							
SEL Yellow	Dwell																											
SEL Red CI			Cycle																									
TRACK Green		Ped	Exit																	Delay (s) Extend (s) Duration (s)	Priority	PE/FL	PE1/2	PE2/3	PE3/4	PE4/5	PE5/6	
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DWELL Green		Overlap Vehicle	Overlap	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Lockout (s) Link PE #	Status							
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PREPARED BY: HHH DATE: 07/19/13

LOCATION:
M-17 (Cross/Washtenaw) at Summit Street

CONTROL SECTION-SPOT #
81081-01-002

CLEAR PAGE 3

Page 3 of 3

Appendix N
HSM Analysis Results

[illegible]

DATE: September 4, 2019

TO: Bonnie Wessler, AICP – City of Ypsilanti; Nicholas Nicita, PE, PTOE; Colleen Hill-Stramsak, P.E., PTOE

FROM: Michael Davis Jr, Region Planner; Stephanie Palmer, Traffic, Safety and Operations Engineer; Jennifer Foley, Traffic and Operations Engineer; Laurent Fournier, Traffic and Safety Engineer; Rosemary Edwards, Geometrics Traffic Engineer; William Seeger, Signals Unit Engineer

SUBJECT: Ypsilanti Draft Road Diet Report and Synchro Model Review

Dear Ms. Wessler,

On July 22nd, 2019 The Michigan Department of Transportation received a draft of the Ypsilanti Road Diet Capacity Analysis Report followed by traffic modeling. Thank you for the ample time to review the report. The document and model have been reviewed by various planning and engineering staff. Enclosed are staff comments:

Bike Lanes

- *Colored Pavement:* Please revise the plans to follow NACTO guidance in The Urban Bikeway Design Guide regarding the use of green bike lane paint. At all conflict points please add green paint markings as per MDOT's PAVE-962-A specifications. At intersections please add green paint with edge white paint markings leading into, through, and out of the intersections. Furthermore, at intersections particularly those with right turn lanes, please consider special emphasis treatments presented in the specification/guide above including but not limited to bike boxes.
- *Intersection Treatments:* Please consider having the bike lane inside the buffer area for the loading zones as an additional safety measure.
- *Recessed Pavement Markings:* Please note in plans that longitudinal and special pavement markings should be recessed for longevity and special retroreflective.
- *Colored Pavement and Parking Lanes:* The conversion of travel lanes to parking lanes will require a future maintenance agreement. Additionally, cost-sharing for special emphasis painting or hatching and colored bike lanes will need to be discussed as the project proceeds.
- *Exhibit-Washtenaw 21:* Left-turn sign should say "Left Lane Must Turn Left" instead of "Left Lane Must Turn Right"

- *Exhibit-Hamilton 8:* Please evaluate and consider the addition of 6" Dotted White turn-path pavement markings and moving the westbound left-turn lane's stop bar more upstream as noted in recent Road Safety Audit (page 36).
- *Exhibit-Hamilton 9:* Please evaluate and consider the addition of a "lane ends" sign before the dropping of the right-turn-only lane at Pearl St as the lane configuration is proposed to change and drivers may not be fully aware of the turn lane ending at Pearl St. Furthermore, please consider the addition of new pedestrian crossing signage (W11-2) at Pearl St. If signage is not feasible at all crossings, please identify a preferred leg.
- *Exhibit-Huron 11:* Please indicate what the "dedicated right-turn lane to be removed" will be replaced with; particularly how drivers will not inadvertently use the vacated space as a travel lane.
- *Exhibit-Huron 16:* As discussed above please give deliberate consideration to a bike box at the Huron St and Michigan Ave intersection.
- *Exhibit-Huron 17:* Please add "sharrows" pavement markings
- *Exhibit-Huron 20:* As discussed above please consider a bike box at the Huron St and Cross St intersection. Furthermore, please consider additional treatments to connect the Huron St and Cross St bike lanes such as a bicycle two-stage left-turn (see NACTO Urban Bikeway Design Guide) as well as an additional bike box on Cross St at the intersection.

Synchro Model Comments

Technical Items to address

- The model appears to have changed the offset at Huron/Cross to an ideal offset for what is modeled (AM Peak MIT), however, M-17 (Cross St) is part of a coordinated system so the change has negatively impacted progression on signals left off of the model. To proceed with the offset change, please add at least M-17 (Cross St) from Summit St to Huron St to cover the MDOT signals as well as consider adding the River St and Prospect Rd signals that are expected to be coordinated as well.
- There was no bus blockage modeled in any of the scenarios. Please include in the model and update analysis or provide comments discussing the bus route absence.
- One of two intersections show the left-turn phasing as a Dallas Permissive/Protected, but this should just be permissive/protected. Please update. We prefer to check the FYA box, but this is more of a preference.
- In some of the model scenarios the offset at Michigan & Huron is incorrect. At the intersection of Huron/Michigan, the EBL split needs to be at least 13 seconds.
- The study is based on an old timing permit for Huron/Michigan. There were only a few small split changes so there shouldn't be a huge difference in delay whether we incorporate the new timing permit or not.

Comments to address

- Some of the models (2022 and 2038) have the interchange included and some of the models don't (2018). The models should be consistent in including the interchange. Some intersections and ramps that are performing certain ways in the future models that MDOT is unable to evaluate in the existing conditions (see comments below).

- The report fails to mention that timing adjustments at Hamilton/Harriett (an improvement) make queuing and vehicle delay worst at Hamilton/I-94 Off-Ramp.
- Lastly, according to our signals and geometric units, “the models indicate that if we take away a lane in 2038, we will be over capacity in a few areas and note this is after optimization. Our concern is that if we remove a lane, we will put ourselves in a position where we are over capacity and cannot optimize our way out of it.” Please address.

2038AM MIT

- In the AM Model for the Road Diet Mitigated 2038: The WB I-94 Off-ramp backs up to the freeway. The 2038 background does not represent the same issue as the ramp clears out. Unfortunately, this was not modeled in the existing model (2018) so we cannot answer why this is happening given the timing should not have changed here or the configuration to the north. This was not addressed in the report either.

2038PM MIT

- After roughly thirty minutes into the peak-hour Hamilton vehicles queue past Catherine Street from Harriet Street. The seeding and recording were increased to 30-minutes and 60-minutes respectively; please verify seeding is correctly calibrated. Mitigation does not address this queueing issue.
- Furthermore, Hamilton queues from Michigan, past Pearl Street with Pearl Street unable to clear during the peak-hour. The background version does not have the same issues. Mitigation does not address this queueing issue.
- The Hamilton “Dummy Node L” between I-94WB On-Ramp and Harriet Street drops 218 vehicles as a right turn. The validity of dropping that many vehicles from the network into a non-existing street is questionable; please review and comment. Those vehicles added to the next intersection can fail that intersection depending on where they are added.
- In the PM model for the 2038 Road Diet Mitigated, queueing occurs at Hamilton and Harriett, Hamilton and Catherine, Hamilton and Pearl as well as occurring at Michigan and Huron St to Harris St that the mitigation does not address. Please provide comments as to how the City intends to address these areas or inform their public engagement strategies.

Miscellaneous Comments

- Signal heads: The report should mention if any signal head should be moved (by MDOT approved contractor or city of Ypsilanti staff) on Washtenaw Avenue where a travel lane is suppressed.
- Vicinity sheet: Please add a vicinity sheet showing where the proposed modifications are located at a high level to the executive summary. There are multiple road diet figures in section 7 but there is not a master sheet showing the whole concept.