DOWNTOWN TOLEDO TRANSPORTATION STUDY FINAL REPORT

TOLEDO, OHIO

JANUARY 2020

PREPARED FOR:
CITY OF TOLEDO
DIVISION OF ENGINEERING SERVICES
ONE LAKE ERIE CENTER
TOLEDO, OHIO 43604

EXECUTIVE SUMMARY

The Downtown Toledo Transportation Study (DTTS) was conducted to gain a better understanding of the current opportunities and challenges associated with downtown Toledo's transportation network, project future transportation users and demands, and develop a plan to ensure that downtown Toledo has a safe, efficient, and equitable transportation network into the future. The study included several tasks (summarized below):

Public Involvement (See Section 2.0)

Public involvement for this study included meetings between the project team and the general public (public meetings), a selected group of downtown stakeholders (stakeholder meetings), and a transportation advisory council (TAC meetings – composed of various municipal entities).

A total of three (3) public meetings were conducted for this project. The first meeting included an introduction (by the project team) of the general public to key facts and information regarding the current state of downtown Toledo's transportation network. In this meeting members of the public were surveyed on what challenges and opportunities downtown Toledo faced and how they would like to see them addressed or enhanced in the future.

The second public meeting included the introduction of several improvement alternatives for key downtown roadways (developed using public input from the first meeting) for comment. Attendees at this meeting were able to vote on individual improvement alternatives.

Finally, the third public meeting included the introduction of several "preferred alternatives" (developed through technical analyses) to the public for comment. Consistent themes that emerged from each of the public meetings included a general desire to see more bicycle facilities downtown, a desire to see Summit Street leverage its proximity to the Maumee River, and safety concerns regarding one-way streets within downtown.

Data Collection & Review (See Section 3.0)

Data collection for this project included the documentation of existing (2018) peak hour intersection traffic volumes, 24 hour traffic volumes, existing roadway widths, functional classifications, lane configurations, sidewalks, on-street parking, bicycle facilities, and a number of other characteristics.

Policy Review (See Section 4.0)

The policy review process included the collection, compilation, and summarization of several key documents that guide the following areas of the transportation system within downtown Toledo:

- Active transportation and demand management
- Active transportation planning
- Connected and autonomous vehicle planning
- Complete streets policies
- Freight planning
- Parking demand management practices
- Preventative maintenance and construction practices
- Smart city applications
- Traffic calming and tactical urbanism
- Transit planning
- Transportation and public health planning
- Transportation systems management and operations

These documents were then compared to recommendations from the *Downtown Toledo Master Plan* (a 2017 document guiding future development and infrastructure investment in downtown) to determine if there were inconsistencies between the City's current policies and its plan for the future.

Current Conditions Assessment & Future Conditions Forecast (See Section 5.0)

An assessment of current conditions and the forecast of future conditions were completed to evaluate existing traffic operations, develop projections for future peak hour traffic volumes within downtown Toledo (for the years 2023 and 2038), and project future traffic operations within the area. Crash data within the study area was also evaluated as a part of this task. Key conclusions from this task include:

- Three (3) study area intersections experience unsatisfactory traffic operations (lane group or intersection level-of-service E or F—see Section 5.2 for details) under existing conditions. Poor traffic operations are projected to continue at the intersections under future conditions (the year 2038). These intersections include:
  - Washington Street & SR 246 (Dorr Street/17th Street)
  - Washington Street & SR 25 (Michigan Street)
  - SR 120 (Cherry Street) & SR 25 (Spielbusch Avenue)

- Excessive crashes were observed at three (3) downtown intersections (the most prevalent crash types among the intersections included rear end, angle, and sideswipe): These intersections included:
  - SR 120 (Cherry Street) & SR 65 (Summit Street)
  - SR 51 (Monroe Street) & SR 25 (Michigan Street)
  - SR 51 (Monroe Street) & 17th Street

Identification of Project and Program Alternatives (See Section 6.0)

Several improvement alternatives were developed for key downtown Toledo roadways (roadways identified in the 2017 *Downtown Toledo Master Plan)*. Specific alternatives were developed and evaluated for:

- 11th Street
- 14th Street
- Jackson Street
- SR 25 (Michigan Street)
- SR 25 (Erie Street)
- Washington Street
- Huron Street
- Jefferson Avenue
- St. Clair Street
- Adams Street
- SR (120) Cherry Street
- SR 51 (Monroe Street)
- SR 65/SR 2 (Summit Street)

These alternatives are summarized in Table E.1 below. Additionally, improvement alternatives were developed for a number of other downtown Toledo roadways (see Table E.2). All of the alternatives summarized in the tables are recommended for implementation within downtown Toledo.

Table E.1 Summary of Improvements for Key DTTS Area Roadways	
Roadway	**Description of Recommended Improvement**
	Downtown Standard Streets
11th Street	• Convert to two-way, add bump-outs at intersections; add on-street parking
14th Street	• Convert to two-way; add bump-outs at intersections; add on-street parking
Jackson Street	• Convert to two-way; two (2) lanes; add on-street parking
	Downtown Collector Streets
SR 25 (Michigan Street)	• Add on-street parking; add un-buffered bike lane; • Add on-street parking; reduce from three (3) lanes to two (2), add buffered bike lane (N. of Jefferson)
SR 25 (Erie Street)	• Add on-street parking; add un-buffered bike lane; add on-street parking (S. of Jefferson) • Add on-street parking; reduce from three (3) lanes to two (2); add buffered bike lane (N. of Jefferson)
Washington Street	• Add streetscape elements for traffic calming • Remove from National Truck Network (NTN)
	Downtown Specialty Streets
Huron Street (North)	• Convert to two-way; add transit lanes (note that the segment of Huron Street to the north of Adams Street was converted to two-way operation in 2019)
Huron Street (South)	• Add bump-outs at intersections; add mid-block sidewalk extensions
St. Clair Street	• Convert to festival street at selected locations
Jefferson Avenue	• Add buffered cycle track (it may be noted that this improvement is slated for construction in 2020)
Adams Street	• Convert to festival street at selected locations
	Downtown Signature Streets
SR 51 (Monroe Street)	• Reduce lane widths; add on-street parking; add intersection bump-outs
SR 120 (Cherry Street)	• Reduce from seven (7) lanes to five (5) lanes with a transit lane near TARTA Downtown Transit Hub; add raised median; add off-road multi-use path
MLK Bridge	• Reduce from five (5) lanes to four (4) lanes; add buffered cycle track
SR 65/2 (Summit Street)	• Reduce from five (5) lanes to four (4) lanes; add on-street parking; add streetscape improvements

Table E.2 Summary of Improvements for Other DTTS Area Roadways	
Roadway	**Description of Recommended Improvement**
17th Street	• Replace pavement; update crosswalks to new downtown standard (inlaid brick) at signalized intersections
16th Street	• Replace pavement; update crosswalks to new downtown standard (inlaid brick) at signalized intersections, replace curbs
15th Street	• Update crosswalks to new downtown standard (inlaid brick) at signalized intersections; add mid-block pedestrian crossing between Madison Avenue and Adams Street for Toledo School for the Arts
13th Street	• Replace pavement; update crosswalks to new downtown standard (inlaid brick) at signalized intersections
12th Street	• Update crosswalks to new downtown standard (inlaid brick) at signalized intersections; replace pavement markings
10th Street	• Replace pavement; update crosswalks to new downtown standard (inlaid brick) at signalized intersections
Ontario Street	• Update crosswalks to new downtown standard (inlaid brick) at signalized intersections
Constitution/Orange Street	• Replace pavement
Lafayette Street	• Streetscape improvements (street trees, planters, etc.)
Market Street	• Replace pavement; replace curb; replace pavement markings; replace crosswalks; add streetscape improvements (street trees, planters, etc.)
Clayton Street	• Replace curbs; replace pavement

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1.0

OVERVIEW

1.1 Overview

The objective of the Downtown Toledo Transportation Study (DTTS) is to gain a better understanding of the current opportunities and challenges associated with downtown Toledo's transportation network, project future transportation users and demands, and develop a plan to ensure that downtown Toledo has a safe, efficient, and equitable transportation network into the future. The study area, shown in Figure 1.2 is roughly bounded by the Maumee River to the east, SR 120 (Cherry Street) to the north, 17th Street to the west, and Newton Street to the south. In order to achieve its objective, this study includes the following elements (see Figure 1.1):

- An overview of the public involvement process completed for this study
- Collection of existing data and characteristics
- A review of existing policies that guide several elements of the transportation network within downtown Toledo
- An assessment of existing conditions and a forecast of future conditions

These elements will be used to identify and evaluate several improvement alternatives for downtown Toledo's transportation network.

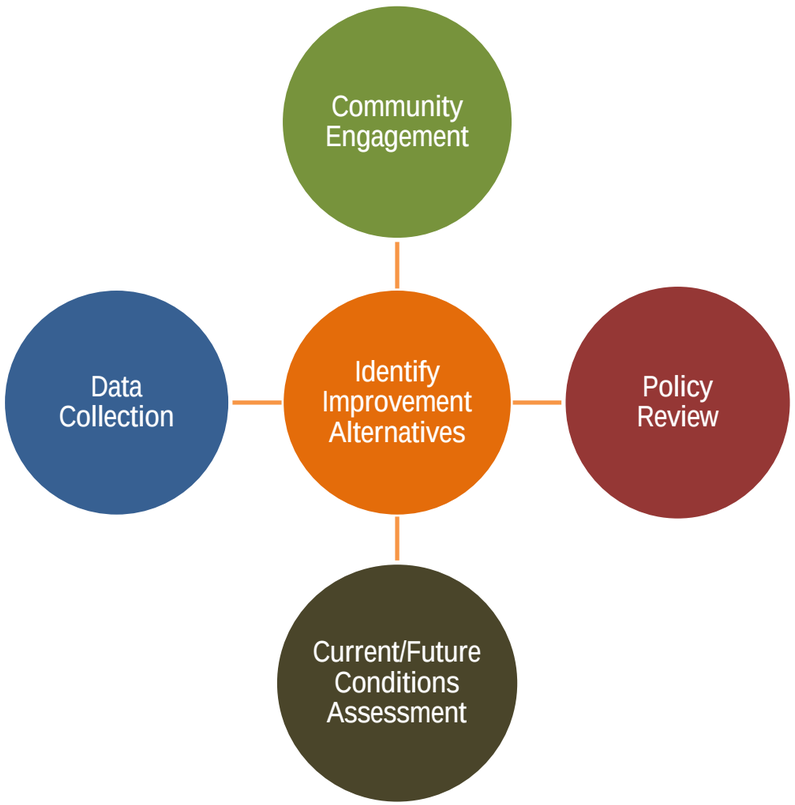


Figure 1.1 Study Methodology

1.2 Existing Study Area Neighborhoods and Land Uses

There are four (4) neighborhoods that make up the DTTS study area. These neighborhoods include the Downtown Core, the Warehouse District, Uptown, and Vistula (see Figure 1.2). Each of these neighborhoods have unique, residents, patrons, employees, and points of interest that will be affected by the future form and function of downtown Toledo's transportation network. Detailed information regarding each of these neighborhoods is provided below:

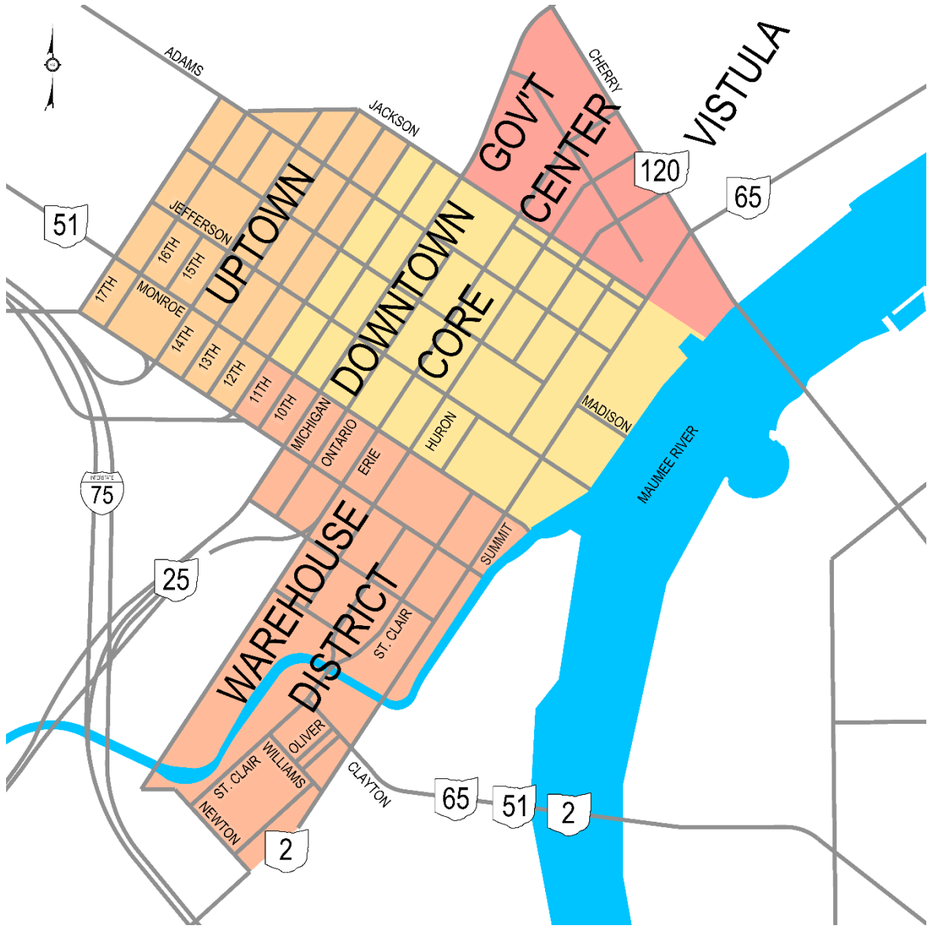


Figure 1.2 Study Area and Existing Downtown Toledo Neighborhoods

1.3 Study Area Neighborhoods

Downtown Core

The Downtown Core includes the area roughly bounded by the Maumee River to the east, SR 51 (Monroe Street) to the south, 11th Street to the west, and Jackson Street to the north. This neighborhood is home to several points of interest, including the Seagate Convention Centre, the Huntington Center (home of the Toledo Walleye), Promenade Park (home to a number of civic events and concerts), the Imagination Station museum, and the Valentine Theater. Land uses in this neighborhood are largely commercial, however, recent years have seen a growing number of residents calling this neighborhood home. Key transportation corridors within the Downtown Core include SR 65 (Summit Street), Huron Street, SR 25 (Michigan Street), SR 25 (Erie Street), and Jefferson Avenue

Source:www.toledoblade.com

Warehouse District

The Warehouse District includes the area roughly bounded by Summit Street to the east, Newton Street to the south, 11th Street to the west, and SR 51 (Monroe Street) to the north. Key destinations such as the Toledo Farmer's Market, Fifth Third Field, the Huron Street Corridor, and the St. Clair Street corridor are all located within this neighborhood. The Warehouse District has a strong residential population and features a number of shopping, restaurant, and industrial land uses. Key transportation corridors within the Warehouse District include SR 65/SR 2 (Summit Street), St. Clair Street, Huron Street, SR 25 (Erie Street), SR 25 (Michigan Street), Washington Street, and SR 51 (Monroe Street).

Source:www.pbs.org

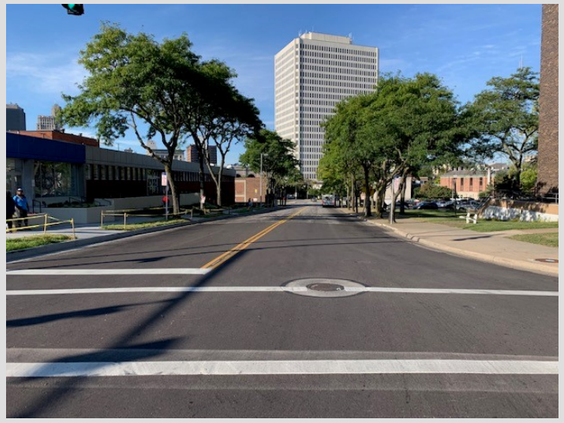
Uptown

Within the DTTS study area, Uptown includes the area roughly bounded by 11th Street to the east, Washington Street to the south, 17th Street to the west, and Jackson Street to the north. It may be noted, however, that outside of the DTTS study area this neighborhood's boundaries extend much further to the west (nearly to Collingwood Boulevard). This neighborhood is home to the Toledo School for the Arts, the Adams Street shopping/restaurant corridor, and a host of other institutional (schools, hospitals, etc.) and industrial land uses. Like the Downtown Core, this neighborhood has experienced a growing trend of residents calling this neighborhood home. Key transportation corridors within Uptown include 11th Street, 14th Street, Washington Street, SR 51 (Monroe Street), Jefferson Avenue, and Adams Street. 11th Street and 14th Street provide direct access to/from I-75.

Source:www.toledoblade.com

Government Center

Within the DTTS study area, Government Center is the area roughly bounded by the Maumee River to the east, Jackson Street to the south, SR 25 (Spielbusch Avenue) to the west, and SR 120 (Cherry Street) to the north. There are several destinations within this neighborhood, including the TARTA Transit Hub (new hub for TARTA buses), One Government Center (home to Lucas County and City of Toledo government offices), and the Toledo Municipal Court. Key transportation corridors within Government Center include SR 120 (Cherry Street), SR 25 (Spielbusch Avenue), SR 25 (Erie Street), SR 65 (Summit Street) and Huron Street. It may be noted that the historic Vistula neighborhood is located just outside of the northern border of the Government Center. This neighborhood features a strong residential population and several institutional land uses. Given its proximity to the DTTS area, it will be important to consider any impacts that future downtown Toledo transportation infrastructure has on residents, employees, and patrons of this neighborhood.



1.4 Downtown Toledo Master Plan Street Typologies

The *Downtown Toledo Master Plan,* developed in 2017 identified four (4) unique street typologies for roadways within downtown Toledo (see Figure 1.3). The typologies were developed based on public/stakeholder input and analysis to provide guidelines for the future form and function of specific roadways in downtown Toledo. For the DTTS, these typologies will also serve as guidance, for analysis and the development of improvement alternatives. Specific information regarding each of the four (4) typologies is provided in Figure 1.4.

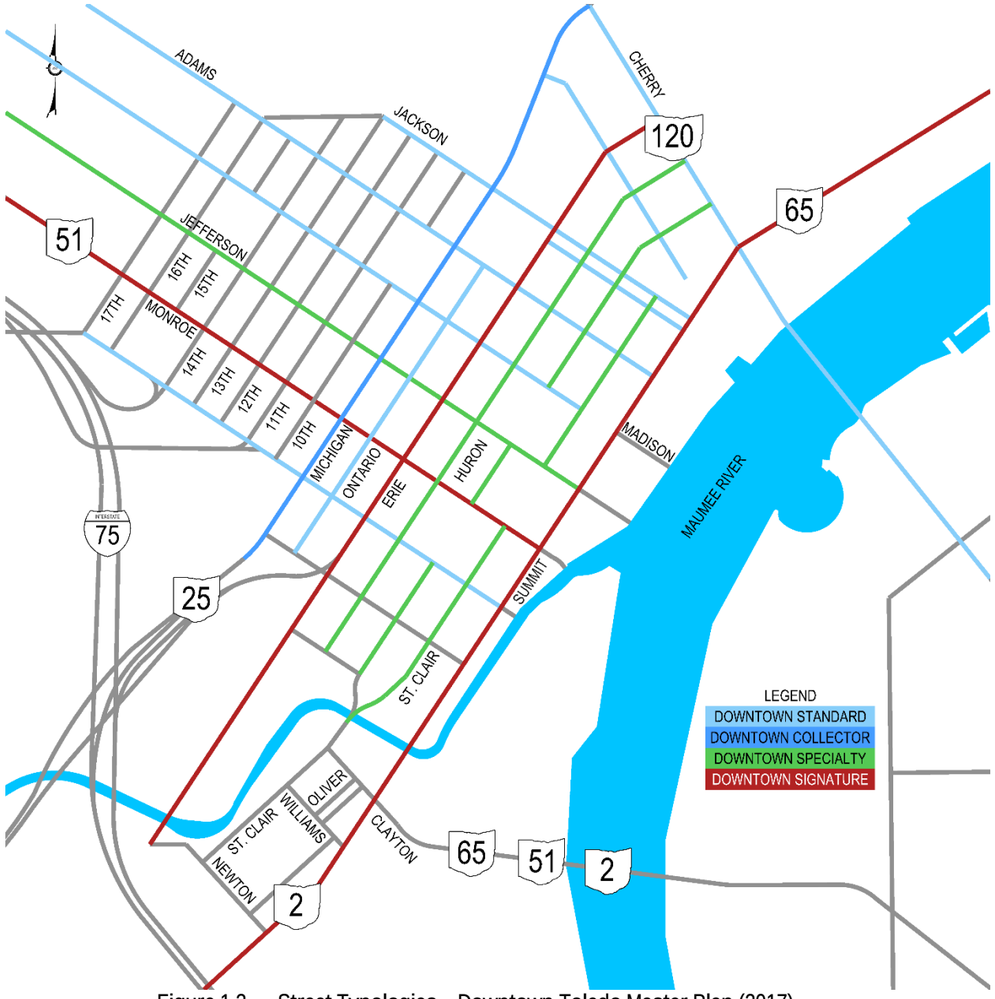
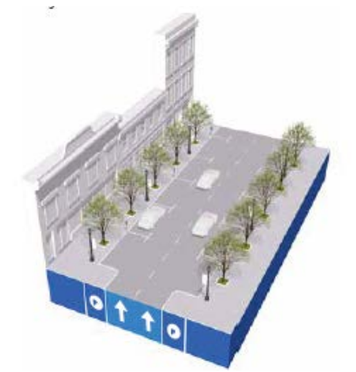


Figure 1.3 Street Typologies – Downtown Toledo Master Plan (2017)

- Downtown Signature Streets – Streets focused on slowing traffic and supporting development
  - Includes SR 65/SR 2 (Summit Street), SR 51 (Monroe Street), SR 25 (Erie Street), and SR 120 (Cherry Street)
- Downtown Specialty Streets – Streets designed for walking, strolling, and enjoying
  - Includes St. Clair Street, Superior Street, Huron Street, Jefferson Avenue
- Downtown Collector Streets – Vehicular focused streets
  - Includes SR 25 (Michigan Street)
- Downtown Standard Streets – Low speed, low volume streets
  - Includes Ontario Street, Washington Street, Madison Avenue, Adams Street, Jackson Street, Constitution Avenue/Orange Street, and SR 120 (Cherry Street)

Downtown Standard Streets

These streets include "full sidewalks to accommodate pedestrians and outdoor seating with street trees, decorative LED streetlights, parking meters, and traffic signage closer to the curb. On-street parking and curb extensions ("bump-outs") are standard elements as well. Accommodating bikes is important, but with low speed downtown streets, sharrows are the standard design."



Downtown Collector Streets

These streets are "the more vehicular-focused roads and have wider, 11-foot lanes and are general one-way, but are otherwise like the Downtown Standard. These should be limited in number downtown."

Downtown Specialty Streets

These streets are "downtown streets that carry high pedestrian traffic and have important uses along them. Here the extra detail and expense of signature materials like brick, stone, granite, seating, accent lighting, landscape planters are appropriate to invite people to walk, stroll, and linger."

Downtown Signature Streets

These streets "build on the qualities of the Downtown Specialty street and are image-defining streets for Toledo. They usually carry more vehicular traffic than specialty streets and are gateway streets for downtown. Thus, they should include signature intersection design and gateways, landscaped medians, and iconic Toledo elements…"

2.0

PUBLIC INVOLVEMENT

2.1 Overview

The Downtown Toledo Transportation Study (DTTS) included an extensive public outreach campaign. Objectives of the outreach were to gain an understanding of the opportunities and challenges associated with downtown Toledo's transportation network, to develop future improvement alternatives, and to gain consensus for the future transportation plan. Public involvement included the following meetings:

- Core Project Development Team Monthly Meetings – This team included was comprised of Monthly meetings with the City of Toledo Division of Transportation, ConnecToledo Downtown Development Corporation, TARTA, and the consultant team
- Transportation Advisory Committee (TAC)/Focus Group Meetings – The TAC was comprised of key downtown stakeholders and included a focus group workshop comprised of 61 attendees. These attendees included downtown educational institutes, small businesses, large businesses, non-profit agencies and City Council
- Public Engagement Meetings – Three (3) public engagement meetings were conducted over a 15 month period. Public meetings were advertised via City website postings and social media posts

The objectives of the public engagement meetings were:

- TAC/Focus Group Meetings – Gather specific information from key stakeholders pertaining to their downtown vision, transportation needs, and future planning
- Public Meeting 1 (May 2018) – Present data pertaining to the roadway network, including: traffic data, policy review, long range planning (roadway, transit, bicycle) and safety analyses; obtain feedback on transportation needs and opportunities; develop roadway strategies
- Public Meeting 2 (February 2019) – Present roadway alternatives and gather input on preferred alternatives
- Public Meeting 3 (September 2019) – Present preferred alternatives and gain consensus

2.1.1 TAC and Focus Group Meetings

The Transportation Advisory Committee (TAC) met twice in May 2018 prior to the first public meeting and again in January 2019 before the second public meeting. As part of the first TAC meeting, a series of Focus Groups were conducted among specific groups: downtown entertainment/cultural attractions, educational institutions, small businesses, large businesses, non profit agencies and City Council. The smaller groups allowed for a more manageable size and encouraged open dialogue.

The list of representatives for both the TAC and the Focus Groups is provided in Table 2.1 – TAC and Focus Group Members.

Stakeholders and TAC members recognized that there is a need for a Downtown Toledo Transportation Plan to create a unified vision for mobility within and around downtown Toledo. Throughout these discussions, consistent themes emerged regarding the challenges and opportunities the Transportation Plan must address, including:

- Walkability
- Transportation Options
- Traffic Calming
- Wayfinding
- Placemaking
- Neighborhood Connections
- Parking Information & Management
- Curbside Regulation
- Gateways

Specific comments to each of these themes are provided in Table 2.2– TAC and Focus Group Themes.

Table 2.1 TAC and Focus Group Members

Transportation Advisory Committee Meeting

1. Laurie Adams, DGL
2. Corrinne Lochtefeld, DGL
3. Barb Jones, DGL
4. Kristopher Ball, The Mannik & Smith Group
5. Nicole Carter, The Mannik & Smith Group
6. Jean Hartline, The Mannik & Smith Group
7. Andrew Overbeck, MKSK
8. Others at MKSK
9. Lisa Householder, TMACOG
10. Keith Webb, We Are Traffic
11. Diane Hipp, Toledo Warehouse District Association
12. Ryan Kelley, Toledo Warehouse District Association
13. Richard Rideout, Toledo Warehouse District Association
14. Bill Kelly, TARTA
15. Jason Binder, TARTA
16. Chris Keller, Hub Group
17. Cindy Kerr, ConnecToledo
18. David Dysard, City of Toledo, Engineering Services
19. Gary Stookey, City of Toledo, Transportation
20. Stephanie Bartlett, City of Toledo, Transportation

Focus Group Meetings

SESSION 1A– ENTERTAINMENT / CULTURAL ATTRACTIONS

1. Bob Vasquez, Toledo Zoo
2. Marc Folk, The Arts Commission
3. Emily Ziegler, Metroparks
4. Steve Miller, Huntington Center/Seagate Centre
5. Joe Napoli, Toledo Mud Hens, Walleye, Hensville
6. Lynn Miller, Toledo Museum of Art

(12 stakeholders contacted and invited, 6 in attendance

SESSION 1B – EDUCATIONAL INSTITUTIONS

1. James R. Gast, Toledo Public Schools
2. Meg Delaney, Toledo-Lucas County Public Library
3. Margie Traband, University of Toledo
4. James T. Jackson, Owens Community College, Downtown
5. Adam Levine, Toledo Museum of Art
6. John Gettings, *Walker Consultants*

(10 stakeholders contacted and invited, 6 in attendance)

SESSION 2A – SMALL BUSINESSES

1. Kevin Clapper, EZ Shuttles LLC
2. Emily Dammeyer, Toledo Regional Chamber of Commerce
3. Zach Lahey, The Village on Adams
4. Jeff Kimble, Communica, Inc.
5. Matt Rubin, Crane Development
6. Yvette Mayres, Reicheklein - One Seagate
7. Paul Sullivan, PRS AIA
8. Sarah Skow, Spengler Nathanson PLL, Arts Commission
9. Mike Young, Toledo Design Center
10. Robert Seyfans, Toledo Design Center
11. Elizabeth Ellis, Toledo Design Center

(18 stakeholders contacted and invited, 11 in attendance)

SESSION 2B – LARGE BUSINESSES

1. Tim Bockbrader, Edge
2. Kevin Prater, AKKPLCC - Prater Development
3. Leo Link, SSOE Inc.
4. Jim Kniep, Manhattan/KWIK Parking
5. Yvette Mayres, Reicheklein - One Seagate
6. Bruce Rumpf, JOB1WSA

(15 stakeholders contacted and invited, 6 in attendance)

SESSION 3A – NON-PROFITS

1. Bethany Deakins, YMCS of Greater Toledo
2. Jordan Justice, Toledo Bike Coalition
3. Greg Vriezelaar, West Erie Realty Solutions
4. Ken Wood, Martin + Wood Appraisal Group

(7 stakeholders contacted and invited, 4 in attendance)

SESSION 3B – CITY COUNCIL

1. Rob Ludeman
2. Julie Gibbons
3. Matt Cherry
4. Katie Hunt Thomas
5. Valerie Novack
6. Sandy Spang
7. Gary Johnson
8. Larry Sykes
9. Yvonne Harper
10. Kim Baker
11. Cody Holbrook

(6 stakeholders contacted and invited, 11 in attendance)

Table 2.2 TAC and Focus Group Themes

WALKABILITY

- Crossing the street as a pedestrian downtown is difficult
- Right turns on red create major conflicts for pedestrians crossing the street
- Desire for more elements that improve walkability
- Consideration of ADA/accessibility is needed
- Make the pedestrian experience more interesting through decorative streetscape elements and amenities
- Lighting could be improved downtown, particularly in the entertainment district
- Perception is that downtown is still dangerous – people do not feel safe walking

TRANSPORTATION OPTIONS

- Desire for more and standardized bike parking, more bike facilities
- With bikeshare coming, will need to consider connectivity between stations, destinations
- Transit Loop (circulator) isn't a bad concept - should provide circulation around the major destinations and institutions (i.e. art museum, hotels, Old West End)
- Desire for alternative transportation options for downtown employees—parking costs $60-70 per month
- UT partnered with TARTA to offer free passes to students, faculty, staff – this type of program should be considered for downtown employees

TRAFFIC CALMING

- One-way streets are too high speed, particularly in the Warehouse District
- Streets that have been converted to two-way in the Warehouse District work really well and have created successful, walkable environments
- Truck traffic on downtown streets is an issue (traveling through, not as final destination)

WAYFINDING

- There is no signage anywhere downtown telling people where to go (pedestrian or vehicular)
- Major challenge for visitors to find their destinations
- Would be helpful for spreading parking demand to facilities with availability
- Remaining one-way streets are confusing, people often drive the wrong way

PLACEMAKING

- Use of alleys as pedestrian connections and for programming
- Policy for allowing Food Trucks – creating a food truck park or corridor

NEIGHBORHOOD CONNECTIONS

- Connections with surrounding context are critical (outside of the study area – metro parks, Nautical Mile, east side of river, AMTRAK, adjacent neighborhoods, etc.)
- South of Monroe Street, downtown has much more of a "neighborhood" feel

Table 2.2 (Cont'd) TAC and Focus Group Themes

PARKING INFORMATION & MANAGEMENT

- There is plenty of parking, but there is a problem with where the parking is located (and willingness to walk to it)
- Desire for more convenient (on-street) parking – could be resolved by making it easier for people to find and use
- Need more parking turn-over in the evenings (after meter enforcement ends)
- On-street parking should no longer be free during lunch
- Enforcement is not consistent – responsibility lies within multiple agencies
- Many existing lots and facilities are unappealing/under-maintained, creating a feeling that it is unsafe to use
- The surplus of surface parking downtown offers opportunities for redevelopment

CURBSIDE REGULATION

- Lots of ride sharing traffic in the evenings near bar/entertainment areas
- Dealing with commercial deliveries – establishing time period restrictions
- Downtown employees abuse free on-street parking
- Police vehicles clogging streets around the Courthouse, etc.

GATEWAYS

- Many of the gateways to downtown are on high-speed corridors (off-ramps) – these are a key opportunity for traffic calming
- Desire to see development/density around all of the gateways

Stakeholder interviews identified several priority corridors as important focus areas for the Transportation Plan. The corridors identified include:

- Washington Street
- Adams Street
- SR 25 (Erie Street)
- SR 25 (Michigan Street /Spielbusch)
- SR 65 (Summit Street)
- SR 51 (Monroe Street)
- Jackson Street
- Jefferson Ave
- SR 120 (Cherry Street)

The TAC and Focus Group also were encouraged to provide comments and concerns on specific downtown streets. These are summarized in Table 2.3 – Street Summary.

Table 2.3 Street Summary

ADAMS STREET

- Desire for use as bicycle corridor
- People don't understand how to use the turn lanes
- Through traffic speeds are a concern, though speed limit change to 25 mph has helped
- 14th at Adams – dangerous intersection; people drive through stop signs, even with flashing lights on signs

WASHINGTON STREET

- Truck traffic and speeding are issues
- Crossing Washington as a pedestrian is challenging

SR 25 (ERIE STREET)

- Speeding from Lafayette to Washington from Anthony Wayne
- Washington at Erie – dangerous intersection for pedestrians (due to speeding)
- State Route – requires coordination with ODOT

SR 25 (MICHIGAN STREET)

- Speeding from Monroe to Lafayette accessing Anthony Wayne
- Truck traffic is a problem, trucks speed down Michigan
- State Route – requires coordination with ODOT

SR 65/SR 2 (SUMMIT STREET)

- Could use traffic calming
- Truck traffic is a problem - need to keep through-trucks on expressways
- Will become more pedestrian-heavy in the future, need to adapt
- Not great for walking or bicycling in its current state
- State Route – requires coordination with ODOT

SR 51 (MONROE STREET)

- Speeding is a huge issue
- Traffic signals seem to be timed to get people out of downtown in the evening
- Need for traffic calming south of Erie
- State Route – requires coordination with ODOT

JACKSON STREET

- TARTA moving off Jackson, should become two-way; street is currently a barrier
- Remove eastbound leg of street

JEFFERSON AVE

- Difficult to cross as a pedestrian

SR 120 (CHERRY STREET)

- Difficult to cross as a pedestrian

2.2 Public Meetings

An extensive outreach plan was executed for all public meetings, Outreach included:

SOCIAL MEDIA

- City of Toledo Facebook Page (12,444 followers)
- City of Toledo Twitter (11,162 followers)
- Downtown Toledo Facebook Page (20,754 followers)
- Downtown Toledo Twitter (10,151 followers)

PRESS RELEASES

The City of Toledo Communications Department sent out a press release notifying the public about the first Community Visioning Workshop. The release, sent on May 11, 2018, was also shared on the City's website.

MEDIA

The City of Toledo conducted a radio interview with Scott Sands on NewsRadio 1370 WSPD to get the word out about the project and share the link to the online survey. The station also shared the website and survey link on their social media pages.

ONLINE NEWSLETTERS

Notice of the first Community Visioning Workshop was included in the regularly-scheduled Friday Toledo e-newsletter sent out by the City of Toledo.

2.2.1 Public Meeting 1

For the first public meeting, attendees identified for downtown transportation challenges and opportunities with the following results:

- What are the greatest downtown transportation assets?
  - Ample Parking
  - Wide Streets with opportunities
  - Lower traffic volumes
  - Nice/wide sidewalks
  - Transit/TARTA
- What are the greatest challenges?
  - One-way Streets
  - Too much road construction
  - Ineffective public transportation
  - Unappealing pedestrian environment
  - Too much emphasis on vehicular traffic
  - Too little emphasis on pedestrian and bicycle traffic
- What are your favorite streets downtown?
  - St. Clair
    - Wide sidewalks, very walkable
    - Great buildings, interesting street environment
    - Lively, appealing street with lots of amenities

- Adams
  - Business friendly, lots of activity
  - So many things to do, places to eat
  - Unique/diverse, local variety of businesses
- Summit
  - Interesting buildings and green space
  - Proximity to/view of the waterfront
- Monroe
  - Connects to everything, including other parts of the city
  - Lots of activity near the ballpark, restaurants
- Huron
  - Connects to destinations, runs the full length of downtown

Attendees were asked to participate in a series of exercises to design their own version of four (4) key downtown streets. Each street station provided a street map and a "street building kit" which allowed for development of the desired features including vehicular lanes, bicycle facilities, sidewalk, streetscape features, and parking. The result of the street building exercise included:

Station 1: Adams Street
The majority of participants agreed that Adams Street is a key route for bicycling into and out of downtown. Nearly every street design that was created included some type of bicycle facility. Additionally, designs included enhanced pedestrian amenities such as outdoor seating and wide sidewalks.

Station 2: Jefferson Avenue
Participants were split between keeping on-street parking and implementing a bike facility on Jefferson Avenue. Some of the street designs proposed removing all on-street parking, while others tried to accommodate both parking and bike facilities. Many participants stated that Adams Street seems to be more suitable for a bike facility than Jefferson Avenue.

Station 3: Summit Street
There was a general desire from participants to see Summit Street address its proximity to the river and create a more active street; the different design solutions included a cycle track on the east side, and wider sidewalks with outdoor seating on the west side.

Station 4: Michigan Street
Participants were split between keeping Michigan Street one-way or converting it to two-way. Whether one-way or two-way, all design concepts included some type of bike facility.

Key takeaways from the first public meeting included:

- Desire for more dedicated/designated bicycle facilities
- One-way to two-way street conversions
- More pedestrian amenities (outdoor space and wider sidewalks)

A detailed presentation of the public meeting is provided in Appendix A.

2.2.2 Public Meeting 2

At the second public meeting in February 2019, roadway improvement alternatives were printed on large boards. Alternatives included two-way conversions, road diets, bicycle facility additions, and streetscapes developed from the input of the first public meeting. Attendees were encouraged to identify their preferred alternatives by placing a sticker on the board next to that alternative. The results of this effort are provided in Table 2.4 – Alternative Summary.

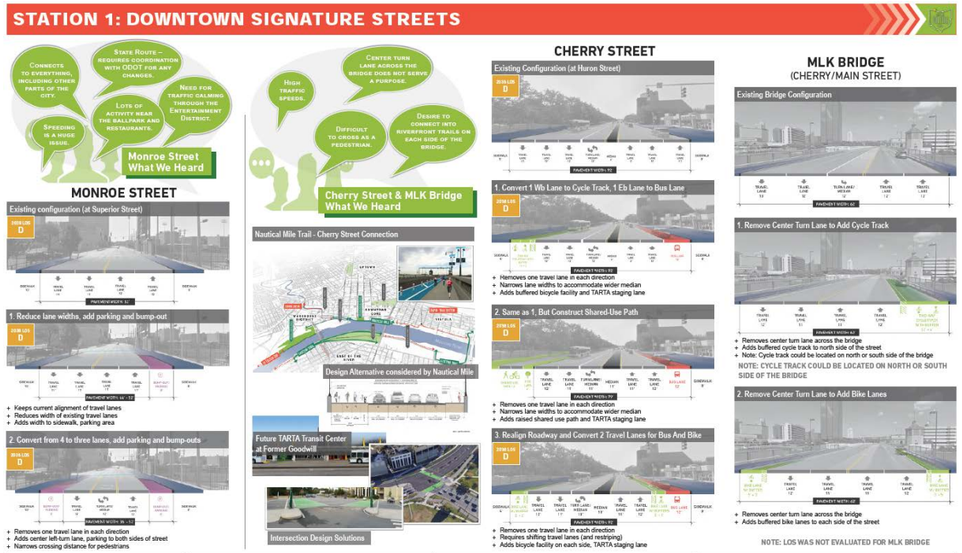


Table 2.4 Alternative Summary	
MONROE • Existing • Concept 1 – 4 lanes with reduced lane widths and parking bump outs • Concept 2 – 3 lanes with parking bump outs	Existing – 36% Concept 1 – 64% Concept 2 – 0%
SUMMIT • Existing • Concept 1 – 5 lanes convert bus lane to buffered cycle track • Concept 2 – 5 lanes convert bus lane to bike lanes • Concept 3 – 3 lanes add parking and buffered bike lanes • Concept 4 – 3 lanes with parking and cycle track	Existing – 3% Concept 1 – 26% Concept 2 – 0% Concept 3 – 18% Concept 4 – 53%
CHERRY STREET • Existing • Concept 1 – 5 Lanes with Cycle track and transit lane • Concept 2 – 5 lanes with off road shared use path and transit lane • Concept 3 – 5 lanes with bike lanes and transit lane	Existing – 0% Concept 1 – 0% Concept 2 – 87% Concept 3 – 13%
ST CLAIR STREET • Existing • Concept 1 – Festival Street	Existing – 0% Concept 1 – 100%
HURON • Existing • Concept 1 – 4 lane Two-way conversion • Concept 2 – 2 lanes with bus lanes	Existing – 0% Concept 1 – 0% Concept 2 – 100%
JEFFERSON • Existing • Concept 1 – Remove parking, add cycle track	Existing – 0% Concept 1 – 100%
WASHINGTON STREET • Existing • Concept 1 – Streetscape	Unanimous support for streetscaping including medians to calm traffic
ERIE STREET • Existing • Concept 1 – 3 lanes with buffered bike lane (parking removed) • Concept 2 – 2 lanes with buffered bike lane	Existing – 0% Concept 1 – 23% Concept 2 – 77%

Key takeaways from the second public meeting included:

- An overwhelming support for concepts that include:
  - Road diets/vehicle lane reductions
  - Two-way conversions
  - Bicycle Facilities
  - Streetscapes
- A desire for less emphasis on vehicular traffic and more emphasis on non-motorized (pedestrian and bicycle)
- Enthusiastic support of Festival Streets

Table 2.4 (Cont'd) Alternative Summary	
MICHIGAN STREET • Existing • Concept 1 – 3 lanes with buffered bike lane (parking removed) • Concept 2 – 2 lanes with buffered bike lane	Existing – 0% Concept 1 – 21% Concept 2 – 79%
11TH STREET • Existing • Concept 1 – Add bump outs to existing parking • Concept 2 – Convert one-way to two-way	Existing – 9% Concept 1 – 0% Concept 2 – 91%
14TH STREET • Existing • Concept 1 – Add bump outs to existing parking • Concept 2 – Convert one-way to two-way	Existing – 3% Concept 1 – 0% Concept 2 – 97%
JACKSON STREET • Existing • Concept 1 – Convert one-way to two-way with center turn lane • Concept 2 – Convert one-way to two-way with parking bumpouts	Existing – 4% Concept 1 – 4% Concept 2 – 92%

A detailed public meeting summary is provided in Appendix A.

2.2.3 Public Meeting 3

The final public meeting was held in September 2019 and included a presentation of refined alternatives. Alternatives were again printed on large boards and included identification of preferred alternatives (a result of technical analyses). The meeting began with a brief presentation in which community members were provided information on proposed changes to downtown roadways. During this presentation, community members were also introduced to several additional improvements that were either already under construction, or have been completed within downtown. Improvements were organized according to the four (4) street typologies presented in the *Downtown Toledo Master Plan* (see below). After the presentation, attendees were invited to provide feedback on the proposed changes for roadways in each of the street typologies, including:

- Downtown Signature Streets – Streets focused on slowing traffic and supporting development
  - Includes Summit Street, Monroe Street, and Cherry Street
- Downtown Specialty Streets – Streets designed for walking, strolling, and enjoying
  - Includes St. Clair Street, Superior Street, Huron Street, Jefferson Avenue, and Adams Street
- Downtown Collector Streets – Vehicular focused streets
  - Includes Washington Street, Erie Street, and Michigan Street,
- Downtown Standard Streets – Low speed, low volume streets
  - Includes Ontario Street, 11th Street, 14th Street, Madison Avenue, and Jackson Street

Note that the street typologies for some of these roadways have been changed from the Downtown Toledo Master Plan as a result of this study's findings.

Also included in the presentation at this meeting was identification of completed and planned projects associated with this study:

- Huron Street two-way conversion (Jackson Boulevard to Cherry Street) completed in 2019
- Jefferson cycle track including federal/state grant for 2021 construction
- Summit Street Redesign slated for 2020 construction
- MLK bridge cycle track planned

Key Takeaways

Key takeaways from Public Meeting 3 included:

- In all, strong support was offered from the public on the downtown plan including full audience applause at the end of the presentation.
- Overwhelming support for bicycle facilities

3.0

DATA COLLECTION & REVIEW

3.1 Existing Transportation Network

Several elements of data were collected to document the conditions of the existing transportation network for the DTTS. These elements included a physical inventory of the roadway network, existing traffic volume data, existing crash data, existing transit facilities, existing truck routes, commercial pick-up/drop-off locations, ridesharing conditions, and bicycle facilities. Detailed information regarding each of these elements is provided in the sections below:

Existing Roadway Characteristics

Documentation of the existing physical characteristics of study area roadways included collection of the following elements of data within the study area (elements of data illustrated in figures are shown in **bold**):

- **Functional classification** (ODOT) – see Figure 3.2
- **Traffic control (signalized/stop controlled)** – see Figure 3.3
- **Roadway width (feet)** – see Figure 3.4
- **Number of lanes** – see Figure 3.5
- **One-way/two-way travel** – see Figure 3.6
- Sidewalk presence (see Appendix A)
- Sidewalk width (see Appendix A)
- **On-street parking locations** – see Figure 3.7
- **Existing bicycle facilities** – see Figure 3.8

Detailed information regarding each of these elements is provided in the following sections. Further details regarding existing roadway characteristics (including sidewalk presence and width) can be found in Appendix A.

Functional Classification

The aim of any transportation network is to provide efficient land access while also providing intra-city and intercity mobility. The roadway's functional classification describes its role in accommodating mobility (i.e., efficient travel between locations) and/or land access (i.e., efficient ingress/egress to specific sites) as both of these needs require contrasting roadway characteristics. Existing functional classifications (as specified by the Ohio Department of Transportation – ODOT) for roadways within the study area are illustrated in Figure 3.2. Functional classification definitions (as defined by ODOT) are provided below:

- **Principal Arterial** – These are roadways designed with mobility and long-distance travel in mind. Principal Arterials serve major activity centers, the highest traffic volume corridors, and the longest trip demands. These roadways typically provide limited land access.
- **Minor Arterial** – These are roadways designed for trips of moderate length, and to offer connectivity to the higher Principal Arterial system. These roadways are designed to provide limited land access, but more land access than Principal Arterials.
- **Major Collector** – These roadways are designed to connect Local roads to Arterials. Major collectors typically provide less land access and have higher speed limits than Minor Collectors.
- **Minor Collector** – These roadways are similar to Major Collectors, but with more land access, lower speed limits, and shorter lengths.
- **Local** – These roadways are designed to primarily provide land access and to limit through travel.

Within the DTTS study area, the roadways with state route designations are assigned the highest functional classification of principal arterial. Other non-state designated roads are classified as minor arterials, major collectors, minor collectors, or local roads.

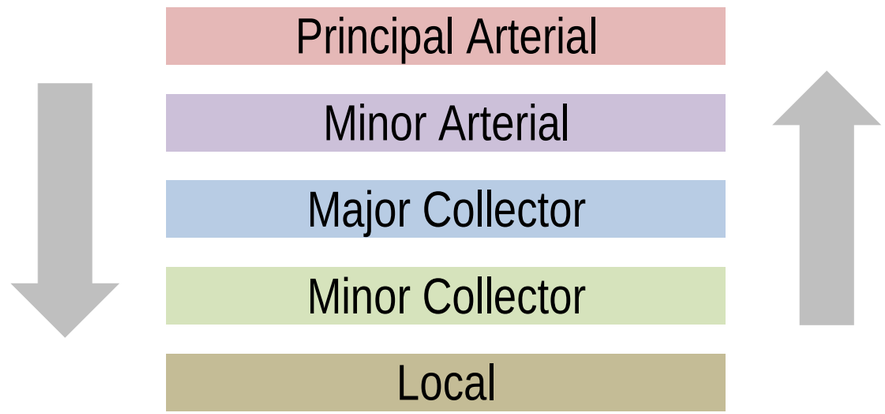


Figure 3.1 Functional Classification Hierarchy

Physical Characteristics

Several physical characteristics of study area roadways were documented during an August 2018 field visit. Specific characteristics that were observed include roadway widths (in feet), number of lanes, sidewalk presence/width, one-way/two-way travel, on-street parking locations, bicycle facilities, and traffic control. Some of these elements are illustrated in Figures 3.2 – 3.8.

Peak Hour Manual Turning Movement Counts

AM, Midday, and PM weekday peak hour manual turning movement counts were collected at study area intersections on Tuesday, March 13, 2018, Thursday, March 15, 2018, Tuesday, March 20, 2018, and Wednesday, April 11, 2018. A special event peak period count (4:00 PM Opening Day Toledo Mud Hens Game) was also collected on Thursday, April 12, 2018 (12:30 PM to 4:30 PM). Counts were collected at the locations illustrated in Figure 3.9 and included the classification of heavy vehicles, pedestrians, and bicycles. AM, midday, and PM peak hours were determined from ATR counts collected within the study area and are as follows:

- AM peak – 7:30 – 8:30
- Midday peak – 12:00 – 1:00 PM
- PM peak – 4:15 – 5:15

Automatic Traffic Recorder (24 – hour) Counts

Continuous automatic traffic recorder (ATR) counts were collected at eleven (11) locations on the perimeter of the study area from Friday, March 9, 2018 to Monday, March 19, 2019. Counts included the classification of passenger cars as well as heavy vehicles and are listed below.

1. Washington Street – Between 14th Street and 16th Street
2. SR 51 (Monroe Street) – Between 15th Street and 16th Street
3. Jefferson Avenue – Between 15th Street and 16th Street
4. Madison Avenue – Between 15th Street and 16th Street
5. Adams Street – Between 15th Street and 16th Street
6. Indiana Avenue – West of Washington Street
7. SR 25 (Michigan Street) – South of Washington Street
8. SR 25 (Erie Street) – South of Washington Street
9. SR 65 (Summit Street) – South of Washington Street
10. SR 65 (Summit Street) – Between Jackson Street and SR 120 (Cherry Street)
11. SR 25 (Spielbusch Avenue) – Between Constitution Avenue and SR 120 (Cherry Street)

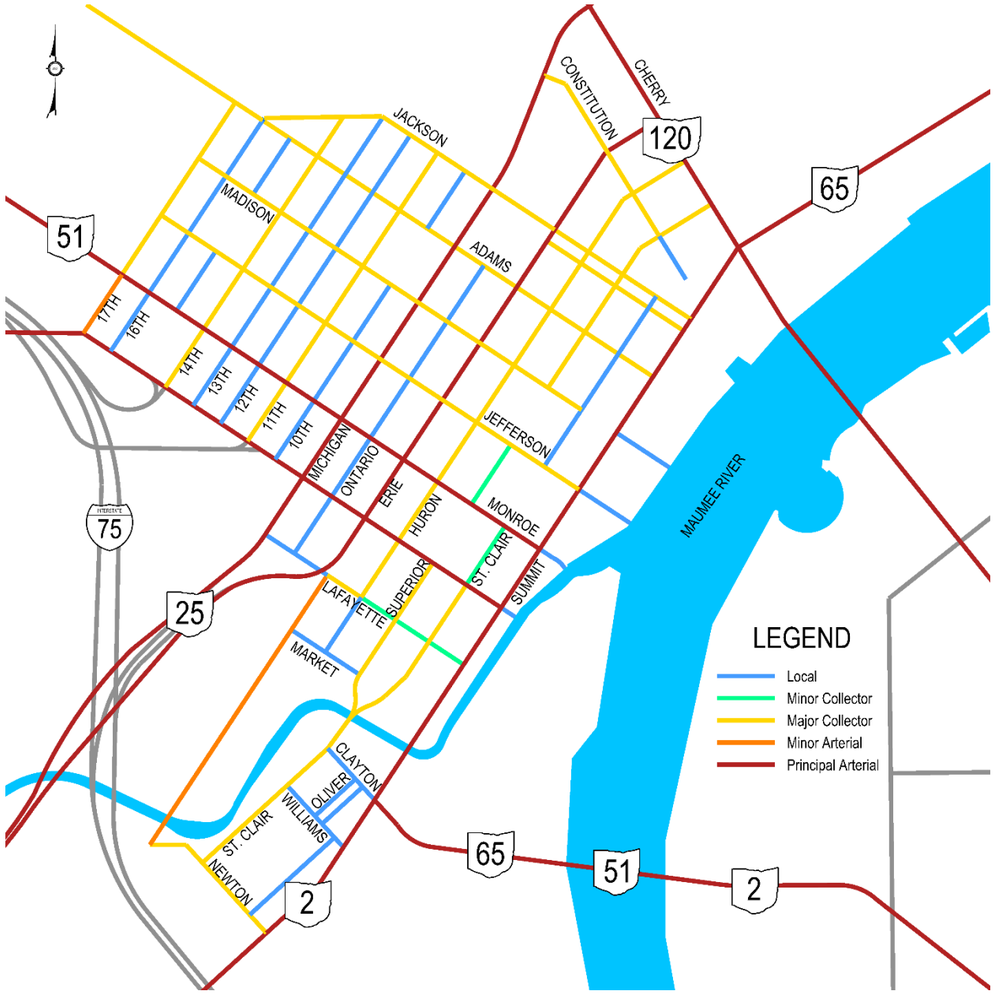


Figure 3.2 Existing Functional Classifications

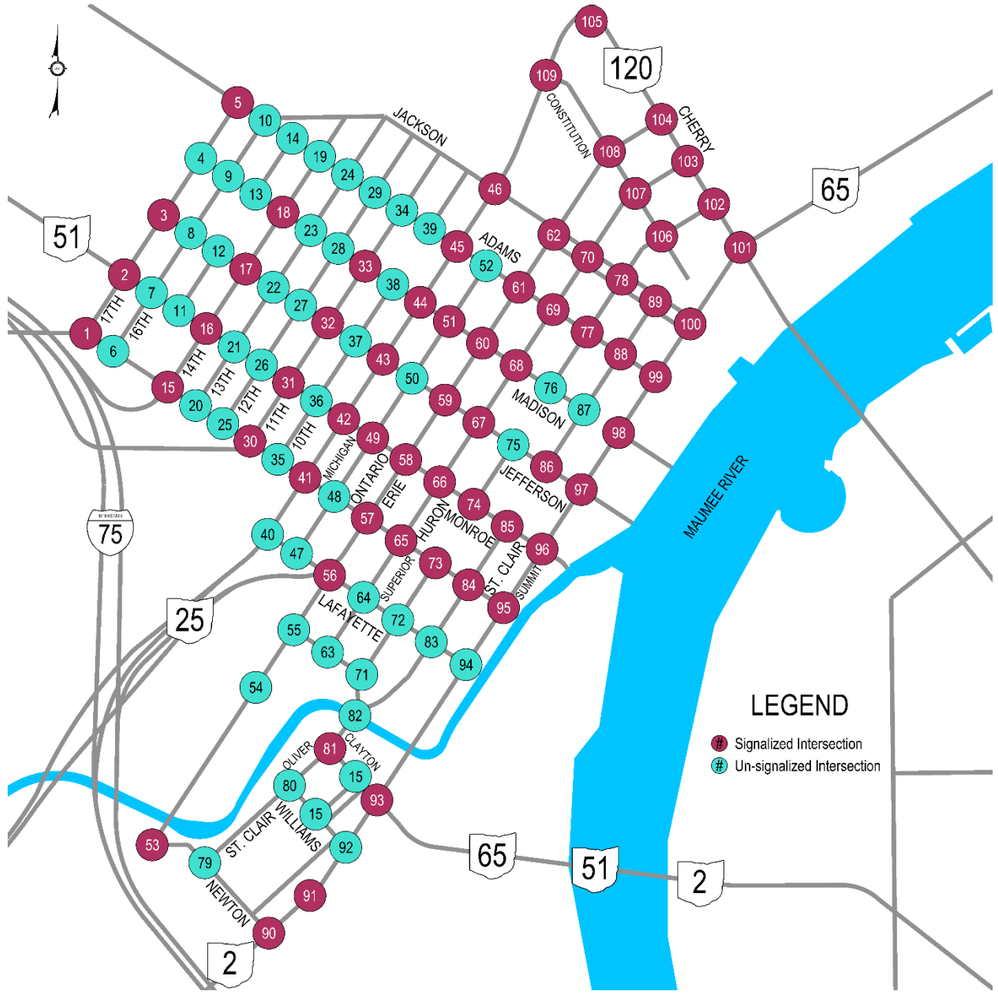


Figure 3.3 Study Area Intersections

It may be noted that differences were observed between ATR counts collected for this project and ODOT AADT values obtained for specific study area roadways. Because of this, Table 3.1 includes a summary of average weekday traffic volumes (from ATR counts), projected AADT values (from ATR counts), as well as AADT values obtained from ODOT. Roadways in which notable differences were observed between traffic counts collected for this project and ODOT ADT values are shown in **bold**. In addition, seasonal adjustment factors (obtained from ODOT) are also summarized in the table as they are typically used to convert short term traffic counts (such as those collected for this project) to AADT. Factors that may contribute to the differences in ATR counts collected for this project and ODOT AADT values are presented below:

Table 3.1 Automatic Traffic Recorder (ATR) Summary

Location	2018 Average Weekday Count	*Seasonal Adj. Factor (ODOT)*	2018 AADT (from Count)	2018 - AADT** (from ODOT)
Washington Street (Uptown)	4,261	0.981	4,190	4,356
SR 51 (Monroe Street) (Uptown)	9,074	0.981	8,910	11,168
Jefferson Avenue (Uptown)	3,279	0.959	3,150	2,881
Madison Avenue (Uptown)	2,292	0.959	2,200	3,762
Adams Street (Uptown)	3,568	0.959	3,430	3,654
Indiana Avenue	8,300	0.959	7,960	12,517
SR 25 (Michigan Street)	11,473	0.981	11,260	12,770
SR 25 (Erie Street)	10,027	0.981	9,840	8,849
SR 65 (Summit Street-South)	11,772	0.981	11,550	11,450
SR 65 (Summit Street-North)	15,444	0.981	15,160	14,798
SR 25 (Spielbusch Avenue)	7,383	0.981	7,250	7,938

*Seasonal adjustment factors obtained by rounding Tuesday, Wednesday, and Thursday values for March (from 2018 ODOT report)
**AADT values obtained from ODOT Transportation Information Mapping System

- SR 51 (Monroe Street) – ODOT AADT projections (2018) along Monroe Street are higher than AADT projections from this project's traffic counts. It should be noted that the 2018 ODOT AADT value is a projection from a one (1) day (24 hour) count collected in June of 2016.

- Madison Avenue – ODOT AADT projections (2018) from Madison Avenue are higher than AADT projections from counts collected for this project. The ODOT values were projected from a one (1) day 24-hour traffic count collected in July of 2014 (2,175 vehicles). The July 2014 count is closer to ATR counts collected for this project than the ODOT projected AADT

- Indiana Avenue – ODOT AADT projections (2018) from Indiana Avenue are higher than AADT projections from counts collected for this project. The ODOT values were projected from a one (1) day 24-hour traffic count collected in August of 2014 (7,818 vehicles). The August 2014 count is closer to ATR counts collected for this project than the ODOT projected AADT

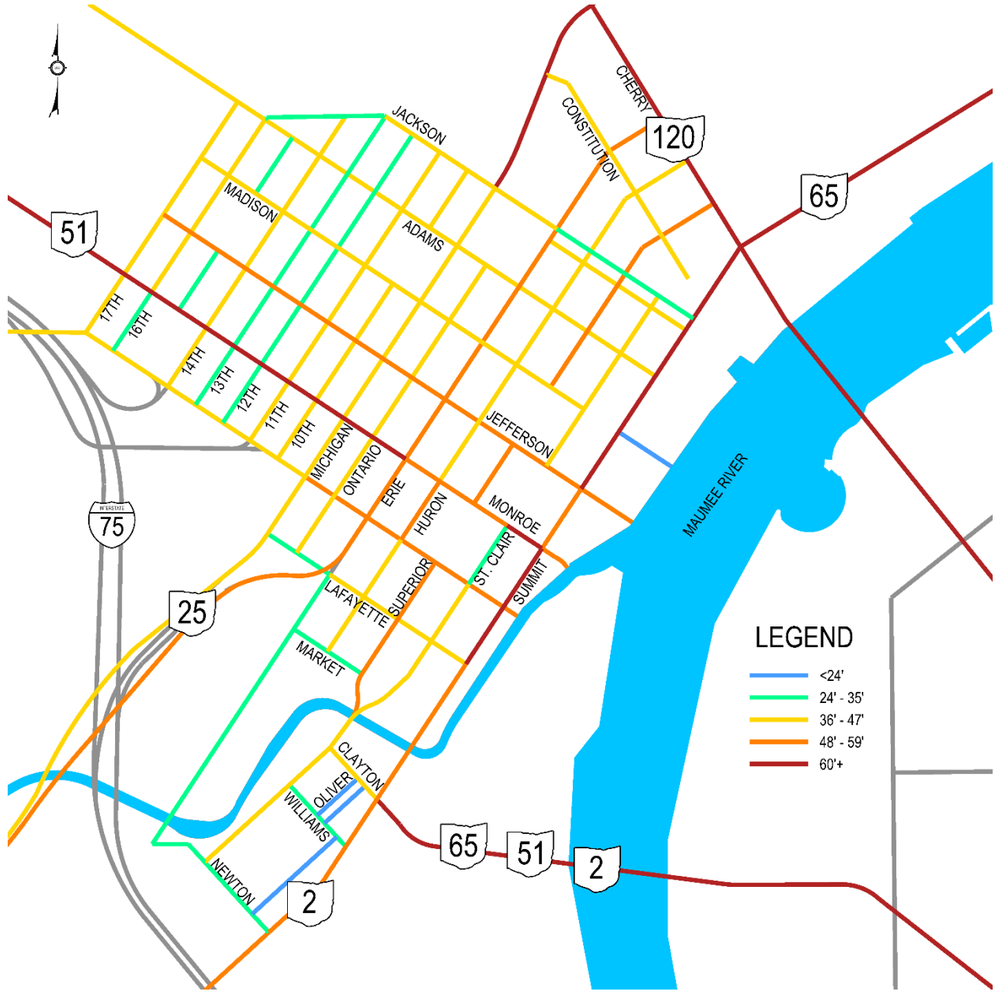


Figure 3.4 Study Area Roadway Widths (Paved)

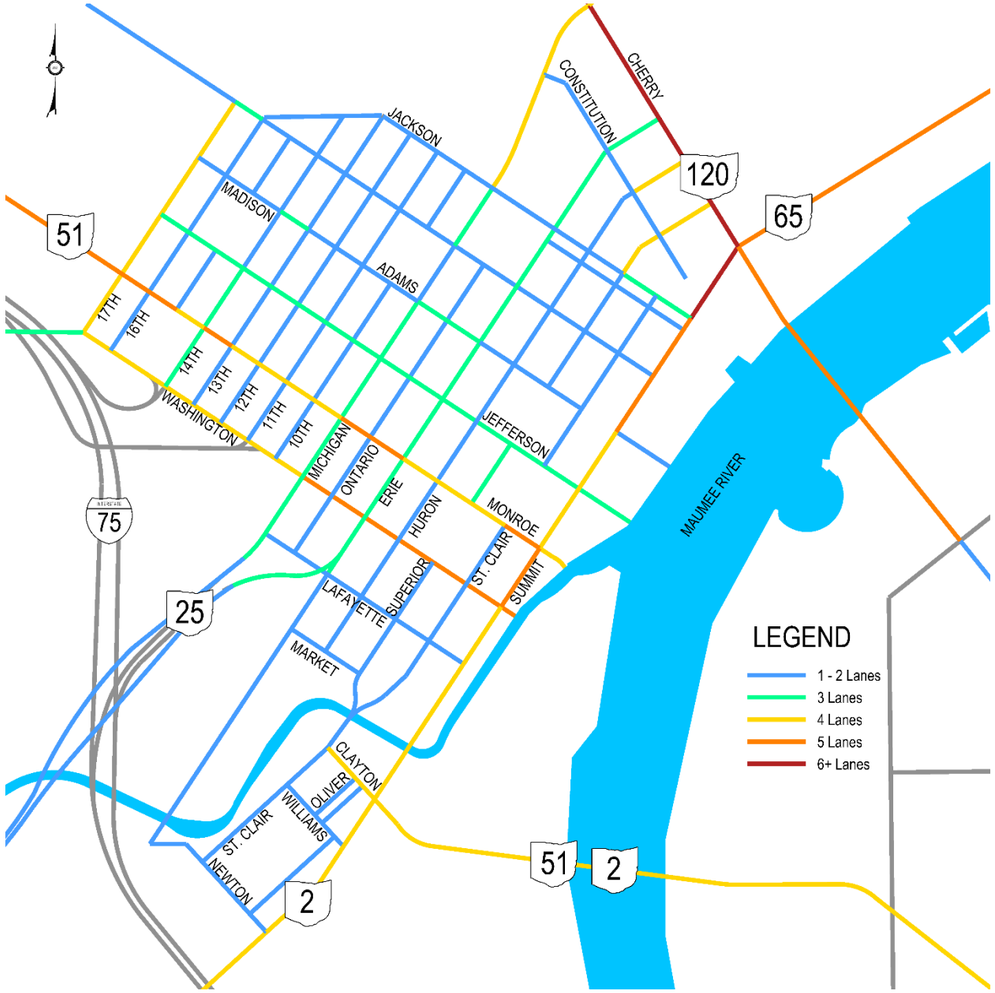


Figure 3.5 Existing Roadway Lanes

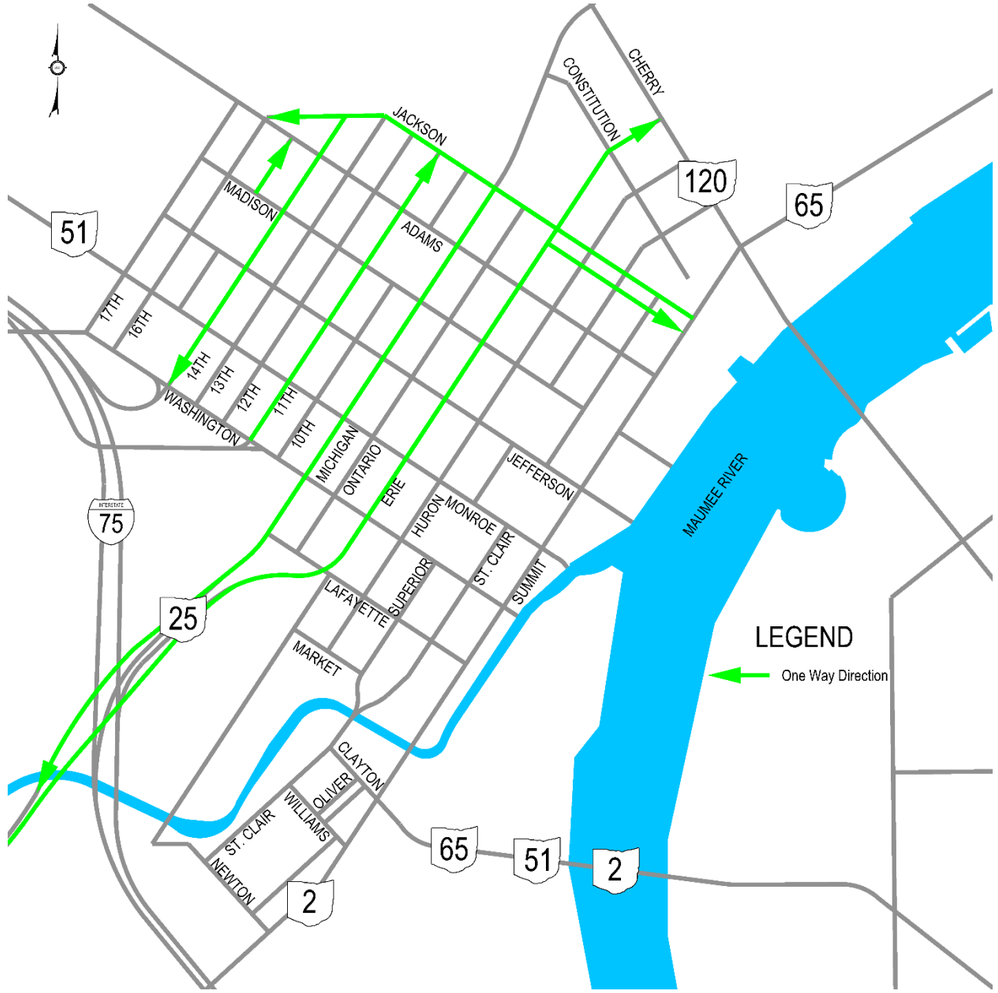


Figure 3.6 Existing One-Way Streets

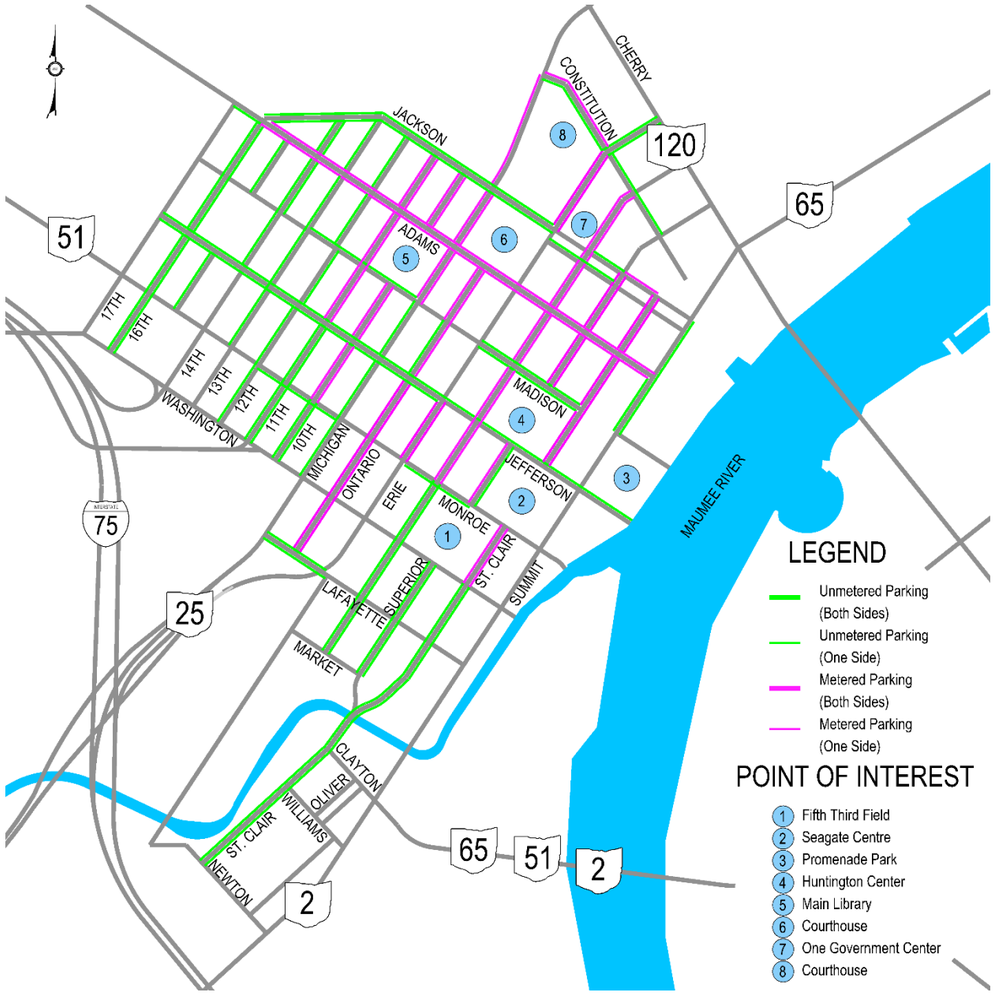
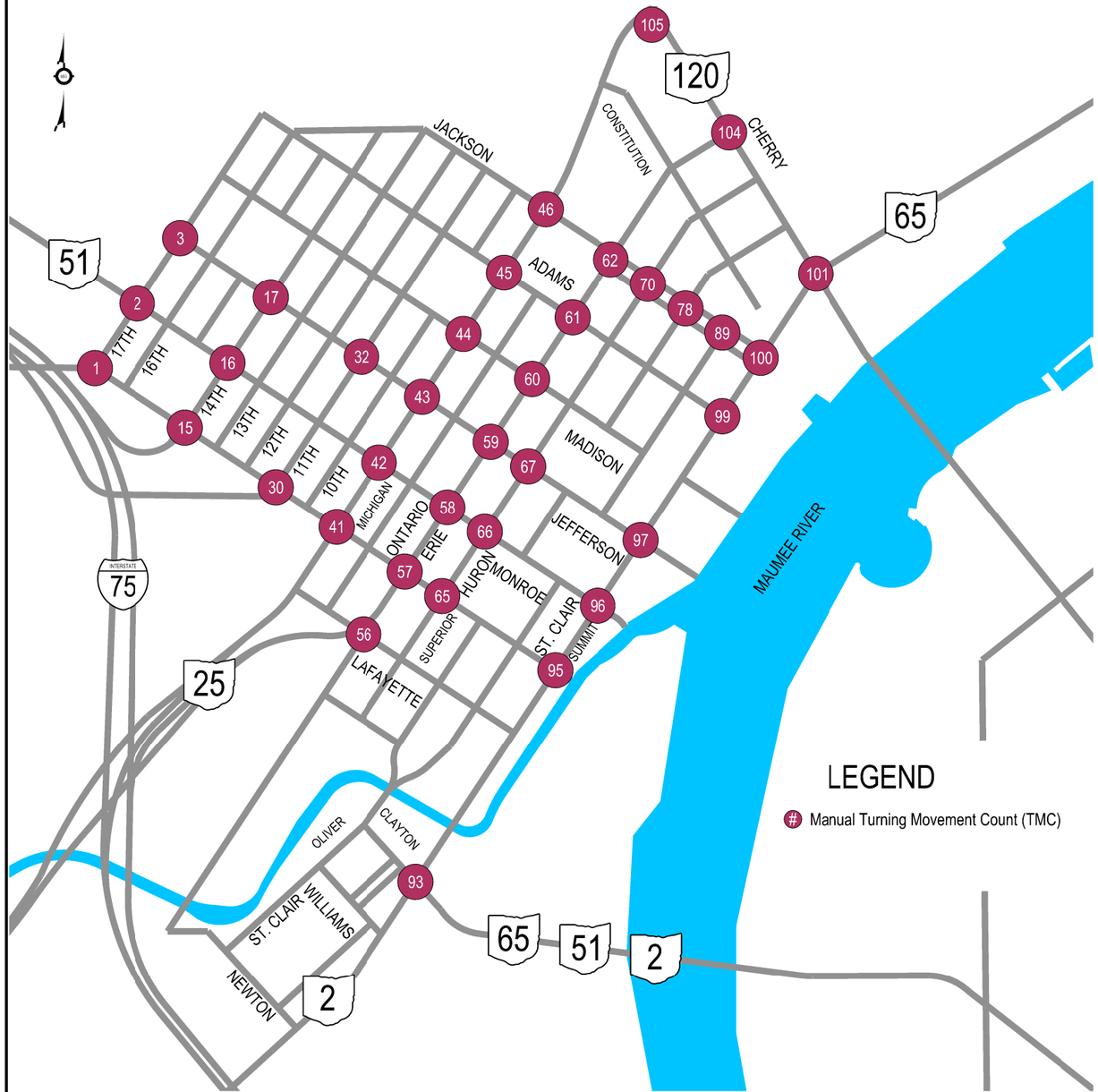


Figure 3.7 Existing On-Street Parking Locations

Figure 3.8 Existing Bicycle Facilities



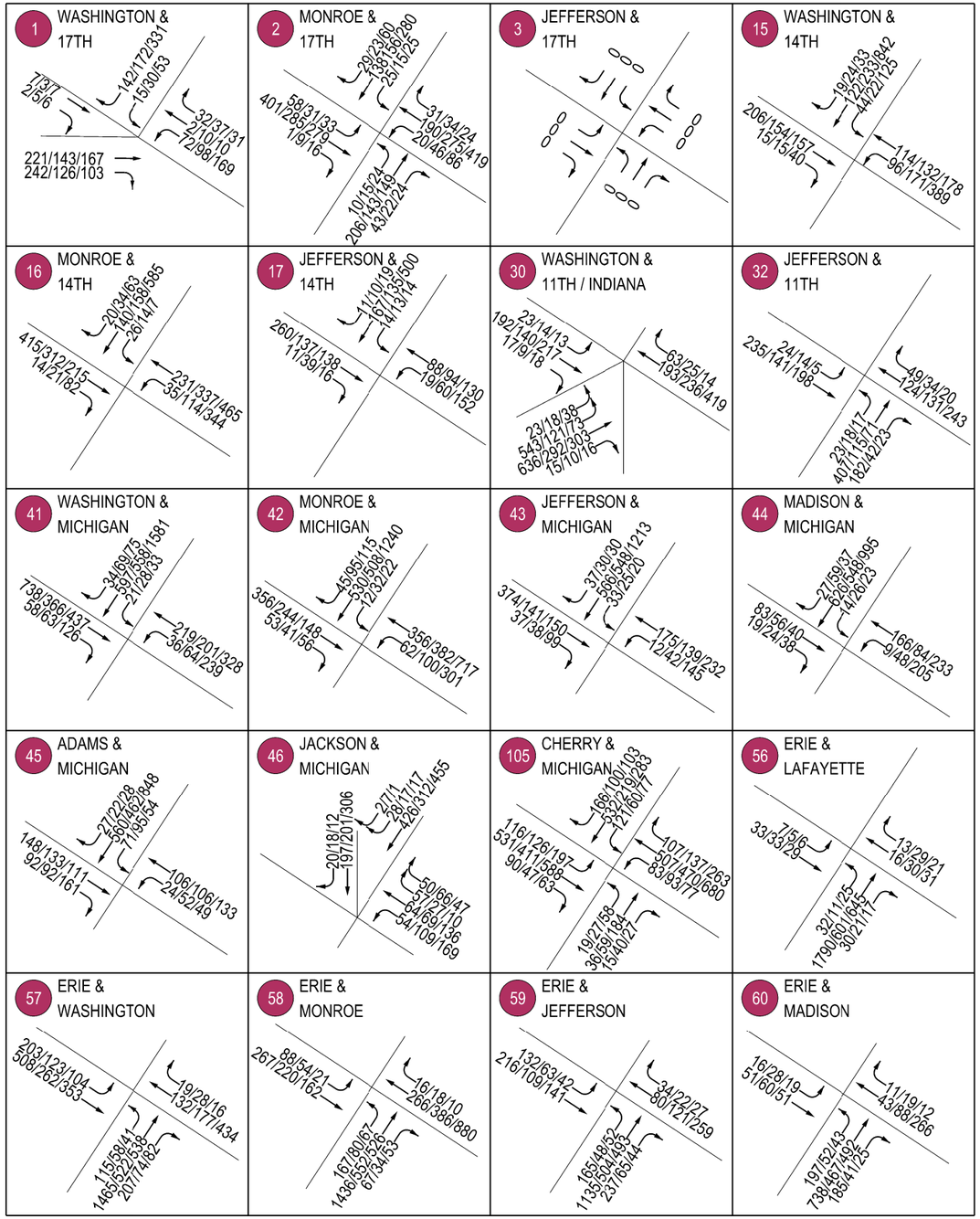


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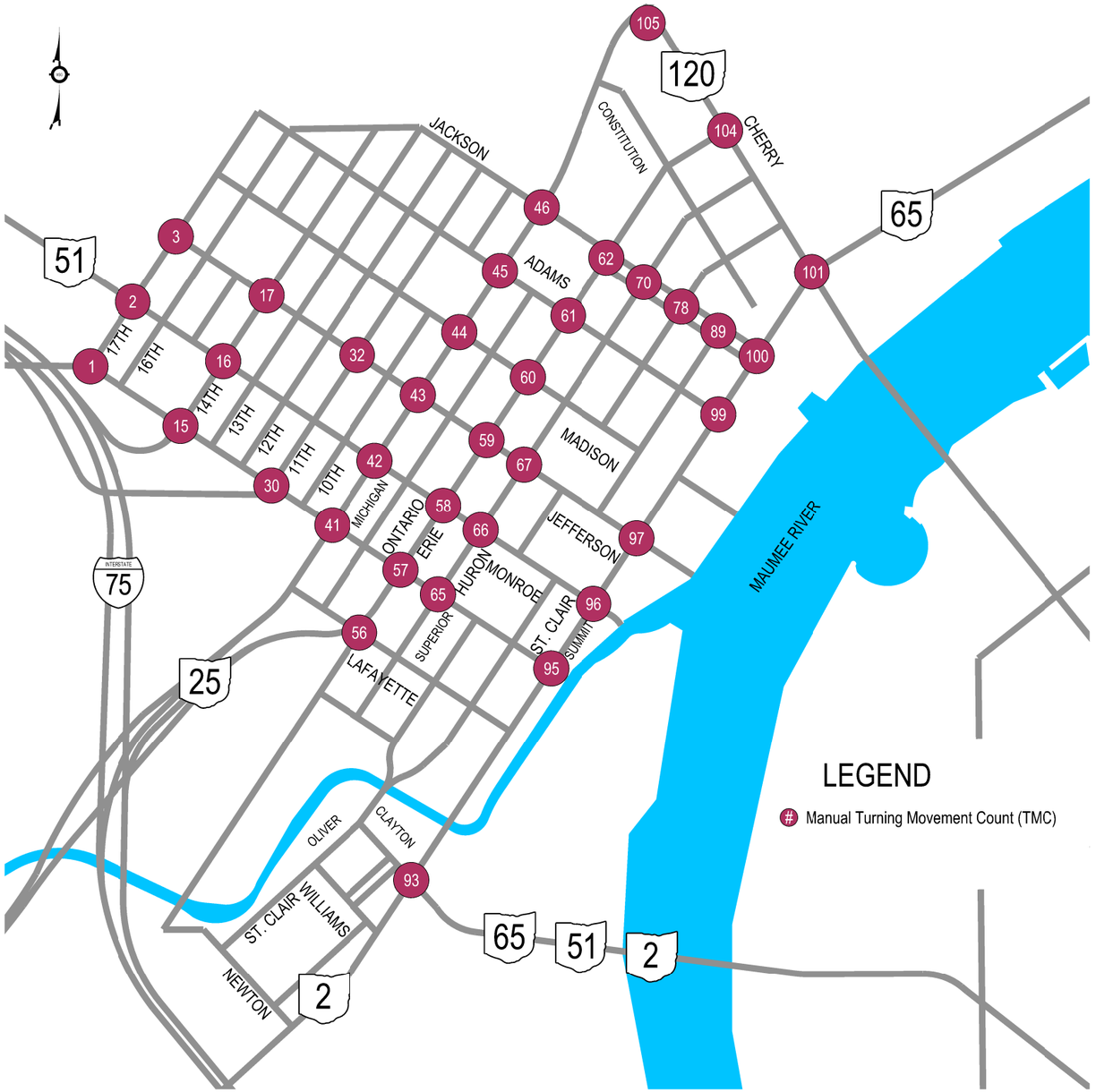
FIGURE 3.9
2018 Peak Hour Traffic Counts (Vehicles Only)
Counts Collected in March - April 2018

LEGEND
x/y/z = AM/MIDDAY/PM PEAK HOUR TRAFFIC



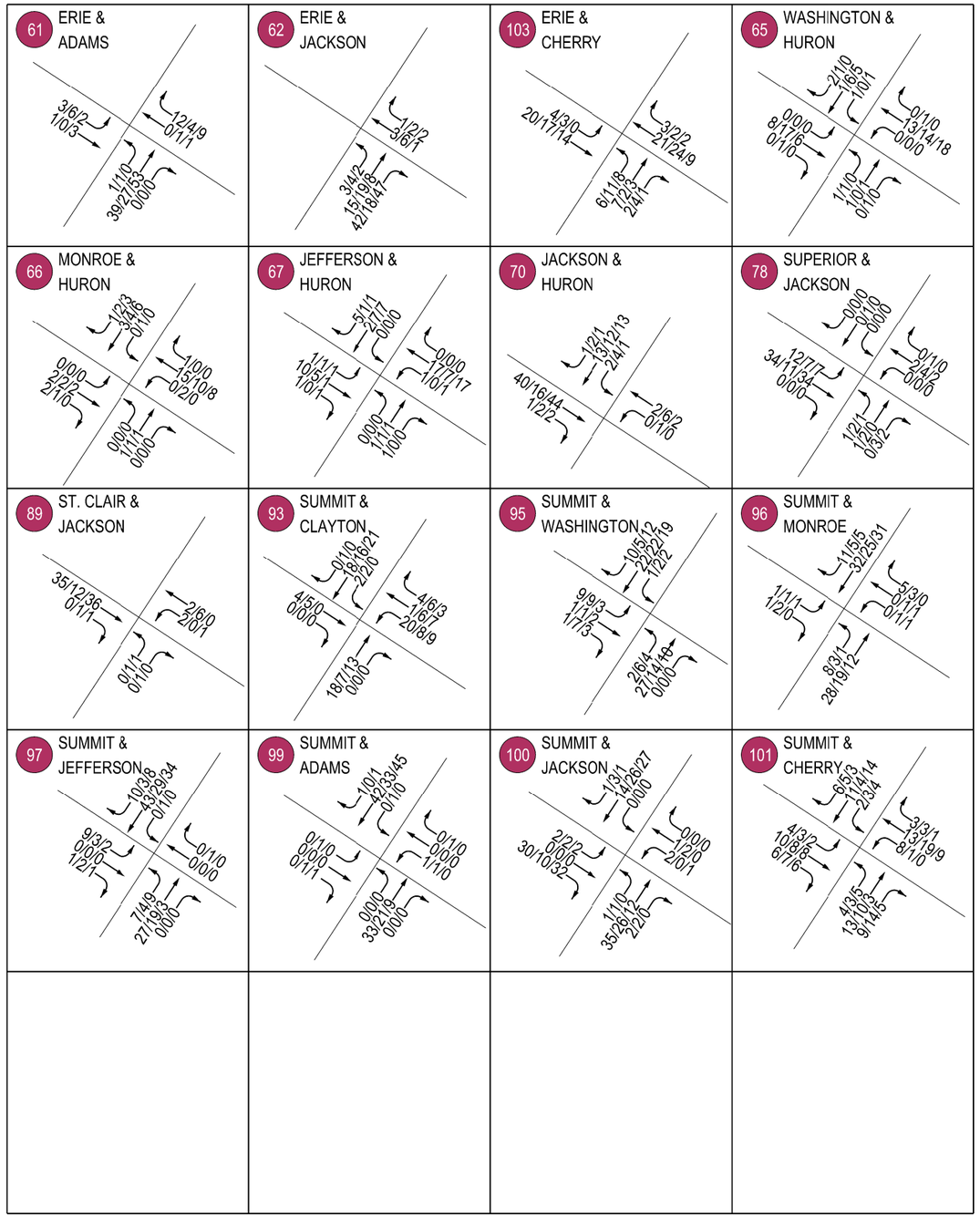


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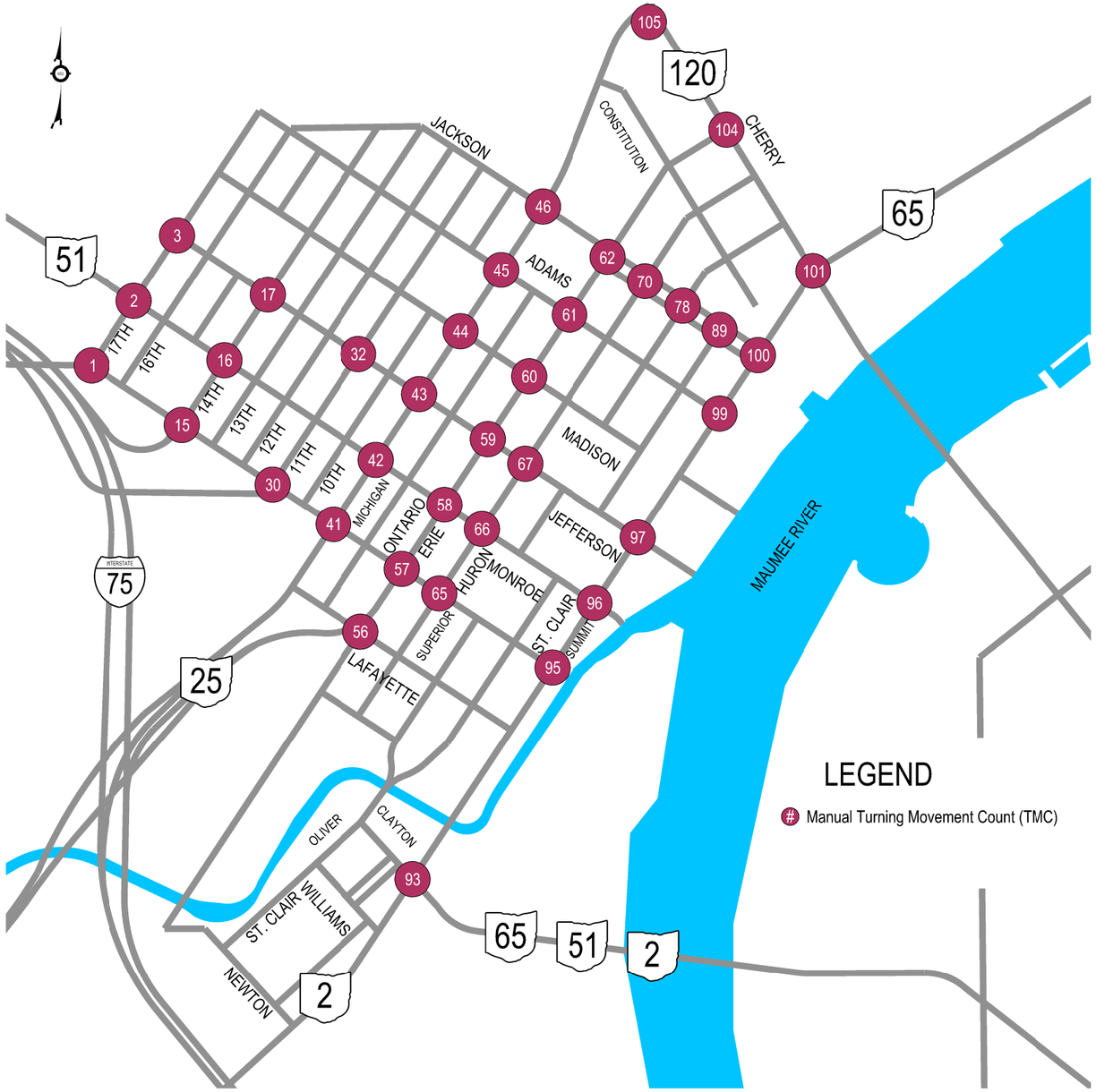
FIGURE 3.10 (CONT'D)
2018 Peak Hour Traffic Counts (Heavy Vehicles Only)
Counts Collected in March - April 2018

LEGEND
x/y/z =AM/MIDDAY/PM PEAK HOUR TRAFFIC



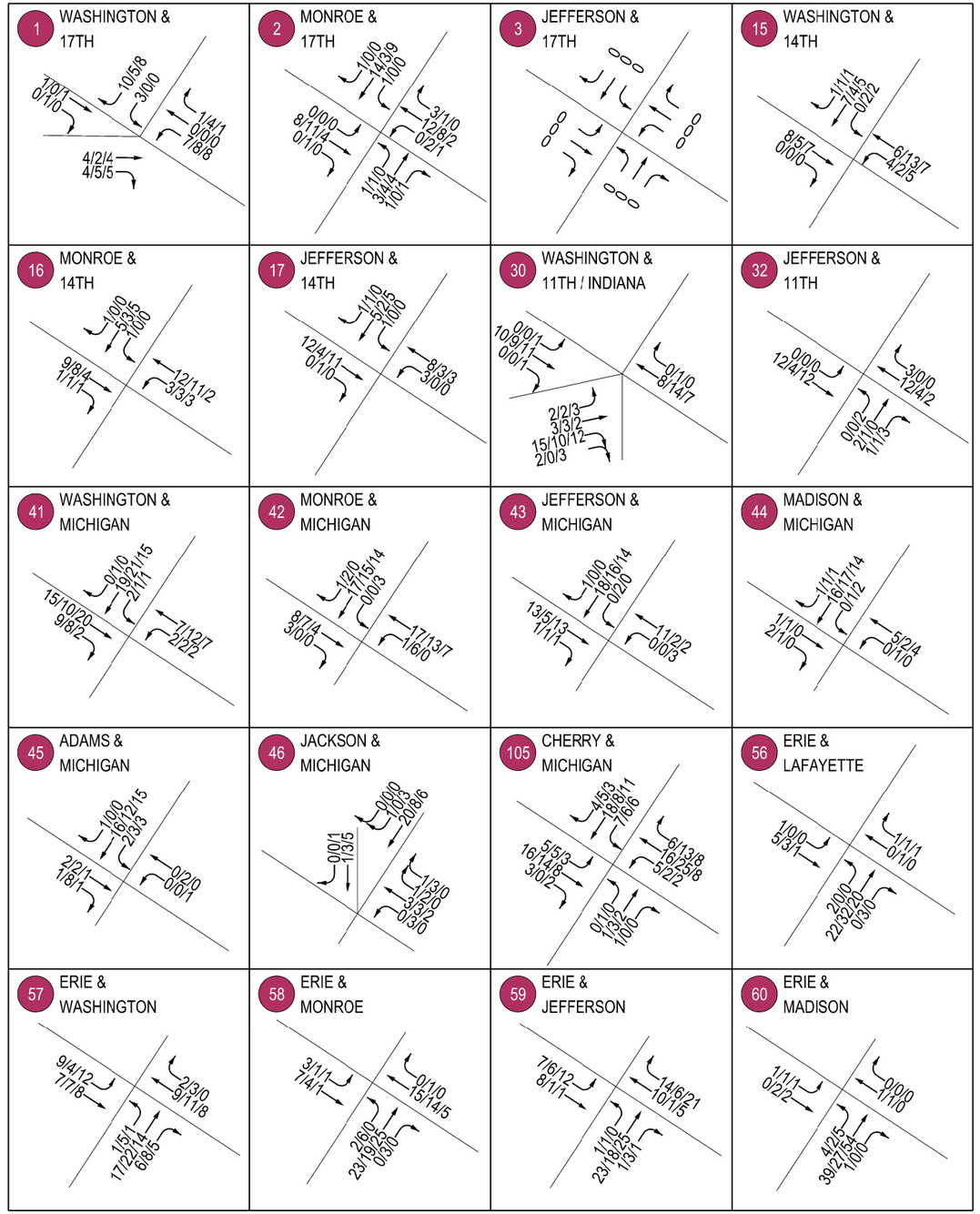


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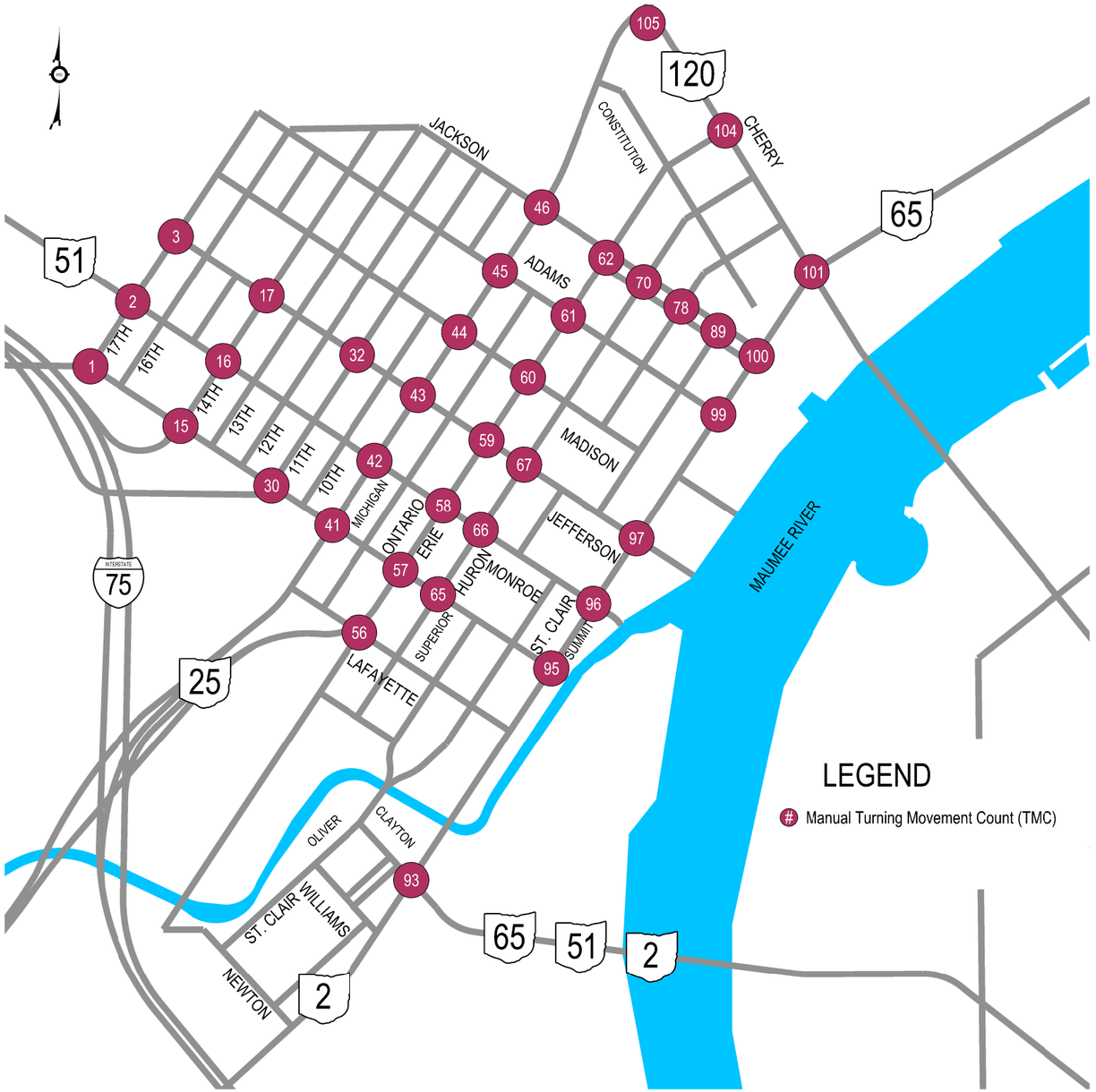
FIGURE 3.10
2018 Peak Hour Traffic Counts (Heavy Vehicles Only)
Counts Collected in March - April 2018

LEGEND
x/y/z = AM/MIDDAY/PM PEAK HOUR TRAFFIC



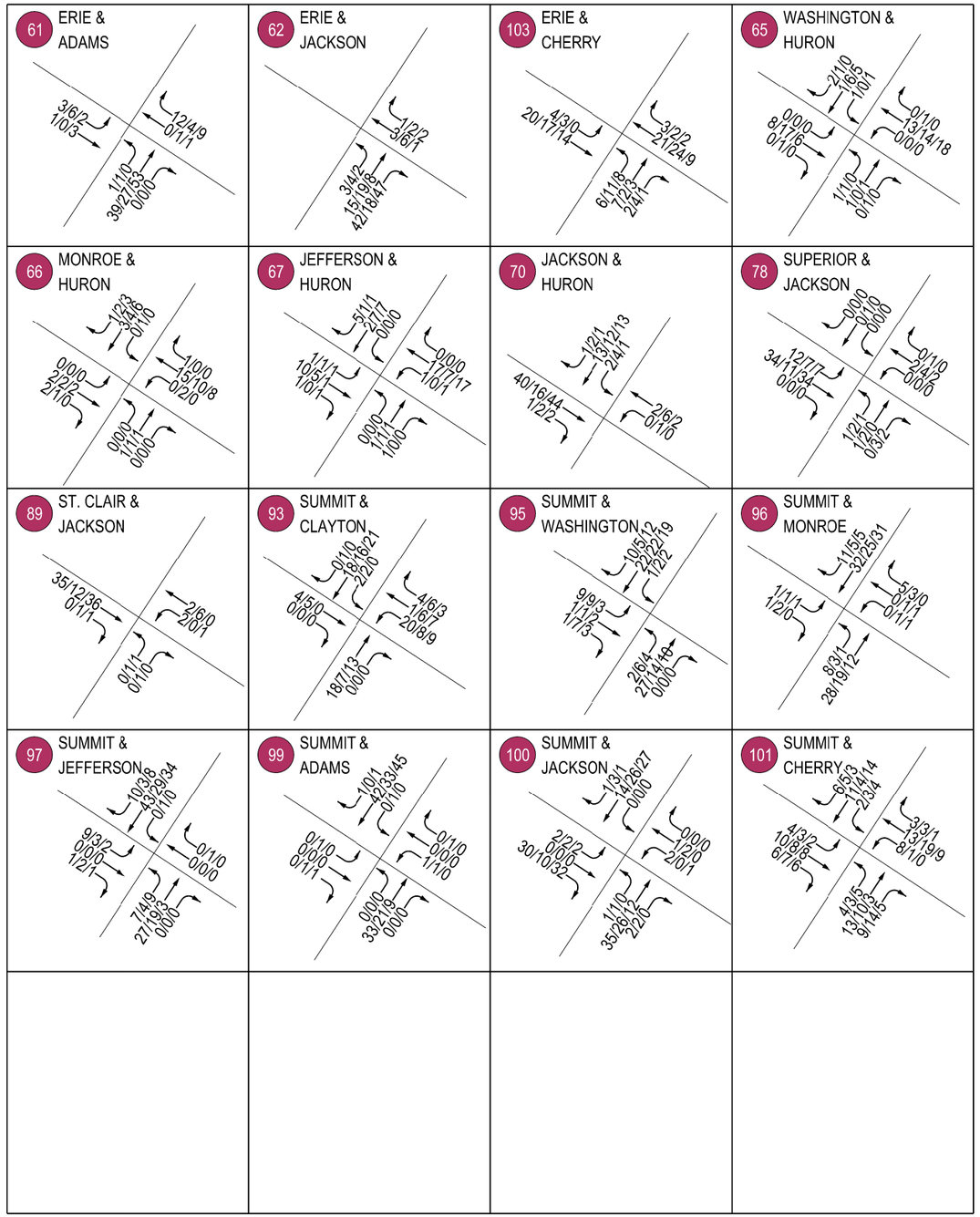


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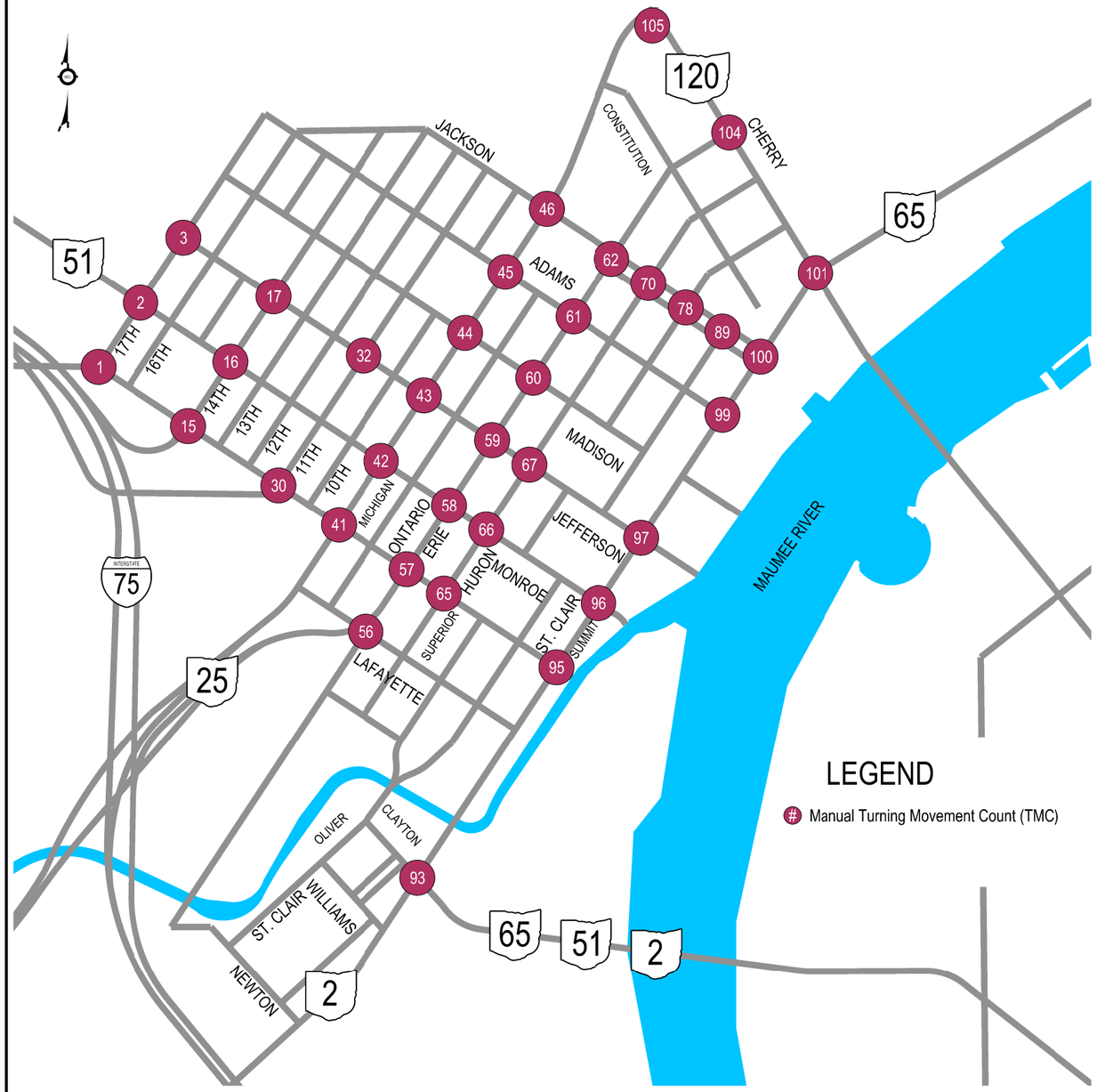
FIGURE 3.10 (CONT'D)
2018 Peak Hour Traffic Counts (Heavy Vehicles Only)
Counts Collected in March - April 2018

LEGEND
x/y/z =AM/MIDDAY/PM PEAK HOUR TRAFFIC



LEGEND

(#) Manual Turning Movement Count (TMC)

1 WASHINGTON & 17TH 5/3/4, 2/1/1, 1/0/2, 0/1/5	2 MONROE & 17TH 4/3/2, 29/13/15, 0/3/1, 6/1/1	3 JEFFERSON & 17TH 0/0/0, 0/0/0, 0/0/0, 0/0/0	15 WASHINGTON & 14TH 1/0/0, 3/3/3, 0/3/2, 0/0/0
16 MONROE & 14TH 12/25/14, 13/11/15, 19/27/9, 5/8/3	17 JEFFERSON & 14TH 0/5/2, 5/15/10, 3/6/4, 9/10/3	30 WASHINGTON & 11TH 8/0/0, 1/2/2, 8/0/2, 5/7/8, 0/2/5	32 JEFFERSON & 11TH 9/16/11, 12/30/29, 11/19/6, 6/5/6
41 WASHINGTON & MICHIGAN 2/6/9, 2/2/1, 2/1/5, 1/0/0	42 MONROE & MICHIGAN 7/12/6, 4/7/7, 2/4/1, 2/1/8	43 JEFFERSON & MICHIGAN 6/8/12, 11/8/9, 2/7/7, 7/8/12	44 MADISON & MICHIGAN 9/49/44, 4/16/5, 5/31/9, 2/23/8
45 ADAMS & MICHIGAN 12/28/23, 15/9/14, 11/21/25, 13/22/14	46 JACKSON & MICHIGAN 17/18/10, 4/11/11, 10/39/13, 37/26/44, 40/43/19	105 CHERRY & MICHIGAN 16/9/9, 0/1/0, 5/7/0, 4/2/0	56 ERIE & LAFAYETTE 4/0/0, 4/1/0, 4/0/2, 5/6/4
57 ERIE & WASHINGTON 0/0/2, 1/1/0, 7/8/6, 2/4/1	58 ERIE & MONROE 2/5/4, 1/1/1, 3/5/6, 1/6/1	59 ERIE & JEFFERSON 10/12/3, 2/2/2, 4/5/6, 3/5/1	60 ERIE & MADISON 8/34/14, 14/13/2, 7/25/3, 7/13/2

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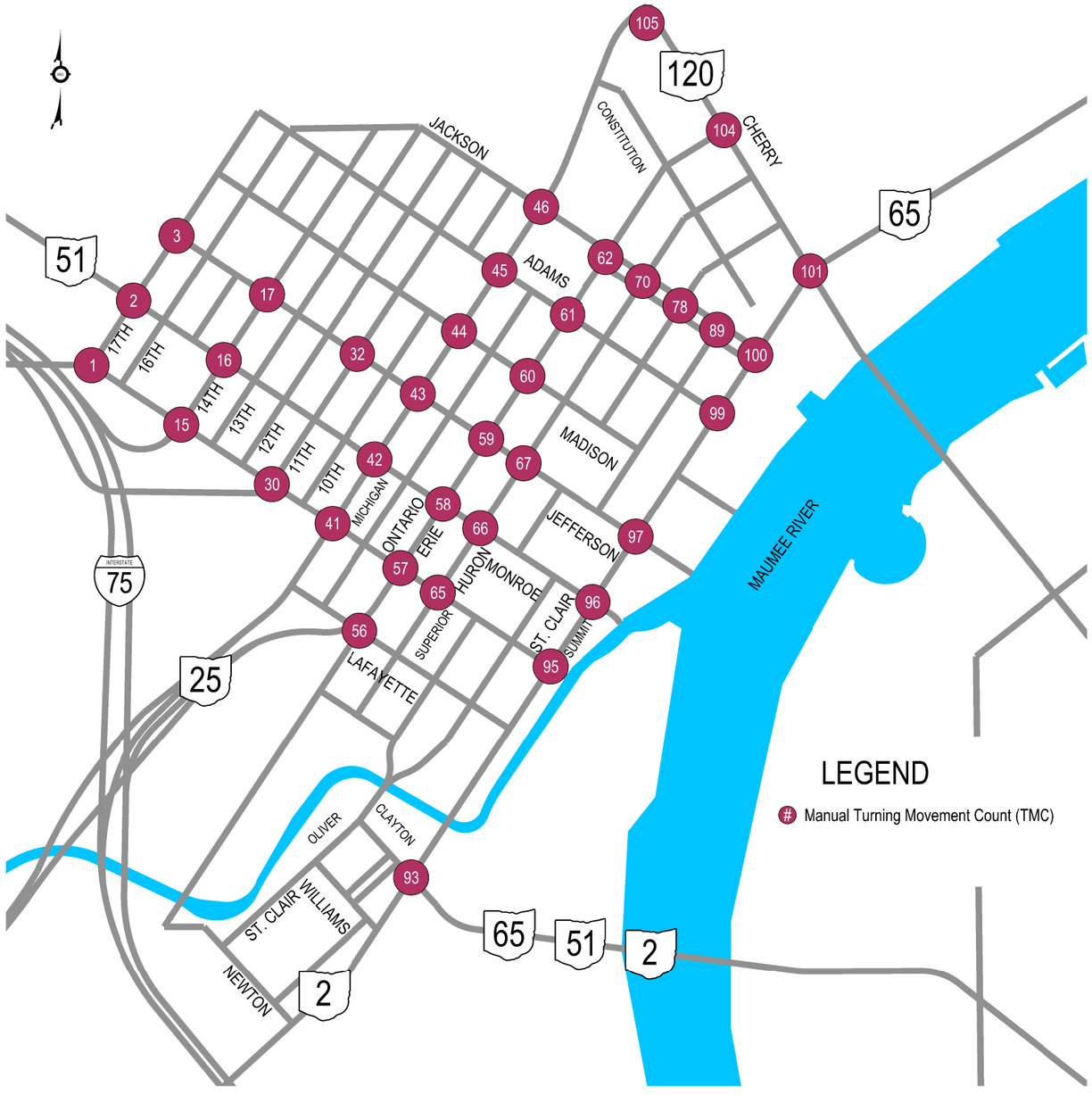
FIGURE 3.11

2018 Peak Hour Traffic Counts (Pedestrians Only)

Counts Collected in March - April 2018

LEGEND

x/y/z = AM/MIDDAY/PM PEAK HOUR TRAFFIC



61 ERIE & ADAMS
23/50/27
23/55/34
9/67/31
17/18/12

62 ERIE & JACKSON
37/58/24
16/37/11
30/54/46
20/35/18

103 ERIE & CHERRY
6/7/10
10/12/12
2/3/7
3/11/5

65 WASHINGTON & HURON
0/8/6
3/14/7
8/3/5
5/16/7

66 MONROE & HURON
1/16/3
4/24/6
2/8/16
6/6/9

67 JEFFERSON & HURON
5/4/10
5/14/8
13/10/31
28/18/27

70 JACKSON & HURON
60/84/27
18/62/51
90/119/152
47/38/29

78 SUPERIOR & JACKSON
1/18/5
3/21/7
82/106/117
1/1/5

89 ST. CLAIR & JACKSON
3/8/4
63/117/96
2/3/5

93 SUMMIT & CLAYTON
0/0/1
1/2/1
0/0/0
1/1/0

95 SUMMIT & WASHINGTON
1/1/0
0/1/0
9/25/8
1/14/5

96 SUMMIT & MONROE
7/16/7
1/5/1
0/0/0
1/2/3

97 SUMMIT & JEFFERSON
1/3/3
2/9/3
0/4/5
1/4/5

99 SUMMIT & ADAMS
2/34/26
16/42/26
13/59/31
9/31/19

100 SUMMIT & JACKSON
3/24/8
11/10/17
5/20/11
10/24/19

101 SUMMIT & CHERRY
7/5/0
6/3/1
2/6/0
13/3/23

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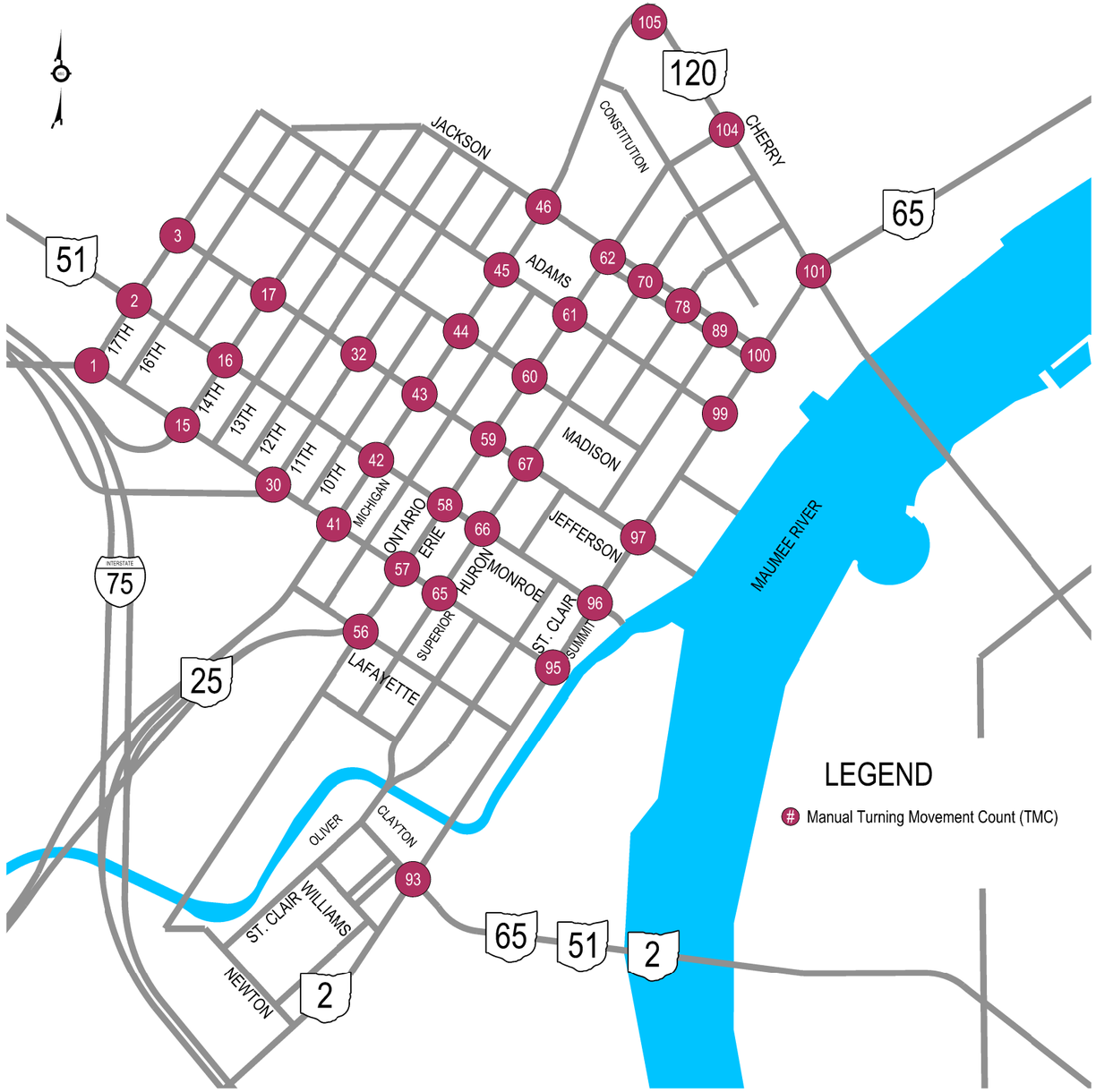
FIGURE 3.11 (CONT'D)
2018 Peak Hour Traffic Counts (Pedestrians Only)
Counts Collected in March - April 2018

LEGEND
x/y/z = AM/MIDDAY/PM PEAK HOUR TRAFFIC



LEGEND

Manual Turning Movement Count (TMC)

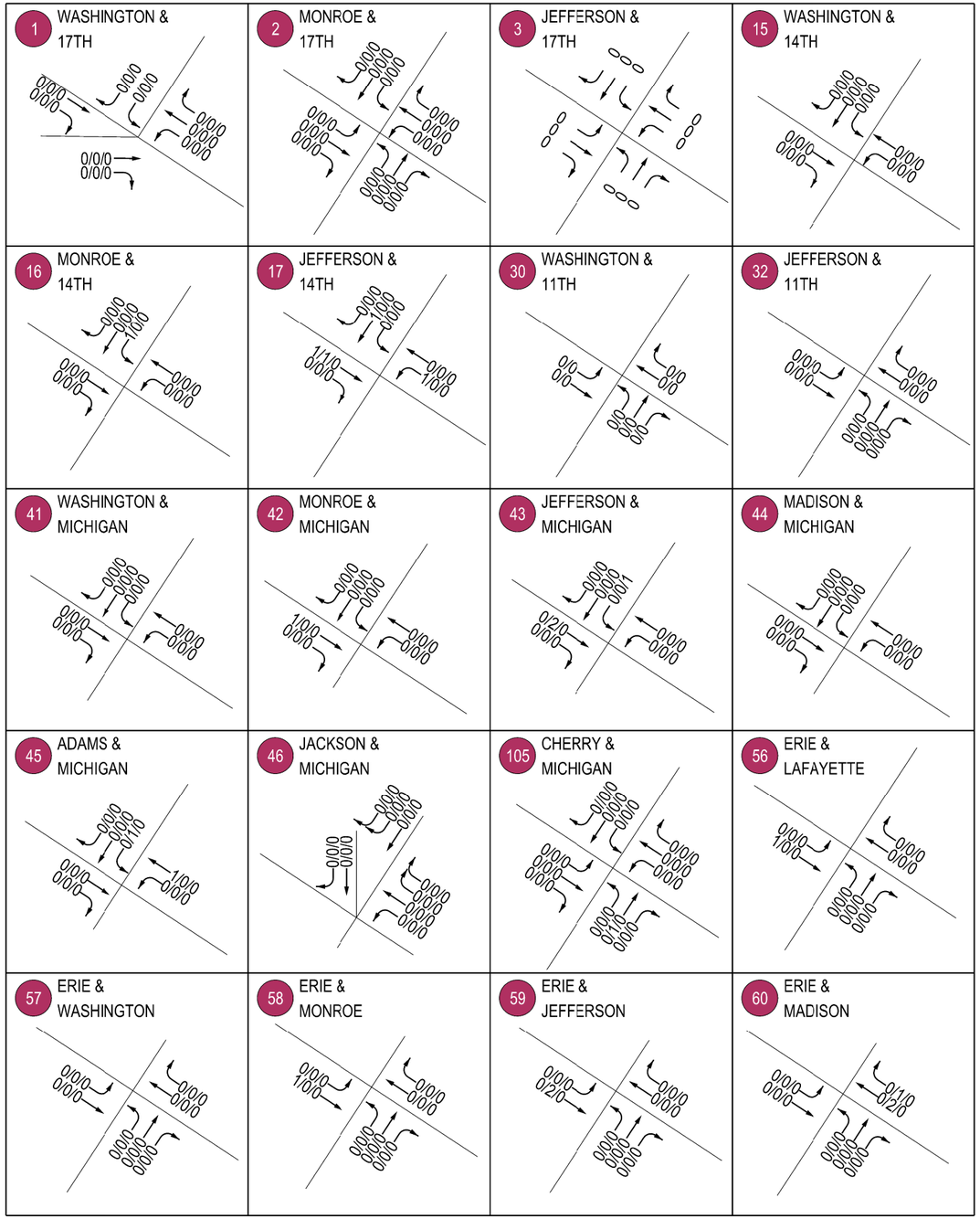


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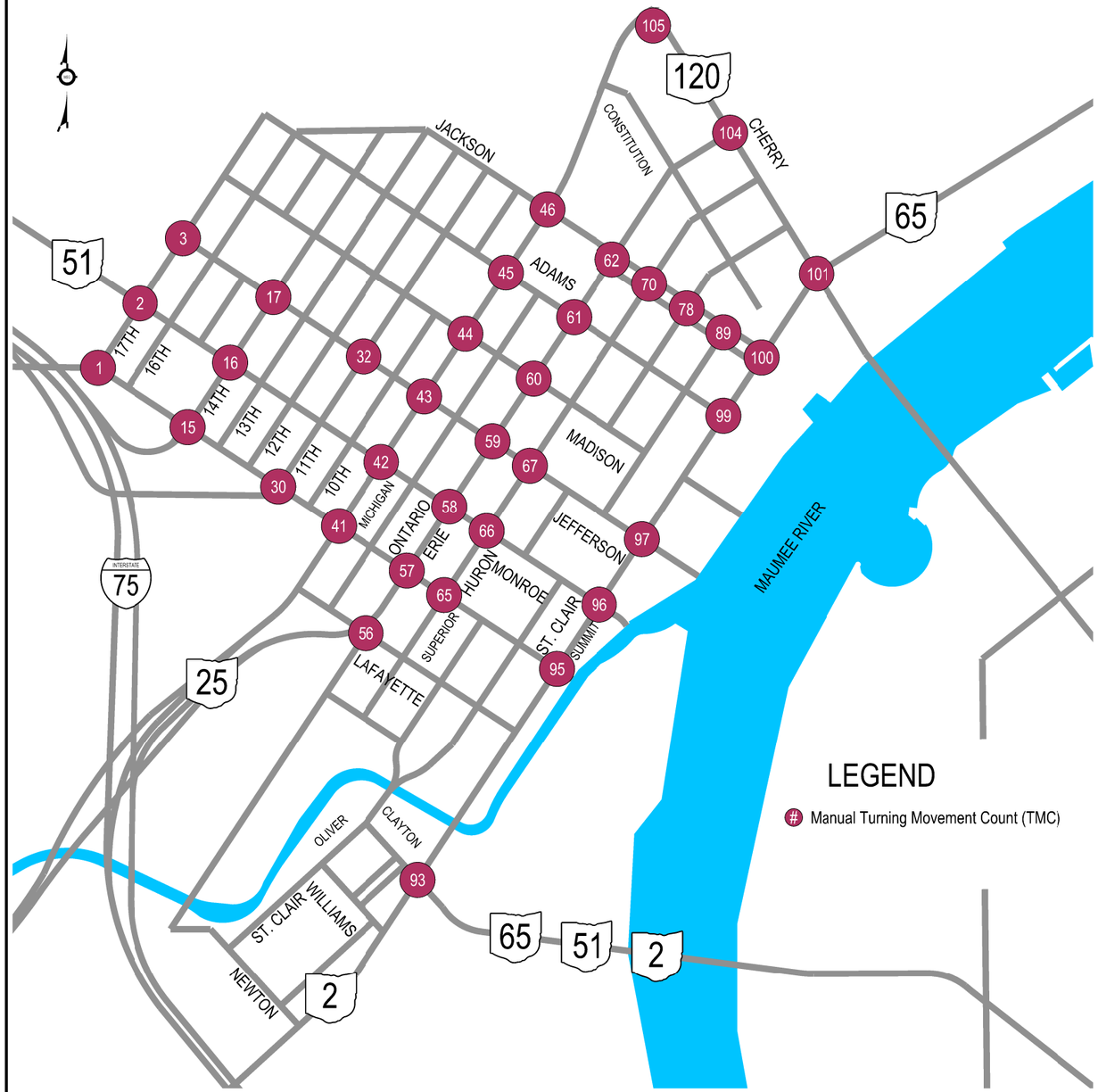
FIGURE 3.12
2018 Peak Hour Traffic Counts (Bicycles Only)
Counts Collected in March - April 2018

LEGEND
x/y/z = AM/MIDDAY/PM PEAK HOUR TRAFFIC



LEGEND

(#) Manual Turning Movement Count (TMC)

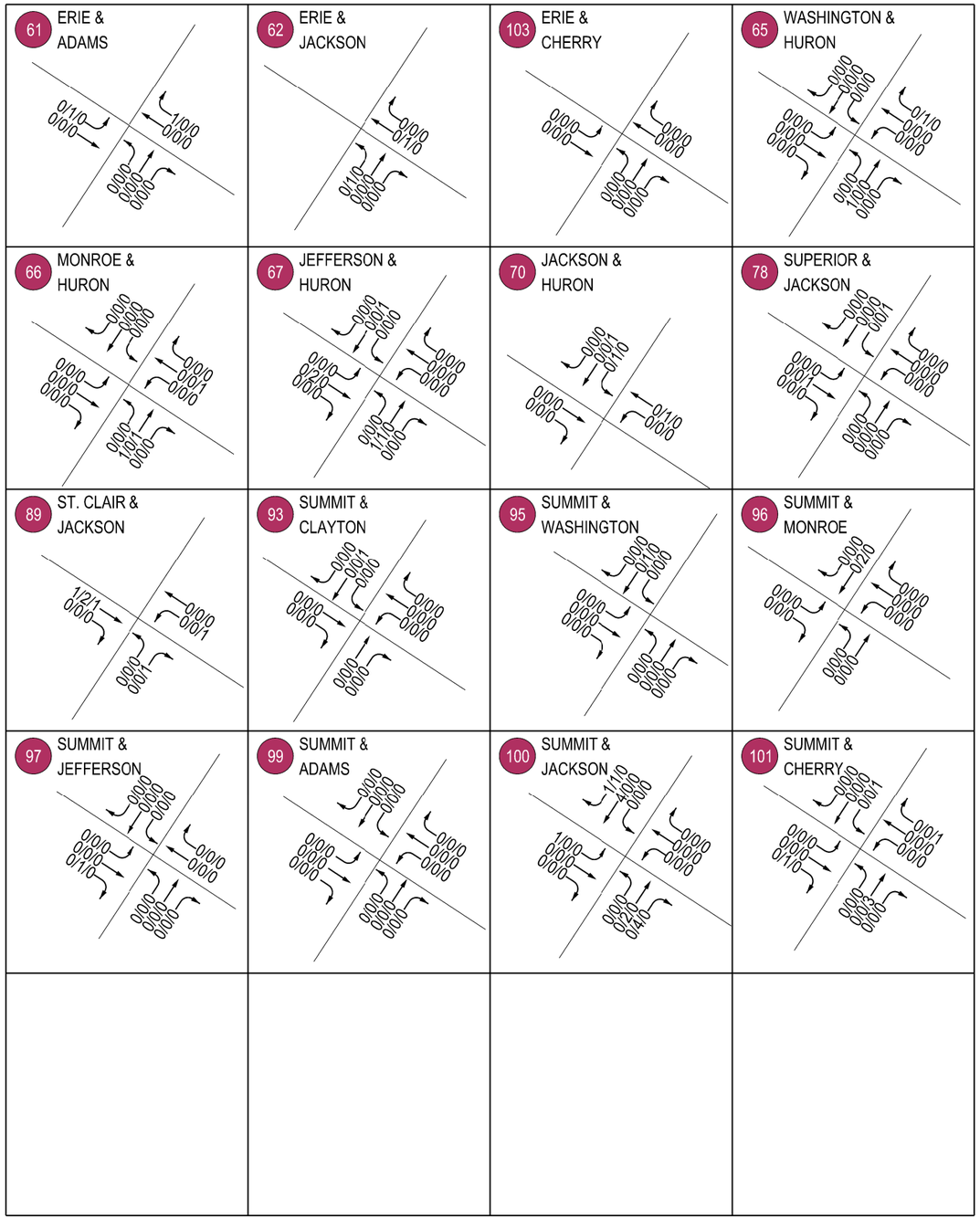


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FIGURE 3.12 (CONT'D)
2018 Peak Hour Traffic Counts (Bicycles Only)
Counts Collected in March - April 2018

LEGEND
x/y/z = AM/MIDDAY/PM PEAK HOUR TRAFFIC

3.2 Study Area Corridors at a Glance

Detailed information regarding each of the study area roadways is provided below (with shading based on Downtown Toledo Master Plan Street Typologies – 2017)

Downtown Signature
Downtown Collector
Other
Downtown Specialty
Downtown Standard

Washington Street
Functional Classification – Principal Arterial

AADT – 4,190 (from 2018 count)

Number of Lanes – 5

Bicycle Facilities – None

Width (widest point) – 55 feet

Key Facts – Provides direct access to interstate and regional arterials (i.e., I-75 and SR 25 (Anthony Wayne Trail). Also provides direct access to Warehouse District and Fifth Third Field.

Adams Street
Functional Classification – Major Collector

AADT – 3,430 (from 2018 count)

Number of Lanes – 2

Bicycle Facilities – None

Width (widest point) – 42 feet

Key Facts – Key corridor for entertainment with several establishments along 600 block and north of SR 25 (Michigan Street). Provides direct access to Main Library (Toledo Public Library) and Imagination Station Toledo

SR 51 (Monroe Street)
Functional Classification – Principal Arterial

AADT – 8,910 (from 2018 count)

Number of Lanes – 5

Bicycle Facilities – None

Width (widest point) – 62 feet

Key Facts – Important arterial for travel into and out of downtown Also provides direct access to Warehouse District, Fifth Third Field, and Seagate Centre.

Jackson Street
Functional Classification – Major Collector

AADT – 5,365 (from ODOT TIMS - 2018)

Number of Lanes – 4

Bicycle Facilities – None

Width (widest point) – 138 feet

Key Facts – This roadway is a two-way boulevard between SR 25 (Erie Street) and SR 65 (Summit Street), and a one-way street (westbound) west of Erie Street

Jefferson Avenue
Functional Classification – Major Collector

AADT – 3,150 (from 2018 count)

Number of Lanes – 3

Bicycle Facilities – None (cycle track to be implemented in 2020)

Width (widest point) – 48 feet

Key Facts – Provides direct access to Promenade Park, Seagate Centre, and Huntington Center. Future cycle track will connect to Promenade Park.

Beech Street
Functional Classification – Local

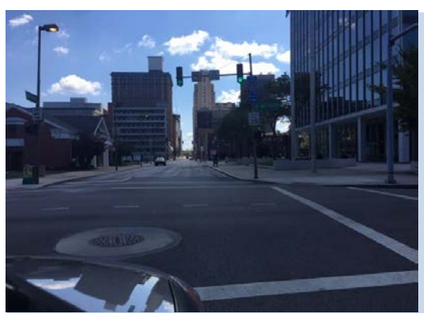
AADT – Not Available

Number of Lanes – 2

Bicycle Facilities – None

Width (widest point) – 30 feet

Key Facts – Provides access to Toledo Municipal court and parking for One Government Center



Madison Avenue
Functional Classification – Major Collector

AADT – 2,200 (from 2018 count)

Number of Lanes – 2

Bicycle Facilities – None

Width (widest point) – 45 feet

Key Facts – Connects Uptown neighborhood to Promenade Park. Provides direct access to Main Library (Toledo Public Library)

Constitution Avenue/Orange Street
Functional Classification – Major Collector

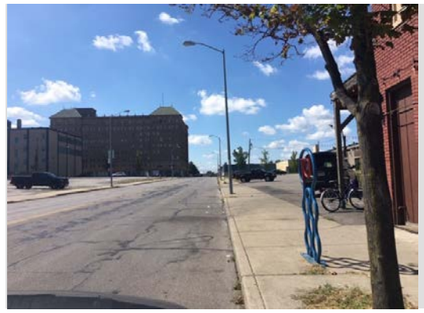
AADT – 1,834 (from ODOT TIMS - 2018)

Number of Lanes – 2

Bicycle Facilities – None

Width (widest point) – 38 feet

Key Facts – Orange Street provides a direct connection to the Vistula garage.



17th Street
Functional Classification – Minor Arterial/Major Collector

AADT – 6,355 (from ODOT TIMS – 2018)

Number of Lanes – 4

Bicycle Facilities – None

Width (widest point) – 45 feet

Key Facts – Connects to SR 246 (Dorr Street) at southern end

13th Street
Functional Classification – Local

AADT – N/A

Number of Lanes – 2

Bicycle Facilities – None

Width (widest point) – 28 feet

Key Facts – N/A

16th Street
Functional Classification – Local

AADT – N/A

Number of Lanes – 2

Bicycle Facilities – None

Width (widest point) – 36 feet

Key Facts – N/A

12th Street
Functional Classification – Local

AADT – N/A

Number of Lanes – 2

Bicycle Facilities – None

Width (widest point) – 26 feet

Key Facts – N/A

15th Street
Functional Classification – Local

AADT – N/A

Number of Lanes – 2

Bicycle Facilities – None

Width (widest point) – 26 feet

Key Facts – Provides access to parking for Toledo School for the Arts. One-way street between Madison Avenue and Adams Street (northbound).

11th Street
Functional Classification – Major Collector

AADT – 5,718 (from ODOT TIMS – 2018)

Number of Lanes – 2

Bicycle Facilities – None

Width (widest point) – 42 feet

Key Facts – Provides direct access to the study area from southbound I-75. One-way street (northbound). Provides direct access to Main Library (Toledo Public Library).

14th Street
Functional Classification – Major Collector

AADT – 2,079 (from ODOT TIMS - 2018)

Number of Lanes – 3

Bicycle Facilities – None

Width (widest point) – 36 feet

Key Facts – Provides direct access to northbound I-75 and Toledo School for the Arts. One-way street (southbound direction)

10th Street
Functional Classification – Local

AADT – N/A

Number of Lanes – 2

Bicycle Facilities – None

Width (widest point) – 42 feet

Key Facts – N/A

SR 25 (Michigan Street)

Functional Classification – Principal Arterial

AADT – 11,260 (from 2018 count)

Number of Lanes – 3

Bicycle Facilities – None

Width (widest point) – 45 feet

Key Facts – Provides direct access to southbound I-75 and SR 25 (Anthony Wayne Trail). Provides direct access to study area from SR 25 (Greenbelt Parkway) and to Main Library. One-way street (southbound).

Ontario Street

Functional Classification – Local

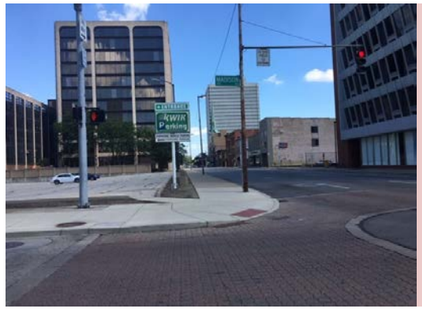
AADT – 1,137 (from ODOT TIMS - 2018)

Number of Lanes – 2

Bicycle Facilities – None

Width (widest point) – 41 feet

Key Facts – N/A



SR 25 (Erie Street)

Functional Classification – Principal Arterial

AADT – 9,840 (from 2018 count)

Number of Lanes – 3

Bicycle Facilities – None

Width (widest point) – 50 feet

Key Facts – Provides direct access from northbound I-75 and SR 25 (Anthony Wayne Trail) to study area. Provides direct access to One Government Center. One-way street (northbound).

Huron Street

Functional Classification – Major Collector

AADT – 3,856 (from ODOT TIMS - 2018)

Number of Lanes – 2

Bicycle Facilities – None

Width (widest point) – 42 feet

Key Facts – Provides direct access to Warehouse District, Fifth Third Field, Huntington Center, and One Government Center. One-way street from Cherry Street to Adams Street

Superior Street

Functional Classification – Major Collector

AADT – 2,955 (from ODOT TIMS - 2018)

Number of Lanes – 4

Bicycle Facilities – None

Width (widest point) – 50 feet

Key Facts – Provides direct access to Toledo Farmer's Market, Fifth Third Field, and Huntington Center

St. Clair Street

Functional Classification – Local

AADT – 3,038 (from ODOT TIMS - 2018)

Number of Lanes – 2

Bicycle Facilities – None

Width (widest point) – 42 feet

Key Facts – Provides direct access to Fifth Third Field and Seagate Centre. Note that this street is closed to vehicular traffic during Toledo Mud Hens games.

SR 65 (Summit Street)

Functional Classification – Principal Arterial

AADT – 15,160 (from 2018 count)

Number of Lanes – 5

Bicycle Facilities – None

Width (widest point) – 108 feet

Key Facts – Provides direct access to Promenade Park, Fort Industry Square, and the Imagination Station.

Lafayette Street

Functional Classification – Minor Collector

AADT – 1,365 (from ODOT TIMS - 2018

Number of Lanes – 2

Bicycle Facilities – None

Width (widest point) – 38 feet

Key Facts – N/A

Market Street
Functional Classification – Local

AADT – N/A

Number of Lanes – 2

Bicycle Facilities – None

Width (widest point) 30 feet

Key Facts – Provides direct access to Toledo Farmer's Market.

SR 2 (Clayton Street)
Functional Classification – Principal Arterial

AADT – 11,450 (from ODOT TIMS - 2018)

Number of Lanes – 4

Bicycle Facilities – None

Width (widest point) – 94 feet

Key Facts – Connects to SR 2 bridge over Maumee River at eastern edge of study area.

Williams Street
Functional Classification – Local

AADT – N/A

Number of Lanes – 2

Bicycle Facilities – None

Width (widest point) – 25 feet

Key Facts – N/A

Knapp Street
Functional Classification – Local

AADT – N/A

Number of Lanes – 2

Bicycle Facilities – None

Width (widest point) – 42 feet

Key Facts – N/A

Newton Street
Functional Classification – Local

AADT – 3,481 (from ODOT TIMS - 2018)

Number of Lanes – 2

Bicycle Facilities – None

Width (widest point) – 30 feet

Key Facts – Provides direct access to the Amtrak Toledo Station. Was recently converted from one-way to two-way operation.

Cherry Street (SR 120)
Functional Classification – Principal Arterial

AADT – 16,741 (from ODOT TIMS - 2018)

Number of Lanes – 6

Bicycle Facilities – None

Width (widest point) – 92 feet

Key Facts – Provides direct access to TARTA Transit Hub and MLK Bridge

3.3 Existing Transit Facilities/Ride Sharing

Toledo Area Regional Transit Authority (TARTA) – TARTA is the primary transit service within downtown Toledo. It provides bus, paratransit, and call-a-ride services across the Toledo metropolitan area. Within the DTTS study area there are 23 bus routes that provide access from the TARTA Transit Hub (on the southeast corner of Cherry Street (SR 120) & Huron Street) to locations such as The University of Toledo, Franklin Park Mall, Maumee, Sylvania, Rossford, Maumee, and Waterville. Each of these routes are shown in Figure 3.14. They include:

- 2– Franklin Park Mall via Toledo Hospital
- 5 – Dorr via UT Main Campus/Walmart
- 10L – Rossford via Hollywood Casino
- 12 – Front/Starr
- 14 – Oak/East Broadway
- 15 – Summit/Suder/Alexis
- 16 – Alexis via Meijer
- 17 – Lagrange/Bennett/Eleanor
- 19 – Cherry/Franklin Park Mall
- 20 – Central/Franklin Park Mall
- 22 – Bancroft via UT Campus/Franklin Park Mall
- 26 – Berdan/Douglas/Miracle Mile
- 27 – Nebraska/Hill-Reynolds
- 28 – Indian via UT
- 29 – Waterville Express
- 31 – Glendale/Southwyck
- 32 – South/Airport
- 34 – Detroit/Byrne/Western
- 35 – Airport/Maumee-Arrowhead
- 37 – Central Ave Crosstown
- 39 – Franklin Park/City of Sylvania
- 41 – Glendale-Southland/Maumee-Arrowhead

Note that some routes feature multiple branches, or sub-routes (e.g., 20F, 20M, 20W). These routes have been presented according to their common route number for simplicity. Also, the City of Toledo is currently working with TARTA on moving a number of Washington Street bus routes to SR 51 (Monroe Street)

It may be further noted that the DTTS features a bus transit loop that will be decommissioned in 2019 by the Federal Transit Administration (FTA). Prior to 2018, TARTA operated four (4) bus hubs along the loop (bounded by Erie Street, Jackson Street, Summit Street, and Jefferson Avenue). As the new TARTA Transit Hub (opening in 2019) will replace the four (4) bus hubs, the transit loop will no longer be necessary. Upon decommission of the bus loop, the space that it formerly occupied will be available for new uses. Decommissioning is currently in progress.

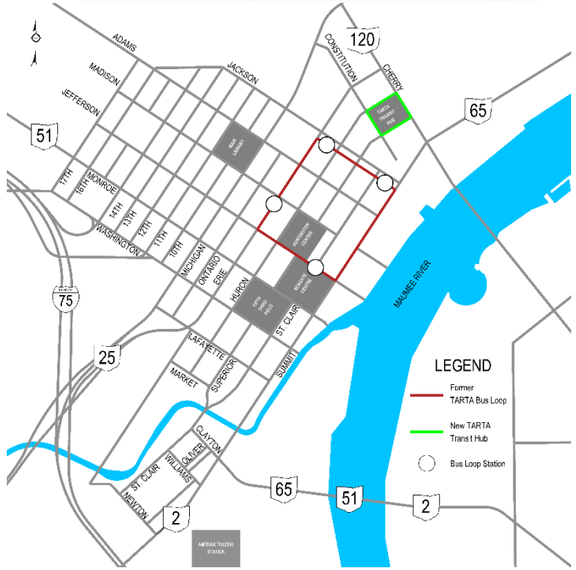


Figure 3.13 Former TARTA Bus Loop

Figure 3.14 DTTS TARTA Bus Routes

Amtrak – Amtrak provides passenger rail services to Chicago, IL, New York, NY, Washington D.C., and Boston, MA (and points in-between) from the Amtrak Toledo Station. The station, located along Emerald Avenue is located just outside of the DTTS area and is accessible by TARTA bus (route 32 –South/Airport).

Source: toledoblade.com

Greyhound – Greyhound provides long-distance passenger bus services from the Amtrak Toledo Station to Cleveland, OH, Columbus, OH, Dayton, OH, Fort Wayne, IN, South Bend, IN, Ann Arbor, MI, and Detroit, MI.

Source: www.usatoday.com

Ridesharing Services – There are a number of ridesharing services within downtown Toledo including Uber, Lyft, 419 Shuttle, EZ Shuttle, and T-Town Caddy. These services can be accessed by request and provide transport to a number of locations around the Greater Toledo Area.

Source: www.metrolinacarts.com

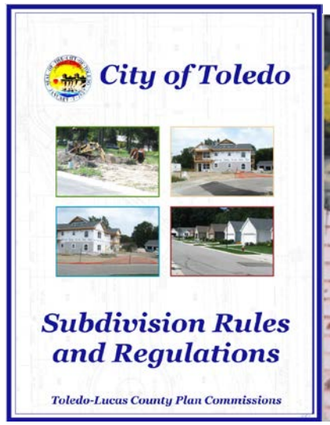
4.0

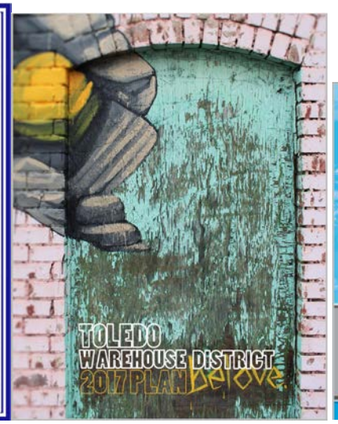
POLICY REVIEW

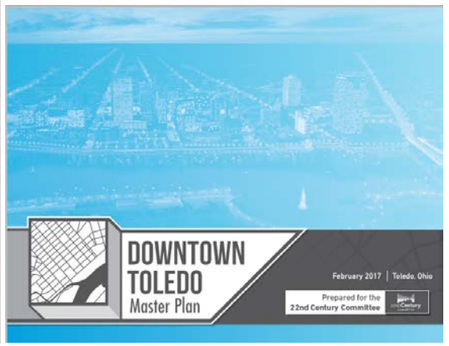
4.1 Overview

A review of planning and design policies within the study area was conducted as a part of the DTTS. The objective of this review was to ensure that city current design practices, policies, and other regional planning documents were in line with findings and recommendations presented in the 2017 *Downtown Toledo Master Plan* (DTMP). The review process included documentation of the city's current guiding principles/policies as related to several key components of transportation network management and their comparison to relevant elements of the DTMP. Each of the key areas in which city policies/guidelines were evaluated are listed below (components in which city policies/guidance were identified are shown in **bold**).

- Active transportation and demand management (*TMACOG Rideshare, TMACOG Vanpool, TARTA Park-n-Ride*)
- Active transportation planning (*Warehouse District Plan*)
- Complete streets policies (*City of Toledo Complete Streets Policy*, *TMACOG Complete Streets Policy*)
- Connected and autonomous vehicle planning
- Freight planning (*City of Toledo Municipal Code, FHWA National Truck Network, TMACOG Heavy Haul Permit Routes*
- Parking demand management practices (*Toledo Municipal Code, Downtown Toledo Comprehensive Parking Study)*
- Preventative maintenance and construction practices (*City of Toledo Subdivision Rules and Regulations)*
- Smart city applications
- Traffic calming and tactical urbanism (*City of Toledo Subdivision Rules and Regulations, TMACOG 2015 – 2045 Long Range Transportation Plan)*
- Transit planning (*TARTA Comprehensive Operations Analysis, TMACOG 2015 – 2045 Long Range Transportation Plan)*
- Transportation and health planning (*Toledo Public Schools District-Wide Travel Plan*)
- Transportation systems management and operations (*TMACOG Congestion Management Process Report)*







Downtown Toledo Master Plan

The DTMP was completed in 2017 with the objective of providing "a strategic direction for the continued revitalization of downtown Toledo". Development of the master plan included public meetings focused on understanding Downtown's challenges and opportunities as well as a market analysis, and the development/evaluation of recommendations for improving development conditions, livability, and connectivity within downtown. Key recommendations outlined in the study are presented below.

- Advance the Nautical Mile concept – This includes the extension of the Nautical Mile concept from the Anthony Wayne Bridge to the I-280 Bridge. Extending the Nautical Mile would connect Middlegrounds MetroPark with the downtown core, the Vistula neighborhood, International Park, and the Marina District

- Start with Summit Street – Given Summit Street's location among several key downtown landmarks and employers, it will be important to build upon its position as downtown's premiere address. This could be achieved through the implementation of specific improvements, including:
  - Streetscape elements
  - A road diet

- Implement a Bike Plan, Starting with Jefferson Avenue Cycletrack and Connection to UT – This includes the implementation of new bike infrastructure (in addition to the Bancroft-Promenade Trail that begins in downtown along Jefferson Avenue and extends to the University of Toledo) that could include bike lanes, "sharrows', or cycle tracks that link downtown with surrounding districts.

- Advance a better connected downtown – This includes the cultivation of an interconnected, inviting, and equitable (for all modes of travel) street network. While east-west connectivity within downtown Toledo is strong (along Monroe Street, Jefferson Avenue, Madison Avenue, Adams Street, etc.), north-south connectivity could be improved. Only SR 25 (Michigan Street/Erie Street), Huron Street, and SR 65 (Summit Street), provide connectivity through the downtown core. Key landmarks (e.g., Fifth Third Field, SeaGate Centre) within the downtown core interrupt other roadways, such as St. Clair Street and Superior Street. Additionally, the one-way operation of SR 25 (Michigan Street/Erie Street) further reduces options for north-south connectivity through the downtown core. Specific recommendations for improving connectivity include:

  - Evaluating SR 25 (Michigan Street/Erie Street) and Huron Street for conversion to two-way operation (note that Huron Street was converted to two-way operation prior to the completion of this study)
  - Implement the following roadway design typologies:
    - Downtown Standard – Full sidewalks; streetscape elements; on-street parking; "sharrows"
      - Washington Street
      - Madison Avenue
      - Adams Street
      - Jackson Street
      - Constitution/Orange Street
      - Cherry Street
    - Downtown Collector – Vehicular focused roads; wider, 11' lanes, limited in number
      - Michigan Street
    - Downtown Specialty – Pedestrian focused roads with important uses; streetscape elements w/signature materials;
      - St. Clair Street
      - Superior Street
      - Huron Street
      - Jefferson Avenue

- Downtown Signature – Gateway streets; signature intersection designs to encourage development; accommodations for bicycles and transit;
  - SR 51 (Monroe Street)
  - SR 25 (Erie Street)
  - SR 65 (Summit Street)

o Find alternative uses for the space that will be vacated when the TARTA Bus Loop is decommissioned (decommissioning is currently in progress)

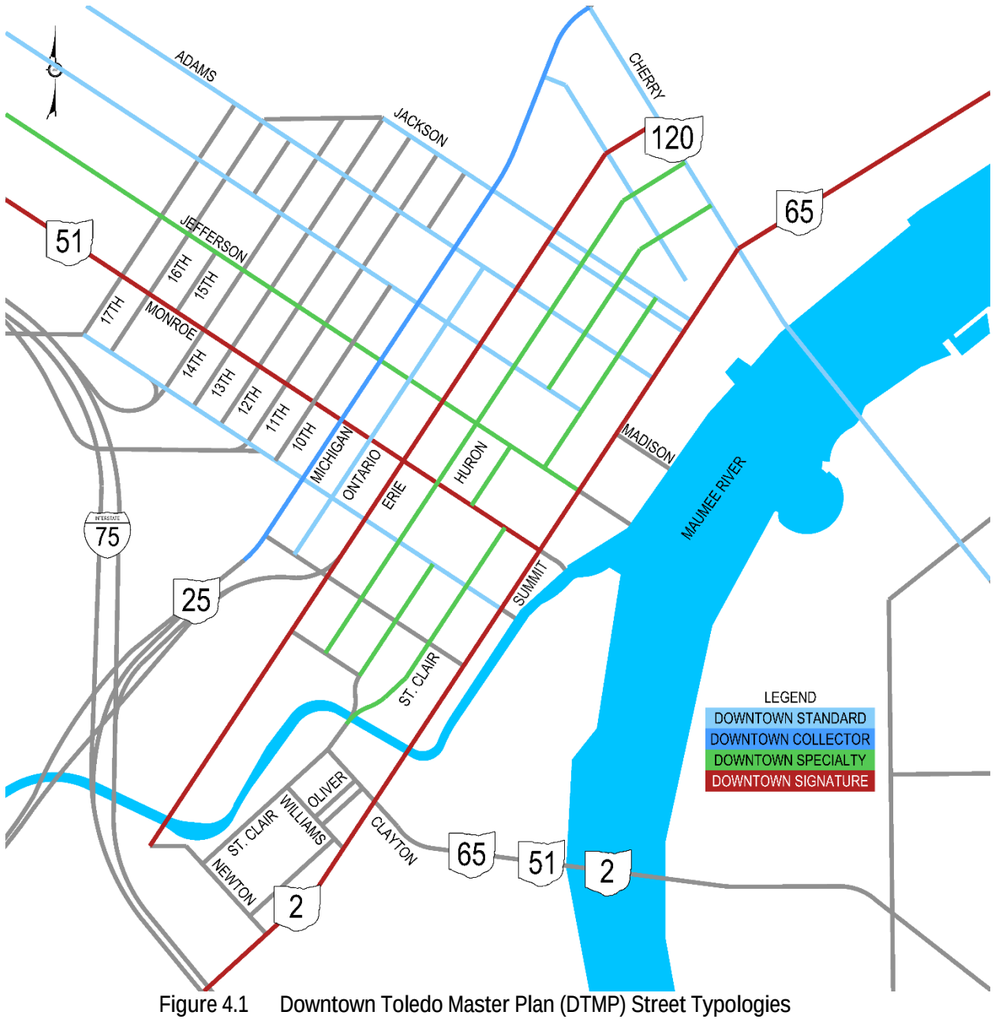


Figure 4.1 Downtown Toledo Master Plan (DTMP) Street Typologies

Policy Review Summary

Key findings from the policy review are summarized in Table 4.1.

Table 4.1 Policy Review Summary

Policy/Plan Guidance/Recommendations	Comparison with Downtown Toledo Master Plan (DTMP)
Active Transportation Planning – Warehouse District Master Plan (2017)	
• **Huron Street** – This roadway should be a template for streetscape design in downtown	• Inconsistent w/DTMP – The DTMP identifies Huron Street as a Downtown Specialty street, as such, it should have signature streetscape elements that build upon those in Downtown Standard Streets
• **Bike routes** – Utilize Washington Street as a bike route	• Inconsistent w/DTMP – The DTMP identifies Washington Street as a Downtown Standard street—a roadway in which "sharrows" should be the standard design
Freight Planning – City of Toledo Municipal Code (2019)	
• **Shipping zones** – The Municipal Code outlines on-street shipping zones at the locations shown in Figure 4.3, with zones primarily located along SR 25 (Erie Street), SR 51 (Monroe Street), Madison Avenue, Huron Street, and Adams Street	• Inconsistent w/DTMP – The DTMP does not explicitly make recommendations on where vehicles should be loaded or unloaded. However, the street typologies that it identifies indicate that Downtown Collector and Downtown Signature streets (such as Erie Street and Monroe Street) should be designed to accommodate higher traffic volumes, thus making them unsuitable for shipping zones that slow traffic.
Freight Planning – Federal Highway Administration National Truck Network (1982)	
• **National Truck Network** (NTN) – The Federal Highway Administration's (FHWA's) National Truck Network identifies Washington Street, SR 51 (Monroe Street), SR 25 (Erie Street/Monroe Street – south of Monroe Street), and SR 65 (Summit Street – south of Monroe Street) as roadways that should be designed to accommodate the movement of large trucks.	• Inconsistent w/DTMP – Washington Street, identified as an NTN roadway by FHWA, is identified as a Downtown Standard street by the DTMP. Downtown Standard roadways are identified to have characteristics that are unsuitable for accommodating higher traffic volumes and large truck traffic.
Preventative Maintenance and Construction Practices – City of Toledo Subdivision Rules and Regulations (2009)	
• **Street circulation and system design** – The Rules and Regulations specify that routes be "continuous, yet indirect enough to discourage an excessive amount of through traffic"	• Inconsistent w/DTMP – The DTMP encourages increased connectivity for roadways and routes within Downtown Toledo. This is inconsistent with specifications from the Rules and Regulations that discourage through travel in certain areas
• **Roadway design standards (roadway width)** – The Rules and Regulations provide guidance on a number of roadway design features, including roadway widths. Guidance on roadway width generally varies by the functional classification of the roadway, with arterials/collectors having wider widths that encourage higher volumes/truck travel, and local roadways having narrower widths that encourage lower volumes and discourage truck travel	• Inconsistent w/DTMP – Pavement width recommendations from the Rules and Regulations for non-arterial roadways (27' – 31') are slightly lower than those recommended for the DTMP equivalent roadway type (36' – 38' for Downtown Standard, Downtown Collector, and Downtown Specialty roadways). Given that many roadways within downtown Toledo have widths that are constrained by the presence of existing buildings, it may not be possible to achieve the widths recommended in the DTMP.

4.2 Review of Existing Criteria

Detailed information regarding existing guiding principles/informative documents within the City of Toledo for each of the key transportation management components outlined in Section 1 are summarized in the following sections.

4.2.1 Active Transportation and Demand Management

Active transportation and demand management is the implementation of specific policies to control travel demand so that it does not exceed available capacity. Active transportation and demand management policies improve the reliability, safety, and overall condition of the transportation network. Examples of this may include lane control, ridesharing programs, variable speed limits, congestion pricing, queue warning, and comparative multi-modal travel times. Within the DTTS area, TMACOG provides access to a ridesharing program and a vanpool program to manage demand within the Toledo metropolitan area. The carpool program links people that are interested in carpooling and is free of charge. Registration for the program is through Gohio. The vanpool program costs participants an average of $70 per month (insurance, fuel, and maintenance costs) and utilizes vans provided by VanOhio. The Toledo Area Regional Transit Authority (TARTA) also utilizes several "Park-N-Ride" lots for bus routes to downtown Toledo. None of the recommendations from the DTMP are related to current active transportation and demand management documents.

4.2.2 Active Transportation Planning

This is the process of anticipating future transportation needs/ways in which the transportation network could be improved, and developing a plan for implementing needed/improvement projects. Examples include neighborhood master plans and infrastructure assessments. Documents that guide/inform active transportation planning within the DTTS area include the the *Warehouse District Master Plan* (2017). Key findings from this document are summarized below:

Table 4.2 Active Transportation Planning

Policy/Plan Guidance/Recommendation	Comparison with Downtown Toledo Master Plan (DTMP)
Warehouse District Master Plan (2017)	
• **Huron Street** – This roadway should be a template for streetscape design in downtown	• Inconsistent w/DTMP – The DTMP identifies Huron Street as a Downtown Specialty street, as such, it should have signature streetscape elements that build upon those in Downtown Standard Streets
• **Truck routes** – Utilize SR 25 (Erie Street/Michigan Street), SR 51 (Monroe Street), and SR 65 (Summit Street) as truck routes	• Consistent w/DTMP – The DTMP identifies SR 25 (Michigan Street) as a Downtown Collector street, and SR 25 (Erie Street), SR 51 (Monroe Street), and SR 65 (Summit Street) as Downtown Signature streets, or roadways intended to accommodate higher vehicle volumes and truck traffic
• **Bike connections** – Add bike connections between The District and Middlegrounds MetroPark	• Consistent w/DTMP – The DTMP recommends improvements to connectivity within downtown that encourage "all modes of travel from pedestrians, to bicyclists, to vehicles"
• **Bike routes** – Utilize Washington Street as a bike route	• Inconsistent w/DTMP – The DTMP identifies Washington Street as a Downtown Standard street—a roadway in which "sharrows" should be the standard design
Toledo Uptown Plan (2013)	
• **Complete Streets** – 17th, 12th, and Jefferson as complete streets	• Consistent w/DTMP – The DTMP recommends the cultivation of complete streets that "encourage all modes of travel from pedestrians, to bicyclists, to vehicles"

Warehouse District Master Plan (2017)

Completed in 2017, the *Warehouse District Plan* documents existing land use/circulation conditions within the Warehouse District neighborhood (roughly bounded by Monroe Street to the north, the Maumee River to the east, Newton Street to the south, and Michigan Street to the west) and outlines a plan for their future. In its documentation of existing conditions, the plan identifies the following:

- Washington Street is a roadway in which "heavy trucks continue to cause damage along the entire length".
- Vehicular traffic in the neighborhood is an "issue as pedestrian and bicycle traffic increases, especially when community events take place."

The Warehouse District Plan includes the following recommendations for future circulation within the neighborhood (see Figure 4.2 for truck/pedestrian/bicycle circulation recommendations (it may be noted that recommendations from the Warehouse District Master Plan do not reflect those of the City of Toledo):

- **Streetscape** – The 100 block of Huron Street should be 'the standard for all future streetscape design throughout the District". This block features, street trees, tree wells, sidewalks, and pedestrian level street lighting. New streetscape designs should build on the components located on this block with light-emitting diode (LED) lighting and varying the street tree species options.

- **Vehicular Circulation** – It is recommended that all streets within the District be load limited (5,000 pounds) with the exception of trucks serving businesses within the district and traffic on SR 51 (Monroe Street), SR 25 (Michigan Street), SR 25 (Erie Street), and SR 65 (Summit Street). Additionally, the Plan recommends the conversion of all un-signalized intersections within the study area to all-way stop control and the study of Erie Street and Michigan Street for two-way conversions.

- **Pedestrian and Bicycle Circulation** – The plan recommends two (2) routes for connecting pedestrians between the Warehouse District and Middlegrounds Metropark. The first route begins by connecting St. Clair Street and Superior Street to Morris Street along the bank of Swan Creek. The route continues southward on Morris Street to Middlegrounds Metropark. The second route begins by connecting Lafayette Street across Swan Creek via a new pedestrian/bicycle bridge. The route would continue southbound on Ottawa Street to Middlegrounds Metropark. While the second route is preferred for safety reasons, its high cost (relative to the first route) may be prohibitive.

Figure 4.2 Proposed Circulation Plan – Warehouse District Master Plan (2017)

Toledo Uptown Plan (2013)

The Toledo Uptown Plan was developed in 2013 to create a roadmap for the Uptown District to "expand its growth into the vibrant living and activity central city focus that has already begun to take shape". The plan includes the presentation of relevant data and public comment, as well as an assessment of current neighborhood conditions and documentation of future needs. The plan makes the following recommendations:

- Complete Streets – The plan identifies 17th Street, 12th Street, and Jefferson Avenue as roadways that should be considered as complete streets. The plan also recommends the construction of a roundabout at the intersection of 17th Street & Jefferson Avenue.

4.2.3 Connected and Autonomous Vehicle Planning

This is the planning and development of policies and infrastructure to accommodate connected (i.e. vehicles that communicate with other vehicles and the environment) and autonomous (i.e. vehicles that do not require human control) vehicles. Examples include the development of a citywide ITS (intelligent transportation system) communications network and the development of policies for the personal deployment and operation of autonomous vehicles. Within the Toledo Metropolitan Region, connected and autonomous vehicle planning is guided by the *TMACOG Autonomous Vehicle Steering Committee*. This committee was formed to: "enhance interagency dialogue and collaboration, and to facilitate Connected and Automated Vehicle project development and deployment within Northwest Ohio and Southeast Michigan." The committee, made up of various municipalities and regional stakeholders has developed several documents related to connected vehicle and autonomous vehicle planning, including the *Downtown Toledo Smart Mobility Project* and the *I-475 Transportation Corridor Project*. None of the recommendations from the DTMP are related to current connected and autonomous vehicle planning documents.

4.2.4 Complete Streets Policies

These are policies intended to improve equity among travel modes along city streets (i.e., improve the viability of non-vehicular/transit travel). Examples include the active investigation of opportunities to provide bike lanes, wider sidewalks, dedicated transit space, and a host of other treatments. Documents that guide this practice within the DTTS area include the *City of Toledo Complete Streets Policy* (2010) and the *TMACOG Complete Streets Policy* (2014)

Table 4.3 Complete Streets Plan/Policy Comparison

Policy/Plan Guidance/Recommendations	Comparison with Downtown Toledo Master Plan (DTMP)
City of Toledo Complete Streets Policy (2017)	
• Complete street elements – The policy's goals are to consider several elements in the planning and design of new roadways or roadway improvements, including: bicycle infrastructure; sidewalks & multi-use paths; audible pedestrian signals; transit accessibility; streetscape elements; wayfinding, and lane reductions	• Consistent w/DTMP – The DTMP recommends the cultivation of complete streets that "encourage all modes of travel from pedestrians, to bicyclists, to vehicles"—further, the DTMP recommends that complete streets "add economic value, providing for outdoor dining and display, allowing for on-street parking…"
TMACOG Complete Streets Policy (2014)	
• Complete street elements – The policy's goals are to consider the following elements in the planning and design of new roadways or roadway improvements, including; street furniture; transit accessibility, traffic calming elements, landscape elements, future facilities or services, truck mobility, railroad preemption (where applicable), and access management	• Consistent w/DTMP – See previous

City of Toledo Complete Streets Policy (2010)

The City of Toledo Complete Streets Policy was developed in 2010 and is detailed in the City of Toledo Municipal Code (Section 901). Goals of the policy are to:

> "plan, design and construct transportation infrastructure improvements throughout the City in a manner which produces safe access to and active use by walkers and those on bicycles as well as accommodating those in public and privately owned vehicles."

The policy is informs all major infrastructure projects around the City to ensure that opportunities to enhance multi-modal travel are achieved. It includes consideration of the following elements on new projects:

- "Bicycle lanes adjacent to a roadway"
- "Sidewalks & multi-use paths within the rights-of-way"
- "Pedestrian crossing signals which include audible crossing signals for the visually impaired"
- "Easy access to public transit facilities and lines"
- "Sidewalks"
- "Street amenities including benches, lighting, landscaping, etc."
- "Appropriate pedestrian signage and/or way finding enhancements"

The policy also specifies that on current and future roadway projects, traffic counts should be reviewed in an effort to evaluate roadways for lane reductions.

TMACOG Complete Streets Policy (2014)

The TMACOG Complete Streets Policy was developed to: "Create a measurably better transportation system that is more equitable, balanced, and effective which offers every user of the public right-of-way safe, connected, and sustainable transportation options." To achieve this end, The Policy requires that projects requesting TMACOG-attributable federal funding fill out a Complete Streets Checklist separate from project funding scoring criteria. The Checklist will help sponsors to understand how the project meets complete streets requirements (The Policy outlines several requirements for ensuring that projects meet TMACOG's complete streets goals and objectives). The Policy also makes the following recommendations for treatments or items that should be considered as a part of the complete streets design process.

- Street furniture and wayfinding
- Wheelchair access and lighting near transit stops.
- Traffic-calming treatments (i.e., street trees, and roundabouts)
- Landscape elements (specifically those that "retain, infiltrate, and treat storm water")
- Future planned facilities or services
- Truck parking facilities and truck turning needs
- Railroad preemption for traffic signals
- Access management

4.2.5 Freight Planning

This is the evaluation of and planning of infrastructure to ensure that 1) freight vehicles can meet operations goals, and 2) it does not negatively impact natural, residential, commercial, and recreational areas with air, noise, water, or light pollution. Examples of freight planning include: the development of dedicated truck routes on city streets, implementation of roadway load limits, development of a plan for commercial vehicle loading/unloading. Documents that guide freight planning/operations within the DTTS area include: the *City of Toledo Municipal Code* (2019), the *FHWA National Truck Network* (1982), and the *TMACOG Heavy Haul Permit Routes* (2018). Detailed information regarding the policies and criteria outlined in these documents is provided below:

Table 4.4 Freight Planning

Policy/Plan Guidance/Recommendations	Comparison with Downtown Toledo Master Plan (DTMP)
City of Toledo Municipal Code (2019)	
• Shipping zones – The municipal code outlines on-street shipping zones at the locations shown in Figure 4.3, with zones primarily located along SR 25 (Erie Street), SR 51 (Monroe Street), Madison Avenue, Huron Street, and Adams Street	• Inconsistent w/DTMP – The DTMP does not explicitly make recommendations on where vehicles should be loaded or unloaded. However, the street typologies that it identifies indicate that Downtown Collector and Downtown Signature streets (such as Erie Street and Monroe Street) should be designed to accommodate higher traffic volumes, thus making them unsuitable for shipping zones that slow traffic.
Federal Highway Administration National Truck Network (1982)	
• National Truck Network (NTN) – The Federal Highway Administration's (FHWA's) National Truck Network identifies Washington Street, SR 51 (Monroe Street), SR 25 (Erie Street/Monroe Street – south of Monroe Street), and SR 65 (Summit Street – south of Monroe Street) as roadways that should be designed to accommodate the movement of large trucks.	• Inconsistent w/DTMP – Washington Street, identified as an NTN roadway by FHWA, is identified as a Downtown Standard street by the DTMP. Downtown Standard roadways are identified to have characteristics that are unsuitable for accommodating higher traffic volumes and large truck traffic.
TMACOG Heavy Haul Permit Routes (2018)	
• Heavy haul routes – TMACOG identifies I-75, SR 120 (Cherry Street), SR 25 (Greenbelt Parkway), and SR 65 (Summit Street – north of Cherry Street) as roadways designated for truck traffic	• Consistent w/DTMP – The DTMP identifies SR 25 (Greenbelt Parkway) as a Downtown Collector street and SR 65 (Summit Street) as a Downtown Signature Street, both roadway types with characteristics to accommodate higher traffic volumes and large trucks

City of Toledo Municipal Code (2019)

Chapter 351 of the Toledo Municipal Code guides the loading and unloading of commercial and heavy vehicles in the DTTS area. Key rules and rules and regulations outlined in the chapter include:

- Location of loading/unloading
  - Commercial/heavy vehicles cannot park/stand to load or unload for a period of more than thirty minutes in a shipping or loading zone (a shipping or loading zone is an on-street area, designated by the City with a sign, for the loading and unloading of commercial vehicles—see Figure 4.3).

FHWA National Truck Network (1982)

As a part of the Surface Transportation Assistance Act of 1982, the FHWA National Truck Network (NTN) was developed to promote interstate commerce by providing routes for trucks between principal cities and densely populated areas. Roadways on the network are required to have geometric conditions that allow for the travel of "conventional combinations" (i.e., trucks with one semitrailer up to 48 feet in length or two semitrailers up to 28 feet in length). Within the DTTS area, national truck network roadways include: SR 51 (Monroe Street), Washington Street, SR 25 (Erie Street/Anthony Wayne Trail), SR 51 (Michigan Street/Anthony Wayne Trail), SR 2/65 (Summit Street), SR 2/65 (Clayton Street), and I-75. NTN roadways within the DTTS area are illustrated in Figure 4.3.

TMACOG Heavy Haul Permit Routes (2018)

Within the Toledo Metropolitan Area, TMACOG publishes a map of legal heavy-haul permit routes for trucks traveling on roadways in Lucas, Fulton, and Williams Counties from Michigan. The routes provide access from Michigan to key industry areas within the region. Load limits for heavy-haul permit routes are 80,000 pounds (excluding legal loads from Michigan over 80,000 pounds, which require a permit – up to 154,000 pounds).

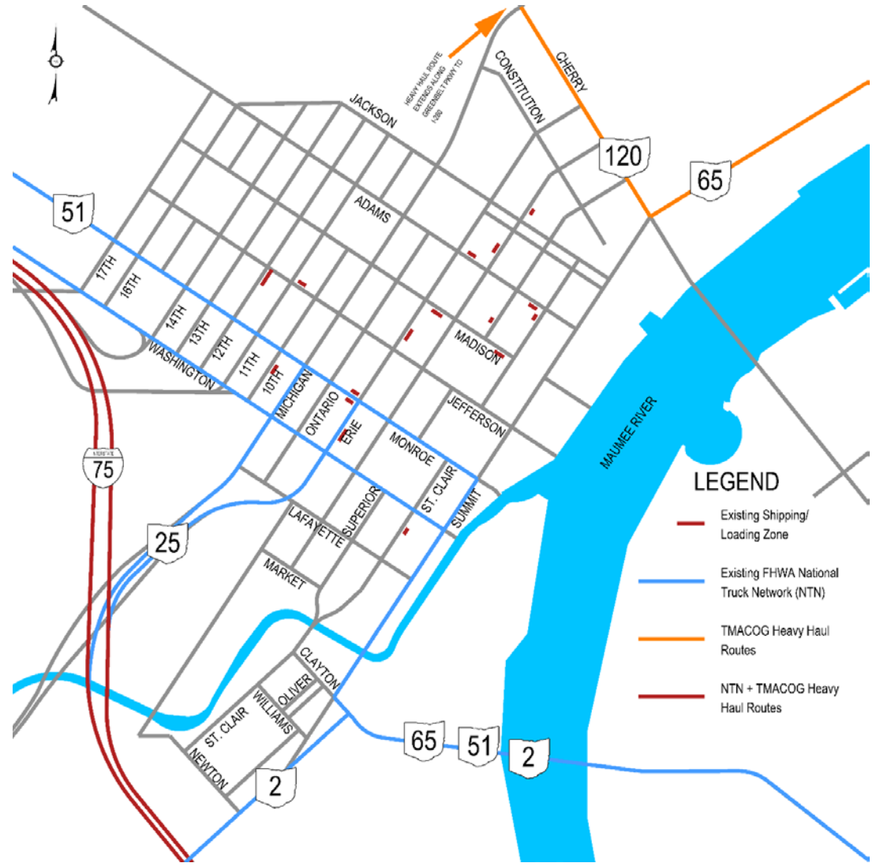


Figure 4.3 Existing Toledo Shipping Zones/NTN Roadways/TMACOG Heavy Haul Routes

4.2.6 Parking Demand Management Practices

These are practices aimed at ensuring a more efficient use of parking resources within a specific area through the management of demand. Examples include variable pricing, implementation of supply maximums, residential parking permit programs, and carpool/vanpool programs. Documents that guide parking demand management within the DTTS area include the *City of Toledo Municipal Code* (2019) and the *Downtown Toledo Comprehensive Parking Study* (2018). Detailed information regarding policies and guidance outlined in these documents is presented below.

Table 4.5 Parking Demand Management Practices

Policy/Plan Guidance/Recommendations	Comparison with Downtown Toledo Master Plan (DTMP)
City of Toledo Municipal Code (2019)	
• Special parking/surface parking lot ban districts – These districts reduce the number of off-street parking spaces required for new developments and ban the construction of new surface parking lots in specific areas	• Consistent w/DTMP – As the DTMP recommends the cultivation of increased equity among travel modes, the reduction of parking spaces in specific areas makes other travel modes more competitive with driving, especially within the Central Business and Warehouse Districts (see Figure 4.5)
Downtown Toledo Comprehensive Parking Study (2018)	
• All recommendations – These recommendations (see right) are intended to reduce parking demand and encourage more efficient use of existing parking facilities.	• Consistent w/DTMP – As the DTMP recommends the cultivation of increased equity among travel modes, the reduction of parking spaces in specific areas makes other travel modes more competitive with driving, especially within the Central Business and Warehouse Districts (see Figure 4.5)

City of Toledo Municipal Code (2019)

Chapter 1107 of the Toledo Municipal Code outlines parking regulations within the DTTS area. The chapter provides the following guidance as related to parking demand management:

- Special parking districts (Downtown Commercial District)
  - Non-residential Parking – "Due to the unique characteristics of the Central Business District, including higher land values, integration with public transportation, and the presence of parking garages, allowed non-residential uses in the CD zoning district are exempt from providing off-street parking spaces"
  - Residential Parking – "The minimum number of off-street parking spaces required is one space per residential unit, plus one space per 10 dwelling units for visitor parking"
  - Residential Parking Exception – "No off-street parking spaces are required for residential building projects of 10 units or less."
- Surface Parking Lot Ban Districts:
  - Surface Lot Prohibition – "Within the Surface Parking Lot Ban Districts, one-level surface parking lots are strictly prohibited and existing one-level surface parking lots may not be increased in size."
  - Surface Parking Lot Ban Districts
    - Downtown Core District – Bounded by Summit Street, Jefferson Avenue, Erie Street, and Jackson Street.
    - Warehouse District – Bounded by Michigan Street, Monroe Street, Washington Street, 11th Street, the Anthony Wayne Trail, I-75, Swan Creek, and Monroe Street.

Downtown Toledo Comprehensive Parking Study (2018)

Using existing on-street and off-street parking data, as well as future parking demand projections, several recommendations for managing parking demand within downtown Toledo were developed. These recommendations include:

- Create and encourage mixed uses – this helps to alleviate parking demand by encouraging a "park once" philosophy where employees, residents, and patrons can park in one (1) spot and visit a number of land uses (as opposed to occupying a new spot each time they visit a new land use).
- Market available parking spaces through the use of automated parking guidance systems – this helps employees and patrons find parking spaces as they enter an area, encouraging efficient use of existing supply and reducing vehicular circulation.
- Encourage shared parking – this designates parking space for a specific use when its demand is highest, and other uses when other demands are highest.
- Edit zoning ordinance – this may include parking minimum requirements and requiring new developments to submit parking plans as a part of the City Planner approval process (this may encourage developers to consider nearby, underutilized parking facilities to accommodate new parking demand).

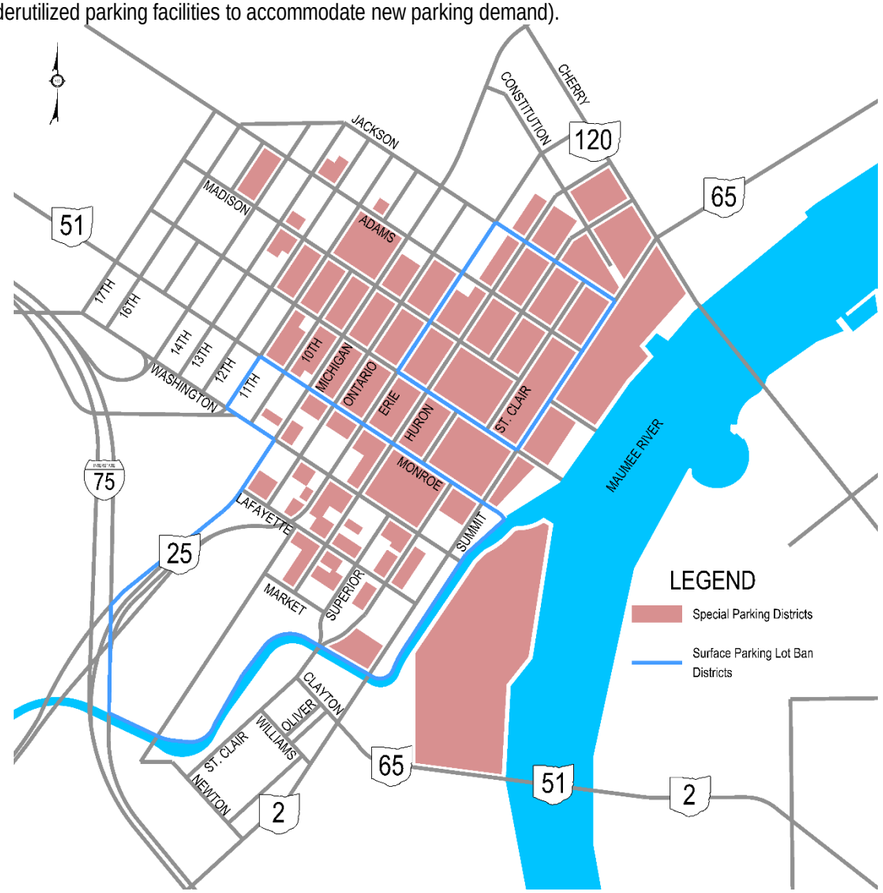


Figure 4.4 DTTS Parking Zones

4.2.7 Preventive Maintenance and Construction Practices

These are specific practices aimed at extending the useful life of transportation infrastructure through construction methodologies and maintenance programs. Examples of preventative maintenance and construction practices include bridge inspection programs, pavement inspection programs, and materials standards. Documents that guide preventative maintenance and construction practices within the DTTS area include the *City of Toledo Subdivision Rules and Regulations* (2009). Detailed information regarding this document is provided below.

Table 4.6 Preventative Maintenance and Construction Practices

Policy/Plan Guidance/Recommendations	Comparison with Downtown Toledo Master Plan (DTMP)
City of Toledo Subdivision Rules and Regulations (Street Design and Construction Standards)	
• Street circulation and system design – The Rules and Regulations specify that routes be "continuous, yet indirect enough to discourage an excessive amount of through traffic"	• Inconsistent w/DTMP – The DTMP encourages increased connectivity for roadways and routes within Downtown Toledo. This is inconsistent with specifications from the Rules and Regulations with discourage through travel in certain areas
• Roadway design standards (roadway width) – The Rules and Regulations provide guidance on a number of roadway design features, including roadway widths. Guidance on roadway width generally varies by the functional classification of the roadway, with arterials/collectors having wider widths that encourage higher volumes/truck travel, and local roadways having narrower widths that encourage lower volumes and discourage truck travel	• Inconsistent w/DTMP – Pavement width recommendations from the Rules and Regulations for non-arterial roadways (27' – 31') are slightly lower than those recommended for the DTMP equivalent roadway type (36' – 38' for Downtown Standard, Downtown Collector, and Downtown Specialty roadways). Given that the width many roadways within downtown Toledo have widths that are constrained by the presence of existing buildings, it may not be possible to achieve the widths recommended in the DTMP.

City of Toledo Subdivision Rules and Regulations (Street Design and Construction Standards)

The City of Toledo Subdivision Rules and Regulations were established in 2009 to "guide and regulate the planning, subdividing and development of land in order to promote and protect the public health, safety, and general welfare in the City of Toledo." Chapter 5 of the rules and regulations outlines standards for street design and construction. The chapter provides guidance on recommended street circulation and system design, minimum right-of-way widths (based on functional classification), roadway design standards, intersection design standards, and sidewalks. Detailed information regarding each of these elements is provided below:

- Street circulation and system design – The regulations state that "Streets shall be planned for convenient circulation toward the principal directions of travel, bus routes, schools, and playgrounds. The pattern shall be continuous, yet indirect enough to discourage an excessive amount of through traffic."

- Roadway design standards (local and collector roadways) – The regulations provide the following guidance (as applicable to roadways within the DTTS area) on roadway design:
  - Pavement width – local roadways (27 feet), collectors (31 feet)
  - Minimum stopping sight distance – local roadways (200 feet), collectors (200 feet)

4.2.8 Smart City Applications

These are policies that guide the collection and sharing of critical information across city departments to improve services and reduce costs. General examples of smart city applications include the establishment of permanent traffic count locations, the use of traffic count and classification data to drive land use planning/safety resource development. Within the Toledo Metropolitan Area, examples of smart city applications include closed-circuit television cameras and changeable message signs operated along interstates by ODOT. Within the DTTS area, there are only two (2) documents that explicitly guide smart city applications: the *Toledo Regional ITS Architecture* and *On The Move: 2015 – 2045 Transportation Plan* (2015) . Other documents, including the City of Toledo's report Integrated Personal Mobility Management System – Monitor, Optimize, Analyze, Communicate (2016), do not explicitly guide smart city applications, but propose a vision for their future. None of the recommendations from the DTMP are related to current smart city documents.

4.2.9 Traffic Calming and Tactical Urbanism

These are elements designed to slow traffic and guide route choice so that safer, more engaging environments can be created on specific city streets. General examples include, speed humps, intersection bump-outs, cycle tracks, pedestrian refuge islands, and trees. Within the DTTS area, examples of this include curb bump-outs at intersections within the Warehouse District and the Jefferson Avenue cycle track. Documents that guide this practice within the DTTS area include the *City of Toledo Subdivision Rules and Regulations* (2009) and the *On The Move: 2015 – 2045 Transportation Plan* (2015)

Table 4.7 Traffic Calming and Tactical Urbanism

Policy/Plan Guidance/Recommendations	Comparison with Downtown Toledo Master Plan (DTMP)
City of Toledo Subdivision Rules and Regulations (Street Design and Construction Standards)	
• Street and walkway lighting – The Rules and Regulations specify that developers will install street lights with new developments	• Consistent w/DTMP – While the application of the street and walkway lighting specification from the Rules and Regulations may be difficult within downtown Toledo, it is consistent with streetscape recommendations from the DTMP (lighting is a standard design elements for all street typologies)
• Street trees – The Rules and Regulations specify that street trees be installed along all streets in a major subdivision	• Consistent w/DTMP – While the application of the street tree specification from the Rules and Regulations may be difficult within downtown Toledo, it is consistent with streetscape recommendations form the DTMP (street trees are standard design elements for all street typologies)
On The Move: 2015-2045 Transportation Plan (2015)	
• Jefferson Avenue cycle track – The Plan specifies the construction of dedicated bicycle infrastructure along Jefferson Street	• Consistent w/DTMP – The development of dedicated bicycle infrastructure along Jefferson Avenue is consistent with the DTMP recommendations to "advance a better connected downtown and implement (a) bike plan, starting with Jefferson Avenue cycletrack and connection to UT"
• Maumee River multi-use path – The Plan specifies the construction of a multi-use path along the Maumee River that connects Cullen Park with the planned multi-use path along SR 25 (Anthony Wayne Trail)	• Consistent w/DTMP – The development of a Maumee River multi-use path is consistent with the DTMP recommendation to "advance a better connected downtown and advance the nautical mile concept"

City of Toledo Subdivision Rules and Regulations (2009)

Information regarding the objectives and purpose of the *City of Toledo Subdivision Rules and Regulations* can be found in Section 2.7. The regulations outline standards for street/walkway lighting and street trees. Information regarding each of these elements is presented below:

- Street and walkway lighting – the regulations state that the City will require the "subdivider/developer to install street lights."
- Street trees – the regulations state that "street trees shall be installed along all streets in a major subdivision", and that they shall be installed at a spacing determined by their size:
  - Trees 40 feet or taller should be planted at intervals of 50 to 70 feet
  - Trees between 30 and 40 feet tall should be planted at intervals between 40 and 50 feet
  - Trees shorter than 30 feet in height should be planted at intervals of 30 to 40 feet

On The Move: 2015-2045 Transportation Plan (2015)

As described in Section 4.2.9 and Section 4.2.10, On The Move: 2015 – 2045 Transportation Plan prioritizes several infrastructure projects for implementation within the Toledo Metropolitan Region by the year 2045. Traffic calming and tactical urbanism projects outlined within the DTTS area are described below:

- Jefferson Avenue Cycle track – "Add a sidepath on Jefferson Ave. and connect to existing facilities on Bancroft St. via share-the-road facilities in the Old West End"
- Maumee River Multi-use path – "Construct a multi-use path from Cullen Park south along Summit St., to Water St., along the riverfront to Owens Corning Pkwy., to bike lanes on Ottawa St. and Emerald Ave. and connect to the planned path along the Anthony Wayne Trail.

4.2.10 Transit Planning

This is the evaluation of existing transit infrastructure and the planning of future transit infrastructure to improve the reliability and safety of current transit facilities and to ensure that future transit options match regional travel demands. Examples of transit planning within the DTTS area include the implementation of new transit routes to developing areas and the adjustment of existing transit routes to improve service reliability. Within the DTTS area, documents that guide transit planning include the *TARTA Comprehensive Operations Analysis* (2009), and *On The Move: 2015 – 2045 Transportation Plan* (2015). Detailed information regarding each of these documents and how they influence transit planning within the DTTS area is presented below.

Table 4.8 Transit Planning

Policy/Plan Guidance/Recommendations	Comparison with Downtown Toledo Master Plan (DTMP)
TARTA Comprehensive Operations Analysis (2009)	
• Service recommendations – TARTA's Comprehensive Operations Analysis recommends a future transit scenario that includes a single, downtown transit hub, improved route connections, crosstown connectivity, service coverage, and improved weekend services.	• Consistent w/DTMP – Recommendations from the Comprehensive Plan are consistent with DTMP recommendations to improve equity among travel modes
On The Move: 2015-2045 Transportation Plan (2015)	
• Infrastructure improvements – Various infrastructure improvements recommended by The Plan include the upgrade of high-usage bus stops (to make them more user friendly), the implementation of passenger train service from the Toledo Amtrak Station, and the implementation of a transit connection between Toledo and Bowling Green	• Consistent w/DTMP – Recommendations from The Plan are consistent with DTMP recommendations to improve equity among travel modes.

TARTA Comprehensive Operations Analysis (2009)

The TARTA Comprehensive Operations Analysis was developed for TARTA, to: "examine new service structures and to respond to regional changes and problems identified with current services." The document evaluates existing market conditions and ridership trends, highlights existing challenges that TARTA faces, and outlines multiple scenarios for improvement. Key findings from this document as related to the DTTS area include:

- Service recommendations – After evaluating four (4) different service scenarios that provided a mix of funding sources and various service changes to address existing issues, a scenario that included: 1) a change in funding from existing sources (by municipality) to a county wide tax system; and 2) a single, downtown transit hub, was recommended. This scenario, Scenario 3, was found to serve the most people most efficiently by offering an improvement over existing conditions in the following areas: financial implications, route connections, crosstown connectivity, service coverage, restoration of 2008 changes (service cuts), call-a-ride zones, and weekend services.

On The Move: 2015-2045 Transportation Plan (2015)

As described in Section 4.2.5, Section 4.2.7, Section 4.2.8, and Section 4.2.9, *On The Move: 2015 – 2045 Transportation Plan* prioritizes several infrastructure projects for implementation within the Toledo Metropolitan Region by the year 2045. Transit planning projects outlined within the DTTS area, as well as their planned year of implementation, are described below:

- Bus transit infrastructure
  - "Replace TARTA bus fleet" (2016 – 2025)
  - "Upgrade most frequently used transit stops to make them user friendly and handicapped accessible" (2035)
- Passenger rail infrastructure
  - "Implement north-south passenger train service, Toledo to Bowling Green to Lima/Columbus" (2016 – 2035)
  - "Upgrade Toledo Amtrak station infrastructure and provide or improve passenger access to multiple rail lines, local & intercity transit, and taxis" (2016 – 2020)
- General transit
  - "Implement a transit connection between Toledo and Bowling Green" (2035)
  - "TARTA facilities improvements" (2018)
  - "Implement a one-call/one click transit information center for Toledo metro area" (2016)

4.2.11 Transportation and Public Health Planning

This is the development and management of policies that encourage healthy living through active transportation (i.e., walking/biking), and the reduction of pollution. Examples of transportation and public health planning include vehicle inspection programs, safe routes to school programs, and signal timing studies to reduce congestion. Within the DTTS area, documents that guide transportation and public health planning include the *Toledo Public Schools District Wide Travel Plan (2014)*. Detailed information regarding this document is provided below.

Table 4.9 Transportation and Public Health Planning

Policy/Plan Guidance/Recommendations	Comparison with Downtown Toledo Master Plan (DTMP)
Toledo Public Schools District Wide Travel Plan (20140	
• Various recommendations – The Travel Plan outlines several recommendations for improving conditions for walking and bicycling to school.	• Consistent w/DTMP – Recommendations from the Travel Plan are consistent with DTMP recommendations to improve equity among travel modes

Toledo Public Schools District-Wide Travel Plan (2014)

The Toledo Public Schools District-Wide Travel Plan was developed to support "projects and programs that enable and encourage safe walking and bicycling to and from school". The plan has identifies three (3) schools for evaluation and countermeasure development that may have students within the DTTS area. These schools include: Navarre Elementary School, Garfield Elementary School, and Sherman Elementary School. Additionally, schools that may have students within the DTTS area include Scott High School, Waite High School, and Toledo School for the Arts. The Plan observed outlines the following countermeasures for implementation to encourage active transportation to and from school:

- Pedestrian master plan
  - "Develop a pedestrian master plan that prioritizes pedestrian infrastructure improvements near schools and includes education, encouragement, and enforcement elements.
- Amend the TPS Wellness Policy
  - "Amend the TPS Wellness Policy to encourage walking and bicycling to school as a way for students to obtain regular physical activity and to reduce motor vehicle traffic and air pollution near schools."
- Public outreach
  - "Reach out to schools that currently prohibit walking and/or bicycling to understand local concerns and determine how they can be addressed."
  - "Establish a monthly walk and bicycle to school day."
- Regular policy reviews
  - "Annually review the district's and participating schools' policies to ensure they continue to encourage walking and bicycling to school."
- Education
  - "Implement Safe Kids Toledo Bike and Pedestrian Safety Education Program for students."
- Infrastructure
  - "Provide bicycle racks at all neighborhood schools that are easy to use, in good repair, in a secure location, and if possible, protected from rain and snow." It may be noted that bicycle racks are a part of the standard design for new and renovated TPS schools. Despite this, some schools have asked that new bicycle racks be removed due to dangerous biking conditions near the schools and the possibility of bicycles being stolen.
  - "Provide crossing facilities at locations where pedestrian pathways intersect school driveways and parking lots."
  - "Implement no right-turn on red restrictions to reduce conflicts between pedestrians and turning vehicles where appropriate"
  - Work with the city to investigate locations along school walking routes where sidewalks are in poor condition."
  - Work with the city and Toledo Edison to identify areas with poor, broken, or missing street lighting."
- Enforcement
  - "Initiate progressive ticketing at problem locations. Also initiate double fines for speeding in school zones."
  - "Establish a district-wide speed reduction and/or "No Phone Zone" campaign."
- Policy
  - "Establish a walking school bus program."
  - "Establish a bike train program."

4.2.12 Transportation Systems Management and Operations

This is the management of vehicle, pedestrian, and bicycle operations (i.e., efficiency of travel) throughout a particular district, city, or region. Examples include signal timing and progression studies, and design criteria for traffic control and operations infrastructure. Documents that guide this practice within the DTTS area include the *TMACOG Congestion Management Process Report*. Detailed information regarding this document is provided below.

Table 4.10 Transportation Systems Management and Operations

Policy/Plan Guidance/Recommendations	Comparison with Downtown Toledo Master Plan (DTMP)
TMACOG Congestion Management Process Report	
• Strategies aimed at improving equity in travel modes utilized – The Report outlines several strategies to improve equity among travel modes, including: improvements to the transit system and services, improvements to the sidewalk network, improvements to the bicycle network, and a continued emphasis on complete streets.	• Consistent w/DTMP – Recommendations from The Report are consistent with DTMP recommendations to improve equity among travel modes

TMACOG Congestion Management Process Report (2018)

The TMACOG Congestion Management Process Report was developed to define objectives for congestion management, document system performance, and develop strategies for reducing existing and future congestion within the Toledo Metropolitan Region. The document indicates that while overall congestion levels within the region are in line with or better than national averages, there are several specific locations within the Toledo Metropolitan Area that experience recurring congestion at levels that could be improved (i.e., observed speeds are at most 75 percent of free-flow speeds for more than 5 percent of a peak period). None of these locations, however, were within the DTTS area. It may be noted that one (1) location within the DTTS area was indicated as experiencing a high level of non-recurring congestion, the SR 2/65 bridge over the Maumee River (Clayton Street) (based on the level of travel time reliability index—see report for details). The document recommends the following strategies for improving and managing congestion:

- Strategies aimed at improving equity in travel modes utilized
  - Improve the transit system and service
  - Improve sidewalk networks
  - Improve bicycle network
  - Continue to implement complete streets

5.0

CURRENT CONDITIONS ASSESSEMENT & FUTURE CONDITIONS FORECAST

5.1 Overview

The intent of the current conditions assessment and future conditions forecast is to document existing and project future traffic volume and operations conditions within the DTTS area. Documentation and analyses were completed at 36 intersections within the DTTS area (see Figure 5.1) and included:

- Evaluation of existing (2018) traffic operations
- An evaluation of reported crashes within the study area (for the years 2015 to 2017)
- Projection of future traffic volumes to the years 2023 and 2038
- Evaluation of future traffic operations for the years 2023 and 2038

Details regarding each of these elements are provided in the following sections.

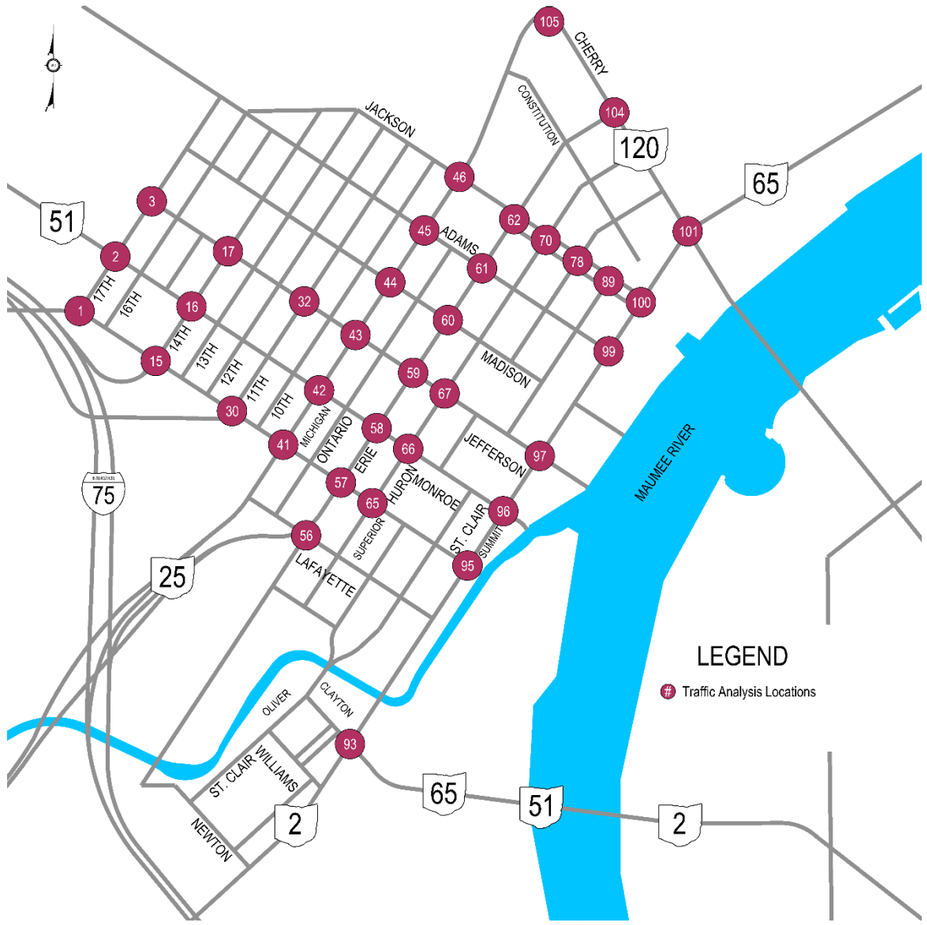


Figure 5.1 Traffic Analysis Locations

5.2 Current Conditions

5.2.1 Existing Traffic Operations

Prior Studies & Data

The *TMACOG Congestion Management Process Report*, completed in 2018, provides several measures of effectiveness for existing congestion within the Toledo Metropolitan Region and introduces several strategies for reducing congestion into the future. Specifically, the document cites data from Texas Transportation Institute's (TTI's) *2015 Urban Mobility Report* indicating that In 2014, the average vehicle in the Toledo metropolitan area experienced 38 hours of delay annually, slightly below the national average of 42 hours annually, and slightly above the average for medium sized urban areas of 37 hours. In an evaluation of congestion along National Highway System (NHS) roads and other major arterials, the report found that there are three (3) distinct periods on weekdays when travel times are highest.

- An AM peak period (6-10 AM);
- A midday peak period (10 AM – 4 PM); and
- A PM peak period (4 – 8 PM)

Additionally, a list of recurring congestion locations within the Toledo Metropolitan Region was developed for the report. In the report, a recurring congestion location is defined as having at most 75% of the free-flow travel speed for more than 5% of a peak period. No recurring congestion locations were documented within the DTTS area. Among non-recurring congestion locations (i.e., congestion caused by "random occurrences or unplanned special events that temporarily reduce roadway capacity and reliability), five (5) locations were listed within the DTTS area. The primary measure of effectiveness for non-recurring congestion is the ratio of the 80th percentile level of travel time reliability (LOTTR) to the 50th percentile LOTTR, or the LOTTR index. LOTTR is the consistency in travel time among various days and points within a day. The ratio of the 80th percentile to the 50th percentile LOTTR essentially measures how much travel time reliability can vary at a location. For locations within the DTTS area, the LOTTR index values were as follows (it may be noted that LOTTR index values over 1.5 are assumed to have a high level of unreliability):

- Clayton Street – east of Summit Street (weekend travel)
  - LOTTR index: 2.83 (eastbound); 1.93 (westbound)
- Summit Street – south of Clayton Street (PM, weekend travel)
  - LOTTR index: 1.85 (northbound, PM); 1.67 (northbound, weekend)
- Cherry Street – between Erie Street and Spielbusch Avenue (weekend travel)
  - LOTTR index: 1.5 (westbound)
- Summit Street – north of Clayton street (weekend travel)
  - LOTTR index: 1.5 (southbound)
- Erie Street – south of Cherry Street (AM travel)
  - LOTTR index: 1.5 (northbound)

AM, Midday, and PM Intersection Analyses

Existing intersection traffic operations were evaluated with the Synchro 10 and SimTraffic 10 traffic analysis software packages. Synchro 10 provides several measures of effectiveness (MOEs) for traffic operations based on a number of static (i.e., do not consider interactions between individual vehicles) traffic volume, traffic control, and environmental variable inputs. The primary Synchro 10 measure of effectiveness that will be used for this analysis is level-of-service (LOS). LOS provides a letter grade for traffic operations based on the amount of delay experienced for an intersection lane group (e.g., eastbound left), along an intersection approach (e.g., westbound approach), or at an intersection overall. Values for LOS can vary from A to F, with LOS A representing the conditions in which vehicles experience the least amount of delay, and LOS F representing the conditions in which vehicles experience the most delay. Typically, when LOS values are between A and D, this represents satisfactory traffic operations, or conditions in which changes to infrastructure are not likely to be proposed in an effort to improve delays. When LOS values are E or F, this typically represents unsatisfactory traffic operations, or conditions in which changes are likely to be proposed in an effort to improve delays. LOS delay thresholds are illustrated in Figure 5.2. Existing AM, midday, and PM peak hour LOS values are illustrated in Figure 5.3. Lane group LOS values for intersections with borderline or unsatisfactory traffic operations are summarized in Table 5.1.

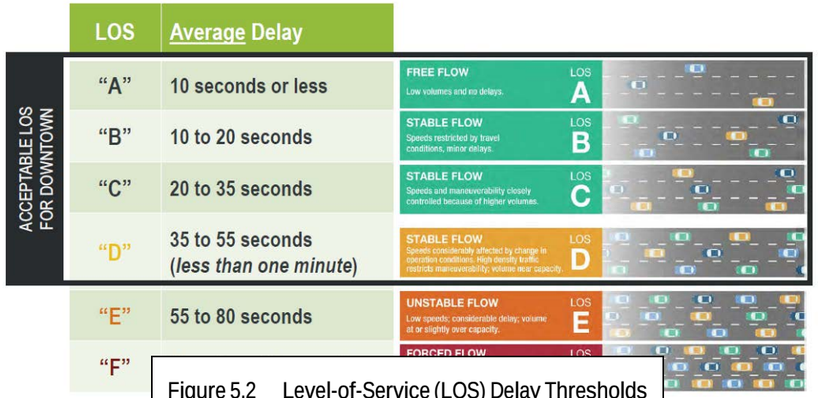


Figure 5.2 Level-of-Service (LOS) Delay Thresholds

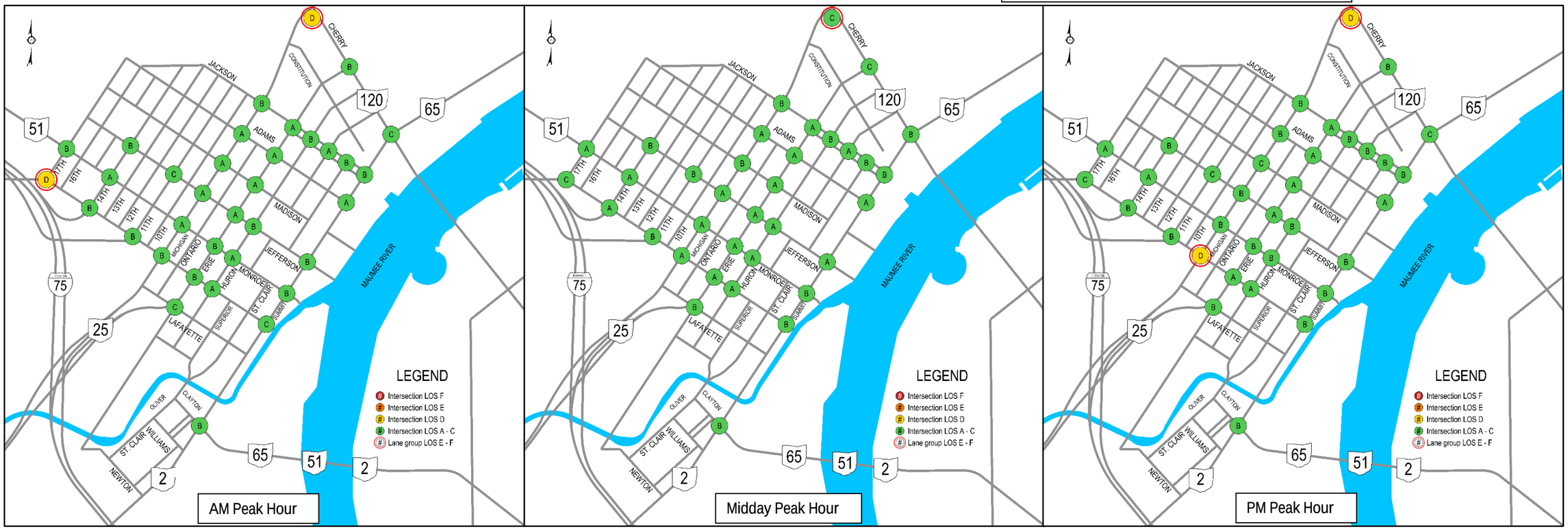


Figure 5.3 Existing (2018) AM, Midday, and PM Intersection Level-of-Service (LOS

Of the intersections evaluated within the DTTS area, zero (0) had unsatisfactory traffic operations (LOS E or F for intersections overall). It may be noted, however, that three (3) intersections had LOS values that were near the threshold for unsatisfactory traffic operations (LOS D), and three (3) intersections had individual lane groups with unsatisfactory traffic operations. Intersections with LOS values near the threshold for unsatisfactory traffic operations include:

- Washington St. & Dorr St./17th St – AM only
- SR 120 (Cherry St) & SR 25 (Spielbusch Ave.) – AM, midday, and PM
- Washington St. & SR 25 (Michigan St.) – PM only

Intersection lane groups with unsatisfactory traffic operations include:

- Washington St. & Dorr St./17th St – The northbound (Dorr St.) left-through lane group at this intersection has an LOS value of E during the AM peak hour.
  - Potential improvements: The volume-to-capacity ratio for this lane group during the AM peak hour is the highest at the intersection. Minor signal timing adjustments may improve traffic operations at this intersection.
- Washington St. & SR 25 (Michigan St.) – The eastbound (Washington St.) through-right lane group at this intersection had an LOS value of E during the PM peak hour.
  - Potential improvements: Multiple lane groups at this intersection have volume-to-capacity ratios above 1.0. It may be difficult to improve traffic operations at this location without major signal timing adjustments (may include changes to cycle lengths across the downtown network) or adding lanes.
- SR 120 (Cherry St) & SR 25 (Spielbusch Ave.) – The westbound (Cherry St.) left turn lane group at this intersection had an LOS of E during all three (3) peak hours, the northbound (Spielbusch Ave.) left turn lane group had an LOS of E during all three (3) peak hours, the southbound (Greenbelt Pkwy.) left turn lane group had an LOS of E during all three (3) peak periods, the southbound (Greenbelt Pkwy) through-right lane group had an LOS of E during the AM peak hour, and the eastbound (Cherry Street) left turn lane group had an LOS of F during each of the three (3) peak hours. .
  - Potential improvements: There are several lane groups at this intersection with low volume-to-capacity ratios and high LOS values. An adjustment to signal cycle length and or signal timing splits may improve traffic operations at this intersection.

Table 5.1 Existing Lane Group Level-of-Service (LOS)

Intersection	Approach	Lane Group	AM Peak Hour LOS (Delay)	Midday Peak Hour LOS (Delay)	PM Peak Hour LOS (Delay)
Washington St. & Dorr St./17th St.	Eastbound (Washington)	Left-Through-Right	A (0.1)	A (0.0)	A (0.1)
		Approach	A (0.1)	A (0.0)	A (0.1)
	Westbound (Washington)	Left	C (29.1)	B (15.2)	C (25.7)
		Through-Right	A (8.6)	A (4.7)	A (5.2)
		Approach	C (22.6)	B (11.8)	C (21.7)
	Northbound (Dorr)	Left-Through	E (64.8)	D (37.6)	D (37.7)
		Right	C (34.3)	C (27.80	C (24.30
		Approach	D (48.8)	C (33.0)	C (32.5)
	Southbound (17th)	Left	D (50.2)	B (15.2)	D (43.6)
		Through-Right	A (5.7)	A (4.7)	B (11.1)
		Approach	B (10.0)	B (11.8)	B (15.6)
	Intersection Overall		D (36.1)	C (25.9)	C (22.1)
Washington St. & SR 25 (Michigan St.)	Eastbound (Washington)	Through-Right	C (26.4)	B (16.2)	E (72.8)
		Approach	C (26.4)	B (16.2)	E (72.8)
	Westbound (Washington)	Left	A (9.5)	A (8.8)	C (27.3)
		Through	A (8.5)	A (8.4)	B (14.3)
		Approach	A (8.6)	A (8.5)	B (19.8)
	Southbound (Michigan)	Left-Through-Right	A (8.7)	A (5.8)	D (49.7)
		Approach	A (8.7)	A (5.8)	D (49.7)
	Intersection Overall		B (17.0)	A (9.6)	D (48.3)
SR 120 (Cherry St.) & SR 25 (Spielbusch Ave.)/Greenbelt Pkwy.	Eastbound (Cherry)	Left	F (84.5)	F (80.7)	F (142.7)
		Through-Right	C (27.1)	C (26.1)	C (26.7)
		Approach	D (36.1)	D (37.9)	D (53.7)
	Westbound (Cherry)	Left	E (69.1)	E (64.1)	E (63.4)
		Through	C (27.1)	C (27.3)	C (27.6)
		Right	A (2.1)	A (2.5)	A (2.1)
		Approach	C (28.2)	C (27.3)	C (23.7)
	Northbound (Spielbusch)	Left	E (64.0)	E (56.5)	E (77.4)
		Through-Right	C (27.8)	B (19.3)	D (38.3)
		Approach	D (37.6)	C (27.2)	D (46.7)
	Southbound (Greenbelt))	Left	E (79.2)	E (55.5)	E (65.8)
		Through-Right	E (76.7)	C (28.0)	D (40.1)
		Approach	E (77.1)	C (32.3)	D (44.4)
	Intersection Overall		D (48.3)	C (31.8)	D (39.6)

Special Event Intersection Analyses

Existing (2018) special event intersection level-of-service (LOS) values are illustrated in Figure 5.4. As illustrated in the figure, all intersections have satisfactory LOS values during the Special Event analysis period.

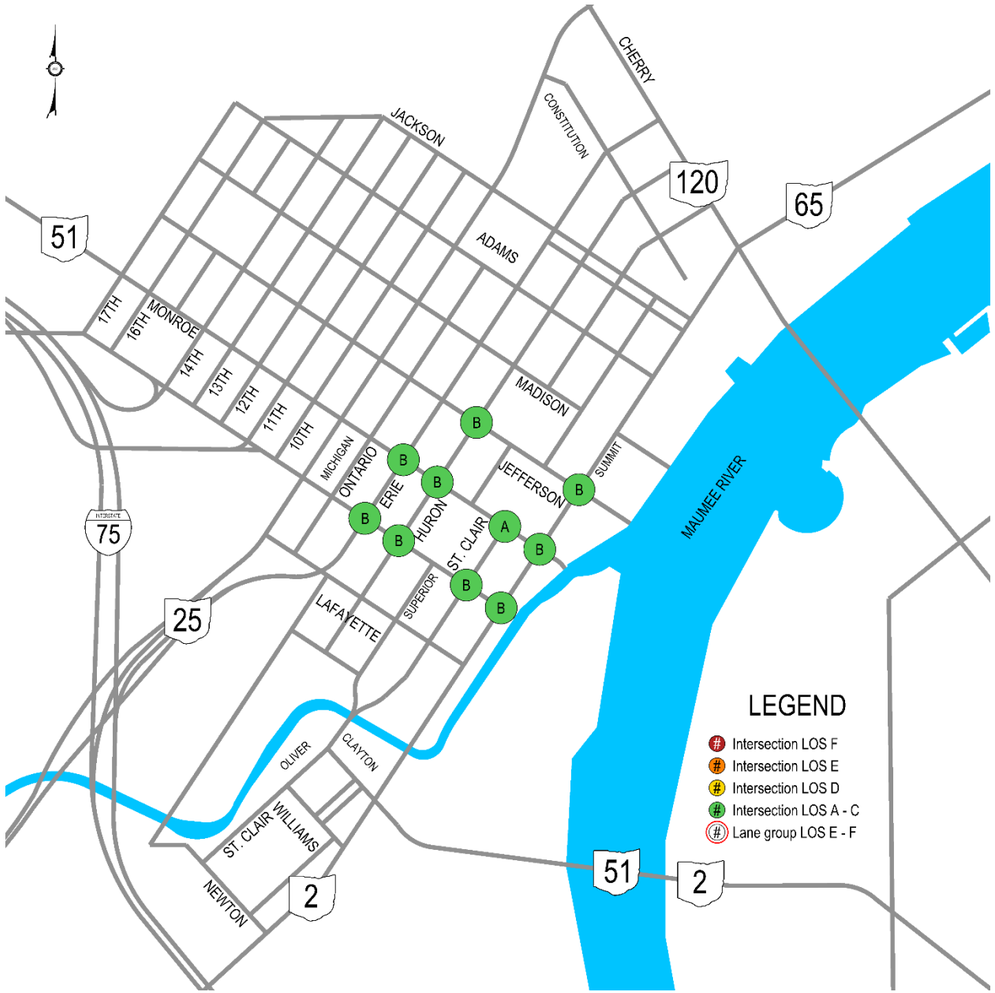


Figure 5.4 Existing Special Event Intersection Level-of-Service (LOS)

5.2.2 Existing Commercial/Heavy Vehicle Traffic Operations

Automatic traffic recorders (ATRs) collected 24-hour traffic counts at several locations within the DTTS study area. These values are shown in Figure 5.5 while the daily percentage of truck traffic is shown in Figure 5.6. In Figure 5.5, NTN roadways are highlighted in maroon, while non-NTN roadways are highlighted in blue. Most of the roadways with higher truck volumes are those that are a part of the NTN as approximately 64% of the bus and commercial vehicle traffic traveling to or from the DTTS area utilizes these streets. It may be noted that Spielbusch Avenue (SR 25) and Summit Street (SR 65 – just south of Cherry Street) are not a part of the NTN but have large 24 – hour bus/commercial traffic numbers. For the purposes of this study, the amount of bus traffic along DTTS roadways is considered to be very low compared to commercial vehicle traffic. Herein, traffic numbers cited for the development the commercial vehicle plan will be considered as commercial vehicles only.

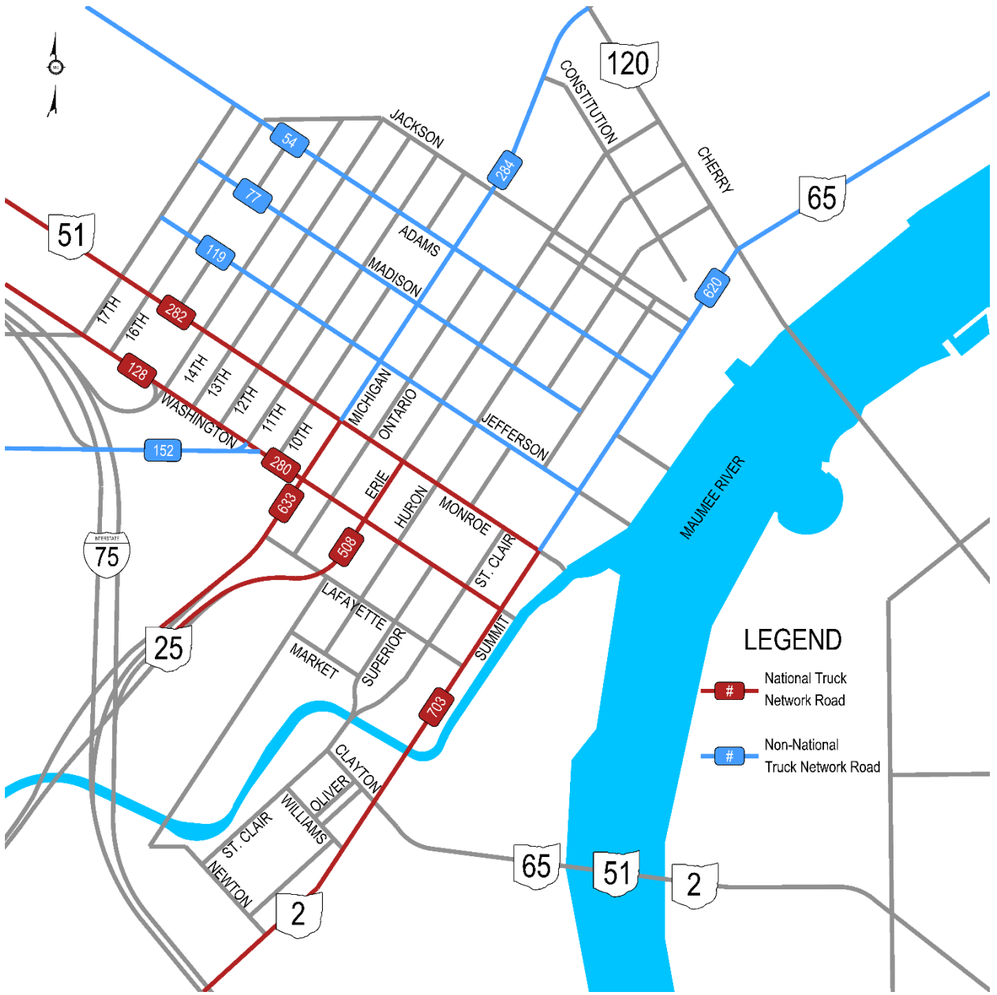


Figure 5.5 Existing (2018) 24-Hour Truck and Commercial Vehicle Traffic Volumes

Figures 5.7 and 5.8 illustrate the temporal distribution of large truck and commercial vehicle traffic throughout a 24-hour period on a weekday within the DTTS area. Figure 5.7 illustrates large truck and commercial vehicle traffic along most NTN roadways (i.e., Washington Street, Monroe Street, Michigan Street, Erie Street, and Summit Street-south), while Figure 5.8 illustrates traffic along several key non-NTN roadways (i.e., Jefferson Avenue, Madison Avenue, Adams Street, Spielbusch Avenue, Indiana Avenue, and Summit Street-north). The figures indicate that among the NTN roadways, only those with the highest traffic (i.e., Michigan Street, Erie Street, and Summit-Street-south) have multiple discernable peaks over a 24-hour period. These roadways have a distinct AM

peak period from approximately 4:15 AM to 9:00 AM and a distinct PM peak period from approximately 12:15 PM to 5:00 PM. The remaining NTN roadways appear to have one (1) large, extended traffic peak between approximately 4:15 AM and 5:00 PM. Similar characteristics are observed for the non-NTN roadways with Summit Street (north) having multiple discernable peaks over a 24-hour period (one peak between approximately 4:45 AM and 8:00 AM and a second peak between approximately 12:15 PM and 5:30 PM) and the remaining roadways having one large, extended peak approximately 4:45 AM to 3:45 PM).

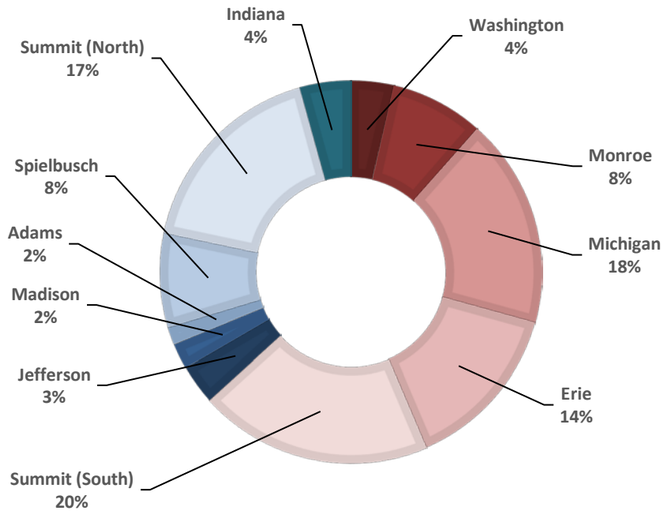


Figure 5.6 24-Hour DTTS Commercial Vehicle & Bus Traffic Percentages

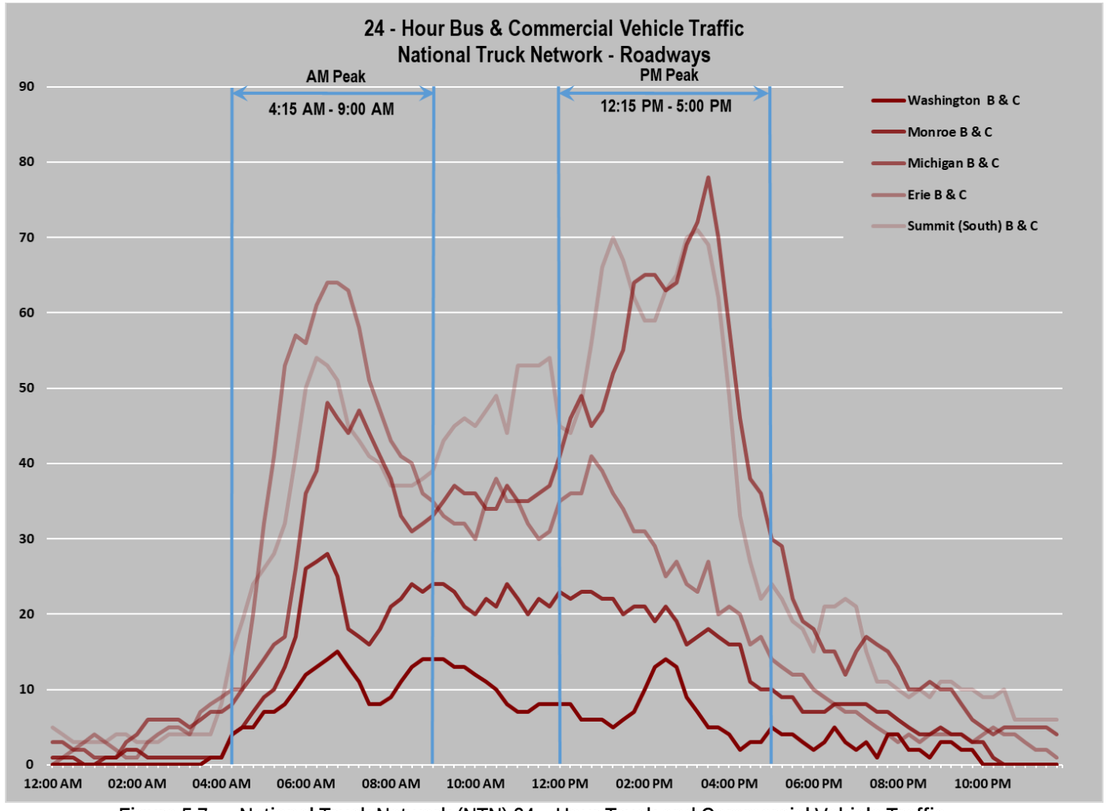


Figure 5.7 National Truck Network (NTN) 24 – Hour Truck and Commercial Vehicle Traffic

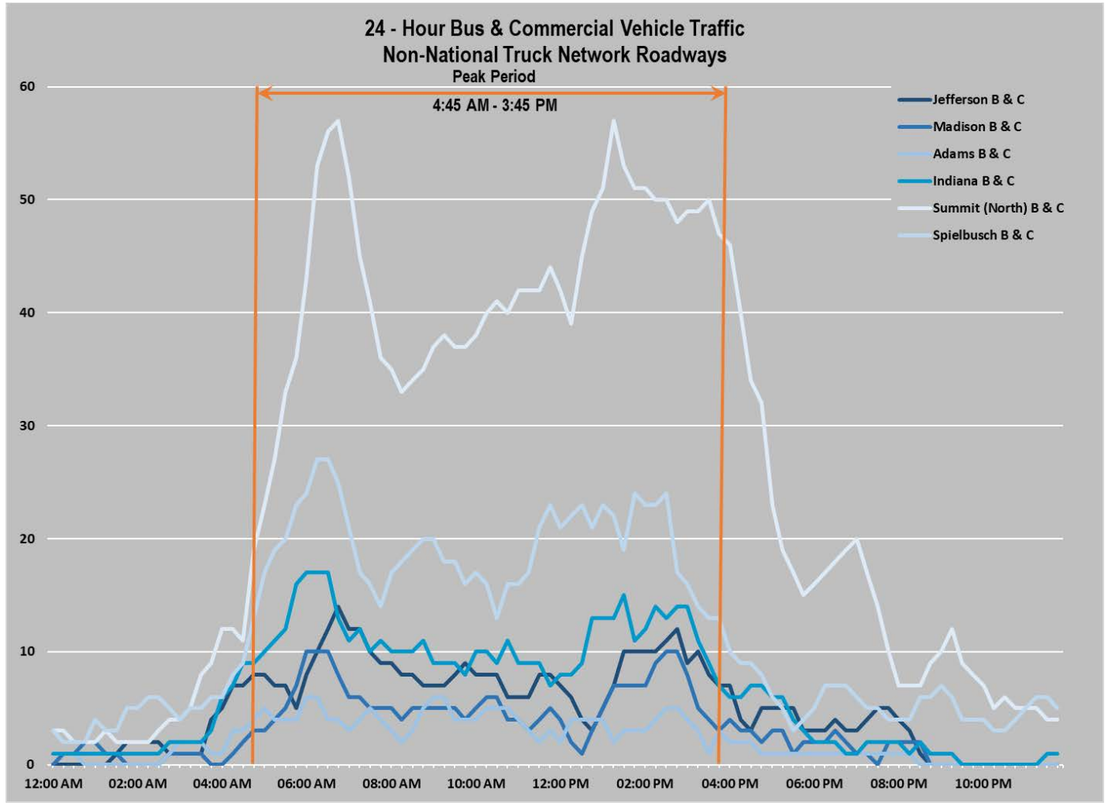


Figure 5.8 Non-National Truck Network (NTN) 24 – Hour Truck and Commercial Vehicle Traffic

5.3 Crash Analysis

During the three (3) year period from 2015 to 2017, 1,558 crashes were reported at DTTS intersections. To best evaluate crash patterns within the DTTS area, the project team began by compiling a list of ODOT Highway Safety Improvement Program (HSIP) priority locations within the study area for the year 2017. These are locations that have been prioritized by ODOT for safety study or review based on prior crash patterns. These locations include:

- SR 65 (Summit Street) & SR 120 (Cherry Street)
- SR 2 (Broadway Street) & Summit Street
- SR 25 (Michigan Street) & Washington Street
- Washington Street & Ontario Street
- SR 51 (Monroe Street) & 17th Street
- SR 2 (Summit Street) & SR 65 (Clayton Street)

Additionally, intersection crash frequencies for all non-HSIP priority locations were compared to statewide average crash frequencies to determine which DTTS intersections were experiencing crashes at an above average rate. Locations with frequencies that were more than two (2) standard deviations higher than the statewide average were determined to be high frequency locations. These intersections are illustrated in Figure 5.9 and listed below. It may be noted that crash frequencies for a number of these intersections were calculated with a low crash sample size (<3 crashes per year). As low sample sizes may be inordinately influenced by extreme outliers, these locations were removed from the analysis.

- SR 2 (Summit Street) & Williams Street
- St. Clair Street & Newton Street
- Superior Street & Market Street (low sample size)
- SR 25 (Erie Street) & Market Street (low sample size)
- Ontario Street & Lafayette Street (low sample size)
- Huron Street & Adams Street
- SR 25 (Erie Street) & Adams Street
- Ontario Street & Jefferson Avenue
- SR 25 (Michigan Street) & SR 51 (Monroe Street)
- Washington Street & 12th Street (low sample size)
- Jefferson Avenue & 13th Street (low sample size)
- Adams Street & 14th Street (low sample size)
- Washington Street & 14th Street
- Washington Street & 16th Street (low sample size)
- Madison Avenue & 17th Street

Table 5.2 summarizes predicted and expected crash frequencies for ODOT HSIP priority locations and other high frequency locations based on procedures outlined in the Highway Safety Manual. Predicted crash frequency is the number of crashes, per million vehicle miles traveled, that can be predicted for an intersection based on its existing traffic volume, geometric, operational, and environmental characteristics. This is essentially the crash frequency that can be predicted for a specific intersection type with generic characteristics. Expected crash frequency is the number of crashes, per million vehicle miles traveled, that can be expected at an intersection based on the same factors as predicted crash frequency as well as prior crash patterns. This is essentially the crash frequency that can be expected at a specific intersection accounting for a number of site specific characteristics that can't be quantified individually. Table 5.2 presents these values, along with the potential for safety improvement (expected crash frequency – predicted crash frequency). This is an estimate of the reduction in crashes that *could* be achieved through changes to geometry, traffic control, or the environment at an intersection. The table indicates that crash frequencies for all of these intersections could potentially be improved through changes. A detailed look at crash frequencies for each of these intersections follows.

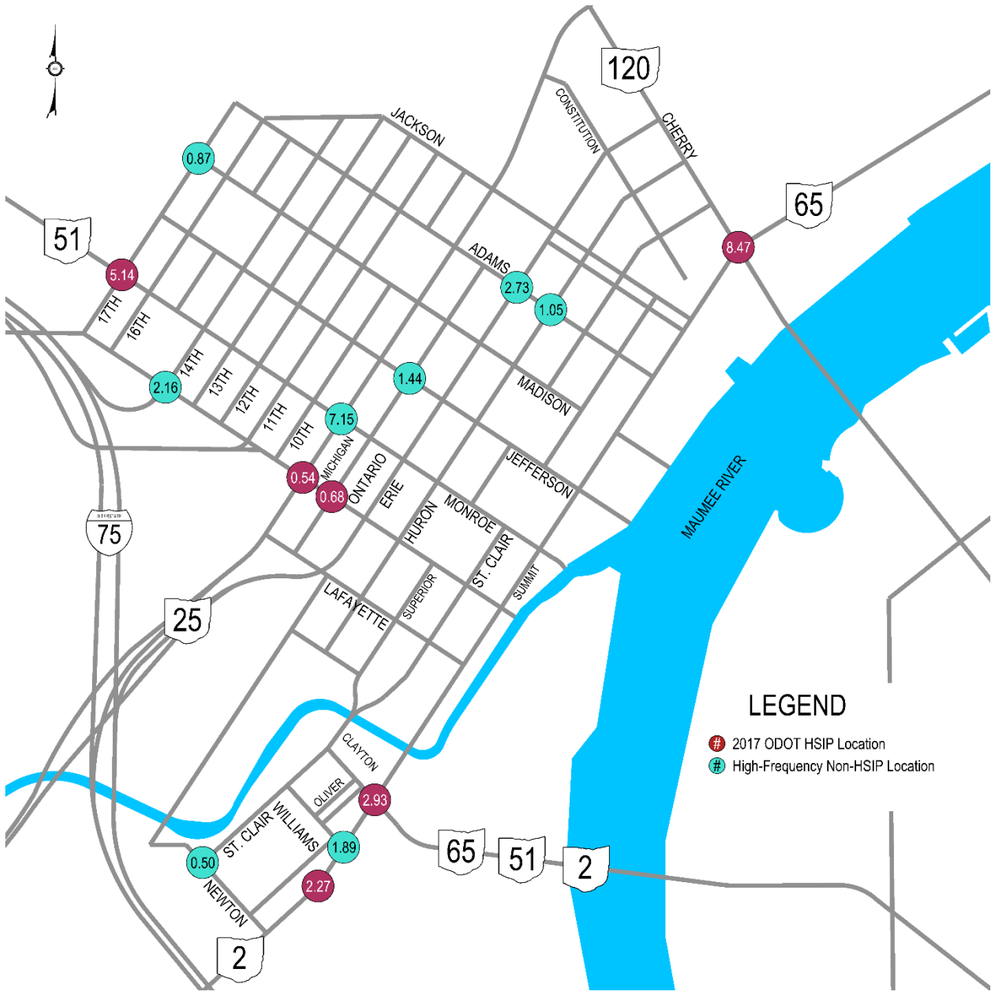


Figure 5.9 High-Frequency/HSIP Crash Locations – Potential for Safety Improvement (PSI)

Table 5.2 Existing Predicted/Expected Frequencies – ODOT Priority/High Crash Frequency Locations

Intersection	Existing Predicted Crash Frequency (Crashes/MVMT)	Existing Expected Crash Frequency (Crashes/MVMT)	Potential for Safety Improvement (Expected – Predicted)
17th Street & Madison Avenue	1.23	2.10	0.87
Huron Street & Adams Street	3.14	4.19	1.05
Jefferson Avenue & Ontario Street	1.29	2.73	1.44
St. Clair Street & Newton Street	0.74	1.24	0.50
Summit Street & Williams Street	2.67	4.56	1.89
SR 2 (Summit Street) & Clayton Street	6.43	9.36	2.93
SR 2 (Summit Street) & Broadway Street	2.67	4.94	2.27
SR 25 (Erie Street) & Adams Street	5.19	7.92	2.73
SR 25 (Michigan Street) & SR 51 (Monroe Street)	4.35	11.50	7.15
SR 25 (Michigan Street) & Washington Street	8.46	9.00	0.54
SR 51 (Monroe Street) & 17th Street	5.94	11.35	5.41
Washington Street & 14th Street	1.94	4.10	2.16
Washington Street & Ontario Street	0.51	1.19	0.68
SR 65 (Summit Street) & SR 120 (Cherry Street)	6.42	14.89	8.47

At each of the intersections in Table 5.2, rear end crashes had the highest potential for safety improvement (PSI) among all crash types. This was always followed by angle crashes, and then sideswipe-passing crashes. Potential causes for these types of crashes include congestion (rear end), improper traffic control (rear end, angle), and improper geometry (sideswipe-passing). To help determine specific changes that could improve safety at these intersections, future analyses in this study will include an evaluation of clearance and change intervals (traffic control), an evaluation of vehicle delays (congestion), and an evaluation of intersection lane widths and turning paths (intersection geometry).

It may be noted that safety studies were recently completed at two (2) DTTS area intersections (Summit Street & Cherry Street and Erie Street & Monroe Street). Detailed information regarding each of these studies is provided below:

SR 65 (Summit Street) & SR 120 (Cherry Street) (LUC-65-4.21)

This study was completed in 2017 by ODOT and evaluated crash frequencies at the SR 65 (Summit Street) & SR 120 (Cherry Street) intersection, the 75th ranked urban highway safety improvement program priority intersection in 2015. The study evaluated crashes for the years 2014 to 2016 and identified that rear end and angle crashes at this intersection had occurred at rates above the statewide average (nearly 22% above average for rear end crashes and nearly 17% above average for left turn crashes). The study suggests the following possible causes for these trends:

- "Motorists are following too closely on all approaches. This could be caused by poor signal timing or impatient drivers traveling at high speeds and being unable to stop quickly at the onset of a red light."
- "Motorists are running the red light on Summit Street during the southwestbound thru and northeastbound left movements causing collisions."
- "For motorists making right turns onto Cherry Street from northeastbound Summit Street, a poor angle of approach may compromise visibility of southeastbound vehicles. This poor visibility causes drivers to inch forward while looking over their shoulder, leading to rear end crashes."
- "Red light cameras may have caused an increase in rear end crashes."

An analysis of crash frequencies at this intersection (following Highway Safety Manual methodologies) estimated predicted crash frequencies, expected crash frequencies, and its potential for safety improvement. Predicted crash frequencies are a measure of the number of crashes that can be estimated to occur at an intersection (per year) with the same generic features as the intersection under analysis (e.g., stop control/signal control, three-leg/four-leg, signal phasing, etc.). Expected crash frequency is a measure of the number of crashes that can be estimated to occur at an intersection (per year) based on its generic characteristics (like predicted crash frequency) and prior crash history. Essentially, it accounts for site specific characteristics (in aggregate) that would not be quantifiable individually. The potential for safety improvement (PSI) is the difference between expected and predicted crash frequency and accounts for the possible improvement in safety that could be achieved at the intersection (in terms of a reduction in crashes per million vehicle miles traveled).

The study revealed that the PSI for this intersection was 8.5 crashes per year, with a predicted crash frequency of 2.2 crashes per year and an expected crash frequency of 10.7 crashes per year. The study recommended several countermeasures for improving safety at this intersection. The proposed countermeasures also recommended the following countermeasures for the improvement of safety at this intersection:

- "Optimize signal timing."
- "Increase all red clearance interval to meet ITE standards…"
- "Install backplates on signal heads."
- "Remove red-light cameras."
- "Upgrade lane use signs on all approaches."
- "Repaint dotted line extensions through the intersection, crosswalk markings on all approaches, and yield line for southbound right turn lane."
- "Improve alignment of northeastbound right turn lane."

SR 25 (Erie Street) & SR 51 (Monroe Street) (LUC-25-9.15)

This study was completed in 2016 and evaluated crash frequencies at the SR 25 (Erie Street) & SR 51 (Monroe Street) intersection, the 25th ranked urban highway safety improvement program intersection in 2014. The study evaluated crashes for the years 2012 to 2014 and identified that angle (26 total), rear-end (9 total), and sideswipe crashes (9 total) were the three (3) most prevalent types, with angle and sideswipe-passing crashes exceeding the statewide average frequency. Two (2) pedestrian crashes also occurred at the intersection over the three (3) year period. It may be noted that the most prevalent cause of crashes was "ran red light", followed by "improper lane change/passing/off road", and "followed too closely/ACDA".

The study revealed that the PSI for this intersection was 1.7 crashes per year with a predicted crash frequency of 6.5 crashes per year, and an expected crash frequency of 8.1 crashes per year. The study recommended the following countermeasures for the improvement of safety at this intersection, with several completed in 2018 with safety funds:

- "Review signal coordination & conduct speed study"
  - Observation of traffic signal progression along Erie Street indicated that it is not efficient and could be optimized. Further, inefficient progression may lead to red light running.
  - Note that adjustments to signal timing have been completed at this location
- "Upgrade clearance intervals"
  - An evaluation of clearance intervals indicated that the values at this intersection did not meet current suggested industry standards.
  - Note that clearance intervals have been updated, including the implementation of all-red
- "Revise lane use for northbound approach" (from left-through-through to left/through-through-through)
  - The study states that a number of crashes occur due to vehicles being in the wrong lane or trying to change lanes to make left turns from the northbound approach.
  - Lane configurations have been revised to left-through-through-through/right
- "Revise eastbound stop line location'
  - An evaluation of truck turning radii at this intersection revealed that the northbound left turn path overlaps the eastbound left turn lane. This may be a cause of angle crashes at this intersection.
  - Note that this has been completed
- "Addition of backplates to signal heads"
  - Field observations conducted for the study revealed that there is a large amount of visual clutter present at the intersection. The addition of backplates may help to improve signal recognition and visibility.
- "Upgrade crosswalks to StreetPrint" (It may be noted that the City has recently adopted a uniform crosswalk standard for downtown that includes inlaid brick. This replaces "StreetPrint")
  - Field observations conducted for the study revealed that bricks used for crosswalks may not have a high enough color contrast with the surrounding pavement.
  - Note that this has been completed
- "Replace deteriorating curb ramp" (this countermeasure has been implemented since the completion of this study)
  - Field observations conducted for the study revealed that the curb ramp on the intersection's northeast corner was deteriorating, in need of replacement, and could pose a tripping hazard.
  - Note that this has been completed
- "Upgrade traffic signal installation"
  - Recommended upgrades include the installation of backplates, replacement of the current mast arm configuration to a new configuration with one arm per approach, replacement of existing pedestrian signal heads with countdown type signal heads, the installation of an uninterruptible power supply to improve the reliability of operation, and the addition of detection for the eastbound left turn phase.
- "Addition of supplemental signal heads"
  - The installation of supplemental signal heads might reduce red light running at this intersection.

5.4 Future Conditions

5.4.1 Future Traffic Projections

Future AM, midday, and PM traffic projections were developed a five (5) year horizon (2023) and a twenty (20) year horizon (2038) through coordination with TMACOG. TMACOG provided AM and PM peak hour annual growth rates (in percent) for selected roadways within the DTTS area over the twenty (20) year period from 2018 to 2038. In order to develop, a single, consistent annual growth rate for application to all traffic volumes within the DTTS area, TMACOG growth rates were applied to existing (2018) traffic volumes. Next, the total projected increase in traffic over the twenty (20) year period was used to determine the total projected annual growth (as a percentage) within the DTTS area between 2018 and 2038. Finally the total projected annual growth percentage was divided by the projected number of growth years (20) to yield a projected annual growth rate for traffic volumes within the DTTS area. This process was completed for both AM and PM peak hour traffic volumes (see Tables 5.3 and 5.4).

Table 5.3 AM Peak Hour Annual Growth Rate Calculation

Roadway	2018 Existing Volume		TMACOG Growth (Percent)		2038 Projected Volume	
	Inbound	Outbound	Inbound	Outbound	Inbound	Outbound
SR 51 (Monroe Street) W./17th Street	401	190	0.8%	-0.6%	465	167
Washington Street W./17th Street	7	2	0.3%	-1.0%	7	2
SR 246 (Dorr Street) S./Washington Street	242	214	0.3%	-1.0%	258	170
14th Street S./Washington Street		218		-0.6%		190
11th Street S./Washington Street	1,179		0.3%		1,257	
SR 25 (Michigan Street) S./Washington Street		633		-0.6%		555
SR 25 (Erie Street) S./Washington Street	1,672		0.1%		1,715	
SR 65 (Summit Street) S./Washington Street	636	355	-0.3%	0.1%	601	360
SR 65 (Summit Street) N./SR 120 (Cherry Street)	487	594	-0.6%	1.1%	430	723
SR 120 (Cherry Street) E./SR 65 (Summit Street)	477	360	1.0%	0.1%	573	370
SR 25 (Spielbusch Avenue) N./SR 120 (Cherry Street)	653	143	-2.1%	0.4%	382	154
SR 120 (Cherry Street) W./SR 25 (Spielbusch Ave.)	621	526	0.3%	-0.9%	658	427
Total Volume	9,610				9,464	
Total Growth	-146					
20 Year Annual Growth	-0.08%					

Table 5.4 PM Peak Hour Annual Growth Rate Calculation

Roadway	2018 Existing Volume		TMACOG Growth (Percent)		2038 Projected Volume	
	Inbound	Outbound	Inbound	Outbound	Inbound	Outbound
SR 51 (Monroe Street) W./17th Street	279	419	3.2%	0.9%	457	492
Washington Street W./17th Street	7	11	-0.0%	1.5%	7	14
SR 246 (Dorr Street) S./Washington Street	103	500	-1.4%	1.1%	75	606
14th Street S./Washington Street		1,231		0.2%		1,286
11th Street S./Washington Street	376		3.0%		601	
SR 25 (Michigan Street) S./Washington Street		1,820		-0.3%		1,699
SR 25 (Erie Street) S./Washington Street	620		0.9%		737	
SR 65 (Summit Street) S./Washington Street	428	703	-1.4%	-1.4%	304	507
SR 65 (Summit Street) N./SR 120 (Cherry Street)	664	481	0.6%	0.6%	748	537
SR 120 (Cherry Street) E./SR 65 (Summit Street)	652	472	0.6%	3.3%	528	1,082
SR 25 (Spielbusch Avenue) N./SR 120 (Cherry Street)	360	447	-0.4%	0.9%	335	526
SR 120 (Cherry Street) W./SR 25 (Spielbusch Ave.)	651	707	-0.4%	-0.6%	598	617
Total Volume	10,931				11,756	
Total Growth	825					
20 Year Annual Growth	0.38%					

Based on the projections provided by TMACOG, the total annual growth rate within the DTTS area is -0.08 percent during the AM peak period and 0.38 percent during the PM peak period. Since the use of a negative or zero (0) percent growth rate is not feasible for future traffic analyses, the PM peak period growth rate (0.38 percent, applied linearly), was used for AM, midday, PM, and Special Event peak traffic analyses. Future traffic volume figures can be found in appendix A for the following scenarios.

- 2023 AM/Midday/PM Peak Hour Traffic Volumes
- 2038 AM/Midday/PM Peak Hour Traffic Volumes
- 2023 Special Event Traffic Volumes

5.4.2 Future Traffic Operations

Future traffic operations were evaluated at DTTS area intersections for the years 2023 and 2038 using the Synchro 10 traffic analysis software package. Intersection level-of-service (LOS) results for the AM peak hour under 2018, 2023, and 2038 conditions are illustrated in Figure 5.10, while midday and PM LOS results are shown in Figures 5.11 and 5.12, respectively.

Future AM Peak Hour Traffic Operations

Figure 5.10 indicates that the two (2) intersections of Washington Street & Dorr Street/17th Street and SR 120 (Cherry Street) & SR 25 (Spielbusch Avenue), both with LOS values near the threshold for unsatisfactory traffic operations (LOS D) under existing (2018) conditions, are both projected to remain at LOS D. All other intersections within the DTTS area are projected to have satisfactory traffic operations with LOS values of C or better under the future traffic analysis scenarios (2018 and 2038). Detailed information regarding traffic operations for specific lane groups at Washington Street & SR 246 (Dorr Street)/17th Street and SR 120 (Cherry Street) & SR 25 (Spielbusch Avenue) is summarized in Table 5.5, with discussion provided below.

- Washington Street & SR 246 (Dorr Street)/17th Street – This intersection has one (1) lane group with LOS values of E or F under 2023 and 2038 conditions. The northbound (Dorr Street) left-through lane group has a LOS value of E under 2023 conditions and F under 2038 conditions. While volume-to-capacity ratios at this intersection suggest that minor changes to signal timing might improve future traffic operations at this intersection, pedestrian signal timing requirements limit the extent to which this improvement could be applied, limiting its effectiveness. Other potential changes that could improve traffic operations at this intersection may include prohibiting southbound (17th Street) left turns (so that the protected left turn phase could be removed) or making westbound left turns permissive only (to remove the westbound left turn phase so that the northbound left turn phase could be increased.

Table 5.5 Future (2023/2038) AM Peak Hour Level-of-Service (LOS)

Intersection	Approach	Lane Group	AM Peak Hour LOS (Delay)		
			2018	2023	2038
SR 51 (Washington St.) & Dorr St./17th St.	Eastbound (Washington)	All	A (0.1)	A (0.1)	A (0.1)
		Approach	A (0.1)	A (0.1)	A (0.1)
	Westbound (Washington)	Left	C (29.1)	C (29.1)	C (29.2)
		Through-Right	A (8.6)	A (8.8)	A (8.7)
		Approach	C (22.6)	C (22.6)	C (22.6)
	Northbound (Dorr)	Left-Through	E (64.8)	E (68.6)	F (84.8)
		Right	C (34.3)	D (35.1)	D (37.8)
		Approach	D (48.8)	D (51.1)	E (60.3)
	Southbound (17th)	Left	D (50.2)	D (50.1)	D (50.1)
		Through-Right	A (5.7)	A (5.8)	A (5.7)
		Approach	B (10.0)	A (10.0)	A (9.9)
	Intersection Overall		D (36.1)	D (37.6)	D (43.3)
SR 120 (Cherry St.) & SR 25 (Spielbusch Ave.)	Eastbound (Cherry)	Left	F (84.5)	F (85.7)	F (93.0)
		Through-Right	C (27.1)	C (27.2)	C (27.7)
		Approach	D (36.1)	D (36.4)	D (38.0)
	Westbound (Cherry)	Left	E (69.1)	E (69.9)	E (71.7)
		Through	C (27.1)	C (27.2)	C (27.4)
		Right	A (2.1)	A (2.1)	A (2.1)
		Approach	C (28.2)	C (28.4)	C (28.8)
	Northbound (Spielbusch)	Left	E (64.0)	E (64.0)	E (64.8)
		Through-Right	C (27.8)	C (27.9)	C (27.5)
		Approach	D (37.6)	D (37.6)	D (37.8)
	Southbound (Spielbusch)	Left	E (79.2)	F (80.5)	F (83.9)
		Through-Right	E (76.7)	F (81.5)	F (99.1)
		Approach	E (77.1)	F (81.3)	F (96.8)
	Intersection Overall		D (48.3)	D (49.9)	E (56.0)

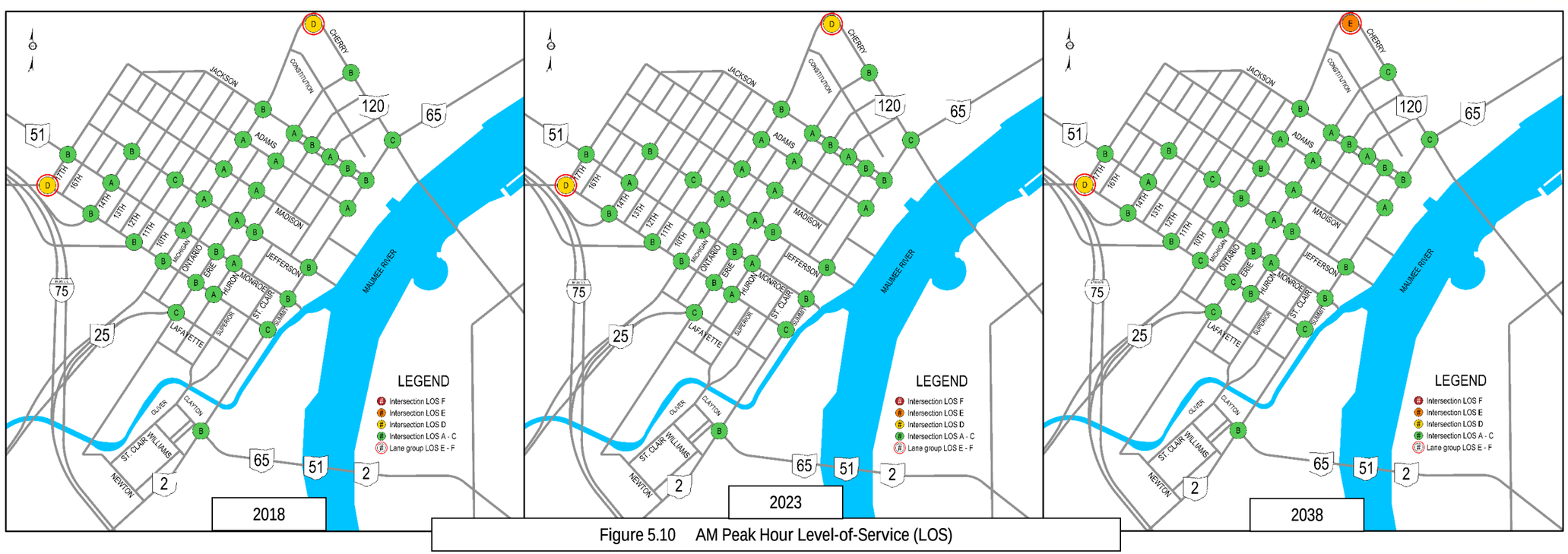


Figure 5.10 AM Peak Hour Level-of-Service (LOS)

- SR 120 (Cherry Street) & SR 25 (Spielbusch Avenue) – This intersection has five (5) lane groups with LOS values of E or F under 2023 and 2038 conditions. The eastbound (Cherry Street) left turn lane group has a LOS value of F under 2023 and 2038 conditions. It may be noted that this lane group also has a LOS value of F under existing (2018) conditions. The westbound (Cherry Street) left turn lane group has a LOS value of E under both 2023 and 2038 conditions. It may also be noted that this lane group has a LOS value of E under existing (2018) conditions. The northbound (Spielbusch) left turn lane group has a LOS value of E under 2018, 2023, and 2038 conditions, while the southbound (Spielbusch) left turn and through-right lane groups both have LOS values of F under 2023 and 2038 conditions. It may be noted that LOS values for both lane groups along the southbound approach are E under existing (2018) conditions. As discussed in Chapter 2, it may be difficult to improve traffic operations at this intersection with minor changes to signal timing. An adjustment to signal cycle lengths at this location may improve traffic operations.

Future Midday Peak Hour Traffic Operations

Figure 5.11 illustrates that all DTTS area intersections have satisfactory LOS values (A – D) under 2023 and 2038 conditions during the midday peak hour. Only one (1) intersection, SR 120 (Cherry Street) & SR 25 (Spielbusch Avenue) has lane groups with unsatisfactory traffic operations (LOS E or F). Lane group LOS values for SR 120 (Cherry Street) & SR 25 (Spielbusch Avenue) are summarized in Table 5.6, with discussion provided below.

- SR 120 (Cherry Street) & SR 25 (Spielbusch Avenue) – At this intersection, the eastbound (Cherry Street) left turn lane group has a LOS value of F during the midday peak hour under 2018, 2023, and 2038 conditions. Further, the westbound (Cherry Street) left turn, northbound (Spielbusch Avenue) left turn, and southbound (Spielbusch Avenue) left turn lane groups all have LOS values of E under 2018, 2023, and 2038 conditions. As discussed in Chapter 2, it may be difficult to improve traffic operations at this intersection with minor changes to signal timing. An adjustment to signal cycle lengths at this location may improve traffic operations.

Table 5.6 Future (2023/2038) Midday Peak Hour Level-of-Service (LOS)

Intersection	Approach	Lane Group	Midday Peak Hour LOS (Delay)		
			2018	2023	2038
SR 120 (Cherry St.) & SR 25 (Spielbusch Ave.)	Eastbound (Cherry)	Left	F (80.7)	F (82.7)	F (88.9)
		Through-Right	C (26.1)	C (26.1)	C (26.40
		Approach	D (37.9)	D (38.3)	D (39.9)
	Westbound (Cherry)	Left	E (64.1)	E (64.7)	E (66.5)
		Through	C (27.3)	C (27.3)	C (27.6)
		Right	A (2.5)	A (2.4)	A (2.4)
		Approach	C (27.3)	C (27.4)	C (27.8)
	Northbound (Spielbusch)	Left	E (56.5)	E (56.7)	E (57.1)
		Through-Right	B (19.3)	B (19.2)	B (19.2)
		Approach	C (27.2)	C (27.3)	C (27.5)
	Southbound (Spielbusch)	Left	E (55.5)	E (55.5)	E (55.8)
		Through-Right	C (28.0)	C (28.3)	C (28.7)
		Approach	C (32.3)	C (32.6)	C (33.0)
	Intersection Overall		C (31.8)	C (32.1)	C (32.8)

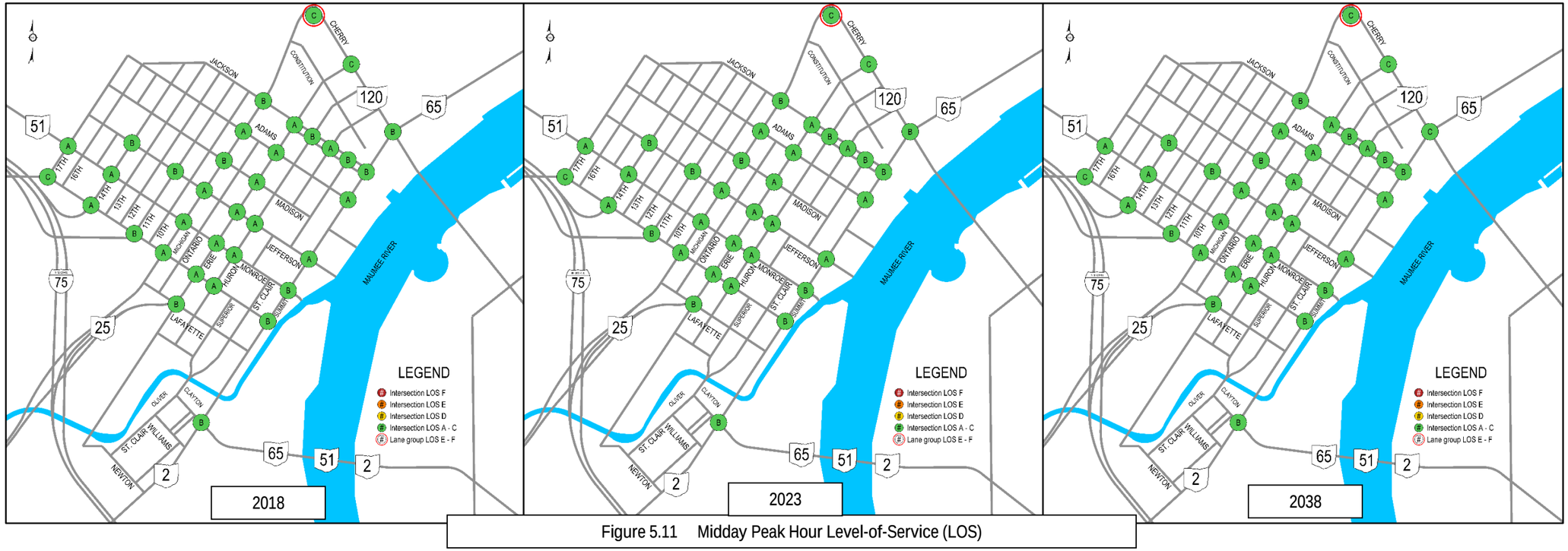


Figure 5.11 Midday Peak Hour Level-of-Service (LOS)

Future PM Peak Hour Traffic Operations

Figure 5.12 summarizes PM peak hour LOS values at DTTS area intersections for the years 2018, 2023, and 2038. As indicated in the figure, two (2) of the DTTS area intersections have LOS values approaching unsatisfactory levels under 2023 conditions (Washington Street & Michigan Street and Cherry Street & Spielbusch Avenue). Unsatisfactory LOS values for intersections and lane groups are summarized in Table 5.7 with discussion provided below.

- Washington Street & SR 25 (Michigan Street) – During the PM peak hour, this intersection has a LOS value of D under 2018 conditions and a LOS value of E under 2023 and 2038 conditions. Unsatisfactory traffic operations at this intersection are projected for the eastbound (Washington Street) through-right lane group (LOS F) and the southbound (Michigan Street) left-through-right lane group (LOS F) under 2038 conditions. As these are conflicting approaches that both have volume-to-capacity ratios greater than one (1), minor adjustments to signal timing are unlikely to improve traffic operations to satisfactory levels. Major changes to traffic signal timing (including changes to signal cycle lengths within downtown) may be necessary to improve traffic operations at this intersection.

- SR 120 (Cherry Street) & SR 25 (Spielbusch Avenue) – During the PM peak hour, this intersection has an LOS value approaching unsatisfactory levels (LOS D) under existing (2018), 2023, and 2038 conditions. The eastbound (Cherry Street) left turn lane group has a LOS value of F during the PM peak hour under 2018, 2023, and 2038 conditions. Further, the westbound (Cherry Street) left turn, northbound (Spielbusch Avenue) left turn, and southbound (Spielbusch Avenue) left turn lane groups all have LOS values of E under 2018, 2023, and 2038 conditions. As discussed in Chapter 2 and in the future analysis of midday traffic volumes, it may be difficult to improve traffic operations at this intersection with minor changes to signal timing. An major change to signal timing (e.g., an adjustment to signal cycle lengths) at this location may improve traffic operations.

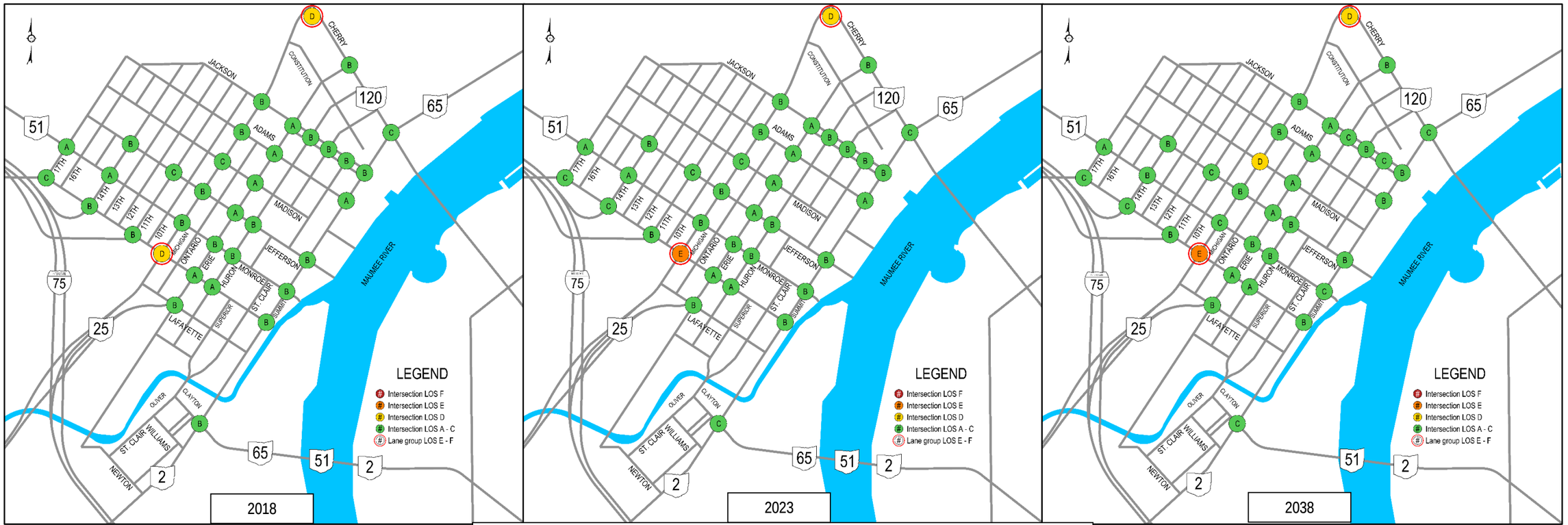


Figure 5.12 PM Peak Hour Level-of-Service (LOS)

Table 5.7 Future (2023/2038) PM Peak Hour Level-of-Service (LOS)					
Intersection	Approach	Lane Group	PM Peak Hour LOS (Delay)		
			2018	2023	2038
SR 51 (Washington St.) & SR 25 (Michigan St.)	Eastbound (Washington)	Through-Right	E (72.8)	F (80.3)	F (104.1)
		Approach	E (72.8)	F (80.3)	F (104.1)
	Westbound (Washington)	Left	C (27.3)	C (28.2)	C (31.4)
		Through	B (14.3)	B (14.4)	B (14.5)
		Approach	B (19.8)	C (20.2)	C (21.6)
	Southbound (Michigan)	Left-Through-Right	D (49.7)	E (58.7)	F (87.1)
		Approach	D (49.7)	E (58.7)	F (87.1)
	Intersection Overall		D (48.3)	E (55.3)	E (77.3)
SR 120 (Cherry St.) & SR 25 (Spielbusch Ave.)	Eastbound (Cherry)	Left	F (142.7)	F (148.3)	F (169.7)
		Through-Right	C (26.7)	C (26.9)	C (27.2)
		Approach	D (53.7)	E (55.1)	E (60.3)
	Westbound (Cherry)	Left	E (63.4)	E (63.8)	E (64.7)
		Through	C (27.6)	C (27.7)	C (28.0)
		Right	A (2.1)	A (2.1)	A (2.9)
		Approach	C (23.7)	C (23.8)	C (24.3)
	Northbound (Spielbusch)	Left	E (77.4)	E (77.9)	F (80.7)
		Through-Right	D (38.3)	D (38.4)	D (38.9)
		Approach	D (46.7)	D (46.9)	D (48.0)
	Southbound (Spielbusch)	Left	E (65.8)	E (66.1)	E (66.7)
		Through-Right	D (40.1)	D (44.4)	D (41.2)
		Approach	D (44.4)	D (44.7)	D (45.5)
	Intersection Overall		D (39.6)	D (40.1)	D (42.3)

6.0

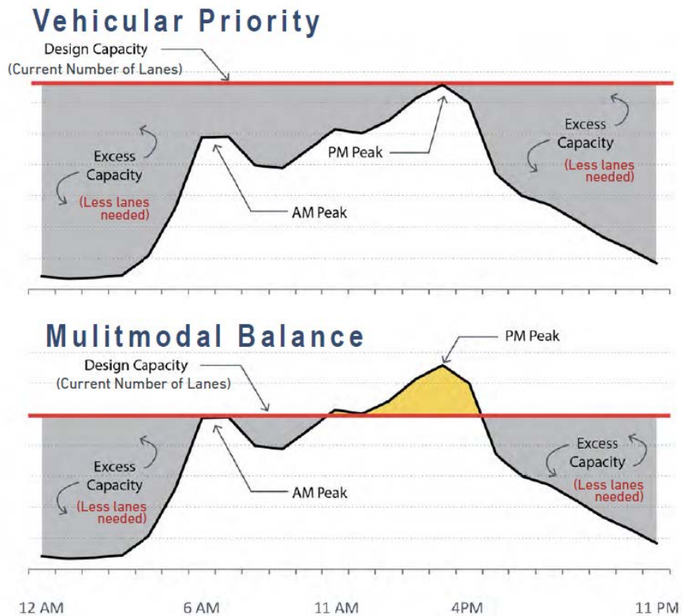
IDENTIFICATION OF PROJECT AND PROGRAM ALTERNATIVES

6.1 Alternative Development

6.1.1 Alternative Development – Objectives and Vision

The primary objective of this task is to use information obtained from public input, and an evaluation of existing traffic operations to develop area-wide and street specific alternatives for improving the efficiency, safety, and equity among modes within downtown Toledo's transportation network. Alternatives were developed with specific considerations of their impacts on:

- Vehicular travel and mobility
  - This includes estimated and potential impacts to vehicular level-of-service (LOS), circulation, and safety, including the impacts of non-vehicular programming when traffic demands are much lower than roadway vehicular capacity (see figure below).
- Bicycle travel and mobility
  - This includes potential impacts to bicycle safety and connectivity
- Pedestrian travel, mobility, and experience
  - This includes potential impacts to pedestrian safety, connectivity, and place-making
- Transit travel and experience
  - This includes impacts to transit operations, connectivity, and user experience
- Potential for encouraging development
  - This includes impacts to place-making, and potential development-friendly amenities (e.g., on-street parking, festival streets, etc.)



Source: Toledo Blade

Source: Downtown Toledo Master Plan

Source: Toledo Blade

Source: Toledo Blade

Improvement alternatives were also developed for individual roadways within the DTTS area and organized based on their street typologies from the 2017 *Downtown Toledo Master Plan*. The Master Plan outlines four (4) street typologies for downtown Toledo (detailed discussion on each of these typologies is provided in *Downtown Toledo Master Plan*). The typologies, summarized in Table 6.1 define the desired form and function of roadways within downtown Toledo.

Table 6.1 Downtown Toledo Master Plan Street Typologies

Downtown Toledo Master Plan		
Street Typology	Characteristics	Street(s) within DTTS
Downtown Standard Streets	• On-street parking and curb extensions "bump-outs" are standard • Should accommodate bicycles, pedestrians, outdoor seating, and transit • Should focus on slowing traffic and supporting development	14th Street, 11th Street, Ontario Street, Madison Avenue, Jackson Street, Constitution Street
Downtown Collector Streets	• Vehicular focused streets, can be one-way • Similar streetscape to Standard streets • Wider, 11 foot travel lanes • Should be limited downtown	Washington Street, Erie Street, Michigan Street
Downtown Specialty Streets	• Typically have high pedestrian traffic • Surrounded by important uses • Extra attention paid to detail and streetscape materials • Streets designed for walking, strolling and enjoying	Jefferson Avenue, Adams Street, Huron Street, St. Clair Street, Superior Street
Downtown Signature Streets	• Build on the qualities of Specialty Streets • Carry More vehicular traffic than specialty streets • Should accommodate bicycles, pedestrians, and transit • Should focus on slowing traffic and supporting development	Monroe Street, Cherry Street, Summit Street

Detailed information regarding the public involvement and existing conditions evaluation tasks for the Downtown Toledo Transportation Study, and their impact on roadway improvement alternatives are provided in the following sections.

6.1.2 Alternative Development – Public Input

The public involvement task for this study included engagement with the general public (through a series of public meetings) and engagement with various focus groups for existing and future users of the downtown Toledo transportation network (e.g., non-profit organizations, bicycle advocacy groups, small business owners, entertainment/cultural attractions, etc.). Information collected as a part of this task was used to develop both area-wide and individual roadway improvement alternatives for the DTTS area. As previously stated alternatives were specifically developed with considerations for vehicular travel and mobility, bicycle travel and mobility, pedestrian travel, mobility, and experience, transit travel and mobility, and the potential for encouraging development in mind. Public involvement input and potential development alternatives for each of the key areas are summarized below:

Vehicular Travel and Mobility

Public/Stakeholder Meeting Feedback

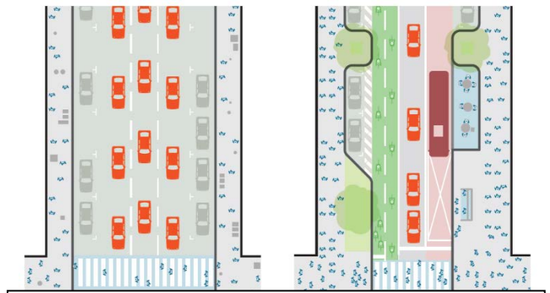
Public and stakeholder meeting feedback regarding vehicular travel and mobility within the DTTS area largely included concerns with the confusing nature of current one-way streets within downtown, improving equity for other modes of travel (i.e., walking, bicycling, etc.), vehicle speeds, and truck traffic/deliveries. Specific comments/feedback includes the following:

- "The one-way streets are confusing and dangerous."
- "Too much emphasis on cars, need to improve conditions for walking and bicycling."
- Vehicle speeds are an issue along Erie Street, Michigan Street, and Monroe Street
- "Truck traffic on downtown streets is an issue." (Particularly on Washington Street)
- Stakeholders also identified the following roadways as priority corridors for improvement alternatives within the DTTS area:
  - Washington Street
  - Adams Street
  - SR 25 (Erie Street)
  - SR 25 (Michigan Street/Spielbusch Avenue)
  - SR 65/SR 2 (Summit Street)
  - SR 51 (Monroe Street)
  - Jackson Street
  - Jefferson Avenue
  - SR 120 (Cherry Street)

Potential Improvement Alternatives

Potential improvement alternatives that may address public/stakeholder concerns regarding vehicular travel and mobility within the DTTS area may include:

- Road diets – Road diets are typically implemented to "right-size" roadways that may have been constructed using traffic volume projections that were too aggressive or that accommodated larger traffic volumes at a previous point in time. When implemented, road diets can provide additional space for accommodating non-vehicular uses (e.g., bicycles, transit, and pedestrians), they can reduce traffic speeds, and they can improve pedestrian crossing safety (through making crossings shorter). Within the DTTS area, wider roadways in which road diets may help reduce vehicle speeds include (see Figure 6.1):
  - SR 65/SR 2 (Summit Street)
  - SR 120 (Cherry Street)
  - SR 25 (Michigan Street)
  - SR 25 (Erie Street)
  - SR 51 (Monroe Street)
  - Washington Street



Source: National Association of City Transportation Officials

- One-way to two-way conversions – One-way to two-way conversions are often implemented when local traffic patterns no longer necessitate their use. When implemented, one-way to two-way conversions can reduce vehicle speeds (via traffic calming) and encourage development (increased accessibility for businesses). Current one-way streets within the DTTS area that may be considered for conversion to two-way to reduce travel speeds may include (see Figure 6.1):
  - 11th Street
  - 14th Street
  - SR 25 (Michigan Street)
  - SR 25 (Erie Street)

Figure 6.1 Potential Directional Conversions and Road Diets

- Truck traffic management and loading/unloading restrictions – A city-wide or district-wide management plan for truck travel and loading/unloading can help direct truck and heavy vehicle traffic to roadways and areas in which they can best be accommodated. A plan can also aid in the management of curb space during times of the day in which demands are highest (transit vehicles, on-street parking, and commercial loading/unloading all compete for curb space throughout the day).

Bicycle Travel and Mobility

Public/Stakeholder Meeting Feedback

Public and stakeholder meeting feedback focused on bicycle travel and mobility within the DTTS area largely included a desire to see bicycle facilities on Adams Street and Summit Street, as well as a concern with the connectivity of current bicycle facilities within downtown. Specific comments/feedback includes the following:

- "Lack of bike lanes makes it difficult to bike safely."
- Adams Street (west of Michigan Street) and Jefferson Avenue (west of Huron Street) were consistently identified as being most bicycle friendly, Other streets identified as being bicycle friendly include:
  - St. Clair Street
  - Huron Street
- "(Summit Street is) not great for walking or bicycling in its current state."

Potential Improvement Alternatives

- Cycle tracks – Cycle tracks are exclusive bicycle facilities along important bicycle corridors that can be physically separated from vehicular traffic. When implemented, cycle tracks can provide benefits to bicycle mobility and safety along a roadway. As they require more space than a standard bicycle lane (cycle tracks often accommodate two-way travel), these facilities are often constructed along roadways in which right-of-way can be dedicated to them without unduly impacting the operations of other potential users (e.g., vehicular demands, transit demands, etc.). Within the DTTS area, potential roadways on which cycle tracks could best be implemented include those that are wider, but have limited vehicular capacity constraints:
  - Summit Street
  - Cherry Street/MLK Bridge
  - Jefferson Avenue

Source: The Guardian

- Bike lanes – Bike lanes are exclusive bicycle-only lanes along roadways. They can be physically separated from vehicular traffic through either on-street parking (often not implemented due to safety concerns) or pavement marking buffers (most common). Bike lanes are typically constructed along roadways in bicycle demands are high enough to justify their implementation, but right-of-way cannot be allocated to a cycle track due to demand for other uses. Within the DTTS area, roadways on which bike lanes could best be implemented include those that are wider, but may have some vehicular capacity constraints:
  - Summit Street – Bike lanes could be implemented if vehicle demands are too high for cycle track
  - Cherry Street/MLK Bridge – Bike lanes could be implemented if vehicle demands are too high for cycle track
  - Michigan Street
  - Erie Street

Source: PhillyVoice

- Shared lane markings ("Sharrows") – Shared lane markings, or "sharrows", are pavement markings that allow bicycles to share the road with motor vehicles. Sharrows are typically implemented along lower speed, narrower roadways in which right-of-way cannot be allocated to a cycle track or bike lanes without restricting vehicular mobility. Within the DTTS area, these roadways include:
  - Adams Street
  - Huron Street

Source: National Association of City Transportation Officials

Pedestrian Travel and Mobility

Public/Stakeholder Meeting Feedback

Public and stakeholder meeting feedback regarding pedestrian travel and mobility largely focused on the pedestrian environment, pedestrian safety (particularly along Washington Street, Summit Street, Monroe Street, Erie Street, and Michigan Street). Specific comments/feedback includes the following:

- "Pedestrian environment is unappealing – lack of amenities."
- Washington Street was consistently identified as a street in which walking is a challenge (especially between Michigan Street and Summit Street). Other streets that were also identified as uncomfortable for walking include: Monroe Street, Summit Street, Cherry Street, Erie Street, Michigan Street, Jefferson Avenue, Adams Street (east of Erie Street).

Potential Improvement Alternatives

- Road diets – As stated previously, road diets can provide benefits to pedestrian comfort (i.e., mobility and safety) through reducing crosswalk distances and lowering vehicular speeds. Roadways within the DTTS area in which public/stakeholder input suggests that the pedestrian environment is uncomfortable and could be improved includes:
  - Washington Street
  - Monroe Street
  - Summit Street
  - Cherry Street
  - Erie Street
  - Michigan Street

Transit Travel and Experience

Public/Stakeholder Meeting Feedback

Public and stakeholder meeting feedback regarding transit travel and its overall experience included a desire to make transit a more attractive travel option for downtown employees. Specific comments/feedback includes the following:

- "Desire for alternative transportation options for downtown employees—parking costs $60-70 per month."
- UT partnered with TARTA to offer free passes to students, faculty, staff – this type of program should be considered for downtown employees."

Potential Improvement Alternatives

- Transit incentives for downtown employees/residents – Transit incentives for employees provide discounts on transit to employees that live or work in areas with high levels of vehicular congestion or areas targeted for development and growth. These incentives can be implemented by a number of entities, including metropolitan planning organizations, business improvement districts, or regional development organizations.

- Bus lanes on corridors with high bus route saturation – Bus lanes are exclusive lanes designated for bus travel and operations along roadways. Bus lanes are typically implemented on high volume transit corridors, and like cycle tracks, they are usually constructed on roadways in which right-of-way can be allocated without unduly impacting vehicular traffic operations. As the new TARTA Downtown Transit Hub will utilize both Cherry Street and Huron Street for bus pick-up/drop-off operations, both of these roadways may benefit from the implementation of bus lanes. Washington Street and Monroe Street are other roadways within the DTTS area that may benefit from bus lanes.

Source: The Washington Post

Potential for Encouraging Development

Public/Stakeholder Meeting Feedback

Public and stakeholder meeting feedback regarding the improvement of the potential for development within the DTTS area focused on leveraging Summit Street's location as a destination (its proximity to the river makes it ideal for additional programming) and improving wayfinding/connectivity. Specific comments/feedback includes the following (see Table 6.2 for summary):

- Generally, meeting attendees expressed interest in seeing Summit Street take advantage of its proximity to the Maumee River. This could include the creation of a more active street with various elements including a cycle track and wider sidewalks (for outdoor seating).
- "There is no signage anywhere downtown telling people where to go (ped or vehicular)"
- "Connections with surrounding context are critical (outside of the study area – metro parks, Nautical Mile, east side of river, Amtrak, adjacent neighborhoods, etc."

Potential Improvement Alternatives

- Summit Street pedestrian improvements and walkability – As discussed above, road diets can provide opportunities to implement alternative programming along roadways (e.g., street furniture, space for food trucks, etc.) that encourage development. Given Summit Street's proximity to the Maumee River and Promenade Park, a road diet along this roadway may further improve its development potential.

- Downtown wayfinding program – Wayfinding plans include the coordinated deployment of signs, often themed or decorative, that guide visitors to key destinations within a district. Based on feedback obtained from the public and stakeholders, a downtown wayfinding program may encourage development near and in-between key downtown Toledo destinations.

Source: IS Group

Table 6.2 Public Involvement - Summary of Potential Improvement Alternatives

Roadway	Vehicular Travel and Mobility	Bicycle Travel and Mobility	Pedestrian Travel and Mobility	Transit Travel and Experience	Potential for Encouraging Development
Downtown Standard Streets					
11th Street	Directional Conversion				
14th Street	Directional Conversion				
Jackson Street	Directional Conversion				
Madison Avenue					
Downtown Collector Streets					
Michigan Street	Directional Conversion Road Diet	Bike Lanes	Road Diet		
Erie Street	Directional Conversion Road Diet	Bike Lanes	Road Diet		
Washington Street	Road Diet		Road Diet		
Downtown Specialty Streets					
Jefferson Avenue		Cycle Track			
Huron Street		Sharrows			
St. Clair Street					
Adams Street		Sharrows			
Downtown Signature Streets					
Cherry Street	Road Diet	Cycle Track Bike Lanes	Road Diet		
Monroe Street	Road Diet		Road Diet		
Summit Street	Road Diet	Cycle Track Bike Lanes	Road Diet		Pedestrian Improvements
Area Wide Improvements					
	Truck Management			Transit Incentives	Downtown Wayfinding

6.1.3 Alternative Development – Current/Future Conditions Assessment

The assessment of current and future conditions task for this study included an evaluation of current traffic operations, a review of current commercial/heavy vehicle traffic operations, an evaluation of existing crash data, projection of future traffic volumes, and an evaluation of future traffic volumes within the DTTS area. In a similar manner to the public involvement and policy review tasks completed for this study, information collected as a part of the current and future conditions assessment was used to develop both area-wide and individual roadway improvement alternatives for the DTTS area. As previously stated alternatives were specifically developed with considerations for vehicular travel and mobility, bicycle travel and mobility, pedestrian travel, mobility, and experience, transit travel and mobility, and the potential for encouraging development in mind. Key findings from the current and future conditions assessment, as well a alternatives for each of the key areas, are summarized below:

Vehicular Travel and Mobility

Vehicular Traffic Operations

This study evaluated current and future traffic operations for an AM peak hour, a midday peak hour, and a PM peak hour. Results of the evaluation indicate that there are several roadways within the study area that currently achieve satisfactory traffic operations and are projected to achieve satisfactory traffic operations into the future (i.e., the year 2038—see Figure 6.2). Potential improvements that could benefit the DTTS area include:

- Road diets – Erie Street and Monroe Street are two (2) wider roadways within the study area in which a reduction in capacity (i.e., a reduction in lanes) could provide space for additional programming without inducing unsatisfactory traffic operations.

Crash Analysis

The review of crash data within the study area indicates that among high crash frequency locations, the most common crash types were rear end crashes, angle crashes, and sideswipe crashes. Further there were multiple high frequency crash intersections along Washington Street, Monroe Street, Adams Street, Michigan Street, Ontario Street, and Summit Street (Summit Street had the most high-frequency crash locations). Potential improvement alternatives that could improve safety within the DTTS are include:

- Signal retiming study – As rear end crashes can often be caused by vehicular congestion and angle crashes can be caused by ineffective traffic control, a signal timing study could be a means of improving safety through enhanced signal coordination (potential reductions in congestion) and the update of signal timings to meet current Institute of Transportation Engineers' (ITE) recommendations

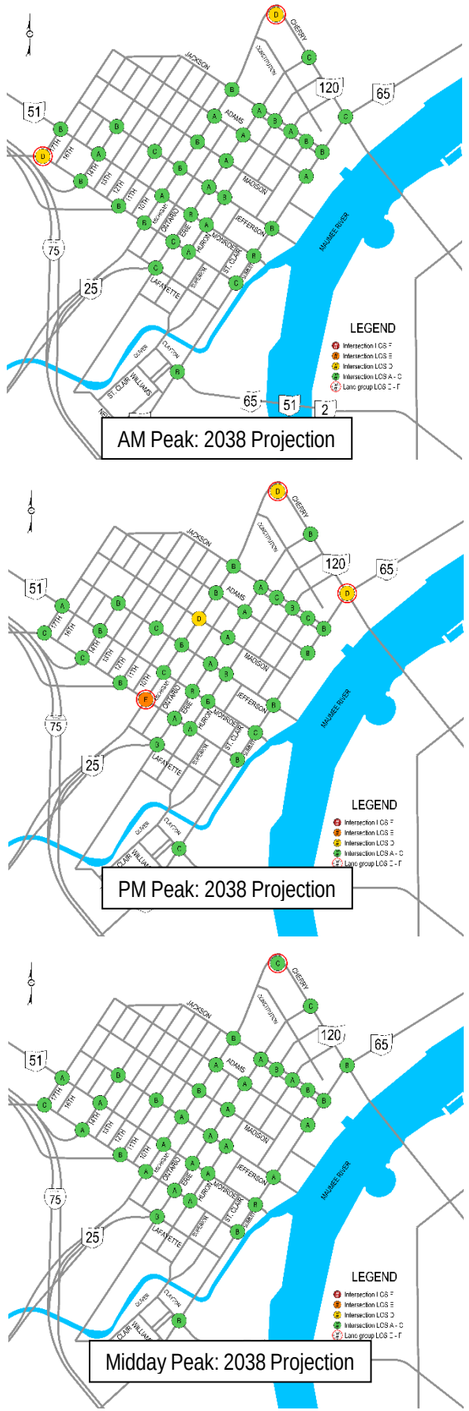


Figure 6.2 2038 Level-of-Service (LOS)

Truck/Commercial Vehicle Traffic Operations

An analysis of commercial and heavy vehicle traffic within the study area indicates that Washington Street, Monroe Street, Michigan Street (south of Monroe Street), Erie Street (south of Monroe Street), and Summit Street (south of Monroe Street) are all a part of the FHWA designated National Truck Network (NTN). It may be noted, however, that the northern segment of Summit Street (north of Monroe Street) receives the third highest daily volume of trucks of major roadways within the study area (17%). Additionally, many of the roadways within the study area, including Monroe Street, Jefferson Avenue, and Adams Street have a distinct commercial/heavy vehicle peak during the middle of the day, with much lower volumes during other times. Outside of the peaks, the roadways space needed to accommodate peak period trucks could be allocated to other uses (e.g., on-street parking, transit, etc.).
Potential commercial and heavy vehicle improvement alternatives that could benefit the DTTS area include:

- Flex Zones (For Commercial Deliveries) – As previously stated, flex zones are curbside areas within a roadway that can accommodate one (1) use during the time of day when its demand is highest and different use when the former demands are lower.

- City Designated Truck Routes – As also previously stated, city designated truck routes can help to keep commercial and heavy vehicle traffic away from roadways in which their presence is undesirable (i.e., residential roadways), and direct them to routes constructed to accommodate them.

- Freight zone pricing (truck route management) – this is the application of a fee for commercial vehicles to enter specific streets or zones during peak periods. Freight zone pricing can be implemented through tolls, pre-paid permits, or temporary permits (typically paid through a smartphone application).

- Off-peak delivery (curb management and truck route management) – this is the implementation of set time periods (typically outside of the weekday AM and PM peaks) for commercial vehicle deliveries. Commercial deliveries outside of these time periods are generally restricted.

- Urban consolidation centers (truck route management) – these are public-private partnerships (PPPs) implemented by business improvement districts (BIDs) to reduce the number of different delivery services operating in a specific area at a specific time. Urban consolidation centers receive deliveries from a number of shipping services (e.g., FedEx, UPS, USPS, vendors), and then distribute goods to businesses within the area, often in smaller vehicles. This helps to consolidate commercial vehicle traffic within busy areas.

- Delivery vehicle staging zones (curb management) – these are dedicated curbside areas on streets in which commercial vehicles can stop and unload goods, typically for a set period of time.

- Moving loading and access around the corner (curb management) – this treatment is for those locations along corridors in which the allocation of space for curbside deliveries is not possible (due to space limitations or competing uses). Its application consists of designating loading/unloading zones on adjacent, less congested corridors (if the business is located along a busy corridor).

Bicycle Travel and Mobility

Vehicular Traffic Operations/2015 City of Toledo Bike Plan

As previously stated, several roadways within the DTTS area are projected to achieve satisfactory traffic operations into the future and could be candidates for the implementation of bicycle facilities without unduly affecting vehicular traffic operations. These roadways include Monroe Street, Jefferson Avenue, Erie Street, Huron Street, Adams Street, and Summit Street (south of Cherry Street). Michigan Street and Cherry street, however, both have multiple intersections that are either near or over the threshold for unsatisfactory traffic operations. Further, the 2015 City of Toledo Bike Plan (see Figure 6.3) includes existing bicycle facilities along the Maumee River and future proposed bicycle facilities along 17th Street and Jefferson Avenue. Based on this information, potential bicycle improvement alternatives that might benefit the DTTS area include:

- Cycle Track – Based on the assessment of current and future traffic operations the only roadways within the DTTS area that may benefit from the implementation of a cycle track are Jefferson Avenue and Cherry Street (A bicycle facility along Cherry Street would link the northern edge of the study area with locations to the east and west). It may be noted that based on the 2015 City of Toledo Bike Plan, a bicycle facility is planned for Jefferson Avenue.

- Bike lanes – Based on existing truck traffic volumes, NTN classifications, and current/future traffic operations, bike lanes could provide the best benefit within the DTTS area along Bike lanes would be best implemented on Michigan Street and Erie Street.

- Sharrows – Based on existing right-of-way constraints and current/future traffic operations, sharrows could be best implemented within the DTTS area along Adams Street and Huron Street.

Figure 6.3 2015 City of Toledo Bike Plan – Current/Planned Bicycle Facilities

Pedestrian Travel and Mobility

The current and future conditions assessment also included an evaluation of pedestrian traffic volumes at key intersections within the study area. Figure 6.4 includes traffic count locations for the study in which more than 50 crossing pedestrians were observed during a single peak hour. Note that prior to 2019, TARTA's downtown transit hub was located near the corner of Huron Street and Jackson Street. In 2019, this facility was moved to the corner of SR 120 (Cherry Street) & Huron Street. This may have affected the information shown in Figure 6.4. Based on the information provided in the figure, pedestrian traffic appears to be concentrated along:

- Huron Street (between Monroe Street and Jefferson Avenue);
- SR 25 (Michigan Street – between Madison Avenue and Jackson Street);
- SR 25 (Erie Street – between Madison Avenue and Jackson Street);
- Adams Street (between Summit Street and Michigan Street); and
- Jackson Street (between Summit Street) and Michigan Street

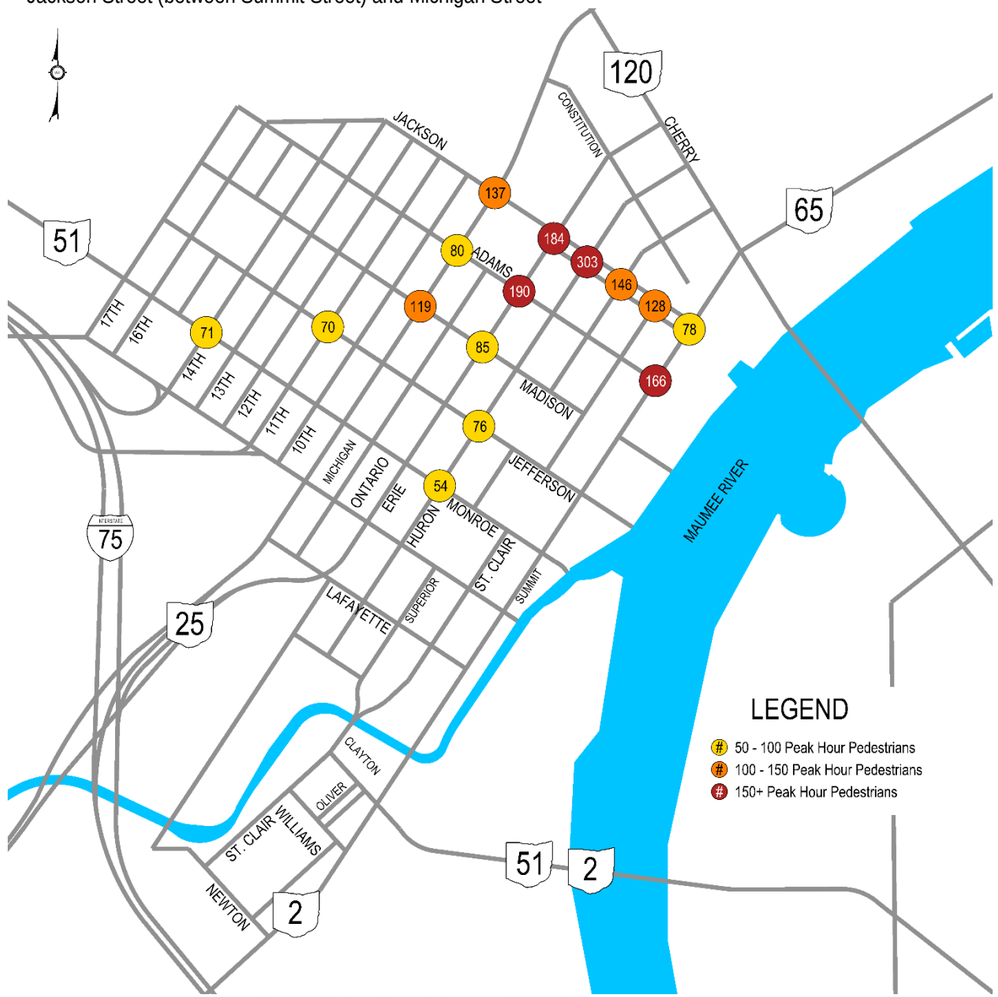


Figure 6.4 High-Volume Pedestrian Locations

It may be noted that pedestrian traffic counts for this project were collected prior to the completion of the new TARTA Downtown Transit Hub along Huron Street (the new transit hub is now open on the southeast corner of Cherry Street & Huron Street). It may also be noted, that upon the completion of this facility, a number of TARTA transit services were relocated from Jackson Street (between Erie Street and Summit Street) to Huron Street and Cherry Street. As such, future pedestrian traffic counts may reflect a significant decrease in volume along Jackson Street, and a significant increase in volume along Huron Street and Cherry Street. Based on pedestrian data collected for this study, the following pedestrian improvement alternatives may benefit the DTTS area.

- Road Diets – As stated previously, road diets can reduce vehicular traffic speeds and shorten pedestrian crossing distances. High volume pedestrian locations that may benefit from the implementation of road diets include:
  - Michigan Street
  - Erie Street
  - Summit Street
  - Cherry Street (due to new transit center—crossing this roadway might be difficult for pedestrians)

- Multi-Use Path – A shared or multi-use path provides an exclusive traveled way for bicycles and pedestrians. They can be constructed along vehicular roadways and are typically located outside of the vehicular traveled way (separated by a tree lawn or buffer). Within the DTTS area, this treatment could be implemented along Cherry Street, where there is adequate right-of-way to implement such a treatment, vehicular demands are high, and there is an increased need for pedestrian infrastructure (due to the new transit facility). A multi-use path along Cherry Street could also provide benefits for bicycles (enhanced safety).

Transit Travel and Experience

The assessment of current and future conditions indicate that the following transit travel and experience related improvement alternatives could benefit the DTTS area:

- Transit lanes – Transit exclusive lanes provide dedicated right-of-way along roadways for the use of transit vehicles. Other vehicle types (i.e., passenger cars, trucks, bicycles, etc.) are typically prohibited from using these lanes with the exception (in some cases) of right turning vehicles. Generally, transit lanes would work best on wider roadways that accommodate a high volume of transit vehicles (see Figure 6.5 for a map of transit routes) and where a reduction in vehicular right-of-way would not adversely affect vehicular traffic operations. Within the DTTS area, these roadways include

  - Monroe Street (this roadway could potentially accommodate transit routes without impacting vehicular operations)
  - Huron Street (this roadway accommodates a high volume of transit traffic)
  - Cherry Street (this roadway could accommodate transit lanes as part of a road diet)

Potential for Encouraging Development

The assessment of current and future conditions indicate that the following transit travel and experience related improvement alternatives could benefit the DTTS area:

- Festival Streets – Festival streets are typically narrower roadways that feature unique elements (like distinctive paving materials, street art, and vegetation) that make them engaging environments when they are close for specialized programming (e.g., festivals, street markets, etc.). These roadways generally do not accommodate high vehicular volumes. Within the DTTS area, festival streets would work best on Downtown Specialty streets like Adams Street and St. Clair Street.

Figure 6.5 Current Transit Routes and Key Destinations

6.2 Alternative Analyses

6.2.1 Alternative Analyses – Overview

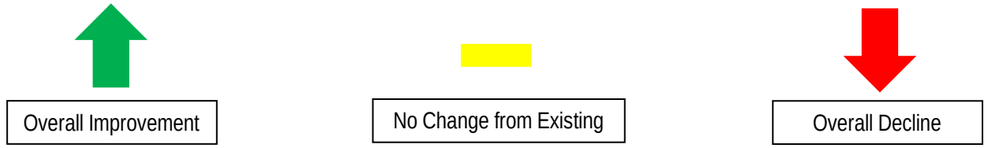
A summary of alternatives developed for the DTTS is provided in Table 6.3

Table 6.3 Alternative Development Summary

Roadway	Vehicular Travel and Mobility	Bicycle Travel and Mobility	Pedestrian Travel and Mobility	Transit Travel and Experience	Development Potential
Downtown Standard Streets					
11th Street	Directional Conversion				
14th Street	Directional Conversion				
Jackson Street	Directional Conversion				
Madison Avenue					
Downtown Collector Streets					
Michigan Street	Directional Conversion Road Diet	Bike Lanes	Road Diet		
Erie Street	Directional Conversion Road Diet	Bike Lanes	Road Diet		
Washington Street			Road Diet	Transit Lanes	
Downtown Specialty Streets					
Jefferson Avenue		Cycle Track			
Huron Street		Sharrows		Transit Lanes	
St. Clair Street					Festival Streets
Adams Street		Sharrows			Festival Streets
Downtown Signature Streets					
Cherry Street	Road Diet	Cycle Track Bike Lanes	Road Diet Multi-Use Path	Transit Lanes	
Monroe Street	Road Diet		Road Diet	Transit Lanes	
Summit Street	Road Diet	Cycle Track Bike Lanes	Road Diet		Road Diet
Area Wide Improvements					
	Truck Management Signal Retiming Study			Transit Incentives	Downtown Wayfinding

6.2.2 Alternative Analyses – Methodology

Evaluation of improvement alternatives for implementation within the DTTS area included the analysis of individual impacts to vehicular travel and mobility, bicycle travel and mobility, pedestrian travel and mobility, transit travel and experience, and development potential for each alternative. Each alternative was given a rating (see below) that indicated an overall improvement for a category (indicated by a green upward facing arrow), no change from the existing condition (indicated by a yellow dash), or an overall decline for a category (indicated by a red downward facing arrow). Detailed information regarding how improvements and declines were evaluated for each of these categories is provided below.



Vehicular Travel and Mobility

Vehicular travel and mobility for these analyses were evaluated based on changes to level-of-service (LOS) at study area intersections and increases in access for individual land uses along a roadway LOS values were evaluated as follows:

- If an intersection or individual lane group had a change in LOS (between the existing configuration and the proposed configuration) that reduced delays from unsatisfactory (LOS E or F) to satisfactory (LOS A – D) conditions, that would be considered an overall improvement in vehicular travel and mobility
- If an intersection or individual lane group had either satisfactory or unsatisfactory traffic operations under the existing roadway configuration and had the same traffic operations with the proposed configuration, that would be considered as no change from existing
- Finally, if an intersection or individual lane group had a change in LOS (between the existing configuration and the proposed configuration) that increased delays from satisfactory to unsatisfactory conditions, or further exacerbated unsatisfactory conditions, that would be considered an overall decline

It may be noted that all alternatives were evaluated with design year (2038) traffic volumes. Further, increased accessibility to specific land uses (e.g., through conversions from one-way to two-way travel) were considered as overall improvements, no changes to lane access were considered as no change from existing, and a reduction in access to land uses were considered an overall decline in vehicular travel and mobility.

Bicycle Travel and Mobility

Bicycle travel and mobility for these analyses were evaluated based on the potential level of safety achieved by each of the alternatives. For instance, the addition of bike facilities (over no bike facilities) to a roadway would be considered as an overall improvement to bicycle travel and mobility as generally, bike facilities can improve bike safety over conditions in which they are absent. However, if a specific bicycle alternative provides an increased level of protection from conflicting vehicles or pedestrians (whether through buffers or guardrails) over another alternative, this would also be considered as an overall improvement. No change to bicycle facilities along a roadway would be considered as no change from existing, while the removal of bike facilities, or a potential reduction in safety would be seen as an overall decline.

Pedestrian Travel and Mobility

Pedestrian travel and mobility for these analyses were evaluated based on the level of connectivity that specific alternatives provide to adjacent land uses or key destinations, as well as each alternative's potential for enhancing pedestrian safety (either through the removal of pedestrian conflicts, adding pedestrian space, or shortening pedestrian crossing distances).

Transit Travel and Experience

Transit travel and mobility for these analyses were evaluated based on each alternative's potential for providing additional space for transit operations or the movement of transit vehicles. Alternatives that provide additional space (over existing condition) for the layover of buses, pick-up/drop-off, and maneuvering were considered as overall improvements to transit travel and mobility.

Development Potential

The potential for enhancing development for these analyses was evaluated based on potential conveniences and amenities that might be attractive to a new developer, resident, employee, or patron. Some of these conveniences and amenities may include:

- On-street parking (this is generally a positive for retail development)
- Bicycle facilities (this is generally a positive for residential and office development)
- Streetscape improvements (this is generally positive for all potential developments)
- Increases in accessibility (one-way to two-way travel is generally positive for retail development)

Potential streetscape improvements that can encourage development

6.2.3 Alternative Analyses – Downtown Standard Streets

11th Street (Downtown Standard)

Existing Conditions

Existing Conditions
Existing Roadway Width – 40'

Existing Number of Lanes – Two lanes (northbound only)

2038 Critical Intersection LOS – Jefferson & 11th (LOS C – AM/PM peak)

Alternatives Considered but Ultimately Dismissed
N/A

A total of two (2) new improvement alternatives were considered and evaluated for 11th Street. These alternatives included:

- Alternative 1 – Add parking bump-outs at intersections
  - This alternative includes the conversion of existing lanes along 11th Street from two lanes with unmarked parking to two (2) lanes with marked parking spaces and bump-outs at intersections.
- Alternative 2 – Convert from one-way to two-way, add parking bump-outs at intersections
  - This alternative includes the conversion of existing lanes along 11th Street from one-way (two lanes northbound with unmarked parking), to two (2) lanes in opposite directions (one lane northbound and one lane southbound) with marked parking spaces and bump outs at intersections

Recommended Alternative: Alternative 2 – This alternative provides improvements to pedestrian mobility and safety as well as enhancing development potential while also enhancing mobility within downtown Toledo (through bi-directional travel on 11th Street).

Alternative 1 – Add Bump-Outs; Add On-Street Parking

11th Street Alternative 1 – Add Bump-Outs at Intersections; Add On-Street Parking				
Vehicular Travel and Mobility	Bicycle Travel and Mobility	Pedestrian Travel and Mobility	Transit Travel and Experience	Development Potential
• No change from existing	• No change from existing	• Parking bump-outs shorten pedestrian crossing distances, provide additional space for pedestrians to wait prior to crossing, and improve the overall pedestrian experience	• No change from existing	• Bump-outs make on-street parking spaces more conspicuous, improving the development potential along a roadway

Alternative 2 – Convert to Two-Way; Add Bump-Outs; Add On-Street Parking

11th Street Alternative 2 (Preferred) – Convert to Two-Way, Add Bump-Outs at Intersections; Add On-Street Parking				
Vehicular Travel and Mobility	Bicycle Travel and Mobility	Pedestrian Travel and Mobility	Trans(Pit Travel and Experience	Development Potential
• Enhanced mobility (i.e., northbound and southbound travel). LOS remains at satisfactory levels for design year analyses (2038)	• No change from existing	• Parking bump-outs shorten pedestrian crossing distances, provide additional space for pedestrians to wait prior to crossing, and improve the overall pedestrian experience	• No change from existing	• Bump outs make on-street parking spaces more conspicuous and provide more sidewalk space at corners, improving the development potential along a roadway

14th Street (Downtown Standard)

Existing Conditions
Existing Roadway Width – 36'

Existing Number of Lanes – Three (3) lanes south of Jefferson (southbound only), two (2) lanes north of Jefferson (southbound only)

2038 Critical Intersection LOS – Washington & 14th (LOS C – PM peak)

Alternatives Considered but Ultimately Dismissed
N/A

A total of two (2) new improvement alternatives were considered and evaluated for 14th Street. These alternatives included:

- Alternative 1 – Add bump-outs at intersections, add on-street parking
  - This alternative includes the conversion of existing lanes along 14th Street from two travel lanes with unmarked parking to two (2) lanes with marked parking spaces and bump-outs at intersections.
- Alternative 2 – Convert from one-way to two-way, add bump-outs at intersections, add on-street parking
  - This alternative includes the conversion of existing lanes along 14th Street from one-way (two lanes northbound with unmarked parking) lanes to two (2) lanes in opposite directions (one lane northbound and one lane southbound) with marked parking spaces and bump outs at intersections

Recommended Alternative: Alternative 2 – This alternative provides improvements to pedestrian mobility and safety as well as enhancing development potential while also enhancing mobility within downtown Toledo (through bi-directional travel on 14th Street).

14th Street Alternative 1 – Add Parking Bump-Outs at Intersections; Add On-Street Parking				
Vehicular Travel and Mobility	Bicycle Travel and Mobility	Pedestrian Travel and Mobility	Transit Travel and Experience	Development Potential
• No change from existing	• No change from existing	• Parking bump-outs shorten pedestrian crossing distances, provide additional space for pedestrians to wait prior to crossing, and improve the overall pedestrian experience	• No change from existing	• Bump-outs make on-street parking spaces more conspicuous, improving the development potential along a roadway

14th Street Alternative 2 (Preferred) – Convert to Two-Way; Bump-Outs at Intersections; Add On-Street Parking				
Vehicular Travel and Mobility	Bicycle Travel and Mobility	Pedestrian Travel and Mobility	Transit Travel and Experience	Development Potential
• Enhanced mobility (i.e., northbound and southbound travel). LOS remains at satisfactory levels for design year analyses (2038)	• No change from existing	• Parking bump-outs shorten pedestrian crossing distances, provide additional space for pedestrians to wait prior to crossing, and improve the overall pedestrian experience	• No change from existing	• Bump outs make on-street parking spaces more conspicuous and provide more sidewalk space at corners, improving the development potential along a roadway

Jackson Street (Downtown Standard)

Existing Conditions

Existing Conditions
Existing Roadway Width – 36' west of Erie Street; 138' east of Erie Street

Existing Number of Lanes – Two (2) lanes west of Michigan Street (westbound only), one (1) lane between Michigan and Erie (westbound only), and five (5) lanes between Summit and Michigan (two-way, divided).

2038 Critical Intersection LOS – Jackson & Huron, Jackson & St. Clair (LOS C – PM peak hour)

Alternatives Considered but Ultimately Dismissed
N/A

A total of two (2) new improvement alternatives were considered and evaluated for Jackson Street. These alternatives include:

- Alternative 1 – Convert from one-way to two-way with three (3) lane configuration
  - To the west of Erie Street, this alternative includes the conversion of the existing one-way roadway (westbound) with parking to a three (3) lane bi-directional roadway (with center left turn lane) without parking. To the east of Erie Street, this alternative includes the conversion of the westbound Jackson Street lanes to a three (3) lane, bi-directional roadway without parking (with center left turn lane) and the removal of vehicular traffic from eastbound lanes.
- Alternative 2 – Convert from one-way to two-way with two (2) lane configuration, add on-street parking
  - To the west of Erie Street, this alternative includes the conversion of the existing one-way roadway (westbound) with parking to a two (2) lane bi-directional roadway with parking. To the east of Erie Street, this alternative includes the conversion of the westbound Jackson Street lanes to a two (2) lane, bi-directional roadway with parking and the removal of vehicular traffic from eastbound lanes.

Recommended Alternative: Alternative 2 – This alternative provides improvements to mobility through two-way travel while also enhancing development potential (space for on-street parking). It may be noted that the vacated space composed of the eastbound Jackson Street lanes and its median could be repurposed for other uses.

Alternative 1 – Convert to Two-Way; Three (3) Lanes

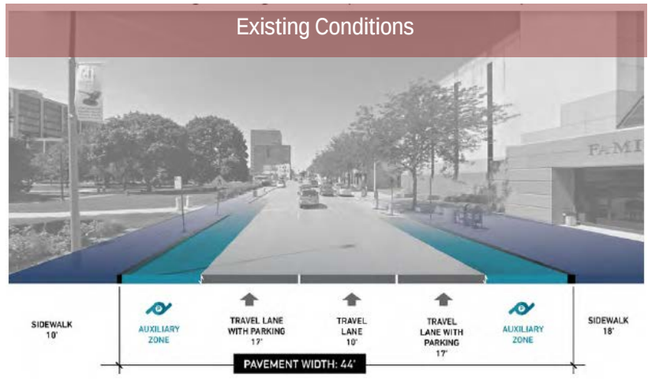
Jackson Street Alternative 1 – Convert to Two-Way; Three (3) Lanes				
Vehicular Travel and Mobility	Bicycle Travel and Mobility	Pedestrian Travel and Mobility	Transit Travel and Experience	Development Potential
• Design year LOS for alternative 1 is comparable to No Build condition (i.e., existing configuration) • Two-way left turn lane provides enhanced safety over Alternative 2 • Two-way travel enhances mobility	• No change from existing	• No change from existing	• No change from existing	• Removal of on-street parking may be a drawback for potential developers

Alternative 2 – Convert to Two-Way; Two (2) Lanes; Add On-Street Parking

Jackson Street Alternative 2 (Preferred) – Convert to Two-Way; Two (2) Lanes; Add On-Street Parking				
Vehicular Travel and Mobility	Bicycle Travel and Mobility	Pedestrian Travel and Mobility	Transit Travel and Experience	Development Potential
• Design year LOS for Alternative 2 is comparable to No Build condition (i.e., existing configuration) • Two-way travel enhances mobility	• No change from existing	• No change from existing	• No change from existing	• Space for on-street parking may improve the potential for development along Jackson Street

6.2.4 Alternative Analyses – Downtown Collector Streets

Michigan Street (Downtown Collector)



Existing Conditions
Existing Roadway Width – 44'

Existing Number of Lanes – Three (3) lanes (southbound only)

2038 Critical Intersection LOS – Michigan & Washington (LOS E – PM peak)

Alternatives Considered but Ultimately Dismissed

- **No bicycle facilities, three (3) lanes, on-street parking** – This alternative does not provide the desired enhancements to bicycle mobility

A total of three (3) new improvement alternatives were considered for Michigan Street, with two (2) being evaluated for implementation. Detailed information regarding alternatives considered, but ultimately dismissed can be found at left: Alternatives evaluated include:

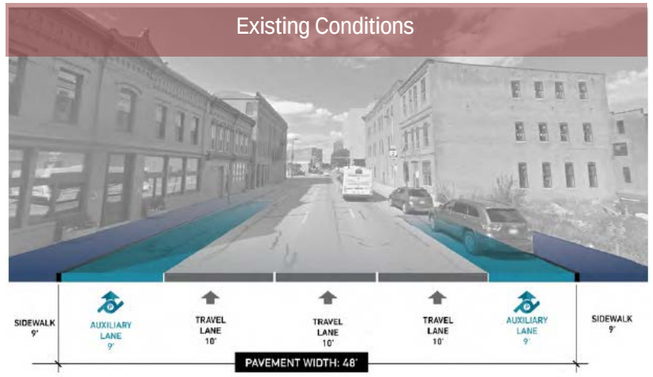
- **Alternative 1** – Add on-street parking (one side), add 3' bike lane
  - This alternative includes the addition of on-street parking to one (1) side of Michigan Street as well as the addition of an un-buffered bike lane. Alternative 1 features three (3) travel lanes
- **Alternative 2** – Add on-street parking (both sides), reduce from three (3) lanes to two (2) lanes, add bike lane with buffer
  - This alternative includes the addition of on-street parking to both sides of Michigan Street as well as the reduction of lanes from three (3) to two (2) and the addition of a buffered bike lane.

Recommended Alternative: Alternative 1 (Washington to Jefferson); Alternative 2 (Jefferson to Cherry) – A mixture of alternatives 1 and 2 are recommended for Michigan Street in order to achieve the enhanced bicycle mobility associated with Alternative 1 (buffered bike lane), and necessary vehicle traffic operations associated with Alternative 2 (LOS F at Michigan & Washington and Michigan & Monroe during 2038 PM peak hour).

Michigan Street Alternative 1 – Add On-Street Parking; Add Un-Buffered Bike Lane; Add On-Street Parking				
Vehicular Travel and Mobility	Bicycle Travel and Mobility	Pedestrian Travel and Mobility	Transit Travel and Experience	Development Potential
• No change from existing	• 3' bike lane does not meet state/federal design criteria of 5'	• No change from existing	• No change from existing	• Bike lane and on-street parking may enhance development potential along Michigan Street

Michigan Street Alternative 2 (Preferred) – Add On-Street Parking; Reduce from Three (3) Lanes to Two (2), Add Buffered Bike Lane				
Vehicular Travel and Mobility	Bicycle Travel and Mobility	Pedestrian Travel and Mobility	Transit Travel and Experience	Development Potential
• This alternative has a projected LOS of F during the 2038 PM peak at Michigan & Washington and Michigan & Monroe	• Buffered bike lane provides enhanced mobility for southbound bicycle travel through downtown and enhanced safety over un-buffered bike lane (Alternative 1)	• Road diet reduces pedestrian crossing distances	• No change from existing	• Buffered bike lane and on-street parking may enhance development potential along Michigan Street

Erie Street (Downtown Collector)



Existing Conditions
Existing Roadway Width – 48'

Existing Number of Lanes – Three (3) lanes (northbound only)

2038 Critical Intersection LOS – Erie & Washington (LOS C – PM peak)

Alternatives Considered but Ultimately Dismissed
- Add on-street parking, add un-buffered two-way cycle track – This alternative was eliminated due to safety concerns with an un-buffered cycle track.
- Add on-street parking, reduce from three (3) lanes to two (2), add buffered (by parking) two-way cycle track – A two-way cycle track was deemed redundant if bike lanes are installed on Michigan Street

A total of four (4) new improvement alternatives were considered for Erie Street, with two (2) being considered for implementation. Details regarding improvement alternatives considered but ultimately dismissed can be found at left. Improvement alternatives evaluated include:

- Alternative 1 – Add on-street parking, add buffered bike lane
  - This alternative includes the addition of on-street parking to one (1) side of Erie Street and a buffered bike lane. Alternative 1 features three (3) travel lanes.
- Alternative 2 – Add on-street parking, convert from three (3) lanes to two (2), add buffered bike lane
  - This alternative includes the addition of on-street parking to both sides of Erie Street, a reduction in travel lanes from three (3) to two (2), and the addition of a buffered bike lane. Alternative 2 features two (2) lanes.

Recommended Alternative: Alternative 1 (Washington to Jefferson); Alternative 2 (Jefferson to Cherry) - A mixture of alternatives 1 and 2 are recommended for Erie Street in order to achieve the enhanced bicycle mobility associated with Alternative 1 (buffered bike lane), and necessary vehicle traffic operations associated with Alternative 2 (LOS F at Erie & Washington, Erie & Monroe, and Erie & Jefferson during 2038 AM peak hour)

Erie Street Alternative 1 – Add On-Street Parking; Add Buffered Bike Lane				
Vehicular Travel and Mobility	Bicycle Travel and Mobility	Pedestrian Travel and Mobility	Transit Travel and Experience	Development Potential
• No change from existing	• Buffered bike lane provides enhanced mobility for northbound bike travel through downtown	• No change from existing	• No change from existing	• On-street parking and bike lanes could enhance development potential along Erie Street

Erie Street Alternative 2 (Preferred) – Add On-Street Parking; Reduce from Three (3) Lanes to Two (2); Add Buffered Bike Lane				
Vehicular Travel and Mobility	Bicycle Travel and Mobility	Pedestrian Travel and Mobility	Transit Travel and Experience	Development Potential
• This alternative has a projected LOS of F during the 2038 AM peak at Erie & Washington, Erie & Monroe, and Erie & Jefferson	• Buffered bike lane provides enhanced mobility for northbound bike travel through downtown. Parking lane between vehicle lanes and bike lane provides enhanced safety over Alternative 1	• Road diet reduces pedestrian crossing distances	• No change from existing	• On-street parking on both sides of the roadway and bike lane could enhance development potential along Erie Street

Washington Street (Downtown Collector)

Existing Conditions

Existing Conditions

Existing Roadway Width -54'

Existing Number of Lanes – Five (5) lanes

Critical Intersection LOS – Washington & Michigan (LOS E – PM peak)

Alternatives Considered but Ultimately Dismissed

- Convert from five (5) lanes to three (3) lanes (one lane in each direction with center TWLTL), add transit lanes – This alternative achieves LOS E (2038 PM peak) at Washington & 14th, LOS F (2038 PM peak) at Washington & Michigan, and LOS E (2038 AM peak) at Washington & Erie.
- Convert from five (5) lanes to three (3) unbalanced lanes (two lanes southbound, one lane northbound), add transit lanes – This alternative achieves LOS F (2038 PM peak) at Washington & 14th and Washington & Michigan
- Convert from five (5) lanes to three (3) lanes (one lane in each direction with center TWLTL), add on-street parking (only for use in non-peak hours) – See discussion for transit lanes option above.
- Convert from five (5) lanes to three (3) lanes (one lane in each direction with a center TWLTL), add bike lanes and on street parking (one side) – See discussion for transit lanes option above.

Several new improvement alternatives for Washington Street were considered, however, only one (1) alternative was evaluated for implementation. Detailed information regarding improvement alternatives considered, but ultimately dismissed are discussed at left. Alternatives evaluated include:

- Alternative 1 – Streetscape improvements
  - This alternative includes the addition of streetscape elements, including street trees, bicycle racks, distinctive crosswalks, and outdoor seating.

Recommended Alternative: Alternative 1 – This alternative is recommended as it provides the necessary level of vehicular traffic operations (Downtown Collector streets are designed to move vehicles through and around downtown), while also improving the pedestrian experience.

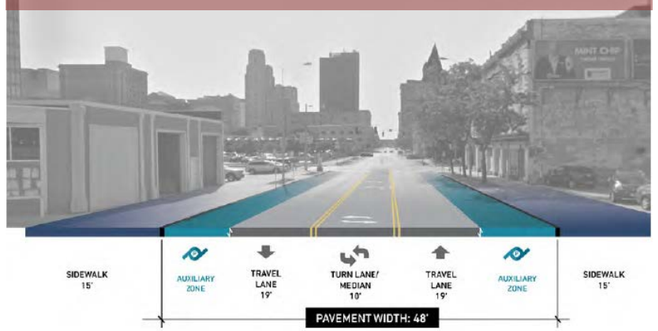
Alternative 1 – Add Streetscape Elements

Washington Street Alternative 1 (Preferred) – Add Streetscape Elements				
Vehicular Travel and Mobility	Bicycle Travel and Mobility	Pedestrian Travel and Mobility	Transit Travel and Experience	Development Potential
• No change from existing	• No change from existing	• Streetscape elements improve pedestrian experience	• No change from existing	• Streetscape elements may enhance the development potential along Washington Street

6.2.5 Alternative Analyses – Downtown Specialty Streets

Jefferson Avenue (Downtown Specialty)

Existing Conditions



Existing Conditions

Existing Roadway Width – 48'

Existing Number of Lanes – Three (3) lanes

Critical Intersection LOS

Alternatives Considered but Ultimately Dismissed

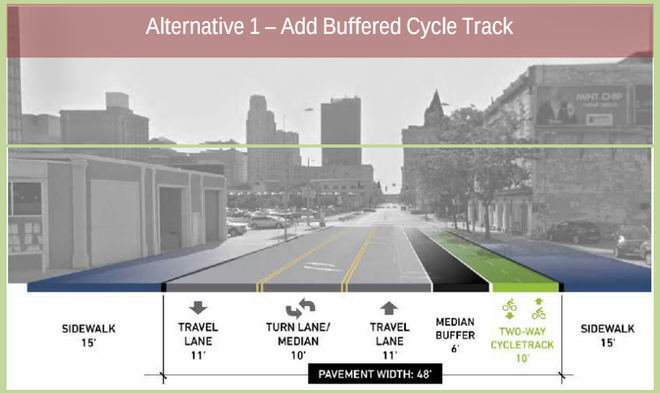
- Add buffered cycle track (parking buffer) – Parking buffer may be dangerous for cyclists (e.g., opening doors can cause collisions between vehicles and bicycles)
- Add bike lanes to both sides of the roadway (one side buffered by parking and the other side un-buffered) – See previous.
- Add buffered bike lanes to both sides of the roadway – cycle track provides enhanced safety over bike lanes with the opportunity to provide cycle signals

Several new improvement alternatives were considered for Jefferson Avenue, however, only one (1) alternative was considered for implementation. Detailed information regarding alternatives considered, but ultimately dismissed can be found at right. Alternatives evaluated for implementation include:

- Alternative 1 – Add buffered (median buffer) cycle track
  - This alternative includes the addition of a buffered cycle track along Jefferson Avenue. Alternative 1 includes three (3) travel lanes along Jefferson Avenue. It may be noted that future traffic operations for Alternative 1 were evaluated assuming the implementation of bike traffic signals. Bike traffic signals can provide an exclusive bicycle phase for cycle tracks at intersections. When implemented, they can help reduce conflicts and collision between bicycles and left or right turning vehicles. It may be further noted that bike traffic signals may or may not be implemented as a part of Alternative 1 and were evaluated to ensure that they could feasibly considered for future implementation.

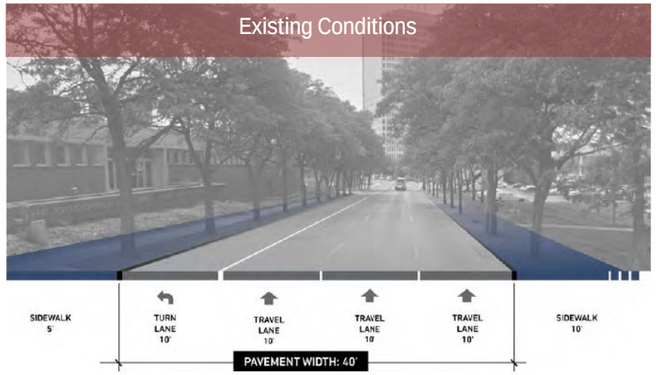
Recommended Alternative: Alternative 1 – This alternative was selected because it provides a comparable level of traffic operations to existing conditions, while also improving east-west bicycle mobility through downtown Toledo.

Alternative 1 – Add Buffered Cycle Track



Jefferson Avenue Alternative 1 (Preferred) – Add Buffered Cycle Track				
Vehicular Travel and Mobility	Bicycle Travel and Mobility	Pedestrian Travel and Mobility	Transit Travel and Experience	Development Potential
• No change from existing	• Buffered cycle track provides enhanced east-west mobility through downtown Toledo and a direct link to Promenade Park	• No change from existing	• No change from existing	• A Buffered cycle track with the potential for cycle signals may greatly enhance the development potential along Jefferson Avenue

Huron Street (North of Jackson Street) (Downtown Specialty)



Existing Conditions

Existing Roadway Width – 40'

Existing Number of Lanes – Four (4) lanes (one-way), converted to two (2) lanes (two-way) after alternative analyses were completed

2038 Critical Intersection LOS – Huron & Jackson (LOS C – PM peak)

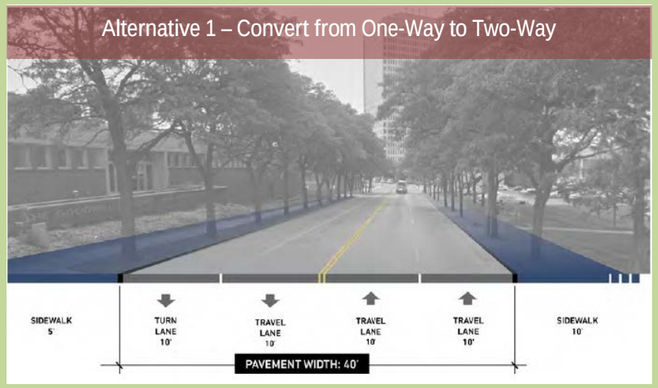
Alternatives Considered but Ultimately Dismissed

N/A

A total of two (2) new improvement alternatives were considered and evaluated for the northern segment of Huron Street (north of Jackson Street). These alternatives include:

- Alternative 1 – Convert from one-way to two-way operation
  - This alternative includes the conversion of the four (4) current northbound lanes to two (2) northbound lanes and two (2) southbound lanes. It may be noted that this roadway was converted to two-way operation (with one lane in each direction) after the completion of alternative analyses for this study
- Alternative 2 – Convert from one-way to two-way operation, reduce from four (4) lanes to two (2) lanes, add transit lanes
  - This alternative includes the conversion of the four (4) current northbound lanes to one (1) northbound lane, one (1) southbound lane, and two (2) transit lanes.

Recommended Alternative: Alternative 2 – This alternative provides the necessary level of vehicular traffic operations along Huron Street, while also providing additional space for bus operations. Bus operations will become critical along this roadway with the opening of the new TARTA Downtown Transit Hub (completed summer 2019)



Huron Street (North) Alternative 1 – Convert from One-Way to Two-Way				
Vehicular Travel and Mobility	Bicycle Travel and Mobility	Pedestrian Travel and Mobility	Transit Travel and Experience	Development Potential
• Two-way travel along Huron Street provides enhanced mobility for vehicles with comparable traffic operations to existing conditions	• No change from existing	• No change from existing	• No change from existing	• Two-way travel along Huron Street provides enhanced land access for businesses. This could be an improvement to Huron Street's development potential

Huron Street (North) Alternative 2 (Preferred) – Convert from One-Way to Two (2) Way, Add Transit Lanes				
Vehicular Travel and Mobility	Bicycle Travel and Mobility	Pedestrian Travel and Mobility	Transit Travel and Experience	Development Potential
• Two-way travel along Huron Street provides enhanced mobility for vehicles with comparable traffic operations to existing conditions	• No change from existing	• No change from existing	• Transit lanes provide enhanced transit mobility and more space for transit operations	• Two-way travel along Huron Street provides enhanced land access for businesses. This could be an improvement to Huron Street's development potential

Huron Street (South of Jackson Street) (Downtown Specialty)

Existing Conditions

Existing Roadway Width – 38'

Existing Number of Lanes – Two (2) lanes

2038 Critical Intersection LOS – Huron & Monroe, Huron & Jefferson, Huron & Madison (LOS B – 2038 PM peak)

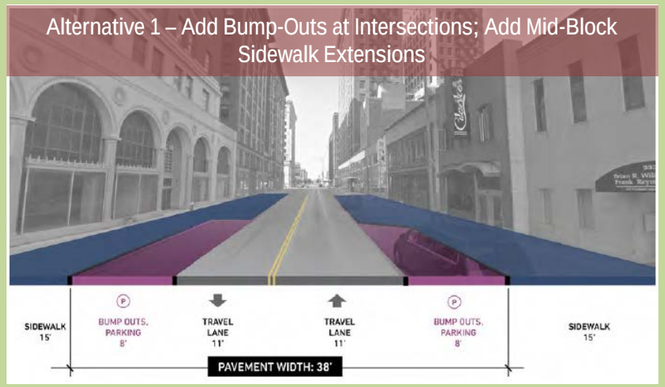
Alternatives Considered but Ultimately Dismissed

- Sharrows – Implementation of Sharrows along Huron Street was found to be redundant with bicycle facilities along Michigan Street and Erie Street

A total of two (2) new improvement alternatives were considered for the southern segment of Huron Street (south of Jackson Street), however, only one (1) alternative was evaluated for implementation. Details regarding the alternative that was considered but ultimately dismissed can be found at right. Alternatives considered for implementation include:

- Alternative 1 – Add bump-outs at intersections and mid-block sidewalk extensions
  - This alternative includes the addition of bump outs at intersections and mid-block sidewalk extensions. Alternative 1 includes the retention of existing travel lanes.

Recommended Alternative: Alternative 1 – This alternative retains the existing level of traffic operations while also shortening pedestrian crossings (bump-outs) and enhancing development potential (mid-block sidewalk extensions provide opportunities for outdoor dining and other programming).



Huron Street (South) Alternative 1 (Preferred) – Add Bump-Outs at Intersections; Add Mid-Block Sidewalk Extensions				
Vehicular Travel and Mobility	Bicycle Travel and Mobility	Pedestrian Travel and Mobility	Transit Travel and Experience	Development Potential
• No change from existing	• No change from existing	• Intersection bump-outs can improve pedestrian safety through the shortening of pedestrian crossing distances	• No change from existing	• Mid-block sidewalk extensions provide opportunities for additional programming by local businesses and can enhance development potential along Huron Street

St. Clair Street (Downtown Specialty)

Existing Conditions

Existing Roadway Width – 32' – 34'

Existing Number of Lanes – Two (2) lanes

2038 Critical Intersection LOS

Alternatives Considered but Ultimately Dismissed

N/A

One (1) new improvement alternative was considered and evaluated for St. Clair Street. Details regarding this alternative are provided below:

- Alternative 1 – Convert St. Clair Street to a festival street
  - This alternative includes the conversion of St. Clair Street within the DTTS area to a festival street. Festival streets can include street trees and vegetation, distinctive pavements, and street furniture that make them easily convertible to non-vehicular programming (i.e., festivals, street markets, etc.).

Recommended Alternative: Alternative 1 – This alternative is recommended as it could provide comparable traffic operations to St. Clair Street's existing configuration while also greatly enhancing its development potential. Festival streets provide opportunities for alternative, non-vehicular street programming that can be attractive to businesses, residents, and employees alike.

St. Clair Street Alternative 1 (Preferred) – Convert to Festival Street				
Vehicular Travel and Mobility	Bicycle Travel and Mobility	Pedestrian Travel and Mobility	Transit Travel and Experience	Development Potential
• No change from existing	• Festival streets provide the opportunity for bike and pedestrian only travel when closed to vehicular traffic	• Festival streets offer the opportunity for pedestrian only travel when closed to vehicular traffic	• No change from existing	• Festival streets offer the opportunity to provide unique on-street, non-vehicular programming that may significantly enhance development potential

Adams Street (Downtown Specialty)

Existing Conditions

Existing Roadway Width – 40'

Existing Number of Lanes – Two (2) lanes

2038 Critical Intersection LOS – Adams & Michigan (LOS B – PM peak)

Alternatives Considered but Ultimately Dismissed

- Bike lanes – Dismissed due to a desire to retain parking for local businesses. Adams Street has low vehicular volumes that don't necessitate bike lanes

A total of two (2) new improvement alternatives were evaluated for Adams Street. Details regarding these alternatives are provided below:

- Alternative 1 – Add sharrows
  - This alternative includes the addition of sharrows to the existing roadway configuration. Sharrows indicate to vehicles that they must share the road with bicycles and are typically implemented on lower speed roadway.
- Alternative 2 – Convert to festival street
  - This alternative includes the conversion of the 600 block of Adams Street to a festival street. Detailed information regarding festival streets can be found in the alternative description for St. Clair Street, as well as in Section 5.1.3.

Recommended Alternative: Alternative 2 – This alternative provides an opportunity to enhance development potential along Adams Street. Further, bicycles along this roadway may be redundant with bicycle facilities along Jefferson Avenue and Cherry Street

Adams Street Alternative 1 – Add Sharrows				
Vehicular Travel and Mobility	Bicycle Travel and Mobility	Pedestrian Travel and Mobility	Transit Travel and Experience	Development Potential
• No change from existing	• Sharrows provide enhanced east-west bicycle mobility through downtown and could enhance bicycle safety	• No change from existing	• No change from existing	• Through improvement to bicycle mobility and safety, sharrows could enhance the development potential of roadways along Adams Street

Adams Street Alternative 2 (Preferred) – Convert to Festival Street				
Vehicular Travel and Mobility	Bicycle Travel and Mobility	Pedestrian Travel and Mobility	Transit Travel and Experience	Development Potential
• No change from existing	• Festival streets can provide enhanced mobility for bicycles and pedestrians when the roadway is closed to vehicular traffic	• Festival streets can provide enhanced mobility and pedestrian experience when the roadway is closed to vehicular traffic	• No change from existing	• Festival streets offer the opportunity to provide unique on-street, non-vehicular programming that may significantly enhance development potential

6.2.6 Alternative Analyses – Downtown Signature Streets

Cherry Street (Downtown Signature)

Existing Conditions

Existing Conditions

Existing Roadway Width – 92'

Existing Number of Lanes – Six (6)

2038 Critical Intersection LOS – Cherry & Summit, Cherry & Spielbusch (LOS D – AM/PM peak)

Alternatives Considered but Ultimately Dismissed

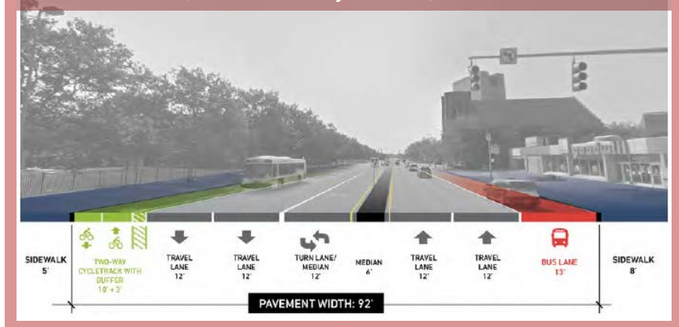
- Convert from six (6) lanes to five (5) lanes, add transit lane, add raised median, add buffered bike lanes – This alternative was dismissed as the addition of bike lanes to a roadway with existing safety concerns (see Section 4.2) may not be feasible. Further, a multi-use path outside of the traveled way provides enhanced safety for pedestrians and bicyclists over bike lanes

A total of three (3) new improvement alternatives were considered for Cherry Street, however, only two (2) were evaluated for implementation. Details regarding alternatives that were considered but ultimately dismissed can be found at left. Alternatives evaluated for implementation include;

- Alternative 1 – Reduce from seven (7) lanes to five (5) lanes, add transit lane, add buffered cycle track, add raised median
  - This alternative includes a reduction from seven (7) lanes (three lanes eastbound, three lanes westbound, and one center left turn lane) to five (5) lanes (two lanes eastbound, two lanes westbound, and a center left turn lanes), a raised median, a buffered cycle track, and a transit lane.
- Alternative 2 – Reduce from seven (7) lanes to five (5) lanes, add transit lane, add multi-use path, add raised median
  - This alternative includes a reduction from seven (7) lanes (three lanes eastbound, three lanes westbound, and one center left turn lane) to five (5) lanes (two lanes eastbound, two lanes westbound, and a center left turn lanes), a raised median, an off-roadway multi-use path , and a transit lane.

Recommended Alternative: Alternative 2 – This alternative provides enhancements to transit mobility and operations, further enhancements to pedestrian safety (through the construction of a wider raised median than Alternative 1), further enhancements to bicycle mobility and safety (through the implementation of a multi-use path), while also maintaining traffic operations comparable to the current configuration.

Alternative 1 – Reduce from Seven (7) Lanes to Five (5) Lanes; Add Transit Lane, Add Buffered Cycle Track, Add Raised Median



Cherry Street Alternative 1 – Reduce from Seven (7) Lanes to Six (6) Lanes; Add Transit Lane; Add Raised Median; Add Cycle Track				
Vehicular Travel and Mobility	Bicycle Travel and Mobility	Pedestrian Travel and Mobility	Transit Travel and Experience	Development Potential
• This alternative achieves a similar level of traffic operations to the current configuration	• This alternative provides enhanced mobility and improvements to safety for bicycles	• This alternative provides improvements to safety for pedestrians through the addition of a raised median	• This alternative provides enhanced mobility for transit services and increased space for transit operations. This is critical with the volume of transit routes along Cherry Street and the new TARTA Downtown Transit Hub	• Enhancements to mobility associated with a cycle track and enhancement to transit operations associated with a transit lane may improve development potential along Cherry Street.

Alternative 1 – Reduce from Seven (7) Lanes to Five (5) Lanes; Add Transit Lane, Add Multi-Use Path, Add Raised Median

Cherry Street Alternative 2 (Preferred) – Reduce from Seven (7) Lanes to Six (6) Lanes; Add Transit Lane; Add Raised Median; Add Multi-Use Path				
Vehicular Travel and Mobility	Bicycle Travel and Mobility	Pedestrian Travel and Mobility	Transit Travel and Experience	Development Potential
• This alternative achieves a similar level of traffic operations to the current configuration	• This alternative provides enhanced mobility and improvements to safety for bicycles. A multi-use path provides further enhancements to safety over a cycle track	• This alternative provides improvements to safety for pedestrians through the addition of a raised median. An 11' median provides further enhancement to safety over a 6' median	• This alternative provides enhanced mobility for transit services and increased space for transit operations. This is critical with the volume of transit routes along Cherry Street and the new TARTA Downtown Transit Hub	• Enhancements to mobility associated with a multi-use path and enhancement to transit operations associated with a transit lane may improve development potential along Cherry Street.

MLK Bridge (Downtown Signature)

Existing Conditions

Existing Roadway Width – 62'

Existing Number of Lanes – Five (5) lanes

2038 Critical Intersection LOS – N/A

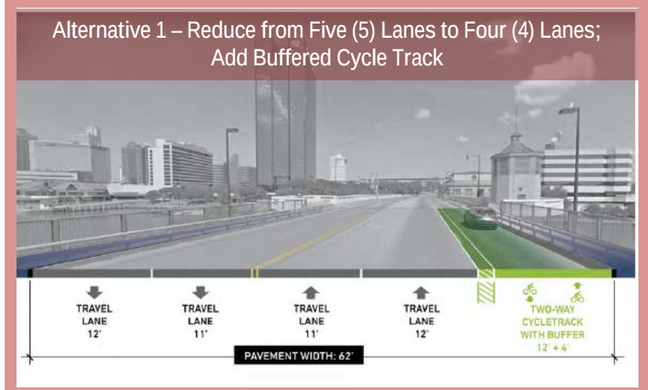
Alternatives Considered but Ultimately Dismissed

- Reduce from five (5) lanes to four (4) lanes, add buffered bike lanes – This alternative was dismissed as cycle track alternatives provide better connectivity with recommended multi-use path along Cherry Street

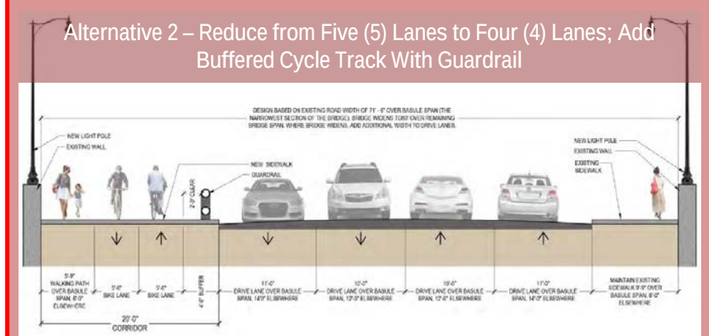
A total of three (3) new improvement alternatives were considered for the MLK bridge, however only two (2) alternatives were evaluated for implementation along the MLK Bridge. Details regarding alternatives considered but ultimately dismissed can be found at left. Alternatives evaluated for implementation include:

- Alternative 1 – Reduce from five (5) lanes to four (4) lanes; add buffered cycle track
  - This alternative includes a reduction from five (5) lanes to four (4) lanes (4), and a buffered cycle track within the existing traveled way.
- Alternative 2 – Reduce from five (5) lanes to four (4) lanes; add buffered cycle track with guardrail
  - This alternative includes a reduction from five (5) lanes to four (4) lanes, and a buffered cycle track behind a new curb and guardrail

Recommended Alternative: Alternative 2 – This alternative was selected in the Nautical Mile Vision Plan (2017). The recommended alternative will need to be revised such that dead load additions to the bridge do not occur across the lift span. Note that this project has been funded.



MLK Bridge Alternative 1 – Reduce from Five (5) Lanes to Four (4) Lanes; Add Buffered Cycle Track				
Vehicular Travel and Mobility	Bicycle Travel and Mobility	Pedestrian Travel and Mobility	Transit Travel and Experience	Development Potential
• This alternative achieves a similar level of traffic operations to the current configuration. The lane being removed is a left turn lane for the former Toledo Sports Arena (demolished in 2007)	• This alternative provides enhanced mobility and improvements to safety for bicycles	• No change from existing	• No change from existing	• Enhancements to mobility associated with a cycle track and bicycle connectivity across the Maumee River may improve development potential along both sides of the MLK bridge



MLK Bridge Alternative 2 (Preferred) – Reduce from Five (5) Lanes to Four (4) Lanes; Add Buffered Cycle Track With Guardrail				
Vehicular Travel and Mobility	Bicycle Travel and Mobility	Pedestrian Travel and Mobility	Transit Travel and Experience	Development Potential
• This alternative achieves a similar level of traffic operations to the current configuration. The lane being removed is a left turn lane for the former Toledo Sports Arena (demolished in 2007)	• This alternative provides enhanced mobility and improvements to safety for bicycles. A cycle track buffered by a guardrail provides enhanced safety benefits over a cycle track buffered by pavement markings	• No change from existing	• No change from existing	• Enhancements to mobility associated with a cycle track and bicycle connectivity across the Maumee River may improve development potential along both sides of the MLK bridge

Monroe Street (Downtown Signature)

Existing Conditions

Existing Conditions

Existing Roadway Width – 52'
Existing Number of Lanes – Four (4)
2038 Critical Intersection LOS

Alternatives Considered but Ultimately Dismissed

N/A

A total of two (2) new improvement alternatives were considered and evaluated for Monroe Street. These alternatives include:

- Alternative 1 – Reduce lane widths, add on-street parking, add intersection bump-outs
  - This alternative adds on-street parking along one (1) side of the street and adds intersection bump-outs.
- Alternative 2 – Reduce from four (4) lanes to three (3) lanes, add on-street parking, add intersection bump-outs
  - This alternative reduces the roadway from four (4) lanes to three (3) 12' lanes, adds on-street parking to both sides of the street, and adds intersection bump outs.

Recommended Alternative: Alternative 1 – This alternative provides enhancements to development potential (through the addition of on-street parking and pedestrian mobility (shortening of pedestrian crossing distances) while maintaining comparable traffic operations to the existing configuration.

Alternative 1 – Reduce Lane Widths; Add On-Street Parking; Add Intersection Bump-Outs

Monroe Street Alternative 1 – Reduce Lane Widths; Add On-Street Parking; Add Intersection Bump-Outs				
Vehicular Travel and Mobility	Bicycle Travel and Mobility	Pedestrian Travel and Mobility	Transit Travel and Experience	Development Potential
• This alternative maintains comparable traffic operations to Monroe Street's existing configuration	• No change from existing	• Intersection bump-outs enhance pedestrian mobility through the reduction of pedestrian crossing distances	• No change from existing	• On-street parking could enhance the development potential along Monroe Street

Alternative 2 – Reduce from Four (4) Lanes to Three (3) Lanes; Add On-Street Parking; Add Intersection Bump-Outs

Monroe Street Alternative 2 (Preferred) – Reduce from Four (4) Lanes to Three (3) Lanes; Add On-Street Parking; Add Intersection Bump-Outs				
Vehicular Travel and Mobility	Bicycle Travel and Mobility	Pedestrian Travel and Mobility	Transit Travel and Experience	Development Potential
• This alternative has a projected 2038 LOS of E at Monroe & Michigan during the PM peak hour. This is worse than the traffic operations associated the existing configuration	• No change from existing	• Intersection bump-outs enhance pedestrian mobility through the reduction of pedestrian crossing distances	• No change from existing	• On-street parking could enhance the development potential along Monroe Street

Summit Street (Downtown Signature)

Existing Conditions

Alternative 1 – Reduce from Five (5) Lanes to Three (3) Lanes; Add On-Street Parking; Add Streetscape Improvements; Add Mid-Block Island

Existing Conditions

Existing Roadway Width – 53' (south of Jefferson), 62' – 70' (north of Jefferson)

Existing Number of Lanes – Five (5) lanes and the former TARTA downtown bus loop (12')

2038 Critical Intersection LOS – Summit & Cherry (LOS D – AM/PM peak)

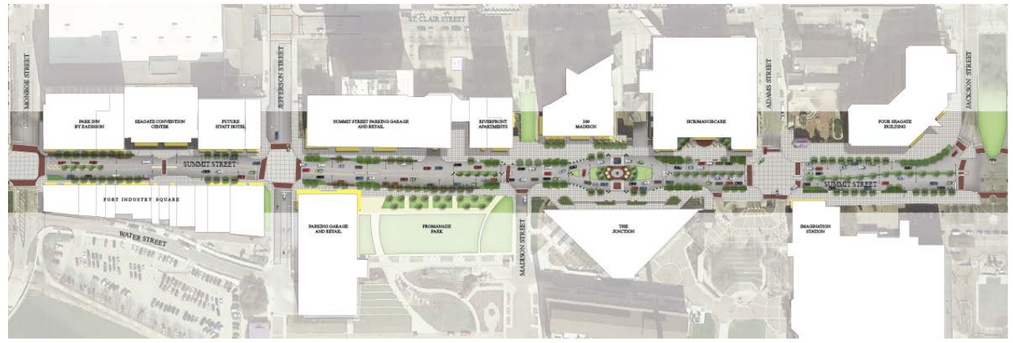
Alternatives Considered but Ultimately Dismissed

- Add intersection bump-outs, add on-street parking – This alternative does not provide the desired enhancements to the pedestrian experience or development potential.
- Add buffered cycle track – Bike facilities along Summit Street were deemed redundant with Nautical Mile bike facilities along the Maumee River
- Reduce from five (5) lanes to three (3) lanes, add buffered cycle track (parking + planted median), add on-street parking – This alternative is projected to negatively impact traffic operations during the AM peak hour (projected 2038 AM peak LOS of F at Summit & Jefferson)
- Add un-buffered bike lanes – Bike facilities along Summit Street were deemed redundant with Nautical Mile bike facilities along the Maumee River
- Reduce from five (5) lanes to three (3) lanes; add buffered bike lanes, add on-street parking, add intersection bump-outs – This alternative is projected to negatively impact traffic operations during the AM peak hour (projected 2038 AM peak LOS of F at Summit & Jefferson)

Several new improvement alternatives were considered for Summit Street, however only two (2) alternatives were evaluated for implementation. Details regarding alternatives that were considered but ultimately dismissed can be found at left. Alternatives evaluated for implementation include:

- Alternative 1 – Reduce from five (5) lanes to three (3) lanes, add on-street parking, add streetscape improvements, add mid-block programmable island
  - This alternative includes the reduction in travel lanes along Summit Street from five (5) to three (3), the addition of on-street parking, the addition of various streetscape improvements (including planters, street trees, and street furniture), and the addition of a mid-block programmable island between Madison Avenue and Adams Street (the island could include a small space for resting pedestrians or outdoor dining).
- Alternative 2 – Reduce from five (5) lanes to four (4) lanes, add on-street parking, add streetscape improvements, add mid-block programmable island
  - This alternative includes the reduction in travel lanes along Summit Street from five (5) to four (4), the addition of on-street parking, the addition of various streetscape improvements (including planters, street trees, and street furniture), and the addition of a mid-block gathering space between Madison Avenue and Adams Street (the island could include a small space for resting pedestrians or outdoor dining).

Recommended Alternative: Alternative 2 – This alternative provides enhancements to the pedestrian experience and development potential while also accommodating a level of traffic operations comparable to the existing configuration (Alternative 2 is projected to have a 2038 LOS value of E during the AM peak at Summit & Jefferson). This alternative also provides the opportunity to maintain the current level of traffic operations if future traffic volumes grow beyond current projections. A modification of this alternative subsequently occurred involving the removal of the mid-block median at Madison Avenue. This project is to be constructed in 2020 - 2021



Alternative 1 – Reduce from Five (5) Lanes to Three (3) Lanes; Add On-Street Parking; Add Streetscape Improvements; Add Mid-Block Island

Summit Street Alternative 1 (Preferred) – Reduce from Five (5) Lanes to Three (3) Lanes; Add On-Street Parking; Add Streetscape Improvements				
Vehicular Travel and Mobility	Bicycle Travel and Mobility	Pedestrian Travel and Mobility	Transit Travel and Experience	Development Potential
• This alternative has a projected 2038 LOS of E at Summit & Jefferson during the AM peak hour. This is worse than the traffic operations associated the existing configuration	• No change from existing	• This alternative provides an enhanced pedestrian experience through the implementation of streetscape improvements and enhanced pedestrian mobility through the addition of a mid-block pedestrian refuge island	• No change from existing	• This alternative provides improvements to the pedestrian experience that could greatly enhance development potential along Summit Street

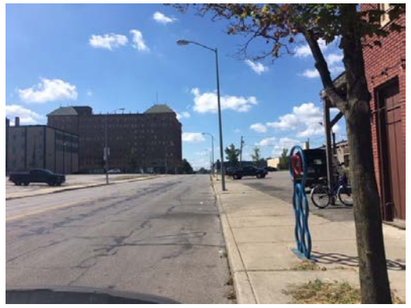
Alternative 2 – Reduce from Five (5) Lanes to Four (4) Lanes; Add On-Street Parking; Add Streetscape Improvements; Add Mid-Block Island

Alternative 2 – Reduce from Five (5) Lanes to Four (4) Lanes; Add On-Street Parking; Add Streetscape Improvements; Add Mid-Block Island

Summit Street Alternative 2 (Preferred) – Reduce from Five (5) Lanes to Four (4) Lanes; Add On-Street Parking; Add Streetscape Improvements				
Vehicular Travel and Mobility	Bicycle Travel and Mobility	Pedestrian Travel and Mobility	Transit Travel and Experience	Development Potential
• This alternative provides a comparable level of traffic operations to the existing condition	• No change from existing	• This alternative provides an enhanced pedestrian experience through the implementation of streetscape improvements and enhanced pedestrian mobility through the addition of a mid-block pedestrian refuge island	• No change from existing	• This alternative provides improvements to the pedestrian experience that could greatly enhance development potential along Summit Street

6.2.7 Alternative Analyses – Other Roadways

In addition to recommended improvements for key corridors discussed in Sections 6.2.3 – Section 6.2.6, improvements were also developed for other roadways within the DTTS area. As traffic counts were not collected for most of these roadways, recommended improvements for these streets focus on needs that can be identified visually or changes that can enhance accessibility/mobility to existing land uses. Details regarding recommendations for a number of DTTS area roadways are provided below.



17th Street

Current Condition
This four (4) lane roadway provides a direct route from west Toledo, through downtown, and to the Old West End. The pavement and pavement markings along this roadway are in poor condition.

Recommended Improvements
- Replace pavement, update crosswalks to new downtown standard (inlaid brick). Note that this roadway will be revised to three lanes with bike lanes in 2020

16th Street

Current Condition
This two (2) lane roadway is occupied by industrial, residential, office, and institutional land uses. Pavement, pavement markings, and curbs along this roadway are in poor condition.

Recommended Improvements
- Replace pavement, update crosswalks to new downtown standard (inlaid brick), replace curbs

15th Street

Current Conditions
This roadway is occupied by the Toledo School for the Arts and a number of industrial land uses to the south of Monroe Street. Pavement and curbs along this roadway appear to be in good condition.

Recommended Improvements
- Update crosswalks to new downtown standard (inlaid brick), add mid-block crossing between Madison Avenue and Adams Street for access to Toledo School for the Arts

13th Street

Current Condition
While curbs along this roadway appear to be in fair condition, pavements appear to be in poor condition

Recommended Improvements
- Replace pavement, update crosswalks to new downtown standard (inlaid brick)

12th Street

Current Condition
This roadway features brick as a pavement surface and is occupied by a number of industrial and office land uses. Curbs along this roadway appear to be in fair condition

Recommended Improvements
- Update crosswalks to new downtown standard (inlaid brick), replace pavement markings

10th Street

Current Condition
This roadway is interrupted by the Main Library between Madison Avenue and Adams Street. Curbs, and pavement markings along this roadway appear to be in good condition, while pavement appears to be in poor condition.

Recommended Improvements
- Replace pavement, update crosswalks to new downtown standard (inlaid brick)

Ontario Street

Current Condition
Ontario Street is occupied by a number of parking facilities. Curbs, pavement, and pavement markings along this roadway appear to be in fair condition.

Recommended Improvements
- Update crosswalks to new downtown standard (inlaid brick)

Superior Street

Current Condition
This roadway is interrupted by Fifth-Third Field and the Huntington Center. Crosswalks, curbs and pavements along this roadway all appear to be in fair condition.

Recommended Improvements
N/A

Constitution Street/Orange Street

Current Condition
Crosswalks, pavement markings, and curbs along this roadway all appear to be in fair or good condition. Pavement along this roadway appears to be in poor condition.

Recommended Improvements
- Replace pavement

Lafayette Street

Current Condition
Crosswalks, pavement markings, pavement, and curbs along this roadway all appear to be in fair or good condition. Streetscape improvements along this roadway could enhance its development potential.

Recommended Improvements
- Streetscape improvements (street trees, planters, etc.)

Market Street

Current Condition
This roadway is adjacent to the Toledo Farmer's Market. Curbs, pavement, pavement markings, and crosswalks along this roadway all appear to be in poor condition.

Recommended Improvements
- Replace pavement, curb, pavement markings, crosswalks, and add streetscape improvements (street trees, planters, etc.)

Clayton Street

Current Condition
This roadway largely serves industrial land uses within the DTTS area. Pavement and curbs along this roadway appear to be in poor condition.

Recommended Improvements
- Replace curbs, replace pavement

Williams Street

Current Condition
This roadway largely serves industrial land uses within the DTTS area. Curbs, pavement, and pavement markings along this roadway appear to be in good condition.

Recommended Improvements
N/A

Knapp Street

Current Condition
This roadway largely serves industrial land uses within the DTTS area. Curbs, pavement, and pavement markings along this roadway appear to be in good condition.

Recommended Improvements
N/A

Newton Street

Current Condition
This roadway largely serves industrial land uses within the DTTS area. Curbs, pavement, and pavement markings all appear to be in good condition.

Recommended Improvements
N/A

6.2.8 Alternative Analyses – Additional Recommendations

In addition to improvement alternatives for specific roadways, several "area-wide" alternatives were recommended for implementation throughout the DTTS area. These recommendations include:

- Implementation of a Truck/Commercial Vehicle Management Plan
- Completion of a signal retiming study
- Development of a transit incentive program for downtown residents/employees
- Deployment of downtown wayfinding signage.

Detailed information regarding each of these elements is provided below.

Truck/Commercial Vehicle Management Plan

Throughout the project team's survey of best practices, several potential treatments emerged for the management of curb space and truck/commercial vehicle routes. These treatments include:

- Flex zones (curb management) – these are designated zones on streets that during a particular time of day or week will accommodate one (1) of several potential users. Specifically, during the AM and PM peak periods, a particular lane might be designated as no parking/commercial loading, while during off peak periods, parking/commercial loading and unloading might be allowed. Flex zones might also include areas in which uses are shared (e.g., ridesharing pick-up/drop-off and commercial loading/unloading). This treatment allows for the use of street space by those who need it most during peak demand periods and others when demands are lower.

  - Source(s) – *ITE Curbside Management Practitioner's Guide, TTI's Truck Incentives & Use Restrictions, Better Market Street – Existing Conditions & Best Practices/Part Two: Best Practices*

  - Potential applications within DTTS – Flex zones may be a worthwhile consideration on Downtown Collector Streets, Downtown Specialty Streets, and Downtown Signature Streets as they are (relatively) inexpensive to implement, and many of the streets within these categories have multiple users that will have a demand for curb space. Within the DTTS, Flex zones are recommended for Monroe Street, Superior Street, Huron Street, Jefferson Avenue, Adams Street (west of Erie Street), St. Clair Street, and Summit Street (south of Washington Street – see Figure 6.7). It may be noted that there are other streets within the DTTS in which this treatment could be explored, but many of the land uses along these streets either 1) already have off-street loading areas, or 2) do not have as many competing users (e.g., pedestrians, transit, etc.)

Flex zone sign in Barcelona, Spain (source: "Innovative Approaches in City Logistics – Space Management for Urban Delivery," NICHES Policy Notes)

- Freight zone pricing (truck route management) – this is the application of a fee for commercial vehicles to enter specific streets or zones during peak periods. Freight zone pricing can be implemented through tolls, pre-paid permits, or temporary permits (typically paid through a smartphone application). While increased costs (for toll/permit systems, enforcement, and fees for users) may make lead to resistance for this treatment from stakeholders, potential benefits include reduced truck traffic on roadways where truck traffic is not desired and an increased level of comfort for commercial drivers (they know where to be).

  - Source(s) – *ITE Curbside Management Practitioner's Guide, TTI's Truck Incentives & Use Restrictions, ITE Case Study – City of Toronto*

  - Potential applications within DTTS – In the future, freight zone pricing may be a valuable treatment to explore as a means of managing commercial vehicle traffic. Right now, as downtown Toledo is developing, freight zone pricing may be more of a hindrance (due to increased prices and regulations) to commercial activity than the benefits that it may provide to curb access and traffic operations. At the point in which future commercial activity makes this treatment a viable consideration, it could be best implemented as a pre-paid or temporary permit program along streets like Superior Street, Huron Street, Jefferson Avenue, and Adams Street.

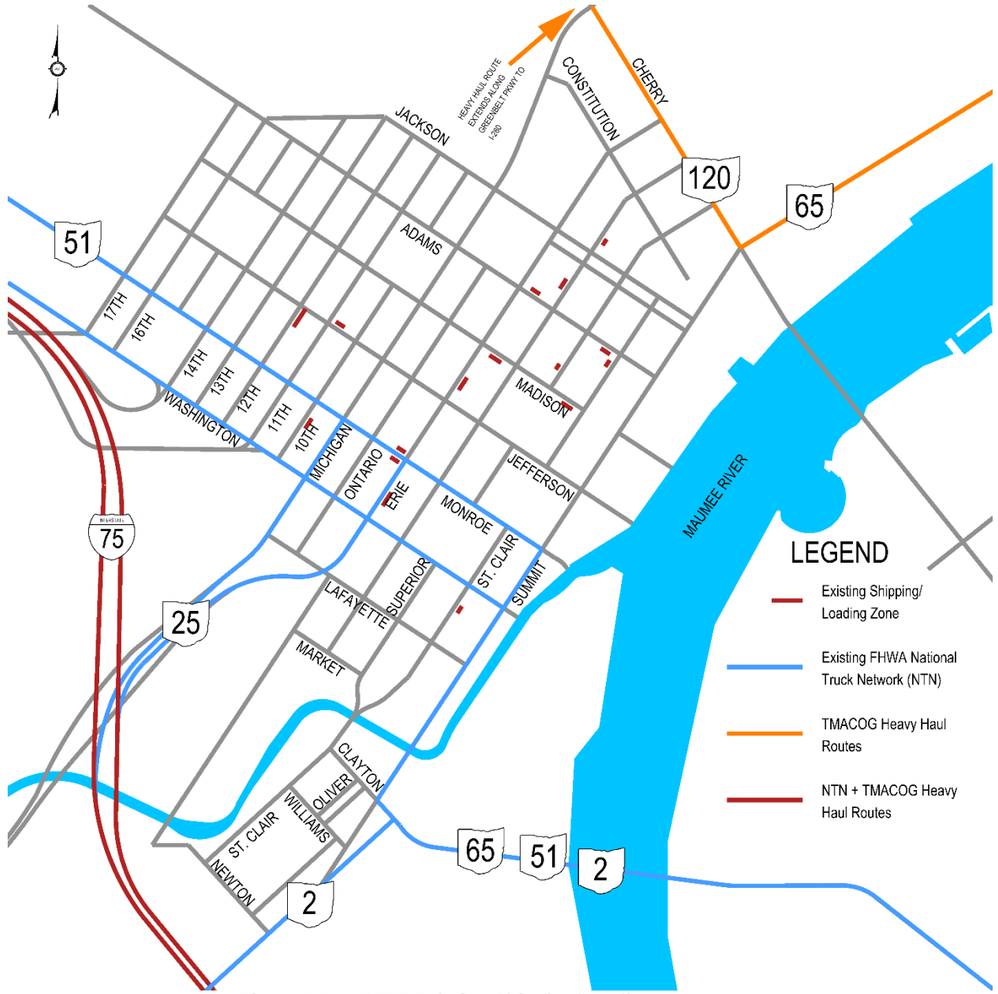


Figure 6.6 DTTS Existing Shipping/Loading Zones

- Off-peak delivery (curb management and truck route management) – this is the implementation of set time periods (typically outside of the weekday AM and PM peaks) for commercial vehicle deliveries. Commercial deliveries outside of these time periods are generally restricted. It may be noted that the City of Toledo currently implements a version of this treatment, along with delivery staging zones (see below). Potential benefits of this application include increased comfort for drivers (i.e., they know when they can make deliveries and when they can't) and management of commercial vehicle traffic peaks (commercial vehicle traffic will be highest when they can make deliveries). Potential drawbacks include potential increased costs for commercial businesses (they may need to pay employees to receive deliveries outside of their normal business hours) and enforcement (extra responsibility for city).

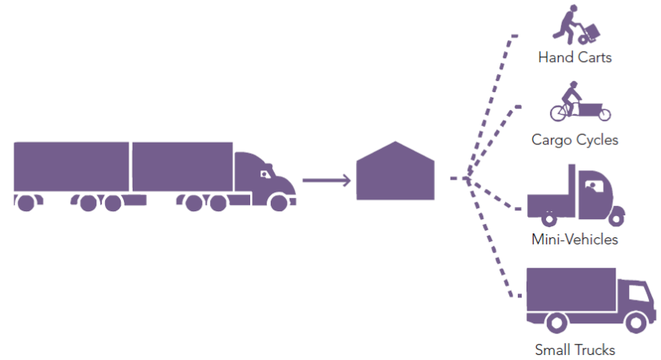
    - Source(s) – *ITE Curbside Management Practitioner's Guide, TTI's Truck Incentives & Use Restrictions, Better Market Street – Existing Conditions & Best Practices/Part Two: Best Practices, ITE Case Study – City of Toronto*

    - Potential applications within DTTS – Within the DTTS area, this treatment would be best implemented as a daytime off-peak delivery requirement. As with freight zone pricing, the potential drawbacks related to evening or night off-peak delivery requirements (i.e., disrupting developing commercial activity) may currently outweigh the benefits as downtown Toledo Develops. Current daytime traffic peaks in downtown Toledo occur approximately between 5:00 AM and 9:00 AM and 1:00 PM to 5:30 PM, therefore, the ideal time for truck deliveries in downtown should between 9:00 AM and 1:00 PM and after 5:30 PM. These time periods should be re-verified with traffic counts intermittently (approximately every three to four years) to ensure that peak traffic periods have remained the same. This treatment is recommended for Washington Street, Erie Street (south of Monroe Street), Madison Avenue (east of Erie Street), Adams Street (east of Erie Street), St. Clair Street (north of Jefferson Avenue), Summit Street (north of Washington Street), and Michigan Street (south of Monroe Street – (see Figure 6.7) and after flex zones or delivery vehicle staging zones have been considered (the latter two have less of an impact on commercial operations/development).

- Urban consolidation centers (truck route management) – these are public-private partnerships (PPPs) implemented by business improvement districts (BIDs) to reduce the number of different delivery services operating in a specific area at a specific time. Urban consolidation centers receive deliveries from a number of shipping services (e.g., FedEx, UPS, USPS, vendors), and then distribute goods to businesses within the area, often in smaller vehicles. This helps to consolidate commercial vehicle traffic within busy areas. Urban consolidation centers can be expensive to operate and are likely to be most successful when there are a number of local business willing to opt-in to the service (i.e., within BIDs)

    - Source(s) – *ITE Curbside Management Practitioner's Guide, Better Market Street – Existing Conditions & Best Practices/Part Two: Best Practices*

    - Potential applications within DTTS – This treatment would work best if implemented by an entity such as ConnecToledo (downtown Toledo's development corporation). At this time, the cost of operating such a service may substantially outweigh benefits to congestion and curb access. However, as commercial activity in downtown Toledo further develops, an urban consolidation center may be a great way to manage delivery traffic and curb space while also encouraging additional development (urban consolidation centers may be seen as an attractive amenity for many potential developers/companies). This treatment is best applied within a zone and would work most efficiently within the core central business district (bounded by Lafayette Street to the south, Michigan Street to the west, Cherry Street to the north, and the Maumee River to the east.



Urban Consolidation Center Operations (source: NACTO Urban Street Design Guide)

- Delivery vehicle staging zones (curb management) – these are dedicated curbside areas on streets in which commercial vehicles can stop and unload goods, typically for a set period of time. There are several of these areas in downtown Toledo (called "Shipping", or "Loading"" zones – see Figure 6.6). These zones are typically inexpensive to implement and easy to understand by businesses and commercial drivers. Potential drawbacks include maintaining equal access to zones for all users (zones may be further from some businesses than others) and deciding where they should be placed (other uses may achieve more of a benefit with access to this space).

    - Source(s) – *ITE Curbside Management Practitioner's Guide, Better Market Street – Existing Conditions & Best Practices/Part Two: Best Practices, ITE Case Study – City of Toronto*

    - Potential applications within DTTS – A form of this treatment currently exists within the DTTS area. This treatment works best in areas that do not receive significant vehicular traffic and that do not have competing uses for curb space. Within the DTTS area, this treatment is recommended for all other downtown street segments not designated for Flex Zones or Off-Peak Delivery (see Figure 6.7).

- Moving loading and access around the corner (curb management) – this treatment is for those locations along corridors in which the allocation of space for curbside deliveries is not possible (due to space limitations or competing uses). Its application consists of designating loading/unloading zones on adjacent, less congested corridors (if the business is located along a busy corridor). This application could provide on-street loading space that would otherwise not be possible for some businesses. Potential drawbacks include potential distances between designated loading/unloading areas and business loading doors.

    - Source(s) – *ITE Curbside Management Practitioner's Guide, Better Market Street – Existing Conditions & Best Practices/Part Two: Best Practices*

    - Potential applications within DTTS – while this is a viable treatment in a number of cities, at this time it is not suitable for the DTTS area. Most downtown corridors either have land uses whose commercial loadings could be accommodated through flex space/staging areas, or they have off-street/alley loading. Further, the Toledo Municipal Code requires new developments over a specific size to have at least one (1) off-street loading space. If land uses within the DTTS area increase to the point in which off-street loading space cannot be implemented and loading cannot be accommodated through flex zones/staging areas, this treatment could be considered.

Table 6.4 Summary of Recommendations		
Recommendation	Street(s)	Comments
Implement Flex Zones	Monroe Street, Superior Street, Huron Street, Jefferson Street, Adams Street (west of Erie Street), Michigan Street (north of Monroe Street), Erie Street (north of Monroe Street), St. Clair Street (south of Monroe Street), and Summit Street (south of Monroe Street)	Flex zones could be implemented with changeable message signs (as shown above), or static signs with hourly regulations clearly indicated.
Implement Off-Peak Delivery Requirement	Washington Street, Erie Street (south of Monroe Street), Michigan Street (south of Monroe Street), Madison Avenue (east of Erie Street), Adams Street (east of Erie Street), St. Clair Street (north of Jefferson Avenue), and Summit Street (north of Washington Street)	Given current traffic patterns within the DTTS area, an off-peak delivery requirement would be best implemented between the hours of 9:00 AM and 1:00 PM and after 5:30 PM
Implement Staging Zones	All other DTTS area streets	Staging zones would function in a similar manner to the existing "Shipping Zones" within the DTTS area. These would be clearly identified (through signage) areas for vehicles to load and unload.

Alternative Treatments for Large Truck Traffic Management

Since many of the treatments listed above for truck route management are not likely to be suitable for the DTTS area, it is still necessary to develop a plan for truck traffic as this was identified as an issue by public meeting attendees. Based on the characteristics of the DTTS area, the most appropriate management plan for large trucks and commercial vehicles would be the implementation of designated truck routes (along with a coordinated signing plan—see picture at right) Streets within the DTTS that have the highest number of trucks are all NTN roadways (Washington Street, Monroe Street, Michigan Street, Erie Street, and Summit Street south of Washington Street), and three (3) non-NTN roadways (Indiana Avenue, Spielbusch Avenue, and Summit Street north of Jackson Street). As all of the NTN roadways are principal arterials, designated as Downtown Collector/Downtown Signature streets by the Downtown Toledo Master Plan, designed to accommodate truck traffic, and are immediately adjacent to or very close to direct freeway access. For these reasons, it is recommended that all NTN roadways (with the exclusion of Monroe and Washington Streets east of Erie Street and Summit Street south of Monroe Street) be included as designated truck routes (within the DTTS).

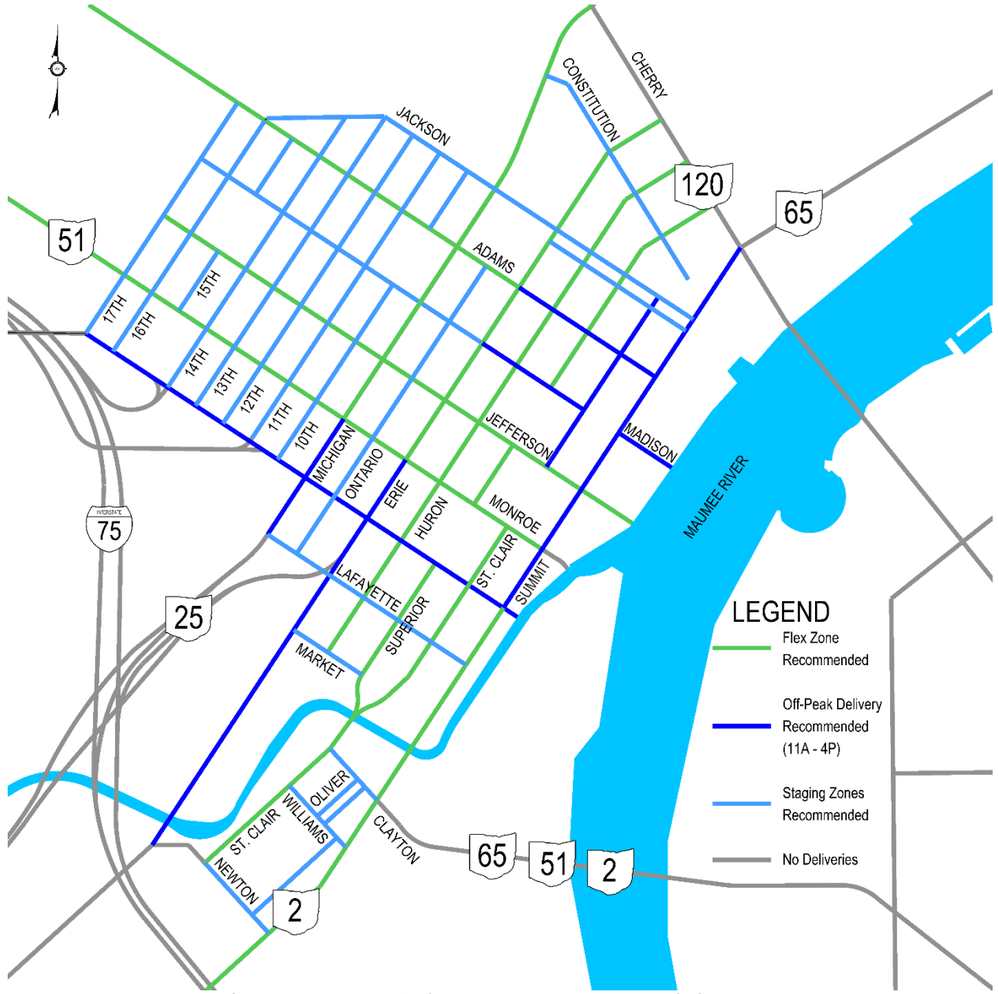


Figure 6.7 DTTS Curb Management Recommendations

It may be noted that Monroe and Washington Streets east of Erie Street as well as Summit Street to the south of Monroe Street are within a growing residential district that may find truck traffic to be inconvenient. For this reason, these street segments, currently a part of the NTN, should not be a part of the DTTS truck route network. Further, it may be beneficial to begin the process of removing these roadway segments from the NTN with ODOT/FHWA. A detailed discussion on large truck traffic for Indiana Avenue, Spielbusch Avenue, and Summit Street north of Jackson Street follows:

- Indiana Avenue – This street provides direct access from southbound I-75. As such, Indiana Avenue should be designated as a truck route within the DTTS area with a coordinated signing plan.

- SR 25 (Spielbusch Avenue/Michigan Street – north of Monroe Street) – This street provides direct access to I-280, and I-75. It should be designated as a truck route within the DTTS area with a coordinated signing plan.

- SR 65 (Summit Street between Monroe Street and Cherry Street) - This roadway does not have direct access to any freeways. It should not be included as a designated truck route.

Figure 6.8 DTTS Large Truck Route Management Recommendations

Signal Retiming

Given existing traffic operations within the DTTS area, as well as the crash histories at several intersections, vehicular travel within the DTTS area may benefit from the completion of a signal retiming study. Signal retiming studies evaluate traffic operations along corridors within a given study area and make recommendations to reduce congestion (through individual intersection retiming or coordination) and improve safety (through re-evaluation of clearance/change intervals and phase sequences). While a full signal re-timing study is beyond the scope of this document, a signal timing study for the DTTS area may include the following elements:

- Intersection traffic counts – counts at all intersections along key corridors within the DTTS area
- 24-hour automatic traffic recorder (ATR) counts – counts at key locations that continuously record data
- "Before" travel time runs – travel time runs with the appropriate software/hardware document the time it takes to travel between fixed points along a roadway
- Physical inventory – an inventory of all traffic control equipment (including items inside of signal cabinets), signing, and pavement markings at intersections
- An evaluation of change and clearance intervals – this includes the re-evaluation of yellow (change), and all-red (clearance intervals) for compliance with current industry standards and current/proposed intersection geometry
- Optimization of traffic signal timings – this includes the optimization of traffic signal timings at individual intersections and among intersections (coordination). This may also include the prioritization of various corridors/routes for movement into and out of the DTTS area.
- "After" travel time runs – these travel time runs are conducted after the programming/implementation of proposed signal timings. They help to document (when compared to "before" travel time runs) any improvements to travel time, delay, stops, or emissions that are achieved by the new timing plan.

Transit Incentives

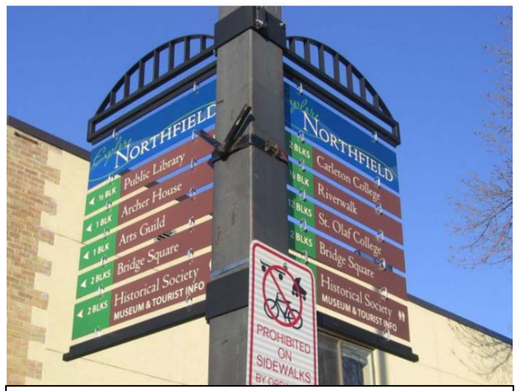
Transit incentives provide reduced fares to employees and residents that live in or travel to highly congested areas. These programs can be implemented by metropolitan planning organizations (MPOs) or business improvement districts (BIDs). These programs can be a great way to manage demand along roadways, manage parking demand within specific areas, and introduce people (who may not otherwise be introduced) to the benefits of transit. Within the DTTS area, this may be implemented district wide, for specific districts within the DTTS area, or by employer (as they sign up).

Downtown Wayfinding

A downtown wayfinding plan includes the strategic and coordinated deployment of signs throughout a district to help pedestrians and vehicles reach key destinations. These signs can be themed or decorative and are usually placed in high visibility areas. Key destinations that may be a part of downtown Toledo's wayfinding plan include:

- Fifth Third Field
- Huntington Center
- Seagate Centre
- Imagination Station
- Promenade Park
- The Warehouse District
- Middlegrounds MetroPark

Wayfinding signs are typically implemented by a municipality or business improvement district.



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6.2.9 Alternative Analyses – Summary of Analysis and Recommendations

Recommended improvements along key roadways within the DTTS area are summarized in Table 6.5 and illustrated in Figure 6.6.

Table 6.5 Summary of Improvements for Key DTTS Area Roadways

Roadway		Description of Recommended Improvement
Downtown Standard Streets		
11th Street	1	• Convert to Two -Way, Add Bump-Outs at Intersections; Add On-Street Parking
14th Street	2	• Convert to Two-Way; Add Bump-Outs at Intersections; Add On-Street Parking
Jackson Street	10	• Convert to Two-Way; Two (2) Lanes; Add On-Street Parking
Downtown Collector Streets		
Michigan Street	4	• Add On-Street Parking; Add Un-Buffered Bike Lane; Add On-Street Parking (S. of Jefferson) • Add On-Street Parking; Reduce from Three (3) Lanes to Two (2), Add Buffered Bike Lane (N. of Jefferson)
Erie Street	5	• Add On-Street Parking; Add Un-Buffered Bike Lane; Add On-Street Parking (S. of Jefferson) • Add On-Street Parking; Reduce from Three (3) Lanes to Two (2); Add Buffered Bike Lane (N. of Jefferson)
Washington Street	6	• Add Streetscape Elements
Downtown Specialty Streets		
Huron Street (North)	7A	• Convert from One-Way to Two-Way, Add Transit Lanes
Huron Street (South)	7B	• Add Bump-Outs at Intersections; Add Mid-Block Sidewalk Extensions
St. Clair Street	8	• Convert to Festival Street
Jefferson Avenue	9	• Add Buffered Cycle Track (It may be noted that this improvement is slated for construction in 2020)
Adams Street	3	• Convert to Festival Street
Downtown Signature Streets		
Monroe Street	11	• Reduce Lane Widths; Add On-Street Parking; Add Intersection Bump-Outs
Cherry Street	12	• Reduce from Seven (7) Lanes to Six (6) Lanes; Add Transit Lane; Add Raised Median; Add Multi-Use Path
MLK Bridge	13	• Reduce from Five (5) Lanes to Four (4) Lanes; Add Buffered Cycle Track With Guardrail
Summit Street	14	• Reduce from Five (5) Lanes to Four (4) Lanes; Add On-Street Parking; Add Streetscape Improvements

Figure 6.9 Summary of Proposed Improvements

Additionally, projected LOS values for the recommended improvements in the year 2038 are illustrated for the AM, midday, and PM peak hour in Figures 6.10, 6.11, and 6.12 respectively.

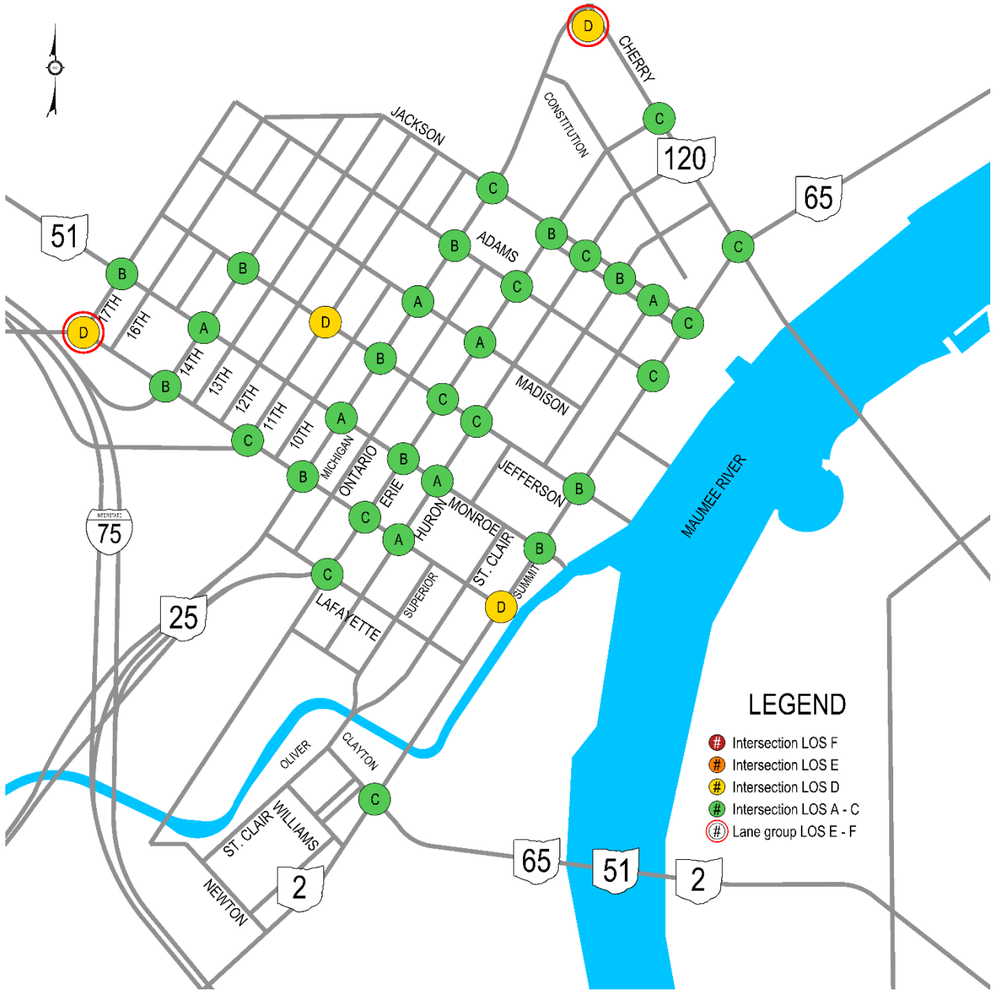

Figure 6.10 2038 Proposed AM Peak Level-of-Service (LOS)

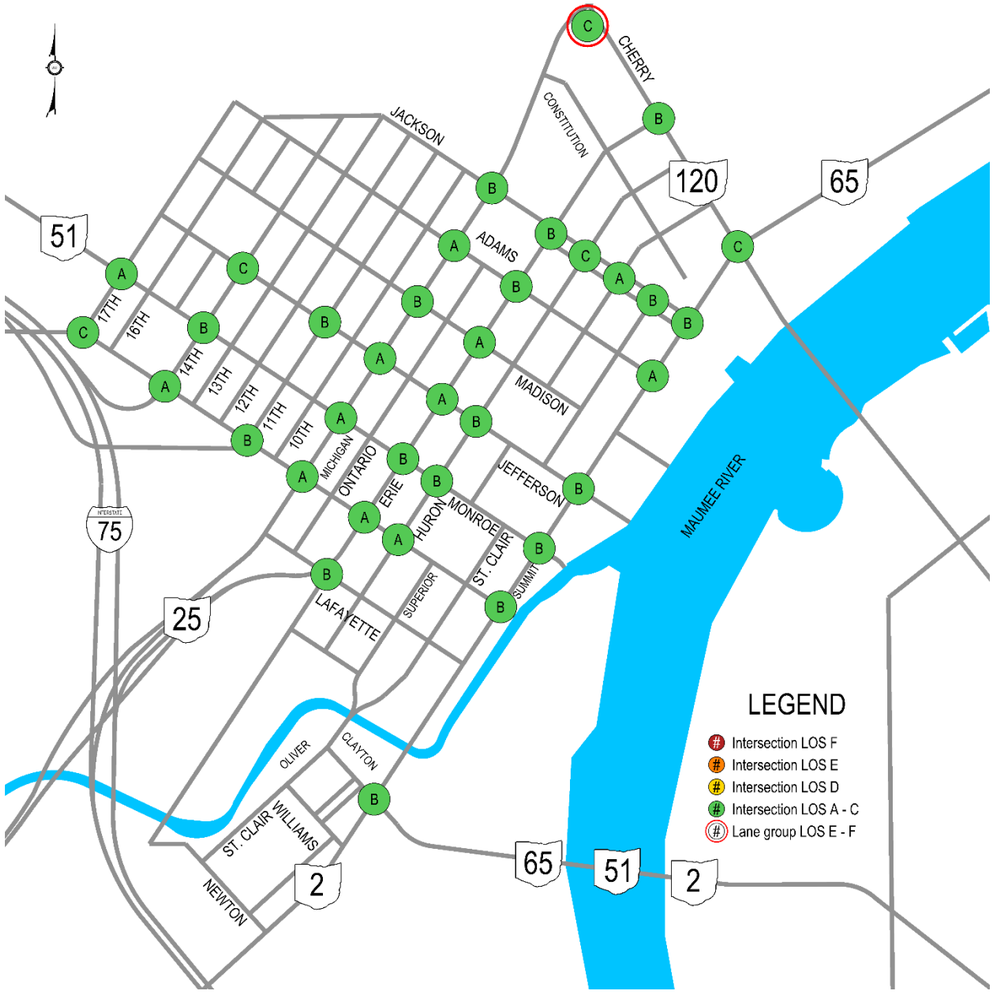

Figure 6.11 2038 Proposed Midday Peak Level-of-Service

120

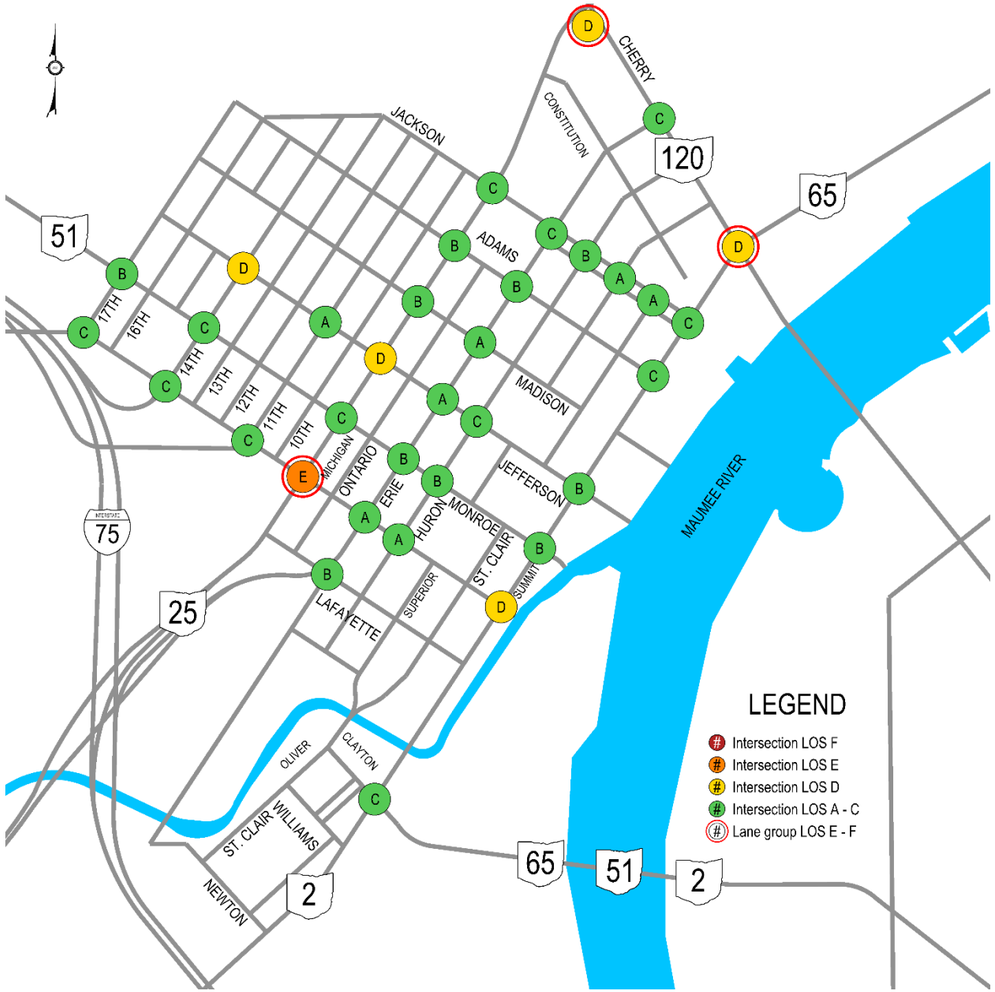

Figure 6.12 2038 Proposed PM Peak Level-of-Service (LOS)

Table 6.6 Summary of Improvements for Other DTTS Area Roadways	
Roadway	**Description of Recommended Improvement**
17th Street	• Replace pavement, update crosswalks to new downtown standard (inlaid brick)
16th Street	• Replace pavement, update crosswalks to new downtown standard (inlaid brick), replace curbs
15th Street	• Update crosswalks to new downtown standard (inlaid brick), add mid-block pedestrian crossing between Madison Avenue and Adams Street for Toledo School for the Arts
13th Street	• Replace pavement, update crosswalks to new downtown standard (inlaid brick)
12th Street	• Update crosswalks to new downtown standard (inlaid brick), replace pavement markings
10th Street	• Replace pavement, update crosswalks to new downtown standard (inlaid brick)
Ontario Street	• Update crosswalks to new downtown standard (inlaid brick)
Constitution Orange Street	• Replace pavement
Lafayette Street	• Streetscape improvements (street trees, planters, etc.)
Market Street	• Replace pavement, curb, pavement markings, crosswalks, and add streetscape improvements (street trees, planters, etc.)
Clayton Street	• Replace curbs, replace pavement