



Holland
MICHIGAN

WASHINGTON CORRIDOR PLAN

HOLLAND, MICHIGAN

Approved August 20, 2025



EXECUTIVE SUMMARY

PROJECT PURPOSE & BACKGROUND

The City of Holland is developing a corridor plan for the Washington corridor, from the Michigan/State/River intersection at the north to the southern limits of S. Washington and US 31. The plan focuses on potential reconfiguration of the roadway as well as treatments to improve mobility for all modes. This project will further the fundamental realization of the community’s established vision which so uniquely defines Holland’s characteristic charm and this corridor’s capacity. The plan builds upon the *City of Holland Master Plan (2017)* and the *City of Holland Master Plan refresh (2023)*, the *City of Holland Unified Development Ordinance (2021)*, and the city’s non-motorized transportation plan, *Holland Moves (2022)*. The Washington Corridor Plan is intended to identify design improvements to transform the corridor into a gateway into the city that is inviting and functional for local residents as well as visitors.

WASHINGTON CORRIDOR CONTEXT

The south end of the Washington corridor begins at the I-196 interchange with two travel lanes in each direction plus a center left-turn lane. The project area extends north along Washington Avenue and Michigan Avenue where it transitions from a five-lane section to a four-lane road north of Cherry Street with two northbound lanes, one southbound lane, and a center left-turn lane. The northern terminus of the project area is the Y-intersection of Michigan Avenue at State Street. The Washington corridor provides access to many different land uses including commercial, residential, institutional and medical with medical offices as well as the Holland Hospital. The corridor also provides access to schools and other public facilities, including the Evergreen Commons and parks.

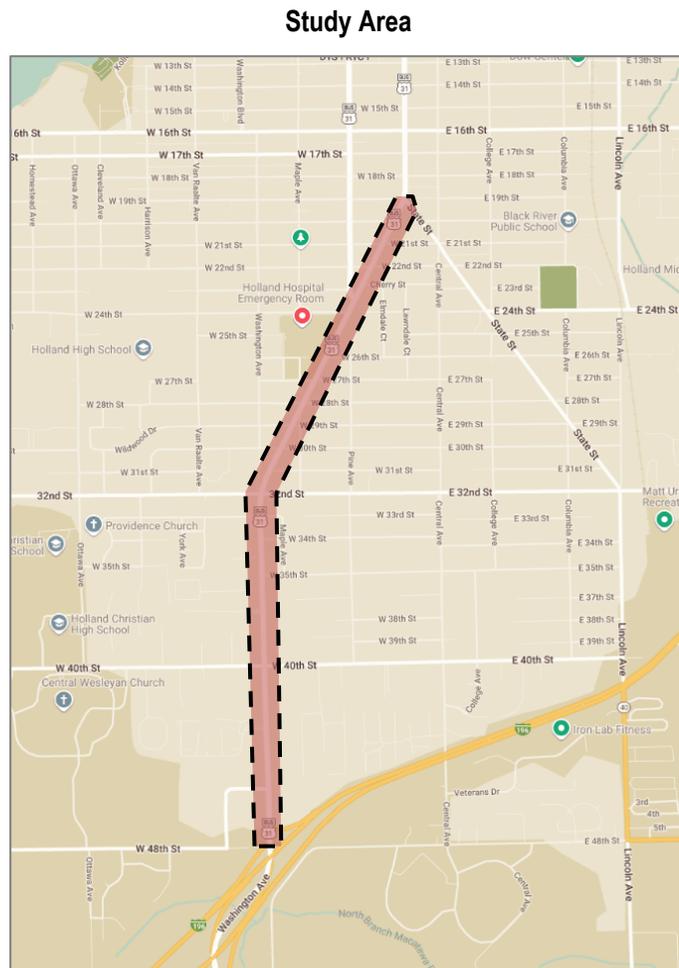
EXISTING CONDITIONS

The study area extends from I-196 at the south to the Michigan Ave @ State St intersection at the north and includes analysis of five signalized intersections. As reported in the RFP, traffic volumes are approximately 16,500 vehicles per day (vpd) with approximately 10 to 15 percent commercial vehicles (trucks) and the 85th percentile speed is 42 mph.

1. Washington Avenue @ Meadow Lane Drive
2. Washington Avenue @ W 36th Street
3. Washington Avenue/Michigan Avenue @ 32nd Street
4. Michigan Avenue @ W 24th Street
5. Michigan Avenue @ State Street

CRASH ANALYSIS & SAFETY REVIEW

At the project corridor intersections studied, 313 intersection related crashes were reported from 2020 to 2024 (approximately 63 crashes/year) with rear-end (32.3%) and angle type (29.7%) crashes



being the highest reported incidents, indicative of congestion and poor intersection operations/capacity. The third highest rate crash type are sideswipe (same direction) crashes (11.8%). These crash types are consistent with intersections with higher ADTs, traffic signal operation deficiencies, limited intersection sight distance, and a lack of access management with high number of driveways between signalized intersections. One fatal and seven serious injury crashes were recorded. In addition, the crash analysis at the Michigan Ave @ State St intersection indicated limited sight distance for westbound vehicles approaching the intersection and safety challenges with the horizontal curve for southbound left turning vehicles.

TRAFFIC OPERATIONS ANALYSIS

Traffic analysis of the existing conditions at the five study area intersections assessed operational capacity and performance. The results showed the Washington Avenue/Michigan Avenue at 32nd Street intersection is operating at capacity during the AM and PM peaks, with the northbound approach at capacity (LOS E) during the PM peak and the northbound through and through/right lanes operating over capacity (LOS F).

Traffic signal warrant evaluations were conducted specified intersections to determine if traffic signals and/or signalized pedestrian crossings are warranted at the study area intersections.

- Michigan Ave @ State Street
- Washington Ave @ Meadow Lane Dr
- Washington Ave @ W.36th Street
- Michigan Ave @ W.24th St

The analysis demonstrated that the Michigan Avenue/S River Avenue and State Street intersection meets the threshold of the primary signal warrants Warrant 1, Warrant 2, and Warrant 3. It also meets Warrant 7 based on the crash history. The other intersections do not meet the criteria for installing a traffic signal, neither do they meet the active pedestrian device warrants; however, active pedestrian devices like Pedestrian Hybrid Beacons (PHB) or Rapid Rectangular Flashing Beacon (RRFB) may be justified with engineering judgement and studying pedestrian generation and volumes during the Spring and/or Summer calendar months and with community input.

Additionally, it is recommended that the Michigan Avenue and W 24th Street intersection is further studied for potential traffic signalization to meet engineering justification for Warrant 8. Signalization of this intersection will benefit Hospital employees to safely cross Michigan Avenue with an active crossing, as well as provide gaps for W 24th Street to enter Michigan Avenue. The vertical curve along Michigan Avenue south of W 24th Street creates a potential sight distance conflict where eastbound W 24th Street traffic is not afforded adequate sight distance to complete a safe maneuver onto Michigan Avenue, traffic signalization would mitigate this conflict situation.

COMMUNITY ENGAGEMENT

Community outreach and connecting with the community at public meetings is vital to the project's success. To ensure the project reflects community desires and is supported by the community, two public meetings were held. The first public meeting solicited feedback on initial concepts for the corridor. This public information was used to refine corridor concepts. The second public meeting solicited input on community preferences for the various potential corridor enhancements and treatments. This public information was used to inform evaluation of enhancements and treatments which then reflect recommendations for the corridor. Public comments are provided in the report, Section 7.0.

CONCEPT DEVELOPMENT

The project team identified a variety of potential treatments and enhancements to support the project goals for the Washington Corridor, centered around safety, multimodal mobility, access management and potential corridor reconfiguration (modification of travel and turn lanes) and reflecting the project goals. The concepts presented to the community at Public Meeting #1 include:

- Corridor Configuration
- Intersection Signalization and Other Treatments
- Access Management
- Corridor Character and Aesthetics
- MAX Transit and Holland Public School District Bus Stop Treatments
- Non-Motorized Infrastructure and Connectivity
- Pedestrian Crossing Treatments

CONCEPT REFINEMENT

Based on community input and follow up meetings with the project team, corridor recommendations were refined to optimize the ability of the Washington Corridor Plan to meet the project goals. The refined concepts were reviewed with the project team and presented to the community to solicit input that informed recommendations for the corridor plan. The concepts presented to the community at Public Meeting #2 are:

- Potential Corridor Reconfiguration
 - Right-size travel lanes to improve multimodal balance
- Michigan / State Intersection Options
 - Improve traffic safety and access
 - Enhance pedestrian mobility and crossing safety
- South Washington Gateway
 - Enhance aesthetics at southern entrance to corridor
 - Traffic calming
- Enhanced Pedestrian Crossings
 - Improve pedestrian mobility
- Pedestrian Scale Lighting
 - Improve pedestrian safety, visibility and comfort
- Shared Use Path
 - All ages and abilities bicycle facility
 - Also accommodates pedestrians
- Median Sections
 - Recommended locations for traffic calming, access management and safety
- Driveway narrowing and consolidation
 - Recommended locations for access management to improve vehicular and pedestrian safety
- Relocate school bus stop to westbound Meadow Lane Drive at Washington Ave
 - Mitigate driver violations at Washington Ave stop
 - Adjacent to existing sidewalk within neighborhood
- Install School Zone surrounding Jefferson Elementary School
 - Improve safety for school access
- Install bus pullouts (coordinate with MAX)
 - Enhance bus operations
- Evaluate potential signal at Michigan Ave @ 24th Street
 - Conduct roadway network warrant analysis
- Assess signal operations to identify appropriate phase changes (left turn arrows)
 - Conduct corridor signal timing optimization study

RECOMMENDATIONS AND CONCLUSIONS

The project team met after Public Meeting #2 to discuss the improvement concepts within the context of community preferences as well as implantation, safety and other infrastructure-related considerations. Recommendations include.

Median Sections

Installation of median sections along the Washington corridor will introduce traffic calming benefits, support access management. Median sections also provide opportunities for landscaping which enhance corridor aesthetics. According to FHWA, raised medians provide these benefits:

- Reduce motor vehicle crashes by 15 percent
- Decrease delays for motorists (>30 percent)
- Increase capacity of roadways (>30 percent)
- Reduce vehicle speeds on the roadway
- Provide space for landscaping within the right-of-way
- Provide space to install additional roadway lighting, further improving the safety of the roadway
- Provide space to allow for supplemental signage on multi-lane roadways
- Cost less to build and maintain than paved medians

Median sections also improve pedestrian crossing safety. Where appropriate, median sections can be used for installation of enhanced pedestrian crossings along the corridor to support pedestrian mobility and crossing safety at select mid-block locations. The City is justifiably concerned about provision of mid-block crossings on the Washington corridor based on vehicle speeds and volumes as well as pedestrian visibility and driver compliance. As this project advances, the City will give careful consideration to potential mid-block pedestrian crossing treatments and locations.

South Washington Gateway

Creation of a gateway at the southern end of the Washington corridor will create a welcoming entry into the community with the provision of landscaping, signage and a median section. Treatments will have a traffic calming effect by conveying the sense of entry into the community with the change in corridor character and denser development.

Signalize Michigan / State Intersection

Converting the intersection of Michigan Avenue @ State Street will improve traffic operations and safety and enhance pedestrian mobility and crossing safety. Signalization will mitigate crashes and crash patterns currently occurring at this intersection. With signalization, pedestrian crosswalks should be provided on all approaches to improve pedestrian mobility and safety. In addition, signalization of the intersection will enable provision of left turns from State Street; this movement is currently prohibited.

Pedestrian Scale Lighting

Installation of pedestrian scale lighting along the Washington corridor will improve pedestrian safety, visibility and comfort. Lighting along corridor sidewalks will illuminate pedestrians on the sidewalk, making them more visible to motorists, and it will improve pedestrian visibility of the walking surface. In addition, the lighting will enhance the corridor's character and aesthetic during daylight hours as well as at night.

Signalized Intersection Improvements

Recommended improvements to signalized intersections included improvements benefitting the entire Washington corridor as well as targeted improvements at specific intersections. Intersection specific improvements include:

- Convert Michigan Ave @ State Street to signalized intersection
- Convert Michigan Ave @ 24th St to signalized intersection
- Michigan Ave @ W. 27th Street left turn lanes
- Washington Ave @ Matt Urban and Michigan Avenue @ 27th Street Intersection Left Turn Phasing

General intersection improvements include:

- Add left turn arrows, where needed and appropriate
- Modify signals to improve signal head alignment with travel lanes
- Convert to count down pedestrian signal heads
- Convert from diagonal to box span (or mast arm) signals
- Upgrade vehicle detection equipment

Potential improvements for the corridor could be achieved with the following:

- Washington Corridor signal optimization
- Signal Warrant Analysis

Corridor Reconfiguration

Traffic analysis of the Washington corridor that was completed as part of this project shows that it is feasible to reconfigure the corridor as defined below. Changes in lane configuration, where feasible, facilitates right-sizing of the corridor to improve multimodal balance. The proposed reconfiguration centers around the segment of Michigan Ave between 31st St and Cherry St.

- I-196 to 31st Street: Maintain the existing 5-lane roadway
- 31st Street to Cherry Street: Reconfigure the existing 4-lane roadway to a 3-lane configuration
- Cherry Street to State Street: Maintain the 4-lane roadway

ACTION MATRIX & IMPLEMENTATION STRATEGIES

Recommendations for the Washington corridor may be implemented individually, in groups, or as possible with consideration to external funding opportunities, City priorities and resources. The City of Holland is certified with the Michigan Economic Development Corporation (MEDC) as a redevelopment ready community, making the City eligible for funding related to this project. The Action Matrix documents the recommendations and elements related to plan implementation. Recommendations are grouped by those that improve safety and mobility, those that improve safety, and those that improve mobility. They are listed alphabetically within each group.

WASHINGTON CORRIDOR PLAN – ACTION MATRIX	
SAFETY & MOBILITY IMPROVEMENTS	
Access Management – Median Sections	
Action	Construct median sections at designated locations along the Washington corridor to support implementation of mid-block pedestrian crossings and access management strategies.
Partners	City in coordination with businesses and property owners, MAX, Holland School District, and residents.
Effort	Effort varies based on the corridor segment. The south segment can be modified independently from other projects. Median sections should be added to the middle section as part of its reconfiguration.
Impact	Implementation of median sections will have a positive impact on safety (through traffic calming), access management, and corridor aesthetics, including benefits to vulnerable road users.
Funding	External funding sources based on list above (to be refined for this treatment)
Cost	Since implementation of median sections may be done individually or by corridor segment; cost could range from relatively low to medium.
Corridor Reconfiguration	
Action	The Washington corridor is divided into three segments for the recommended reconfiguration: <ul style="list-style-type: none"> – I-196 to 31st Street: Retain existing 5-lane configuration, add treatments to improve and enhance the corridor (i.e., shared use path, median sections, pedestrian scale lighting, access management, etc.) – 31st Street to Cherry Street: Reconfigure as 3-lane roadway with center turn lane, shared use path (to Pine Ave), median section, pedestrian scale lighting, access management, etc. – Cherry Street to State Street: Retain existing 4-lane configuration, add treatments to improve and enhance the corridor (i.e., median sections, pedestrian scale lighting, access management, etc.)
Partners	City led
Effort	The concepts identified in this plan need to advance into design then construction. Coordination with property owners, businesses, agencies and schools located along the corridor is expected.
Impact	Reconfiguration of the corridor is expected to have a positive impact on motorized and non-motorized safety and mobility, including benefits to vulnerable road users.
Funding	External funding sources based on list above (to be refined for this treatment)
Cost	If accomplished as a single project, the cost of corridor reconfiguration is expected to be fairly high.
Signalize Michigan / State Intersection	
Action	Convert intersection from stop control to signal control. This may include realignment of the State St approach, if feasible.
Partners	City
Effort	This improvement can be done as an isolated project, making it straightforward to implement.
Impact	Signalization of this intersection will have a significant positive impact on motorized and non-motorized safety and mobility, including benefits to vulnerable road users.
Funding	External funding sources based on list above (to be refined for this treatment)
Cost	Depending on whether the signal is span wire or mast arm, cost could be medium to high.
Signalized Intersection Improvements – Corridor-Wide Improvements	
Action	Corridor-wide improvements include: <ul style="list-style-type: none"> – Washington Corridor signal optimization – Signal Warrant Analysis
Partners	City-led
Effort	Both improvements are studies; they are straightforward and should be relatively easy to conduct.
Impact	The results of the studies will inform additional corridor recommendations and potential treatments to improve corridor operations, safety and mobility, including anticipated benefits to vulnerable road users.
Funding	External funding sources based on list above (to be refined for this treatment)
Cost	Study costs should be relatively low.

WASHINGTON CORRIDOR PLAN – ACTION MATRIX	
Signalized Intersection Improvements – General	
Action	General intersection improvements include: <ul style="list-style-type: none"> – Add left turn arrows, where needed and appropriate – Modernize the existing traffic signals to improve signal head alignment with travel lanes – Convert to count down pedestrian signal heads – Convert from diagonal to box span (or mast arm) signals – Upgrade vehicle detection equipment
Partners	City-led
Effort	Effort will vary based on improvement, some are straightforward (i.e., convert to count down pedestrian signal heads) while others will require more effort to study, design and implement.
Impact	All improvements are expected to have a positive impact on motorized and non-motorized safety and mobility, including benefits to vulnerable road users.
Funding	External funding sources based on list above (to be refined for this treatment)
Cost	Cost will vary by improvement, with some fairly low cost and others medium cost.
Signalized Intersection Improvements – Specific Intersections	
Action	Intersection-specific improvements include: <ul style="list-style-type: none"> – Convert Michigan Ave @ 24th St and Michigan Ave @ State St to signalized intersections – Michigan Ave @ W. 27th Street left turn lanes and phasing – Washington Ave @ Matt Urban / 27th Street Intersection Left Turn Phases
Partners	City-led
Effort	Effort varies for each location; some require further investigation to understand specific needs and to support the recommendation.
Impact	All improvements are expected to have a positive impact on motorized and non-motorized safety and mobility. Signalization of the two intersections is expected to also benefit vulnerable road users
Funding	External funding sources based on list above (to be refined for this treatment)
Cost	Cost will vary by location and specific improvement elements.
South Washington Gateway	
Action	Transform the southern entry to the corridor with landscaping, median section, signage, etc. to welcome drivers to the community and convey their entry into a corridor where slower speeds are expected.
Partners	Although the City would lead this project, there may be benefit from engaging with other civic organizations. Given the area's proximity to I-196, MDOT coordination is anticipated.
Effort	This is an isolated area so the effort to implement this treatment should be less complex than other recommendations.
Impact	This treatment is expected to have a significant positive impact on safety (through traffic calming and access management), including benefits to vulnerable road users, as well as aesthetics.
Funding	External funding sources based on list above (to be refined for this treatment)
Cost	Depending on the plan that is developed, cost could be fairly low or medium.
SAFETY IMPROVEMENTS	
Access Management – Driveway Consolidation & Narrowing	
Action	<ul style="list-style-type: none"> – Consolidate driveways for businesses that have multiple access driveways. Narrow access driveways that are wider than necessary or appropriate. – Install a westbound W 32nd St passing flare at the existing Walgreens driveway to allow westbound left turn vehicles to queue while maintaining westbound mobility and operations without impacting the eastbound W 32nd St approach left turn lane and with the signalized intersection.
Partners	City-led, with close coordination with impacted businesses and property owners.
Effort	Although physical modifications are not difficult, extensive coordination with impacted businesses and property owners is expected to take effort.
Impact	These access management improvements are expected to have a positive impact on motorized and non-motorized safety, including benefits to vulnerable road users.
Funding	External funding sources based on list above (to be refined for this treatment)
Cost	Driveway modifications can be done individually, in groups, or as part of the corridor reconfiguration project. Costs associated with driveway consolidation and narrowing are expected to be low.

WASHINGTON CORRIDOR PLAN – ACTION MATRIX	
Pedestrian Scale Lighting	
Action	Install pedestrian lighting along corridor sidewalks
Partners	City-led
Effort	This improvement would be most effective if implemented as a single project.
Impact	This improvement will have a significant positive impact on pedestrian safety and comfort as well as corridor aesthetics.
Funding	External funding sources based on list above (to be refined for this treatment)
Cost	If implemented as a single project, this improvement will likely be fairly high cost.
Other Recommendations	
Action	<p>Multiple additional and varied recommendations came out of the plan development process. Based on the nature of each recommendation, a range of additional work is expected to be needed to advance the recommendations. The recommendations include:</p> <ul style="list-style-type: none"> – Relocate School Bus Stop to Meadow Lane Drive – Install School Zone surrounding Jefferson Elementary School – Install Bus Pullouts – Close Maple Ave North of W.29th St – Corridor Streetscape & Transit Waiting Environments – Michigan Ave @ W.32nd St Intersection & SRTS Plan – Mid-Block Crossing between W.27th St and 32nd St – Michigan Ave @ Maple Ave Intersection – Michigan Ave between W.24th St and W.22nd St – Michigan Ave @ State St Intersection – Michigan Ave @ W.36th Street Intersection – Michigan Ave @ W.40th St Intersection – Washington Ave @ Meadow Lane Dr Intersection – Michigan Ave @ W 33rd St convert to ¾ access driveway prohibiting exiting left turns
Partners	City-led, other partners vary based on the recommendations
Effort	Varies.
Impact	Although the recommendations vary, they all contribute to improving motorized and non-motorized safety and mobility as well as improving corridor operations.
Funding	TBD
Cost	Varies
MOBILITY IMPROVEMENTS	
Corridor Reconfiguration – Shared Use Path	
Action	Construct a shared use path along the west side of the Washington corridor.
Partners	City led
Effort	Provision of the recommended shared use path should be included as part of the corridor reconfiguration project rather than as a standalone project.
Impact	Reconfiguration of the corridor is expected to have a positive impact on motorized and non-motorized safety and mobility, with specific benefits to non-motorized travelers.
Funding	External funding sources based on list above (to be refined for this treatment)
Cost	Design and construction costs for the shared use path should be integrated into the cost of the corridor reconfiguration project.
Mid-Block Pedestrian Crossings	
Action	Construct mid-block crossings at designated locations along the Washington corridor to facilitate pedestrian crossings to/from pedestrian generator land uses where signalized intersections are far and pedestrian diversion is significant.
Partners	City in coordination with MAX, Holland School District, residents and businesses.
Effort	Given the safety concerns identified by City staff, this treatment will require careful consideration of pedestrian safety. Treatments should include measures to optimize pedestrian and vehicular safety.
Impact	Implementation of mid-block crossings will have a positive impact on non-motorized mobility.
Funding	External funding sources based on list above (to be refined for this treatment)
Cost	Implementation of mid-block crossings may be done individually or in groups; costs could range from relatively low to medium.

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WASHINGTON CORRIDOR PLAN

1.0 PROJECT PURPOSE & BACKGROUND

The City of Holland is developing a corridor plan for the Washington corridor, from the Michigan/State/River intersection at the north to the southern limits of S. Washington and US 31. The plan focuses on potential reconfiguration of the roadway as well as treatments to improve mobility for all modes. This project will further the fundamental realization of the community's established vision which so uniquely defines Holland's characteristic charm and this corridor's capacity. The project goals coincide with those outlined in the in-depth design charrette that was conducted as part of the *City of Holland Master Plan (2017)* and the *City of Holland Master Plan refresh (2023)*. The aspirations documented during the charette include creating a unique identity, linking surrounding neighborhoods, establishing continuity in character, planning for pedestrians, and supporting commercial activity. During that process recommendations were made to change the zoning that would allow mixed use land development in hopes of providing a more walkable environment. These zoning changes were made as part of the *City of Holland Unified Development Ordinance (2021)*.

The Washington Avenue / Michigan Avenue corridor serves as a primary access route for visitors from the south that are traveling into Holland. The desire expressed by the community is to re-imagine this corridor to reflect the composition and charm that characterizes Holland. The Washington Corridor Plan is intended to identify design improvements to transform the corridor into a gateway into the city that is inviting and functional for local residents as well as visitors. The City of Holland is making progress toward achieving these goals by implementing these themes into the *City of Holland Unified Development Ordinance (2021)*. *Holland Moves (2022)*, the city's non-motorized transportation plan identifies strategies to provide safe pedestrian friendly environments that better balance street space and help connect the community with non-motorized infrastructure and treatments. The improvements along the Washington corridor will continue the progress of the city toward meeting the goal of a walkable and safe pedestrian environment while incorporating the charm and ambiance that is prevalent in this attractive lakefront community.

2.0 WASHINGTON CORRIDOR CONTEXT

The south end of the Washington corridor begins at the I-196 interchange with two travel lanes in each direction plus a center left-turn lane. The Washington corridor project area extends north along Washington Avenue and Michigan Avenue where it transitions from a five-lane section to a four-lane road north of Cherry Street. This four-lane portion of the roadway consists of two northbound lanes, one southbound lane, and a center left-turn lane. The northern terminus of the project area is the Y-intersection of Michigan Avenue at State Street.

As stated in the project RFP, the City reported that recent traffic counts on S. Washington indicate an 85th percentile speed of 42 mph and 16,500 vehicles per day (vpd), with approximately 10 to 15 percent commercial vehicles (trucks). The Washington corridor is listed as a principal arterial on the National Functional Classification Map, which makes it eligible for different types of funding. The Washington corridor plays a vital role in the community, serving many different land uses including commercial, residential, institutional and medical with medical offices as well as the Holland Hospital. The corridor also provides access to schools and other public facilities, including the Evergreen Commons and parks.

The plan is intended to build from the 2017 Master Plan design charette, lean on the strategies identified in the *Holland Moves* plan, and integrate MAX plans for transit.

3.0 EXISTING CONDITIONS

Analysis of traffic conditions and operations is part of the Washington Avenue Corridor Plan project. This includes a summary of the existing conditions and traffic operations evaluation of the Washington corridor, from I-196 to /S. River Avenue/State

Street, aligned with the project goal of developing a corridor plan to further the realization of the community’s vision to establish the defined Holland character along the gateways to the community by improving the safety, capacity, and pedestrian mobility while minimizing impacts to adjacent neighborhoods and businesses. The following analysis and evaluations were completed as per the following guidelines:

- MDOT Electronic Traffic Control Device Guidelines, March 2024
- MDOT Traffic and Safety Geometric Design Guidance, Sept 2017
- Federal and Michigan Manual on Uniform Traffic Control Devices, 11th Edition
- MDOT Guidance for Installation of Pedestrian Crosswalks on Michigan State Trunkline Highways, January 2023

3.1 Study Area

The traffic analysis documents and evaluates existing safety, capacity, and operations of the Washington corridor with detailed analysis at the following project intersections:

1. Washington Avenue @ Meadow Lane Drive
2. Washington Avenue @ W 36th Street
3. Washington Avenue/Michigan Avenue @ 32nd Street
4. Michigan Avenue @ W 24th Street
5. Michigan Avenue @ State Street

Within the project area limits, Washington Avenue is a 5-lane (2-northbound, 2-southbound) other principal arterial with a two-way center left-turn lane (TWTL); Michigan Avenue is a 2-lane other principal arterial with variable cross section between 32nd Street and State Street. Table 1 presents the functional classification, average daily traffic (ADT), posted speed and general lane description for each of the project segments.

Stakeholders with specific interest in the corridor include

- Holland Hospital
- MAX Transit
- Holland Public School District – Jefferson Elementary School
- Meadowlanes Townhomes
- Corridor business owners
- Corridor residents

Figure 1 – Study Area

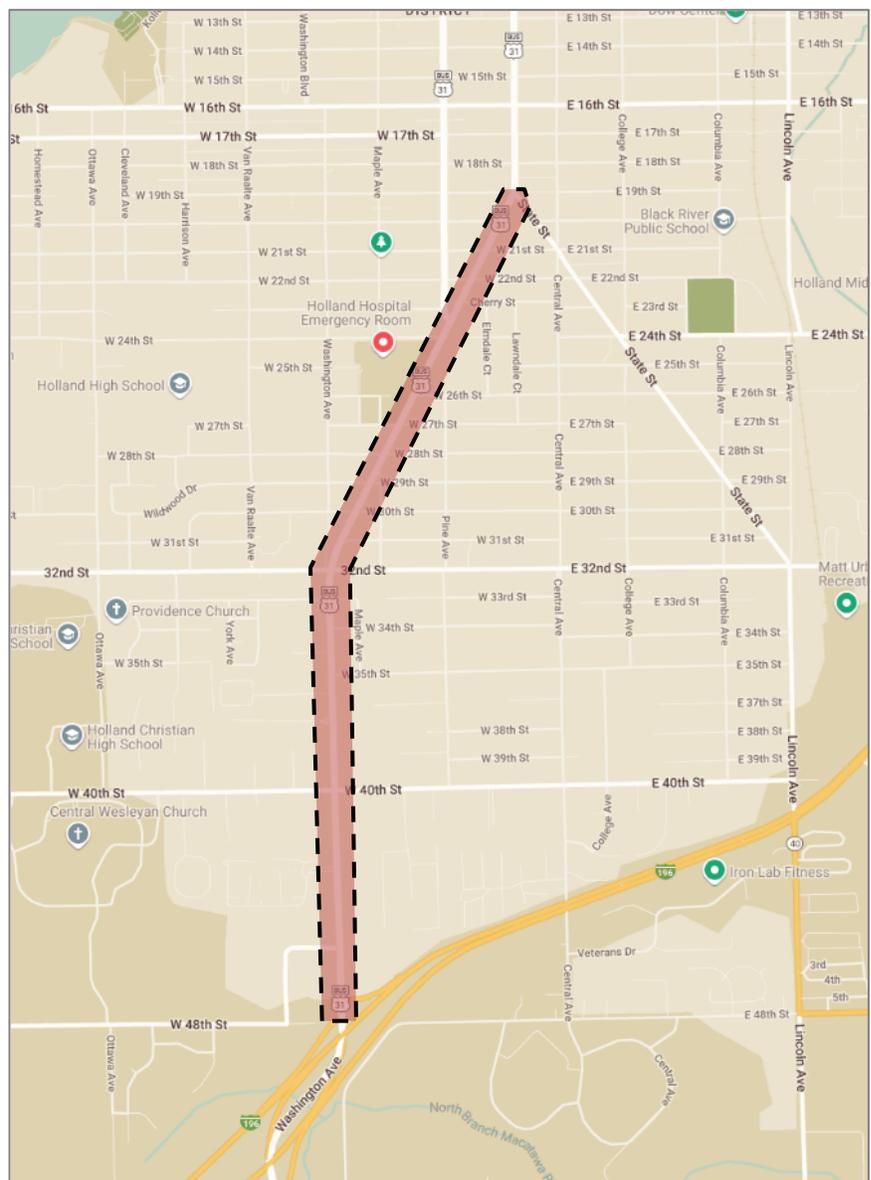


Table 1 – Study Area Characteristics

Characteristic	Study Area – Roadway Characteristics			
	Washington Avenue I-196 to W 40 th St	Washington Avenue W 40 th St to 32 nd St	Michigan Avenue 32 nd St to W 22 nd St	Michigan Avenue W 22 nd St to State St
Functional Classification	Other Principal Arterial	Other Principal Arterial	Other Principal Arterial	Other Principal Arterial
Lane Description/ Cross Section	5-Lanes 2-North/Southbound 1-Center Left Turn Lane	5-Lanes 2-North/Southbound 1-Center Left Turn Lane	4-Lanes 2-Northbound 2-Southbound	4-Lanes 2-Northbound 1-Southbound 1-Center Left Turn Lane
ADT – MDOT TCDS¹	14,338 (2024) <i>TCDS ID 03-0072</i>	19,364 (2024) <i>TCDS ID 03-5005</i>	15,078 (2023) <i>TCDS ID 70-5187</i>	13,529 (2023) <i>TCDS ID 70-5186</i>
Posted Speed Limit	45 mph	40 mph	35 mph	30 mph
Truck Route Designation	City Truck Route	City Truck Route	City Truck Route	City Truck Route

(Traffic Sources: 1 MDOT Statewide Traffic Count Database, certified traffic volumes)

3.2 Non-Motorized Infrastructure

Existing non-motorized infrastructure along the corridor consists of sidewalks on both sides of the street and bus stops at designated locations on both northbound and southbound sides of the street.

3.3 Corridor Signals

Table 2 provides an inventory of signalized and active controlled intersections along the project limits from I-196 to State Street. The project includes evaluation of the operational impacts of remedial measures at the Washington Avenue/Michigan Avenue at 32nd Street.

Table 2 – Existing Intersection Electronic Traffic Control Device Inventory

	Washington Avenue at			Michigan Avenue at		
	Matt Urban Dr	W 40th St	32nd St	W 27th St	W 22nd St	State St
Flasher Control – STOP-Controlled	-	-	-	-	-	X
Traffic Signalization Controlled	X	X	X	X	X	-
Diagonal Span Design	X	X	X	-	-	X
Box Span Design	-	-	-	X	X	-
Signal Head Backplates	-	-	-	X	X	-
Cycle (seconds)	90	80	90/100	90	90	-
Permissive Only LT	X	X	-	X	X	-
GPS Clock	X	X	X	X	X	-
Permissive + Protected LT	-	-	X	-	-	-
Protected Only LT	-	-	-	-	-	-
2-Section Ped Head w/ Countdown	X	X	X	-	-	-
1-Section Ped Head w/ Countdown	-	-	-	-	-	-
1-Section Ped Head w/out Countdown	-	-	-	X	X	-
Pushbutton Presence	X	X	-	X	X	X
Pushbutton Location ADA Compliance	-	-	-	-	-	-
Side Street Vehicle Detection - Loops (record plans)	X	X	X	X	X	-
Curb Ramps - Full Intersection	-	X	X	-	-	-
Curb Ramps - Partial Intersection	X	-	-	-	-	X

3.4 Existing Traffic

Turning movement counts (TMC) were collected in November 2024 and January 2025 at the intersections listed in Table 3. Detailed turning movement volumes are provided in the report supporting documents. These detailed reports are break out movements in 15-minute periods and by vehicle classification; peak hour volumes are also provided in these detail report.

Table 3 – Intersection Peak Hours

Intersection	TMC* Date	AM Peak Hour	PM Peak Hour
1. Washington Avenue/Michigan Avenue and 32 nd Street	20-Nov-24	7:45 AM – 8:45 AM	2:45 PM – 3:45 PM
2. Michigan Avenue/ S River Avenue and State Street			
3. Washington Avenue and Meadow Lane Drive	15-Jan-25	7:45 AM – 8:45 AM	4:15 PM – 5:15 PM
4. Washington Avenue and W 36th Street		7:45 AM – 8:45 AM	4:15 PM – 5:15 PM
5. Michigan Avenue and W 24th Street		7:45 AM – 8:45 AM	2:30 PM – 3:30 PM

* TMC: Turning Movement Count

3.5 Background Traffic Growth

In January 2025, the Macatawa Area Coordinating Council provided historical traffic data for the Washington Avenue corridor to develop a project background traffic growth rate. The MDOT traffic data management system provides several spot locations along the project corridor with historical traffic data. Evaluating these sources of historical traffic data, the project limits have a background traffic growth rate of -3.0% from 2019 to 2024. However, the historical traffic volumes follow trends impacted by the statewide 2020 pandemic emergency orders; for conservative analysis, a 0.5%/year linear traffic growth rate is applied to the projects design year evaluation. A sensitivity analysis will be conducted on the final corridor plan options to determine to capacity constraints.

Figure 2 – Peak Hour Volumes
Washington Avenue/Michigan Avenue and 32nd Street

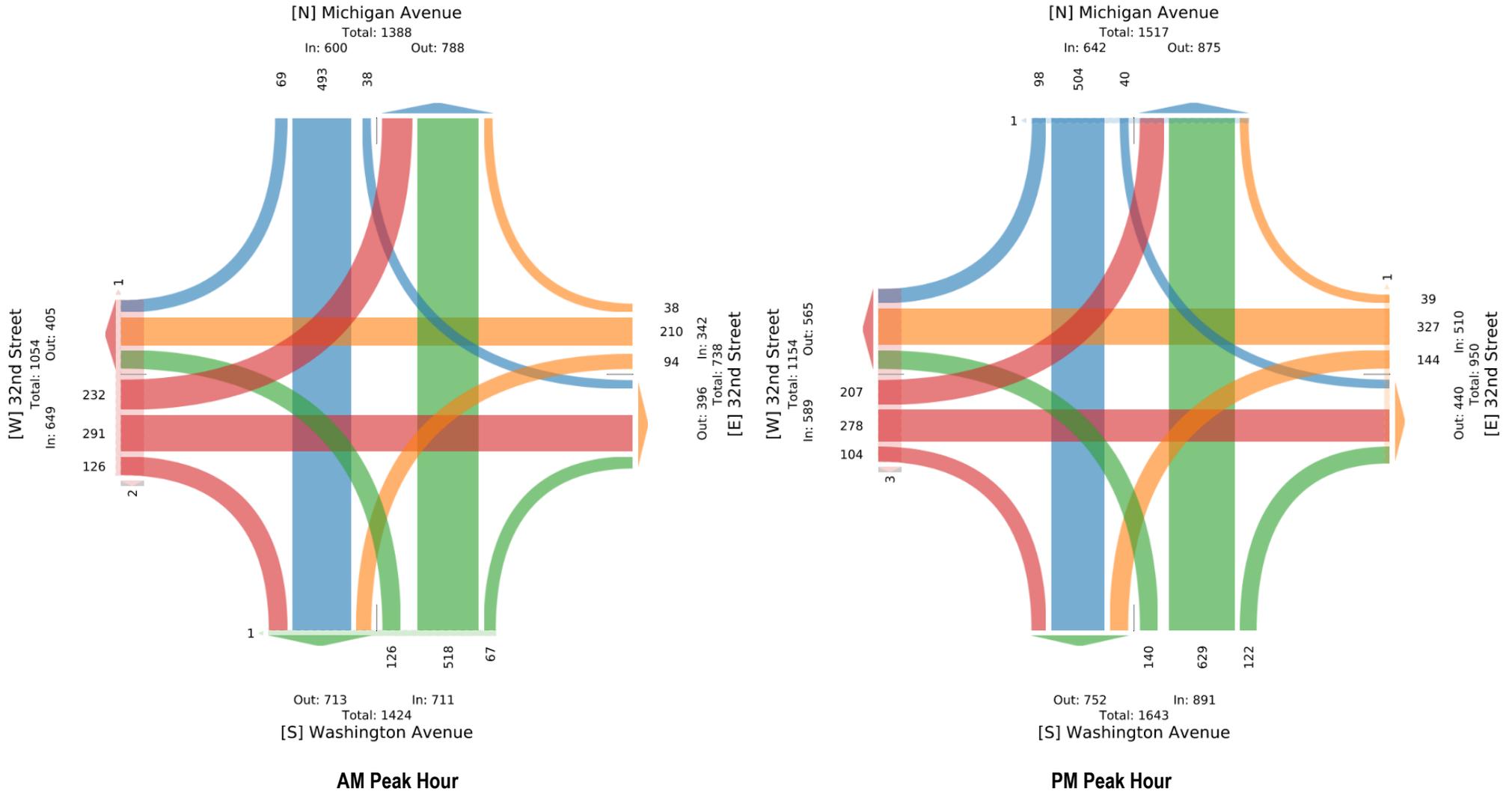


Figure 3 – Peak Hour Volumes
Michigan Avenue/S River Street and State Street

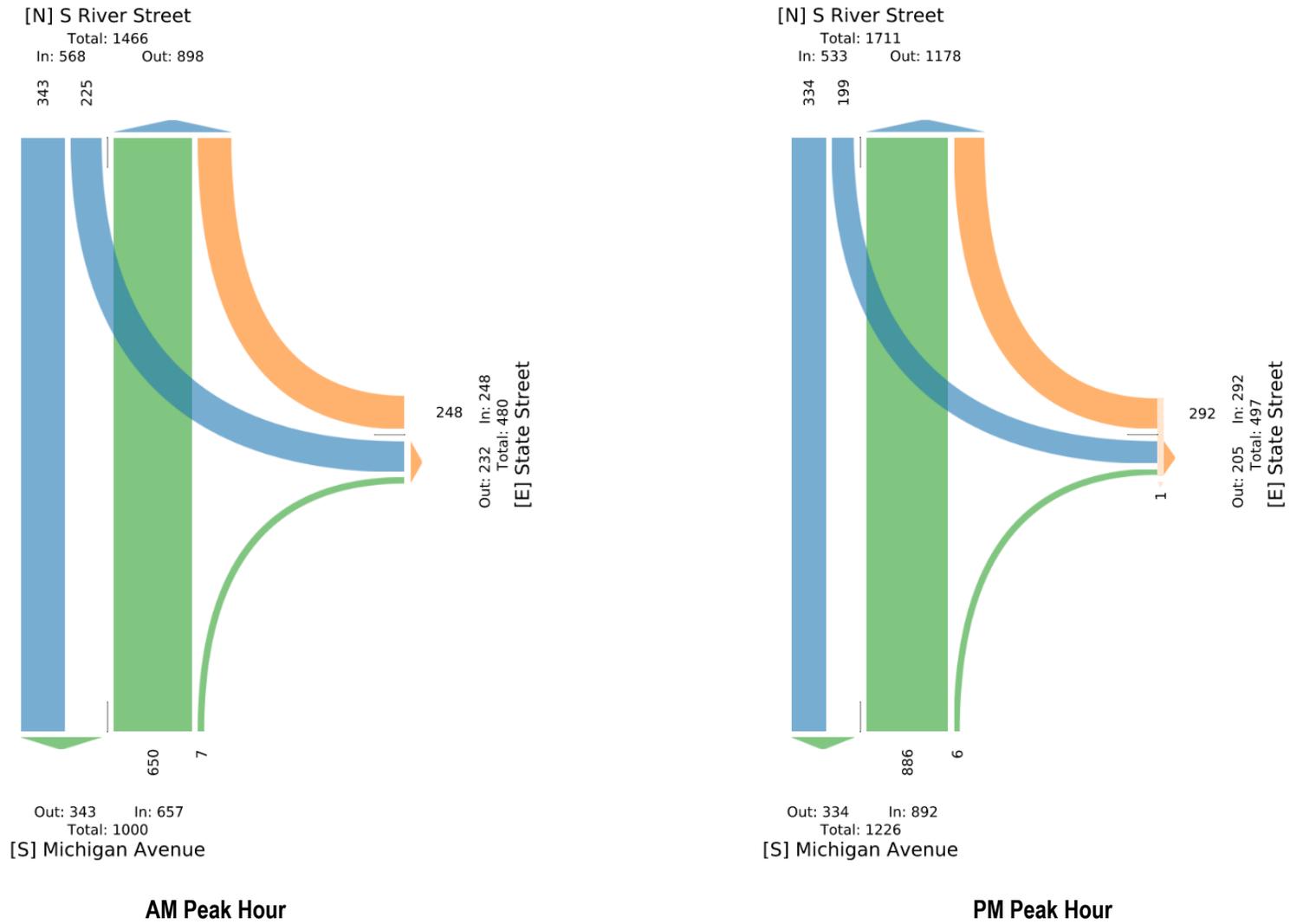


Figure 4 – Peak Hour Volumes
Washington Avenue and Meadow Lane Drive

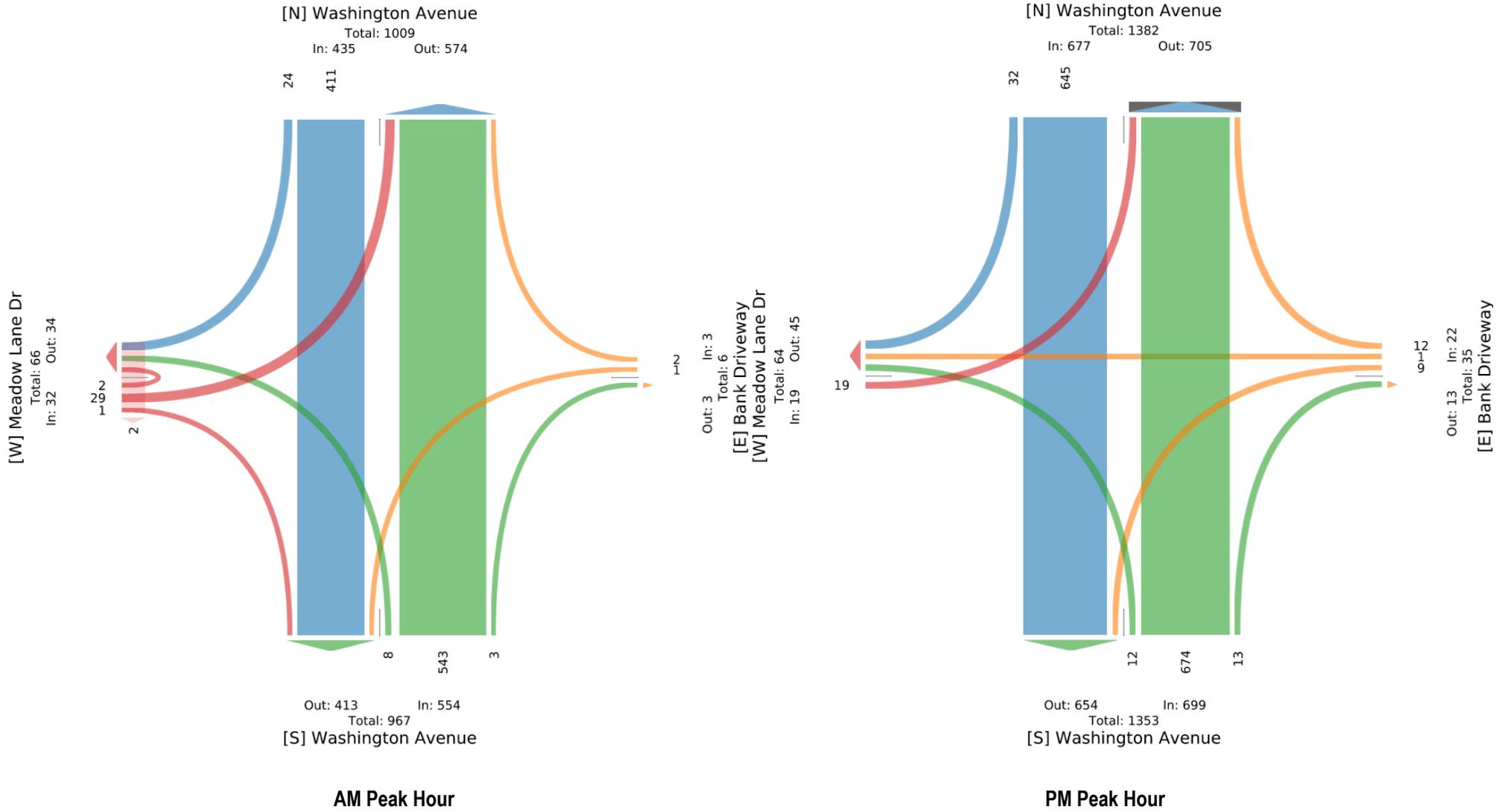


Figure 5 – Peak Hour Volumes
Washington Avenue and W 36th Street

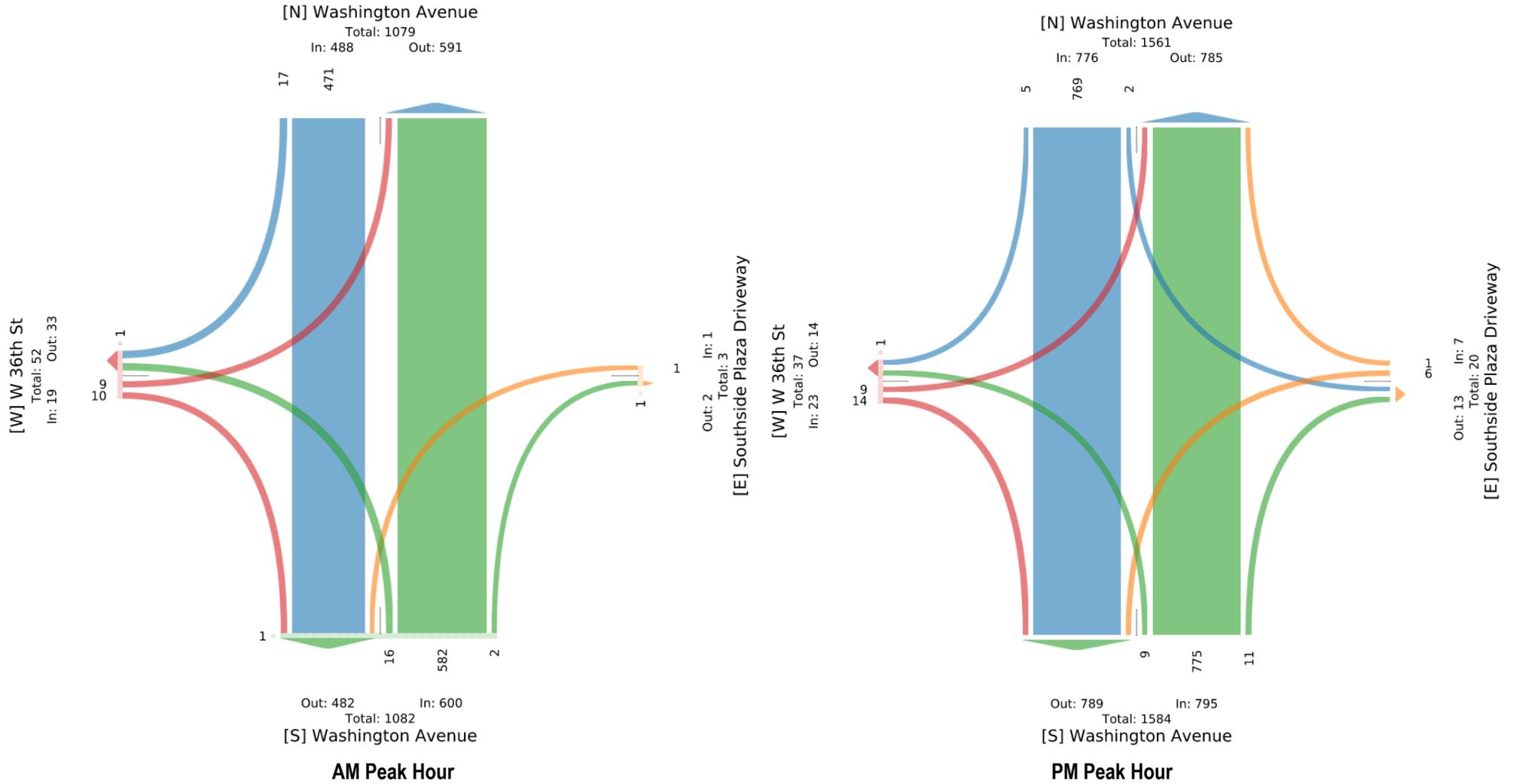
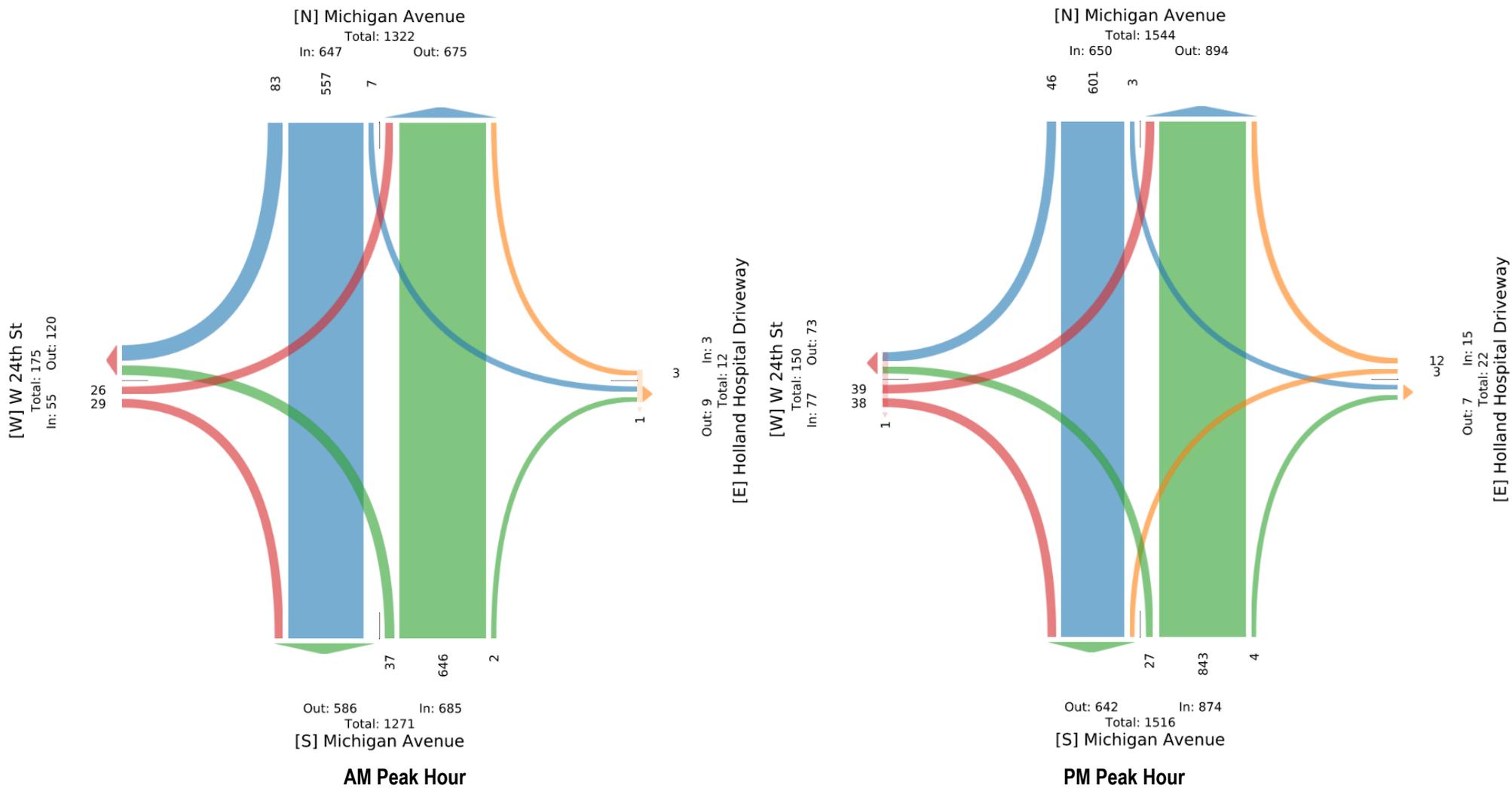


Figure 6 – Peak Hour Volumes
Michigan Avenue and W 24th Street



4.0 CRASH ANALYSIS & SAFETY REVIEW:

A crash analysis and safety review has been conducted for the recent (5)-year period (2010-2024). The crash data was obtained from Transportation Improvement Association (TIA) Traffic Crash Analysis Tool (TCAT) database and is provided in Table 4.

Table 4 – Project Area Intersection Crashes

	Washington Avenue at				Michigan Avenue at					Total Reported Crashes	Percent Crashes by Type
	Matt Urban Dr	Meadow Lane Dr	W 40th St	W 36th St	32nd St	W 27th St	W 24th St	W 22nd St	State St		
Intersection Control	Signal	STO P	Signal	STO P	Signal	Signal	STO P	STO P	STO P		
Single Vehicle Crash	3	2	7	-	3	2	9	1	1	28	8.9%
<i>Single Vehicle - Vulnerable Road Users¹</i>	-	-	2	-	-	1	6	1	-	10	
<i>Single Vehicle - Alcohol Involved</i>	1	-	-	-	1	-	1	-	-	3	
Head-On Crash	-	-	-	-	4	-	-	-	1	5	1.6%
<i>Head-On - Vulnerable Road Users¹</i>	-	-	-	-	1	-	-	-	-	1	
Head-On Crash (left-turn)	6	1	7	-	5	-	-	-	1	20	6.4%
Angle Crash	17	2	29	1	20	6	9	8	1	93	29.7%
Rear End Crash	5	1	15	2	44	6	4	6	18	101	32.3%
<i>Rear End - Alcohol Involved</i>	-	-	-	-	1	-	-	-	-	1	
Rear End Crash (left-turn)	1	-	-	-	2	2	-	-	-	5	1.6%
Rear End Crash (right-turn)	1	-	-	-	-	-	-	-	-	1	0.3%
Sideswipe Crash (same direction)	10	3	6	1	7	3	4	2	1	37	11.8%
Sideswipe Crash (opposite direction)	2	-	2	-	2	-	1	-	1	8	2.6%
Backing	1	-	2	-	-	1	-	2	-	6	1.9%
Other	-	1	3	2	3	-	-	-	-	9	2.9%
<i>Other - Vulnerable Road Users¹</i>	-	-	1	-	-	-	-	-	-	1	
Total Reported Crashes	46	10	71	6	90	20	27	19	24	313	100%
Percent Crashes by Intersection	14.7%	3.2%	22.7%	1.9%	28.8%	6.4%	8.6%	6.1%	7.7%	100%	

Note: ¹ Vulnerable Road Users (VRUs) include pedestrians, cyclists, and other non-motorized modes of travel.

At the project corridor intersections studied, 313 intersection related crashes were reported from 2020 to 2024 (approximately 63 crashes/year) with rear-end (32.3%) and angle type (29.7%) crashes being the highest reported incidents, indicative of congestion and poor intersection operations/capacity. The third highest rate crash type are sideswipe (same direction) crashes (11.8%). These crash types are consistent with intersections with higher ADTs, traffic signal operation deficiencies, limited intersection sight distance, and a lack of access management with high number of driveways between signalized intersections.

At the Michigan Avenue/Washington Avenue and 32nd Street intersection, 50% of crashes occurred along the south leg/northbound approach; 77% of all crashes at the intersection involve rear-end type crashes, indicative of congestion and potentially poor traffic signal operations and corridor progression. Additionally, 17% of intersection crashes occurred at the north leg/ southbound approach, 23% along the west leg/eastbound approach, and 10% at the east leg/ westbound approach.

Figure 7 – Northbound at Michigan Avenue/Washington Avenue at State Street



At the Washington Avenue and W 40th Street intersection, 55% of crashes were angle type crashes, 32% rear-end type, and 13% head-on left turn type crashes. Reviewing the UD-10 reports show a pattern of left turn vehicles in all approaches failing to yield to traffic control. This intersection allow permitted only left turn movements which create small opportunities for high volume left turn movements to clear the intersection within one or two signal timing cycles. These crashes can be mitigated with the study and implementation of a protected left turn phase under flashing yellow arrow/ permitted+protected phasing.

At the Michigan Avenue/S River Avenue and State Street intersection, all rear-end crashes occurred along the north-westbound State Street direction. Reviewing the intersection UD-10 crash reports, it was found that State Street approach vehicles do not have adequate sight distance where a following vehicle would assume the leading vehicle at the STOP bar location would proceed the right-turn movement, but instead would roll and stop causing rear-end crashes. The occurrence of vehicles having limited sight distance and stopping on or ahead of the State Street approach crosswalk is shown in the following Figure 7 which shows a screenshot image from the project data collection recordings. Additionally, the southbound left turn lane within the horizontal curve creates a sideswipe occurrence with the inside northbound lane.

One (1) Type K (fatal) and seven (7) Type A (incapacitating injuries reported) were recorded; detailed crash reporting is provided in the included supporting documents,

4.1 Fatal Crash:

- Angle – W 40th Street – Disregard of traffic control (July 2020)

Investigated at Scene	Reported Date (Time)	1st Investigator Name (Badge)	2nd Investigator Name (Badge)	Photos
Yes	07/11/2020 (17:48)	MARC DELEEUW (153)		Yes
Narrative		Diagram		
<p>VEHICLE #1 WAS N/B ON WASHINGTON IN THE LEFT HAND THROUGH LANE. DRIVER #1 SAID THAT HE WAS N/B AND THOUGHT THE LIGHT WAS GREEN FOR HIS TRAFFIC. VEHICLE #2 WAS E/B ON 40TH ST CROSSING WASHINGTON UNDER A GREEN LIGHT. VEHICLE #2 WAS STUCK BY VEHICLE #1 AS VEHICLE #1 RAN A RED LIGHT. SEE POLICE REPORT FOR FURTHER INFORMATION.</p>				

4.2 A-Type (Incapacitating) Crash:

- Rear End – Matt Urban Drive – Unable to stop due to snow/ice roadway conditions (March 2019)
- Single Vehicle – Matt Urban Drive – Loss of control, careless driveway, ran off road (Oct 2024)
- Angle – W 40th Street – Failure to yield to Washington Avenue through traffic (March 2020)
- Angle – W 40th Street – Eastbound vehicle failure to yield to cyclist turning right onto Washington Avenue (Dec 2020)
- Single Vehicle – W 27th Street – Michigan Avenue vehicle failure to yield to bicyclist in W 27th Street crosswalk (June 2024)
- Single Vehicle – W 24th Street – Speeding northbound loss of control, struck pedestrians on east side sidewalk (July 2020)
- Angle – W 22nd Street – Disregard of traffic control (Feb 2022)

5.0 TRAFFIC OPERATIONS ANALYSIS:

To appropriately analyze each of the study intersections, Cubic Synchro 11 was used to evaluate intersection capacity and Levels-of-Service (LOS) during the AM and PM peak periods. The results of the analysis are based on the results and methodology from the Highway Capacity Manual, 6th Edition (HCM) reports provided from the Synchro 11 models. LOS is measured by a letter grade that describes traffic operations based on the amount of delay experienced by vehicles at an intersection, along an intersection approach (e.g., eastbound, westbound), or in a specific lane group (e.g., eastbound right turn, eastbound through-left). In this study, LOS for the STOP/YIELD-controlled intersections was reported by approach.

LOS can range from A-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 is in the range from A to D this is an indication that the traffic network is performing satisfactorily, and no changes need to be made to improve conditions. The LOS D is typically used as a threshold for “acceptable” operations. When LOS is in the range from E to F, this is an indication that the traffic network is not performing satisfactorily and that changes need to be made to improve conditions. These operations are typically referred to as “unacceptable”. Table 5 provides information regarding the delay thresholds for LOS. Throughout this report, intersections, approaches, and lane groups operating at LOS D are shown in yellow; those operating at LOS E are shown in orange; and those operating at LOS F are shown in red.

Table 5 – Level of Service Definitions and Criteria

Level-of-Service (LOS)	Signalized Intersections Delay* (seconds)	Unsignalized Intersections Delay* (seconds)	Description
A	< 10.0	< 10.0	Minimal control delay; traffic operates at primarily free-flow conditions; unimpeded movement within traffic stream, all queues clear in a single cycle.
B	10.1 – 20.0	10.1 – 15.0	Minor control delay at signalized intersections; traffic operates at an unimpeded level with an occasional approach phase being fully utilized.
C	20.1 – 35.0	15.1 – 25.0	Moderate control delay; movement within traffic stream more restricted than at LOS B; occasional backups may occur on critical movements.
D	35.1 – 55.0	25.1 – 35.0	Considerable control delay; significant congestion on critical approach but intersection operates under acceptable delays and functions.
E	55.1 – 80.0	35.1 – 50.0	High control delay; severe congestion with some long-standing queues on critical approaches. Traffic queue may block nearby intersections upstream of critical movements.
F	> 80.0	> 50.0	Extremely high control delay. Typically stop-and-go operations, extensive queuing and high volumes create exceedingly restricted traffic flow.

* Source: Highway Capacity Manual 6th Edition

Synchro models for the existing network were built based on research of aerial photography and field reconnaissance. Data concerning the intersection and roadway lane configurations, speed limits and turn bay storage lengths were collected and entered in the models. As shown in Table 6, the existing conditions analysis shows several movements and intersection approaches operating a less than acceptable Levels of Service (below LOS D) during the AM and PM peak period.

Queuing occurs when vehicles begin to build up waiting for the opportunity to complete their desired movement at an intersection. To evaluate this, the 95th percentile queue length from the Cubic's SimTraffic is reviewed in comparison with the existing available storage. When queue lengths are significantly larger than the available storage length, it indicates a need for intersection improvements. Table 6 includes a summary of the 95th percentile queues for each study intersection lane group.

Traffic analysis results for the intersections analyzed for this study are provided in Table 6. The results show the intersections operate acceptably, with the exception of the intersection of Washington Avenue/Michigan Avenue at 32nd Street. Based on the existing delay and LOS at the Washington Avenue/Michigan Avenue at 32nd Street, the existing signalized intersection operates at capacity. Modernizing the traffic signal at this location as well as at intersections throughout the project corridor, with optimized corridor signal timing is expected to improve traffic operations. As such, the City should conduct a study to analyze corridor traffic operations and identify improvements to optimize intersection and corridor performance. This would include detailed analysis and recommendations to reduce delays and optimize mobility and safety throughout the Washington Avenue and Michigan Avenue project corridor.

Table 6 – Intersection Capacity and Operations Results – Existing

Intersection	Control	Approach	Lane Group	*LOS / Delay (seconds)		* 95 th Percentile Queue (feet)
				AM Peak	PM Peak	AM / PM
Washington Avenue / Michigan Avenue and 32 nd Street	Signal	Eastbound	Left	D / 36.7	D / 44.6	188 / 231
			Thru/Right	D / 41.3	D / 37.1	270 / 316
			Approach	D / 39.6	D / 39.7	---
		Westbound	Left	D / 42.6	D / 42.6	102 / 159
			Thru/Right	C / 28.0	C / 32.1	198 / 245
			Approach	D / 32.0	D / 35.1	---
		Northbound	Left	D / 37.1	D / 37.0	158 / 190
			Thru	D / 44.8	F / 80.5	190 / 297
			Thru/Right	D / 44.9	F / 80.9	189 / 293
			Approach	D / 43.5	E / 73.9	---
		Southbound	Left	C / 33.0	D / 37.8	62 / 58
			Thru	D / 47.9	D / 45.5	180 / 194
			Thru/Right	D / 48.0	D / 45.8	177 / 191
			Approach	D / 47.0	D / 45.2	---
Intersection Overall				D / 41.7	D / 51.9	---
Michigan Avenue / S River Avenue and State Street	One-Way STOP-Control with Overhead Flasher	Westbound	Right	C / 16.3	D / 25.2	76 / 123
		Southbound	Left	B / 11.2	B / 12.1	102 / 101
Washington Avenue and Meadow Lane Drive	Two-Way STOP-Control	Eastbound	Left/Thru/Right	B / 14.8	C / 18.9	38 / 30
	Washington Avenue Free-Flow	Westbound	Left/Thru/Right	B / 11.8	C / 15.5	18 / 44
		Northbound	Left	A / 8.2	C / 9.1	16 / 18
		Southbound	Left	A / 0.0	A / 0.0	0 / 0
Washington Avenue and W 36 th Street	Two-Way STOP-Control	Eastbound	Left/Thru/Right	B / 11.9	C / 22.6	50 / 49
	Washington Avenue Free-Flow	Westbound	Left/Thru/Right	B / 14.9	E / 36.5	9 / 29
		Northbound	Left	A / 7.9	A / 9.5	28 / 12
		Southbound	Left	A / 0/0	A / 9.7	6 / 6
Michigan Avenue and W 24 th Street	Two-Way STOP-Control	Eastbound	Left	D / 25.1	D / 34.3	55 / 70
	Michigan Avenue Free-Flow	Westbound	Left	B / 10.9	C / 18.7	16 / 36
		Northbound	Left	A / 9.4	A / 9.1	32 / 38
		Southbound	Left	A / 9.3	B / 11.6	10 / 11

* Source: Highway Capacity Manual, 6th Ed, Cubic Synchro v11 / 95th Percentile Queue per Cubic v11 SimTraffic Analysis

5.1 Signal Warrant Analysis:

Traffic signal warrant evaluations were conducted at specified intersections to determine if traffic signalization or signalized pedestrian crossings are warranted at the study intersections. MMUTCD Chapter 4C, Traffic Control Signal Needs Studies, serves as the primary criteria for signal warrant evaluation as well as the latest revision of MDOT's Signal Warrant spreadsheet. In this chapter, criteria for a total of nine (9) traffic signal warrants are provided. MMUTCD references for these warrants, as well as their applicability to this study are provided in Table 7.

Table 7 – MMUTCD Traffic Signal Warrant Criteria

Warrant and Description		Evaluated	Criteria
Warrant 1: 8-Hour Vehicular Volume	Condition A	Yes	<ul style="list-style-type: none"> • Traffic volumes for 8-hour, 4-hour and peak hour periods • Pedestrian Volumes • Posted Speed Limits • Physical layout – Number of lanes and sight distance
	Condition B		
	Condition A & B		
Warrant 2: 4-Hour Vehicular Volume	100%	Yes	
	70%		
Warrant 3: Peak Hour Vehicular Volume	Condition A	Yes	
	Condition B – 100%		
	Condition B – 70%		
Warrant 4: Pedestrian Volume	Condition A – 100%	Yes	
	Condition B – 70%		
Warrant 5: School Crossing		N/A	N/A
Warrant 6: Coordinated Signal System		N/A	N/A
Warrant 7: Crash Experience	Condition A	Yes	<ul style="list-style-type: none"> • 5 or more crashes within a 12 month period that can be corrected by a traffic control signal • Volume requirements • Adequate trial of alternatives
	Condition B		
Warrant 8: Roadway Network		N/A	N/A
Warrant 9: Intersection Near a Grade Crossing		N/A	N/A
Alternate Pedestrian Devices – Low Speed (≤ 35 mph)		Yes	<ul style="list-style-type: none"> • Roadway hourly volumes • Posted Speed • Physical layout – Number of lanes and sight distance • Crash history assessment • Pedestrian crossing counts/hour
Alternate Pedestrian Devices – High Speed (> 35 mph)		Yes	

Table 8 – Signal Warrant Analysis Project Summary

Warrant		Intersection			
		Michigan / S River @ State St	Washington @ Meadow Lane Dr	Washington @ W 36 th St	Michigan @ W 24 th St
Warrant 1: 8-Hour Vehicular Volume	Condition A	Met	Not Met	Not Met	Not Met
	Condition B	Not Met	Not Met	Not Met	Not Met
	Condition A & B	N/A	N/A	N/A	N/A
Warrant 2: 4-Hour Vehicular Volume	100%	Met	Not Met	Not Met	Not Met
	70%	Not Met	Not Met	Not Met	Not Met
Warrant 3: Peak Hour Vehicular Volume	Condition A	Met	Not Met	Not Met	Not Met
	Condition B – 100%	Met	Not Met	Not Met	Not Met
	Condition B – 70%	Met	Not Met	Not Met	Not Met
Warrant 4: Pedestrian Volume	Condition A – 100%	Not Met	Not Met	Not Met	Not Met
	Condition B – 70%	Not Met	Not Met	Not Met	Not Met
Warrant 5: School Crossing		Not Met	Not Met		Not Met
Warrant 6: Coordinated Signal System		N/A	N/A	N/A	N/A
Warrant 7: Crash Experience	Condition A	Met	Not Met	Not Met	Not Met
	Condition B	Met	Not Met	Not Met	Not Met
Warrant 8: Roadway Network		Not Met	Not Met		Met
Warrant 9: Intersection Near a Grade Crossing		N/A	N/A	N/A	N/A
Alternate Pedestrian Devices – Low Speed (≤ 35 mph)		Not Met	Not Met	Not Met	Not Met
Alternate Pedestrian Devices – High Speed (> 35 mph)		Not Met	Not Met	Not Met	Not Met
Signal Warranted		Warranted	Not Warranted	Not Warranted	Not Warranted

The traffic signal warrant analysis demonstrates that the Michigan Avenue/S River Avenue and State Street intersection meets the threshold of the primary signal warrants Warrant 1, Warrant 2, and Warrant 3. It also meets a Warrant 7 based on the existing intersection crash history. The other study area intersections do not meet the criteria for installing a traffic signal, neither do they meet the active pedestrian device warrants; however, active pedestrian devices like Pedestrian Hybrid Beacons (PHB) or Rapid Rectangular Flashing Beacon (RRFB) may be justified with engineering judgement and studying pedestrian generation and volumes during the Spring and/or Summer calendar months and with community input. Additionally, it is recommended that the Michigan Avenue and W 24th Street intersection is further studied for potential traffic signalization to meet engineering justification for Warrant 8. Signalization of this intersection will benefit Hospital employees to safely cross Michigan Avenue with an active crossing, as well as provide gaps for W 24th Street to enter Michigan Avenue. The vertical curve along Michigan Avenue south of W 24th Street creates a potential sight distance conflict where eastbound W 24th Street traffic is not afford adequate sight distance o complete a safe maneuver onto Michigan Avenue, traffic signalization would mitigate this conflict situation.

6.0 COMMUNITY ENGAGEMENT

Community outreach and connecting with the community at public meetings is vital to the project's success. To ensure the project reflects community desires and is supported by the community, two public meetings were held. The first public meeting solicited feedback on initial concepts for the corridor. This public information was used to refine corridor concepts. The second public meeting solicited input on community preferences for the various potential corridor enhancements and treatments. This public information was used to inform evaluation of enhancements and treatments which then reflect recommendations for the corridor. Community meeting and public comments are provided in Section 7.0 and attendance sheets are provided in the appendix. Public meeting attendees were representative of the community and provided input along all segments of the corridor.

7.0 CONCEPT DEVELOPMENT

The project team identified a variety of potential treatments and enhancements to support the project goals for the Washington Corridor, centered around safety, multimodal mobility, access management and potential corridor reconfiguration (modification of travel and turn lanes). The concepts and the various alternatives address the project goals; the identified options are buildable concepts that consider the needs of the stakeholders, the community goals, feasibility of traffic operations, and requirements of emergency services. Input from the community will inform plan recommendations. It is important to note that considerations for the City's implementation of the various recommendations will, by necessity, also need to address site-specific considerations (i.e., safety, business and property owner needs, etc.) as well as funding. Initial concepts are outlined below:

7.1 **Corridor Configuration**

The corridor is subdivided into segments based on traffic volumes and results of the capacity analyses. Resulting reconfiguration opportunities reflect an assessment of feasibility as well as the ability to rebalance multimodal accommodations along the Washington corridor. The corridor concept images shown in Figure 8 are the exhibit boards that were displayed at Public Meeting #1; they represent ideas conveyed to stimulate discussions at the meeting.

I-196 to 31st Street

Maintain existing 5-lane cross-section

- 4-11' lanes
- 1 center turning lane or raised median
- 4' shoulders along both sides
- Shared-use path along the west side
- Sidewalk along the east side

31st Street to Cherry Street

Convert existing 4-lane cross-section to a 3-lane configuration

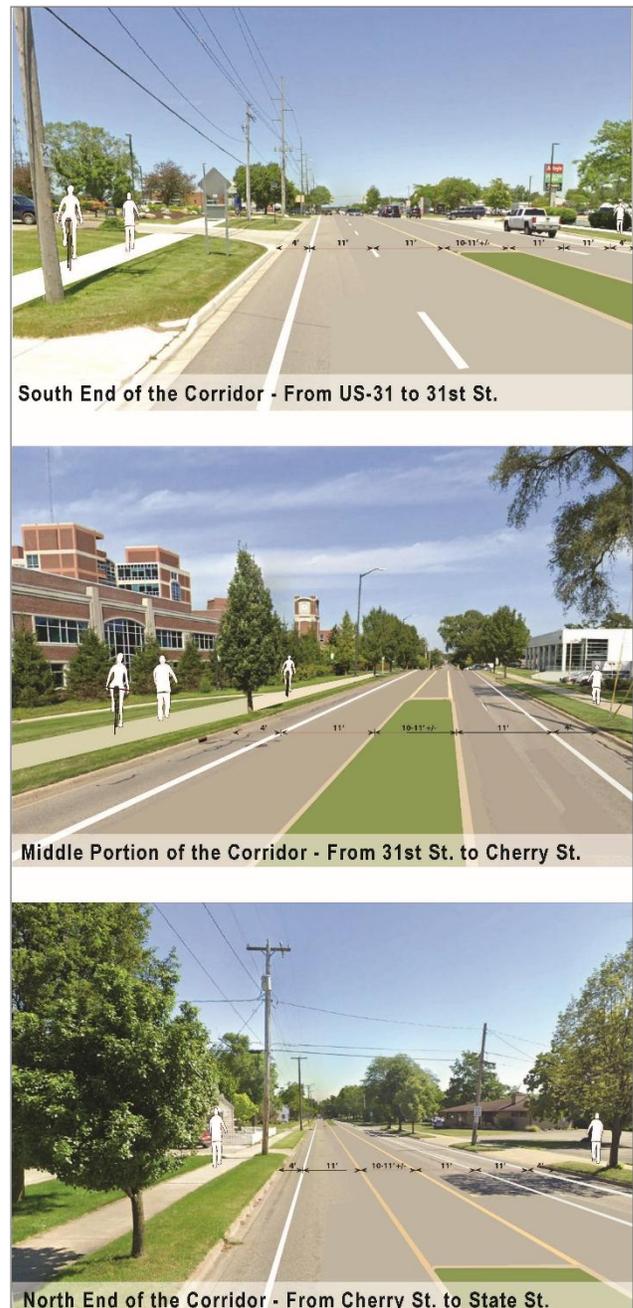
- 2-11' travel lanes,
- 1 center turning lane or raised median,
- 4' shoulders along both sides,
- Shared-use path along the west side to Pine Avenue
- Sidewalk along the east side.

Cherry Street to State Street

Maintain the 4-lane cross-section

- 3-11' travel lanes (1 SB, 2 NB)
- 1 center turning lane or raised median
- 4' shoulders along both sides
- Sidewalks along the east and west sides

Figure 8 – Corridor Configuration Concepts



7.2 Intersection Signalization and Other Treatments

Some potential treatments at intersections were identified to improve traffic operations and safety.

Michigan Ave @ W. 27th Street

Install northbound and southbound left-turn lane at this signalized intersection

Michigan Ave @ State Street

Install a traffic signal and provide crosswalks on all approaches. This will mitigate existing operational safety issues, improve access, and more safely accommodate pedestrian crossings of both State Street and Michigan Avenue/S River Avenue and State Street.

Signalize Michigan Ave @ 24th Street

Although this intersection does not meet MUTCD signal warrants, signalization may be considered as part of a coordinated system. A signal at this intersection could facilitate pedestrian crossings to/from the hospital. Additionally, the bus stop could be relocated to the intersection to improve safe access to/from the bus for transit riders.

Washington Corridor Signal Optimization

Conduct a traffic signal optimization study for the Washington corridor from I-196 to Downtown Holland to optimize corridor operational performance and reinforce speed limit compliance.

Modernize Existing Corridor Signalization

- Convert existing diagonal span traffic signals to box span or mast arm signals to improve signal alignment and visibility.
- Install wireless, radar, or video traffic detection to replace the existing traffic loop detectors for improved reliability.
- Install permitted + protected left-turn phasing based on intersection operations, traffic volumes, and crash history at intersections where needed to improve traffic operations and safety.

7.3 Access Management

According to the Federal Highway Administration (FHWA), Access management refers to the design, application, and control of entry and exit points along a roadway. This includes intersections with other roads and driveways that serve adjacent properties. Thoughtful access management along a corridor can simultaneously enhance safety for all modes, facilitate walking and biking, and reduce trip delay and congestion. Recommendations for potential access management strategies along the Washington corridor are identified below. Implementation of access management will require coordination with local commercial businesses and property owners to ensure their needs are accommodated while achieving the access management objective of improving corridor safety by reducing the opportunities for vehicle-vehicle and vehicle-pedestrian conflicts.

- Reduce or remove the driveway approach tapers along northbound and southbound Washington Ave between I-196 and 32nd Street.
- Consolidate/close driveways for properties with more than one access drive
- Reduce width of wide driveways to reduce potential for pedestrian-vehicle conflicts where driveways cross sidewalks
- Install raised medians where appropriate to control driveway movements and improve corridor safety

7.4 Corridor Character and Aesthetics

The potential treatments identified under this enhancement category provide additional benefits beyond improved corridor character and aesthetics.

- Install landscaped raised medians at identified locations along the Washington corridor to enhance traffic calming, support access management, and help facilitate pedestrian crossings at identified pedestrian crossing locations.
- Install decorative, pedestrian-scale lighting to illuminate sidewalks and intersections along the Washington corridor.

7.5 MAX Transit and Holland Public School District Bus Stop Treatments

Some treatments have been identified to enhance bus operations as well as rider access to and from transit along the Washington corridor. These treatments should be coordinated with MAX and/or the Holland Public School District, as appropriate.

- Install transit pull-out lanes at MAX transit stop locations, as appropriate
- Provide bus shelters at transit stops
- Relocate Holland Public Schools bus stop on Washington at Meadow Lane Drive off the corridor and onto Meadow Lane Drive. This will improve student safety traveling to and from the bus and it will mitigate the observed disregard of stopped buses with flashing red lights by drivers on the Washington corridor.

7.6 Non-Motorized Infrastructure and Connectivity

Improved non-motorized mobility on the corridor requires consideration of off-road treatments to accommodate all ages and abilities. In-road bicycle lanes are not sufficient based on corridor characteristics (travel lanes and traffic volumes), as identified in *Holland Moves*.

- Install 10-ft shared use path along the west side of the Washington corridor, terminating at Pine Street where the shared use path connects with the existing City of Holland non-motorized route.

7.7 Pedestrian Crossing Treatments

Provision and/or enhancement of pedestrian crossings is a defined goal of this project to accommodate non-motorized travelers on the corridor. These improvements would be supported by these treatments:

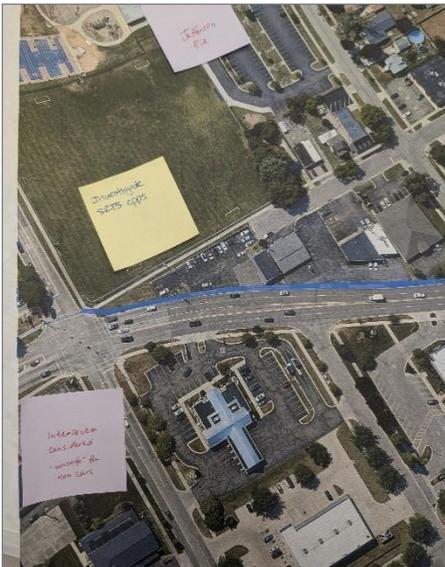
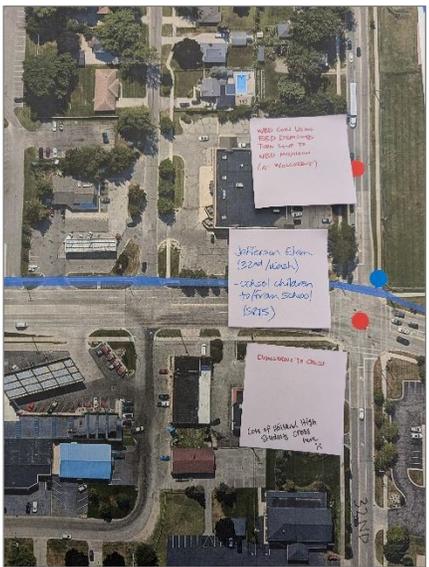
- Install special emphasis crosswalk markings at all signalized intersection approaches and at potential mid-block crossing locations.
- Relocate/install PROWAG/ADA compliant pushbuttons at active pedestrian crossings.
- Install mid-block crossings to facilitate pedestrian mobility between signalized intersections. Identify pedestrian generators and solicit community input to develop strategy for mid-block crossing locations and/or warrant judgement for active pedestrian crossing. Based on *Holland Moves*, implementation of PHB is recommended treatment for mid-block crossings on the Washington corridor based on roadway width, number of travel lanes and traffic volumes. In addition, mid-block crossings should include a median section to serve as a pedestrian refuge and to enhance pedestrian safety and comfort.

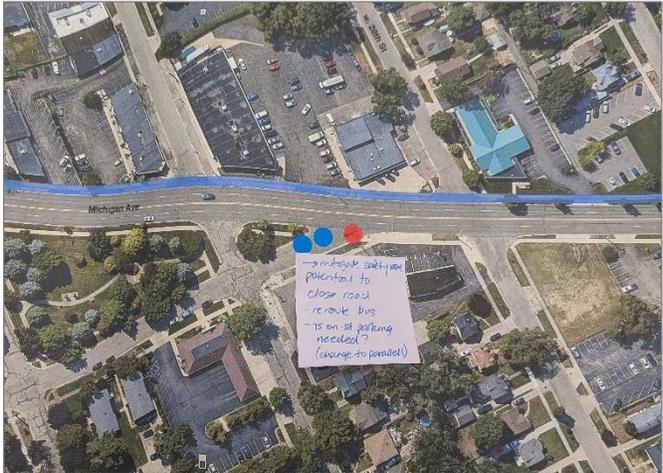
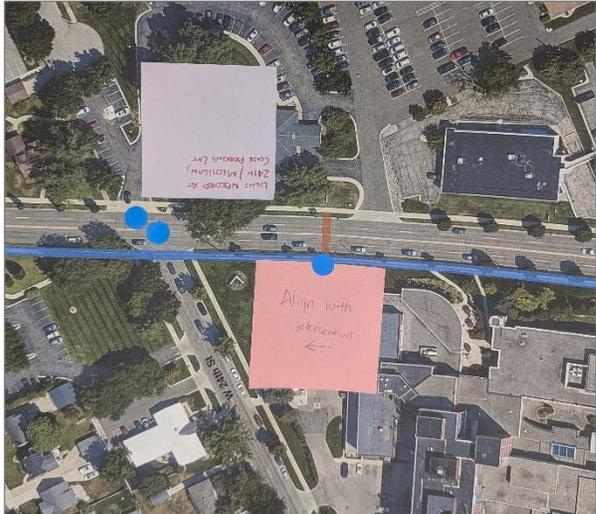
7.8 Public Meeting #1 – January 2025

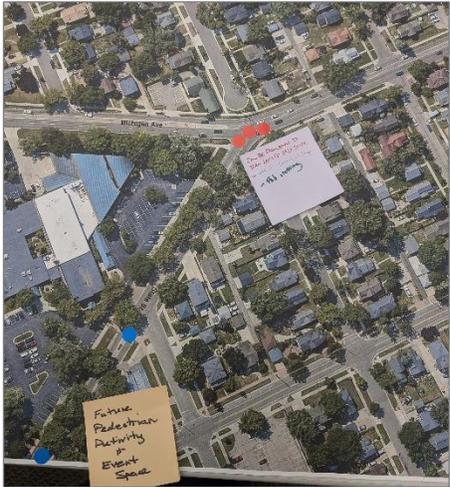
The first public meeting was held on Monday January 13, 2025, at the City of Holland City Hall. Comments received from the community during the meeting are recorded in Table 9. Common themes and comments heard at this public meeting include:

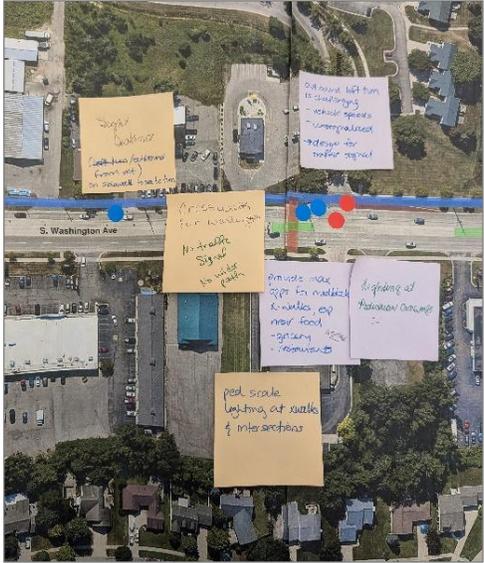
- The W 40th Street and 32nd Street Washington Avenue intersection are noted to be unsafe for non-motorized traffic.
- As described by the local school representatives, the parents of students describe the Washington Avenue south of 32nd Street as unsafe and not-easy to walk to school impacting attendance.
- The distance between active/signalized pedestrian crossings along Washington Avenue and Michigan Avenue are too far. Community would like additional mid-block crossing opportunities, especially near food generators.
- Reroute MAX Transit to remove or restrict access along Maple Avenue between W 29th Street and Michigan Avenue.
- Install a traffic signal at 24th Street and/or remove commercial parking lot driveway.
- Connect the proposed 10-ft path with W 22nd Street.
- Pedestrians and non-motorized traffic find it hard to cross Michigan Avenue north of W 22nd Street near Evergreen Commons.
- State Street is unsafe for pedestrians and can be dangerous and State Street traffic have limited sight distance and roll past STOP-Sign.
- It is difficult making left turn movements near W 36th Street.
- Meadow Lane Drive lacks signalization or pedestrian crossings across Washington Avenue.
- Would prefer mid-block crossing near food and retail generators.
- Corridor and sidewalk lighting.
- Request to delineate between bike and pedestrian travel on shared use path

Table 9: Public Meeting #1 Summary of Comments

Location	Public Comments & Related Images
<p>Michigan Ave W @ 32nd St</p>	<ul style="list-style-type: none"> • Intersection considered as unsafe for non-cars • Investigate SRTS (safe routes to school) opportunities • Jefferson elementary <ul style="list-style-type: none"> - The current path to Jefferson Elementary from apartment neighborhoods off/near 40th Street does not feel safe to parents of students. This inability to walk safely and easily to school impacts attendance for students and inhibits engagement for family and community members in the school. - Becky Lawrence - Jefferson elementary community coordinator. • Dangerous to cross <ul style="list-style-type: none"> - Lots of Holland high school students cross • Jefferson Elementary <ul style="list-style-type: none"> - School children to/from (SRTS) • Other <ul style="list-style-type: none"> - WBD cross using EBD dedicated turn lane to NBD Michigan (at Walgreens) <div style="display: flex; justify-content: space-around;">   </div>
<p>Michigan Ave @ W 30th St</p>	<ul style="list-style-type: none"> • Too far between crosswalks - Agree! <div style="text-align: center;">  </div>

Location	Public Comments & Related Images
<p>Michigan Ave @ Maple Ave (Performance Plus quick oil change business)</p>	<ul style="list-style-type: none"> • Mitigate safety issue potential to close road. • Re-route bus • TS on-street parking needed? (Change to parallel parking) 
<p>Michigan Ave @ W 24th St</p>	<ul style="list-style-type: none"> • Align with the intersection W 24th Street and Michigan Avenue. • Light needed at this intersection. • Close parking lot 
<p>Around Michigan Ave @ W 22nd St</p>	<ul style="list-style-type: none"> • Connect 10 feet trail north to 22nd Street (Future bike infrastructure on 22nd?) • Beautification along the corridor? • Tough to cross to bike/pedestrian 

Location	Public Comments & Related Images
<p>Michigan Ave @ State St</p>	<ul style="list-style-type: none"> • Future pedestrian activity and event space. • Can be dangerous to turn left at SBD State. <ul style="list-style-type: none"> - Vehicles running STOP sign • Ped crossing 
<p>Michigan Ave @ W 36th St</p>	<ul style="list-style-type: none"> • Difficult left (outbound) and will get worse with new housing. • Add more lighting. 
<p>Michigan Ave @ W 40th St</p>	<ul style="list-style-type: none"> • Intersection considered as unsafe for non-cars. • Left-turn arrows needed NBD Washington Avenue to WBD 40th Street. • Increase snow clear. • Sidewalk-area is not cleared quickly, and people enter streets. • Provide trees to shade sidewalks. • Provide ped scale lighting. 

Location	Public Comments & Related Images
<p>Michigan Ave @ Meadow Lane Dr</p>	<ul style="list-style-type: none"> ● Outbound left-turn is challenging. <ul style="list-style-type: none"> - Vehicle speeds - Unsignalized - Desire for traffic signal ● Provide MAX stops for midblock crosswalks, especially near food/grocery/restaurants- Agreed! ● Lighting at pedestrian crossings ● Ped scale lighting at crosswalks and intersections. ● Crosswalk for Washington Avenue. <ul style="list-style-type: none"> - No traffic signal - No wider path ● Sight distance (outbound from vet) on sidewalk to see to turn 

8.0 CONCEPT REFINEMENT

Based on community input and follow up meetings with the project team, corridor recommendations were refined to optimize the ability of the Washington Corridor Plan to meet the project goals. The refined concepts were reviewed with the project team and presented to the community to solicit input that informed recommendations for the corridor plan. The concepts presented to the community at Public Meeting #2 are:

- Potential Corridor Reconfiguration
 - Right-size travel lanes to improve multimodal balance
- Michigan / State Intersection Options
 - Improve traffic safety and access
 - Enhance pedestrian mobility and crossing safety
- South Washington Gateway
 - Enhance aesthetics at southern entrance to corridor
 - Traffic calming
- Enhanced Pedestrian Crossings
 - Improve pedestrian mobility
- Pedestrian Scale Lighting
 - Improve pedestrian safety, visibility and comfort
- Shared Use Path
 - All ages and abilities bicycle facility
 - Also accommodates pedestrians
- Median Sections
 - Recommended locations for traffic calming, access management and safety
- Driveway narrowing and consolidation
 - Recommended locations for access management to improve vehicular and pedestrian safety
- Relocate school bus stop to westbound Meadow Lane Drive at Washington Ave
 - Mitigate driver violations at Washington Ave stop
 - Adjacent to existing sidewalk within neighborhood
- Install School Zone surrounding Jefferson Elementary School
 - Improve safety for school access
- Install bus pullouts (coordinate with MAX)
 - Enhance bus operations
- Evaluate potential signal at Michigan Ave @ 24th Street
 - Conduct roadway network warrant analysis
- Assess signal operations to identify appropriate phase changes (left turn arrows)
 - Conduct corridor signal timing optimization study

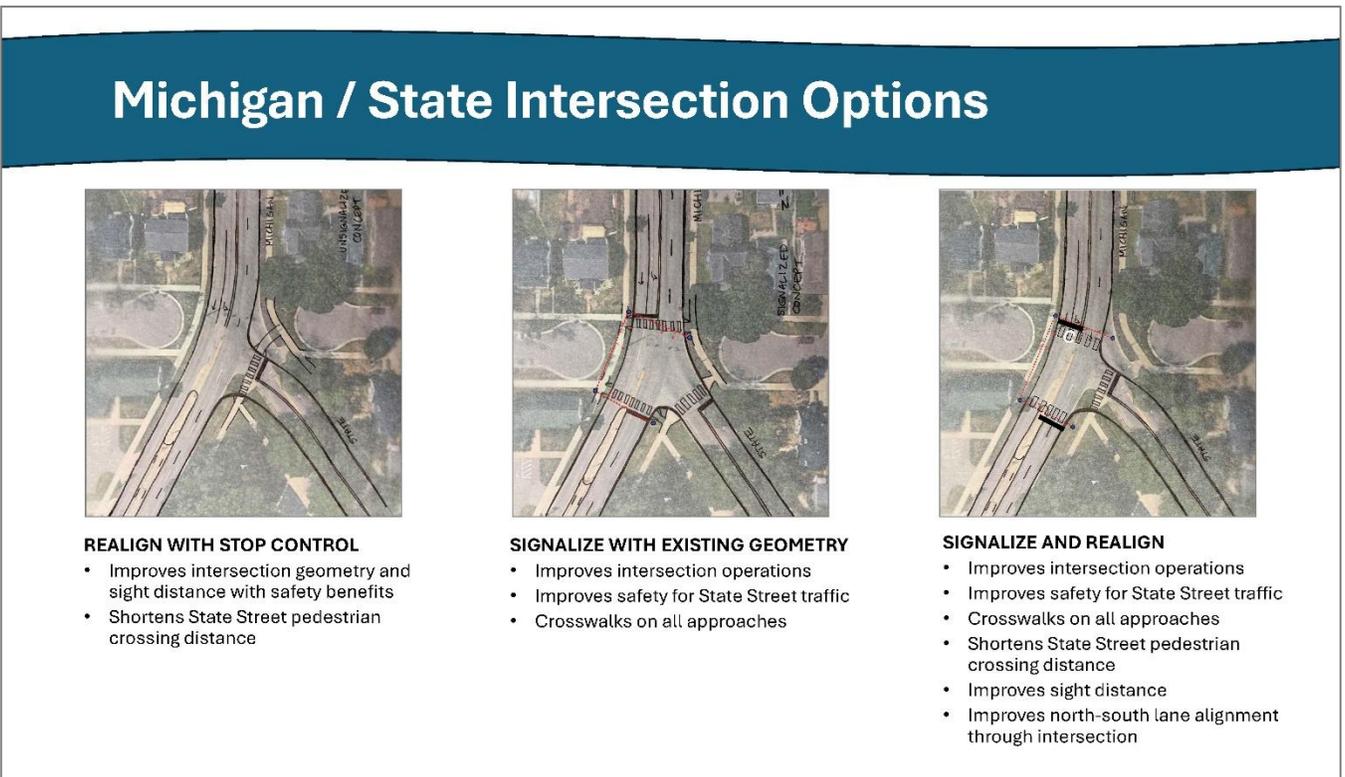
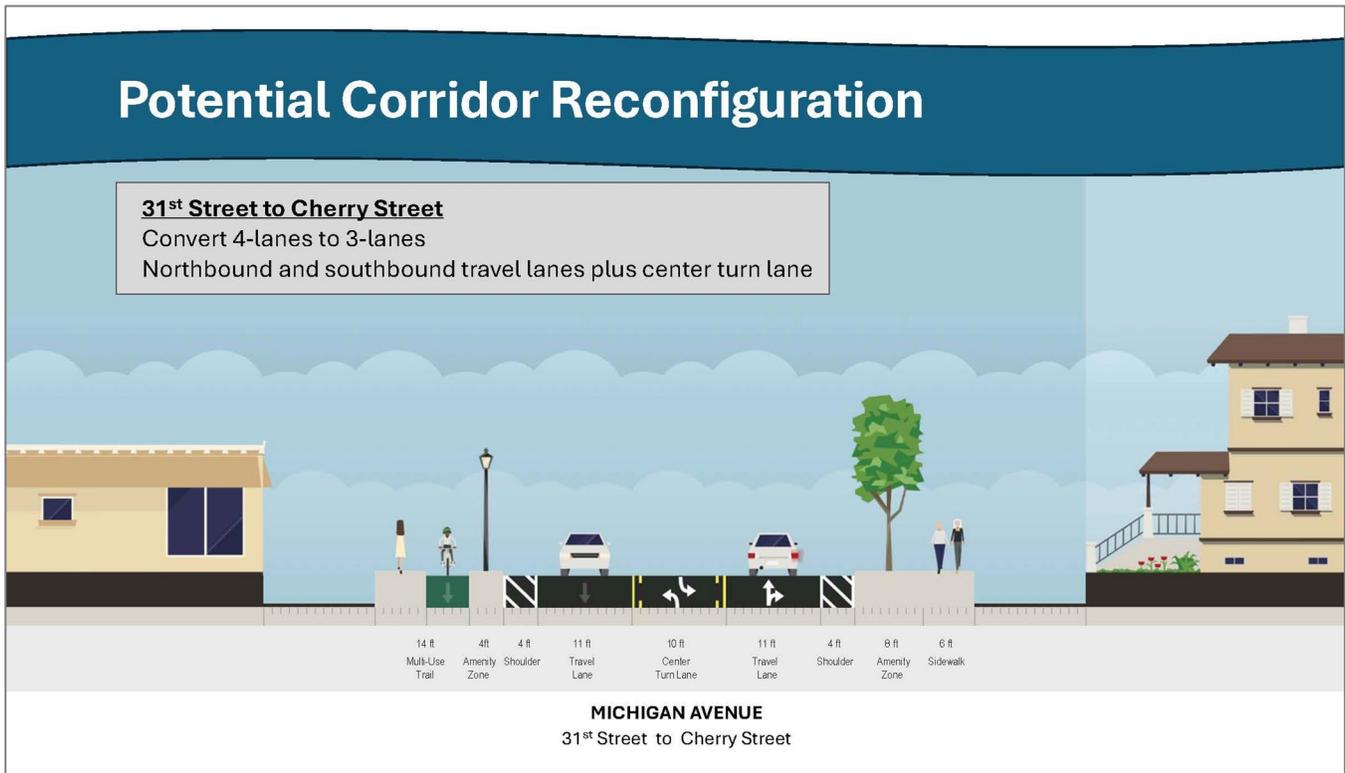
8.1 Public Meeting #2 – February 2025

The second public meeting was held on Monday February 24, 2025, at the City of Holland City Hall. The meeting was held in an open house format which encouraged interaction from the residents, allowing time for discussion and participation with interactive boards to indicate their priorities for the project. A plot of the entire corridor was presented, illustrating the concepts and treatments along with the potential locations for the improvements and enhancements. Community members were able to put color coded dots on things they liked and things they did not like, and they provided detailed comments on post-it notes. In addition, boards showing details of each concept were displayed along with decision matrix boards where community members used dots to indicate their preferences for the proposed treatments.

Figure 9 – Public Meeting Corridor Plot and Boards



Figure 10 – Corridor Concept Boards



South Washington Gateway



FEATURES

- Landscaping, signage and median
- Creates welcoming entry into corridor
- Traffic calming
- Screen substation
- Reinforces right turn only from I-196 off-ramp

Enhanced Pedestrian Crossings



FEATURES

- Marked crosswalk with median
- Pedestrian-activated signal stops traffic

A pedestrian hybrid beacon (PHB) is a traffic control device used to increase motorists' awareness of pedestrian crossings at uncontrolled marked crosswalk locations.

A PHB is distinct from pre-timed traffic signals and constant flash warning beacons because it is only activated by pedestrians when needed.



APPROVED BY CITY OF HOLLAND PLANNING COMMISSION ON 1/14/22
 APPROVED BY CITY OF HOLLAND CITY COUNCIL ON 2/1/22

Roadway Configuration	Posted Speed Limit and AADT					
	Vehicle AADT <9,000		Vehicle AADT 9,000-15,000		Vehicle AADT >15,000	
	<30 mph	35 mph	>40 mph	<30 mph	35 mph	>40 mph
2 lanes (1 lane in each direction)	● 2 ●	● 2 ●	● 2 ●	● 2 ●	● 2 ●	● 2 ●
3 lanes with raised median (1 lane in each direction)	● 2 ●	● 2 ●	● 2 ●	● 2 ●	● 2 ●	● 2 ●
3 lanes w/o raised median (1 lane in each direction with a two-way left-turn lane)	● 2 ●	● 2 ●	● 2 ●	● 2 ●	● 2 ●	● 2 ●
4+ lanes with raised median (2 or more lanes in each direction)	● 2 ●	● 2 ●	● 2 ●	● 2 ●	● 2 ●	● 2 ●
4+ lanes w/o raised median (2 or more lanes in each direction)	● 2 ●	● 2 ●	● 2 ●	● 2 ●	● 2 ●	● 2 ●

- Given the set of conditions in a cell:
- Signifies that the countermeasure is a candidate treatment at a marked uncontrolled crossing location.
 - Signifies that the countermeasure should always be considered, but not mandated or required, based upon engineering judgment of a marked uncontrolled crossing location.
 - Signifies that crosswalk visibility enhancements should always occur in conjunction with other identified countermeasures.
- The absence of a number signifies that the countermeasure is generally not an appropriate treatment, but exceptions may be considered following engineering judgment.
- Field Guide for Selecting Countermeasures at Uncontrolled Pedestrian Crossing Locations - Source: FHWA

FHWA GUIDANCE | TREATMENTS

- PHB
- Median/pedestrian refuge island
- Advance yield + stop line yield to pedestrian signs
- High-visibility crosswalk, parking restriction, nighttime lighting, crosswalk warning signs

Pedestrian Scale Lighting



Bollard



Acorn



Dual Acorn



Pendant



Round Globe

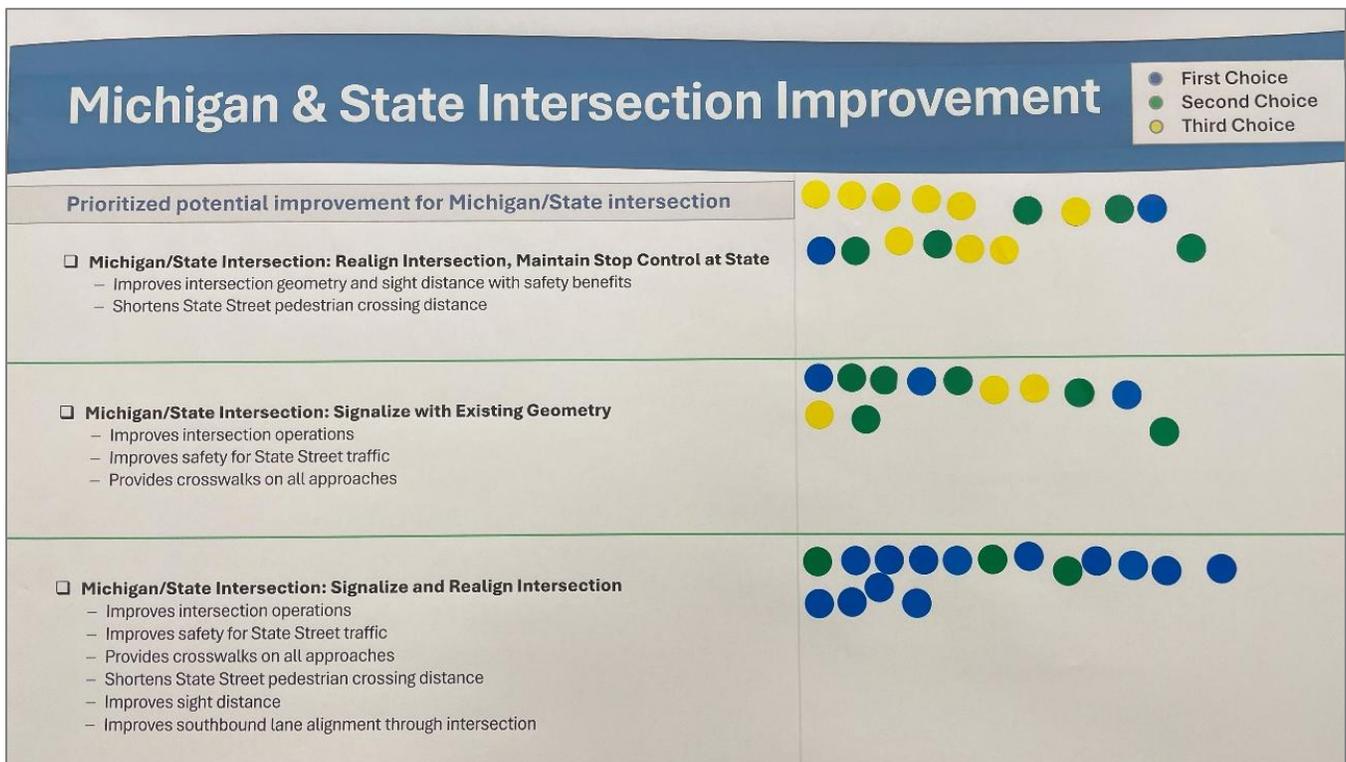
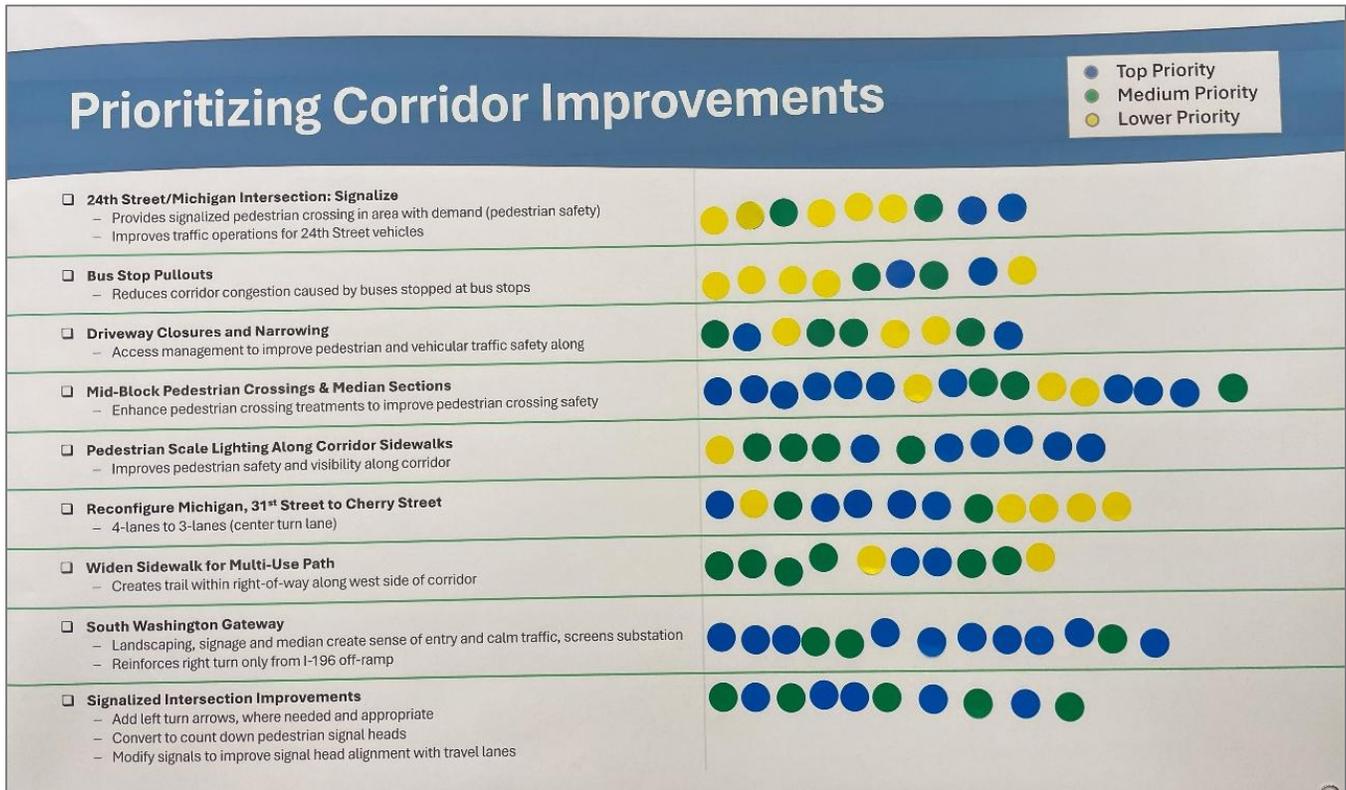
Shared Use Path



- FEATURES**
- Widened sidewalk creates multi-use trail on west side of corridor
 - Off-street accommodation for pedestrians and bicycles

SOUTH WASHINGTON
US 31/BL-196 to 31st Street

Figure 11 – Community Preference Boards



8.2 Community Preferences & Input

Community preferences for corridor improvements and for the potential improvements at the Michigan Avenue @ State Street intersection are summarized in Tables 10 and 11, respectively. Community input was indicated by dots with top priority (blue dots) scoring three points, medium priority (green dots) scoring 2 points, and lower priority (yellow dots) scoring one point.

Table 10: Public Preferences for Corridor Improvements

Corridor Treatment	Score	Priority
Median Sections & Mid-Block Pedestrian Crossings	39	Top Priority
South Washington Gateway	36	
Pedestrian Scale Lighting Along Corridor Sidewalks	27	Medium Priority
Signalized Intersection Improvements	25	
Reconfigure Michigan, 31st Street to Cherry Street	24	
Widen Sidewalk for Shared Use Path	20	
Driveway Closures and Narrowing	17	Lower Priority
Signalize 24th Street/Michigan Intersection	15	
Bus Stop Pullouts	15	

Top Priority Corridor Treatments

The community prioritizes implementation of median sections as being the most important corridor treatment (with mid-block pedestrian crossings where appropriate), followed closely by creating a gateway at the south end of the Washington corridor.

Medium Priority Corridor Treatments

Medium priority treatments, in order of preference, are listed below. Their scores were grouped relatively close together.

- Pedestrian Scale Lighting Along Corridor Sidewalks
- Signalized Intersection Improvements
- Reconfigure Michigan, 31st Street to Cherry Street
- Widen Sidewalk for Shared Use Path
- Widen Sidewalk for Shared Use Path

Lower Priority Corridor Treatments

The lowest priority corridor treatments, in order of preference, are listed below. Their scores were also grouped relatively close together.

- Driveway Closures and Narrowing (access management)
- Signalize 24th Street/Michigan Intersection
- Bus Stop Pullouts

Table 11: Public Preferences for Michigan Ave @ State St Intersection

Michigan / State Intersection Improvement	Score	Priority
Signalize and Realign Intersection	45	First choice
Realign Intersection, Maintain Stop Control at State	25	± even split
Signalize with Existing Geometry	24	

The community expressed a strong preference for signalizing the Michigan Ave @ State St intersection with realignment of the State Street approach. Although the scores for the other two alternatives scored similarly, examination of the boards shows signalization of the Michigan Ave @ State St intersection with the existing geometry had more first and second choice dots and fewer third choice dots than realigning the intersection without signalization. The combined results show a strong community preference to signalize the Michigan Ave @ State St intersection.

9.0 RECOMMENDATIONS AND CONCLUSIONS

The project team met after Public Meeting #2 to discuss the improvement concepts within the context of community preferences as well as implantation, safety and other infrastructure-related considerations. Recommendations for the corridor concepts are summarized below.

Median Sections

Installation of median sections along the Washington corridor will introduce traffic calming benefits, support access management. Median sections also provide opportunities for landscaping which enhance corridor aesthetics. According to FHWA, raised medians provide these benefits:

- Reduce motor vehicle crashes by 15 percent
- Decrease delays for motorists (>30 percent)
- Increase capacity of roadways (>30 percent)
- Reduce vehicle speeds on the roadway
- Provide space for landscaping within the right-of-way
- Provide space to install additional roadway lighting, further improving the safety of the roadway
- Provide space to allow for supplemental signage on multi-lane roadways
- Cost less to build and maintain than paved medians

Median sections also improve pedestrian crossing safety. Where appropriate, median sections can be used for installation of enhanced pedestrian crossings along the corridor to support pedestrian mobility and crossing safety at select mid-block locations. Based on guidance in *Holland Moves*, which is supported by FHWA, the appropriate type of treatment for enhanced pedestrian crossings on the Washington corridor should be a PHB. Pedestrian crossings would be facilitated with median sections, providing an opportunity for pedestrian refuge and also allowing separate signalization for crossings of the

Figure 11 – Mid-Block Pedestrian Crossing



northbound and southbound travel lanes. This will have the added benefit of reducing motor vehicle delay which should help reinforce driver compliance. Additionally, crossing of the median could be configured as a “Z” crossing which would optimize visibility and opportunity for eye contact between pedestrians and drivers. Mid-block crossings should be integrated into the corridor’s signal timing system.

The City is justifiably concerned about provision of mid-block crossings on the Washington corridor based on vehicle speeds and volumes as well as pedestrian visibility and driver compliance. With two lanes of traffic in each direction, pedestrian sight distance across the lanes is restricted by vehicle shadowing. This potential safety concern could be mitigated with signage warning pedestrians to wait for both lanes of approaching traffic to stop. As this project advances, the City will give careful consideration to potential mid-block pedestrian crossing treatments and locations.

Potential median sections for the corridor are identified in the Washington corridor concept map (Appendix A). The purpose of the median sections is to support traffic calming and corridor beautification as well as reinforce access management strategies to address safety concerns and improve organization of the corridor. As the project advances, the locations for proposed median sections should be reviewed with nearby property owners and businesses to ensure access to corridor businesses is preserved while the desired safety benefits are achieved.

Provision of median sections (and mid-block pedestrian crossings) is the highest scored treatment at Public Meeting #2.

South Washington Gateway

Creation of a gateway at the southern end of the Washington corridor will create a welcoming entry into the community with the provision of landscaping, signage and a median section. The intent is to make the motorists feel like they are entering an area with pedestrians, where they should slow down and enjoy the view as they drive and feel welcomed to corridor. The treatments will have a traffic calming effect by conveying the sense of entry into the community with the change in corridor character and denser development. In addition, the median section will reinforce driver compliance with the right turn only from the I-196 westbound off-ramp and the landscaping should be configured to screen the substation, improving corridor aesthetics.

Creation of a gateway at the south end of the Washington corridor scored second highest scored at Public Meeting #2.

Figure 12 – South Washington Gateway



Signalize Michigan / State Intersection

Converting the intersection of Michigan Avenue @ State Street will improve traffic operations and safety and enhance pedestrian mobility and crossing safety. Signalization will mitigate crashes and crash patterns currently occurring at this intersection (see Appendix D). The southbound left turn lane alignment and conflict with the northbound through movement will be mitigated. Intersection sight distance is improved and southbound lane alignment through the intersection is also improved. With signalization, pedestrian crosswalks should be provided on all approaches to improve pedestrian mobility and safety. In addition, signalization of the intersection will enable provision of left turns from State Street; this movement is currently prohibited.

This plan proposed two options for signalization. One signalizes the intersection with the existing geometry. The other includes realignment of State Street within the right of way to reconfigure the State Street approach with a more standard (90o) intersection which will improve traffic safety, improve north-south lane alignment through the intersection, and shorten the pedestrian crossing distance, which will improve pedestrian safety and comfort.

This intersection meets MUTCD signal warrants. Traffic analysis of the proposed signalized intersection shows acceptable operations for capacity and delay, and projected queues are reasonable (see Appendix C).

Community input at Public Meeting #2 identified this as a medium priority. Of the alternatives, there was a strong preference to realign and signalize the intersection. If the City is unable to move forward with realignment of State Street, there is still definite value in signalizing the intersection with the existing intersection geometry.

Figure 13 – Signalize Michigan Ave @ State St

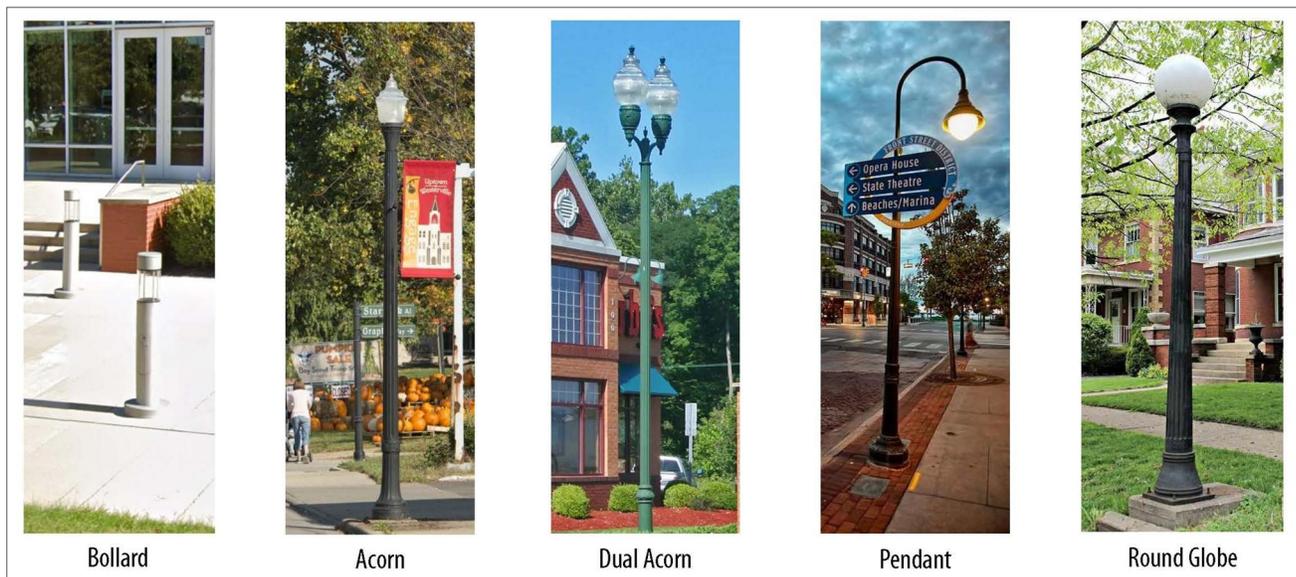


Pedestrian Scale Lighting

Installation of pedestrian scale lighting along the Washington corridor will improve pedestrian safety, visibility and comfort. Lighting along corridor sidewalks will illuminate pedestrians on the sidewalk, making them more visible to motorists, and it will improve pedestrian visibility of the walking surface. In addition, the lighting will enhance the corridor's character and aesthetic during daylight hours as well as at night.

Community input at Public Meeting #2 identified installation of pedestrian scale lighting along the Washington corridor sidewalks as a medium priority.

Figure 14 – Examples of Pedestrian Scale Lighting



Signalized Intersection Improvements

Recommended improvements to signalized intersections included improvements that would benefit the entire Washington corridor as well as targeted improvements at specific intersections. Community input at Public Meeting #2 identified improvements to signalized intersections as a medium priority.

Intersection specific improvements include:

- **Convert Michigan Ave @ State Street to signalized intersection**
As discussed above.
- **Convert Michigan Ave @ 24th St to signalized intersection**
Although warrant criteria is not met (see Table 8), the City could consider signalization to facilitate pedestrian crossings in the vicinity of Holland Hospital where there is pedestrian crossing demand. A signal may be warranted based on the roadway network warrant (pending corridor analysis of traffic operations). If this intersection is signalized, it would be reasonable to relocate the MAX bus stop to this intersection to facilitate transit rider access as they are walking to/from the bus stop. Additionally, signalization of this intersection would mitigate the need for the proposed mid-block pedestrian crossing south of the intersection.
- **Michigan Ave @ W. 27th Street left turn lanes**
Install northbound and southbound left-turn lane at this signalized intersection with conversion of the corridor from a four-lane to a three-lane roadway.

- **Washington Ave @ Matt Urban and Michigan Avenue @ 27th Street Intersection Left Turn Phasing**
Addition of left turn phasing at this intersection was requested by the community at both public meetings. Implementation of this request requires traffic operations analysis to validate the need for and to integrate left turn phasing into signal operations.

General intersection improvements include:

- **Add left turn arrows, where needed and appropriate**
Install permitted + protected left-turn phasing based on intersection operations, traffic volumes, and cash history at intersections where needed to improve traffic operations and safety. This improvement requires analysis of intersections to determine where dedicated left turn phasing is appropriate.
- **Modify signals to improve signal head alignment with travel lanes**
This improvement requires analysis of intersections to determine where signal head alignment needs to be adjusted.
- **Convert to count down pedestrian signal heads**
This traffic signal modernization improvement applies to all intersections along the corridor and is particularly valuable where pedestrian crossing volumes are appreciable.
- **Convert from diagonal to box span (or mast arm) signals**
This signal modernization improvement applies to some corridor intersections. Replacement of existing diagonal span signals is expected to improve signal head alignment over travel lanes and improve intersection safety.
- **Upgrade vehicle detection equipment**
Install wireless, radar, or video traffic detection to replace the existing traffic loop detectors for improved reliability.

Potential improvements for the corridor could be achieved with the following:

- **Washington Corridor signal optimization**
Conduct a traffic signal optimization study for the Washington corridor from I-196 to Downtown Holland. This traffic analysis will facilitate optimization of signal timing, phasing and corridor progression. Operational benefits achieved from the analysis are expected to include reductions in delay and congestion for improved operational performance throughout the corridor. In addition, provision of corridor progression can be used to reinforce corridor speed limits which should have a positive impact on safety.
- **Signal Warrant Analysis**
Conduct warrant analyses for corridor signals to determine locations where signalized control is warranted and appropriate. This effort will help to holistically improve corridor operations and safety.

Corridor Reconfiguration

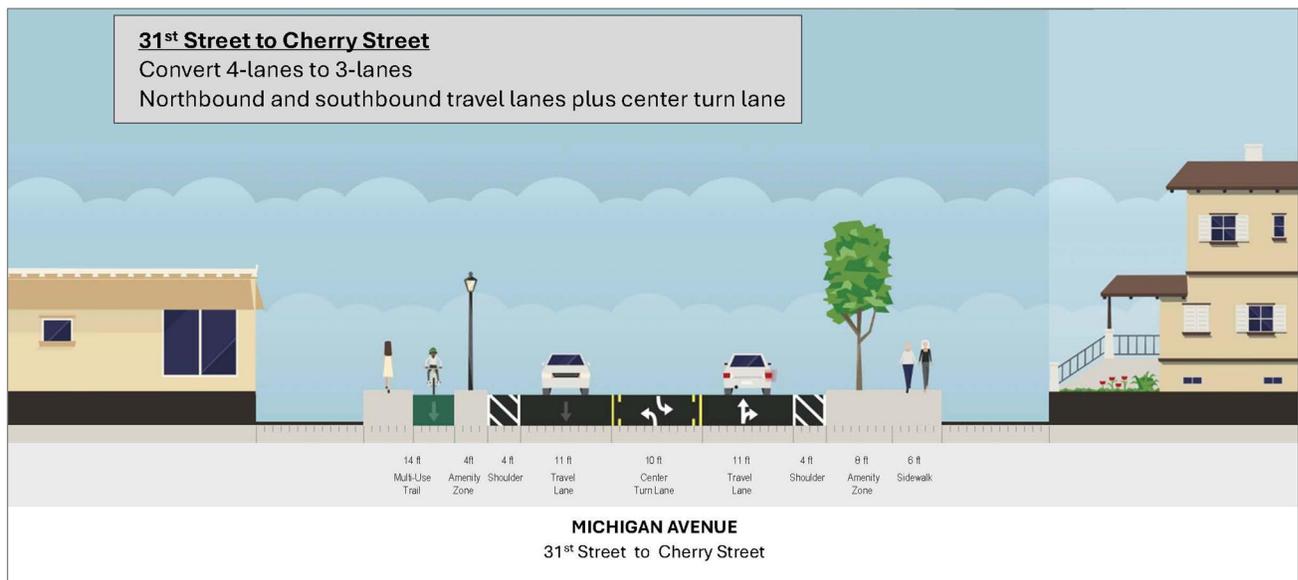
Traffic analysis of the Washington corridor that was completed as part of this project shows that it is feasible to reconfigure the corridor as defined below. Changes in lane configuration, where feasible, facilitates right-sizing of the corridor to improve multimodal balance. The proposed reconfiguration centers around the segment of Michigan Ave between 31st St and Cherry St.

- **I-196 to 31st Street**
Maintain the existing 5-lane roadway with:
 - 4-11' lanes
 - 1 center turning lane or raised median
 - 4' shoulders along both sides
 - Shared-use path along the west side
 - Sidewalk along the east side

- **31st Street to Cherry Street**
Reconfigure the existing 4-lane roadway to a 3-lane configuration with:
 - 2-11' travel lanes,
 - 1 center turning lane or raised median,
 - 4' shoulders along both sides,
 - Shared-use path along the west side to Pine Avenue
 - Sidewalk along the east side.

- **Cherry Street to State Street**
Maintain the 4-lane roadway with:
 - 3-11' travel lanes (1 SB, 2 NB)
 - 1 center turning lane or raised median
 - 4' shoulders along both sides
 - Sidewalks along the east and west sides

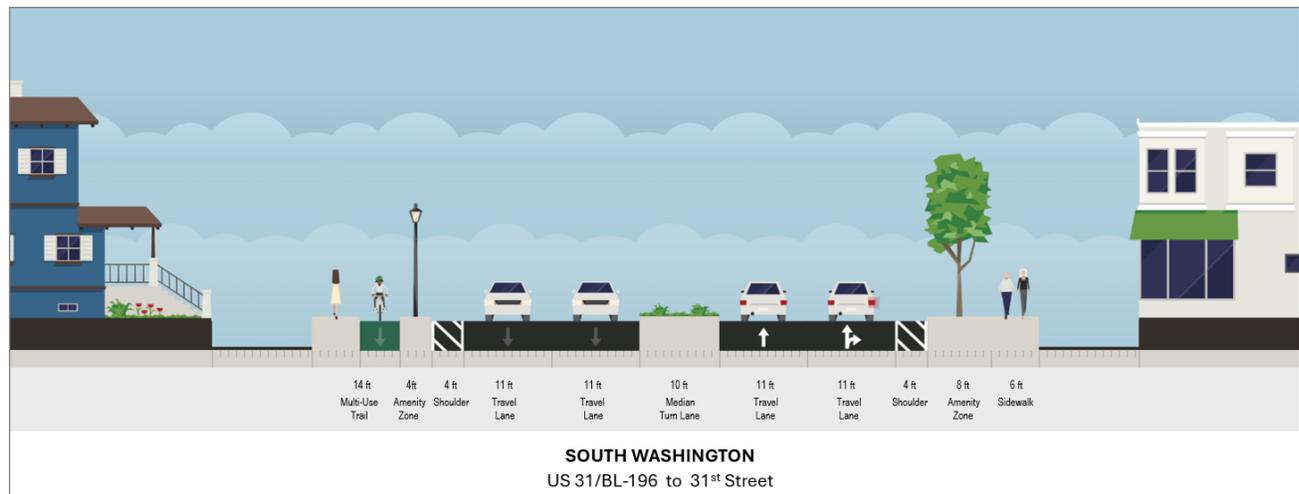
Figure 15 – Proposed Corridor Reconfiguration, Michigan Ave between 31st St and Cherry St



Shared Use Path

Creation of a shared use path with the widening of the sidewalk along the west side of the Washington corridor is supported by the community as a medium priority. In the analysis of the community engagement, the feedback includes a desire for the provision of a wider sidewalk that will function as a shared use path, with clear delineation between pedestrian and bike use lanes, and with streetscape beautification treatments along the corridor. Provision of this off-road non-motorized infrastructure will provide a bicycle facility that accommodates all ages and abilities that also accommodates pedestrians.

Figure 16 – Proposed Corridor Reconfiguration, Washington Avenue between I-196 to 31st St



Access Management

In addition to installation of median sections, as discussed above, access management strategies also include closure of driveways (where properties are served by multiple driveway) and narrowing of wide driveways. These modifications are expected to improve both vehicular and pedestrian safety via improved organization of the corridor and reducing potential for vehicle-vehicle and vehicle-pedestrian conflicts. Thoughtful access management along a corridor can simultaneously enhance safety for all modes, facilitate walking and biking, and reduce trip delay and congestion.

Potential locations for these access management strategies are illustrated in the Washington Corridor Concept Map (Appendix A). Recommended treatments and strategies include:

- Reduce or remove the driveway approach tapers along northbound and southbound Washington Ave between I-196 and 32nd Street.
- Consolidate/close driveways for properties with more than one access drive
- Reduce width of wide driveways to reduce potential for pedestrian-vehicle conflicts where driveways cross sidewalks
- Install raised medians where appropriate to control driveway movements and improve corridor safety

Implementation of the identified access management treatments will require coordination with local commercial businesses and property owners to ensure their needs are accommodated while achieving the access management objective of improving corridor safety by reducing the opportunities for vehicle-vehicle and vehicle-pedestrian conflicts.

Additional Recommendations

Some additional treatments that support the project goals were uncovered during the traffic analysis process and others were identified by the community during the public meetings. They are summarized below.

- **Relocate School Bus Stop to Meadow Lane Drive**

As part of traffic data collection and analysis, the project team observed a consistent and prevalent safety problem at the school bus stop on Washington Ave north of Meadow Lane Dr: Both northbound and southbound drivers were ignoring the School Bus flashing beacons and STOP-sign arm parked at the bus stop. This is a violation of the State and Local law and creates an unsafe condition for school children and school bus operations. This driver disregard is likely due to the school buses dwelling at this bus stop for more time than it takes students to board or alight the bus. To mitigate this situation, the school bus stop should be relocated to westbound Meadow Lane Drive, just west of the Washington Ave intersection. This location will be much safer and more convenient for students walking to and from the bus from the neighborhood.

- **Install School Zone surrounding Jefferson Elementary School**

Given the proximity of Jefferson Elementary School to the Washington corridor, implementation of a school zone on the roads surrounding the school will improve safety for school access. The City noted that Jefferson Elementary School is being renovated and is being converted to two-way bilingual school in 2028, it will remain an elementary school, so the school zone recommendation is warranted. It would be appropriate to wait to implement school zone until after the school's conversion is complete. The proposed limits of the school zone are identified in the Washington Corridor Concept Map, but the specific school zone limits should be determined with input from the Holland Public School District and the Holland Police Department.

- **Install Bus Pullouts**

Provision of bus pullouts could enhance transit operations along the Washington corridor. Removing buses from travel lanes helps to reduce congestion caused by buses stopped at bus stops. Identification of bus pullout locations should be coordinated with MAX and the City.

- **Close Maple Ave North of W.29th St**

This segment of Maple Ave is not needed for traffic circulation and access to adjacent businesses. Its removal will improve traffic safety by eliminating the skewed intersection of Michigan Ave @ Maple Ave. Removal of this roadway segment presents opportunities for improved use of the public realm, including a possible bus stop and enhanced transit waiting environment.

- **Corridor Streetscape & Transit Waiting Environments**

Improvements to the Washington corridor are expected to include streetscape enhancements to beautify the corridor and improve the aesthetics as well as enhance the pedestrian realm. As part of the corridor streetscape, transit waiting environments (TWEs) should be enhanced, particularly at the bus stops with higher ridership. This could include bus shelters and other amenities like trash receptacles, enhanced lighting, sidewalk connections to bus boarding areas, and other treatments as identified by MAX and their transit riders.

- **Michigan Ave @ W.32nd St Intersection & SRTS Plan**

Members of the community reported that the Michigan Ave @ W.32nd St intersection is considered to be unsafe for non-motorized travelers. This intersection provides access to Jefferson Elementary School from the apartments and neighborhoods near 40th Street. The current intersection layout inhibits students crossing safely to get to school, with reports that this unsafe condition impacts their attendance and family engagement in school activities. Completion of a Safe Routes to School plan would provide a comprehensive assessment of travel routes to/from the school, with

Figure 17 – Community Input: Michigan Ave @ W.32nd St Intersection



recommendations to address the current safety challenges with safe, viable travel paths for students traveling to and from the school.

The City highlighted an existing left turn locking conflict at the existing Walgreen driveway on 32nd Street approximately 300-feet west of Washington Avenue/Michigan Avenue. The City noted that westbound left turn vehicles are consistently blocked from entering the business driveway due to the existing eastbound queues blocking the driveway. To mitigate this situation, it is recommended to install a left turn passing flare to provide westbound through vehicles to safely pass the blocked left turn vehicle.

- **Mid-Block Crossing between W.27th St and 32nd St**
Members of the community expressed the need for a mid-block crossing between the existing signals at W.27th St and 32nd St, which are approximately 1800 ft apart.
- **Michigan Ave @ Maple Ave Intersection**
Members of the community noted a safety issue at this intersection, agreeing with the project team’s recommendation to close the segment of Maple Ave between Michigan Ave and W.29th St. They also expressed that on-street parking on the vacated roadway segment would be beneficial.

Figure 18 –Community Input: Mid-Block Crossing between W.27th St and 32nd St

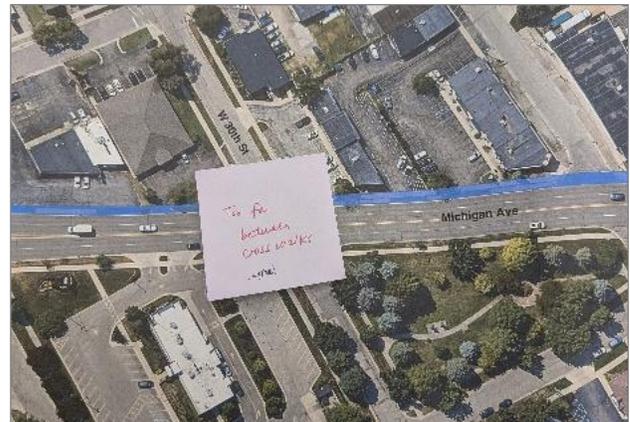
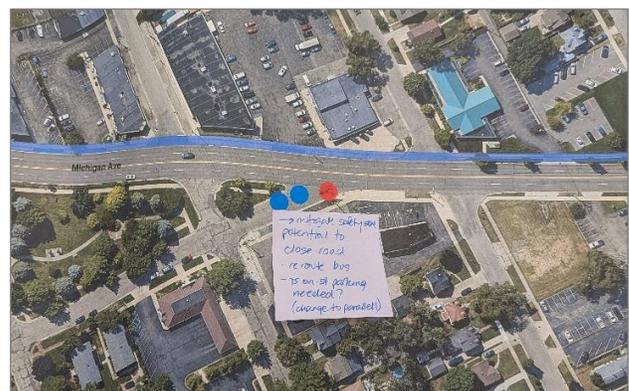


Figure 19 –Community Input: Close Michigan Ave @ Maple Ave Intersection



- Michigan Ave between W.24th St and W.22nd St**
 Several community members had thoughts about this area, citing that it feels unsafe for bicyclists and pedestrians to safely navigate this area and to safely cross the street. Other comments included a need for street lighting, the desire to close driveway access to a parking lot, and the desire for a bike connection to the trail north of W.22nd Street. As the project advances, this area and its multifaceted needs should be studied in greater detail.
- Michigan Ave @ State St Intersection**
 Members of the community support the project team’s recommendation to address the safety issue at the Y-intersection of Michigan Ave @ State St. They stated that this intersection can be dangerous because vehicles [on State St] run the stop sign, creating the potential for a head on collision with a southbound left-turning vehicle. Community members also identified the need to safely accommodate pedestrians crossing Michigan Ave at this intersection.

Figure 20 –Community Input: Michigan Ave between W.24th St and W.22nd St

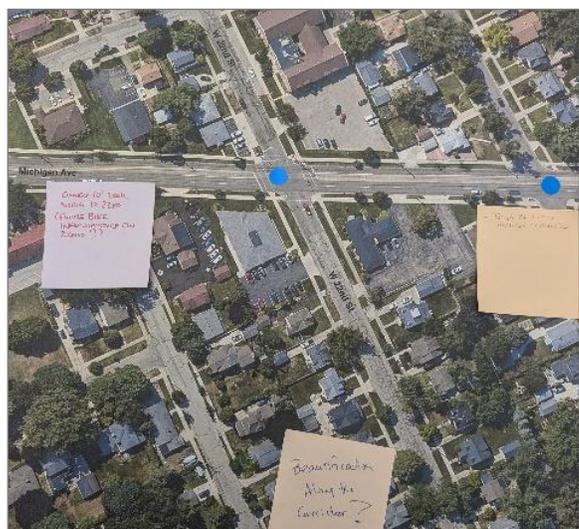
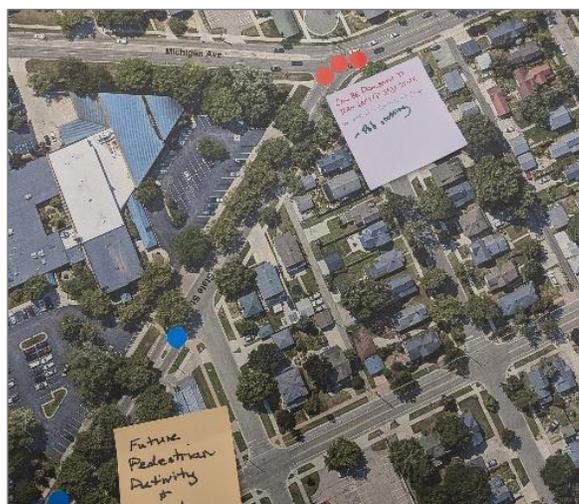


Figure 21 –Community Input: Michigan Ave @ State St Intersection



- Michigan Ave @ W.36th Street Intersection**
 Members of the community observed that there is a need for better lighting at the intersection of Michigan Ave @ W.36th Street. They also stated that there is a difficult left turn that is expected to get worse with more new housing in the area.
- Michigan Ave @ W.40th St Intersection**
 The intersection of West 40th Street and Michigan Avenue is considered unsafe by community members for pedestrians and bicyclists. They also requested provision of northbound left turn arrows for Washington Ave. A further observation addressed public realm enhancements, specifically requesting installation of trees and lighting to benefit pedestrian safety, visibility and comfort.
- Washington Ave @ Meadow Lane Dr Intersection**
 Community members at both public meetings shared that the eastbound (outbound) left turn from Meadow Lane Dr to Washington Ave is challenging due to vehicle speeds on Washington Ave, the roadway width, and the lack of traffic control for north-south traffic (the intersection is not signalized). Although, restaurants, retail, and other points of interest may not currently exist near Meadow Lane Drive, the Community continuously expressed a desire for a mid-block crossing to facilitate pedestrians' ability to travel to and from nearby grocery stores and restaurants; providing mid-block pedestrian crossing near HPS and MAX bus stop locations will offer pedestrian connectivity and safety across Washington Avenue and Michigan Avenue They also requested pedestrian scale lighting and attention to sidewalk sight distance to facilitate pedestrians' ability to see oncoming and turning vehicles.

This intersection will be assessed with the recommended corridor analysis and signal warrant analyses. However, based on the anticipated traffic volumes, this intersection probably will not meet signal warrants. If that is the case, installation of median sections could provide a midstream refuge for the eastbound left turning vehicles, allowing them to proceed halfway across the intersection which would only require an acceptable gap in the southbound traffic stream, then wait for a gap in the northbound traffic stream. Provision of a median section to serve this function at this location would likely require widening of the center lane width, with an associated reduction in shoulder width.

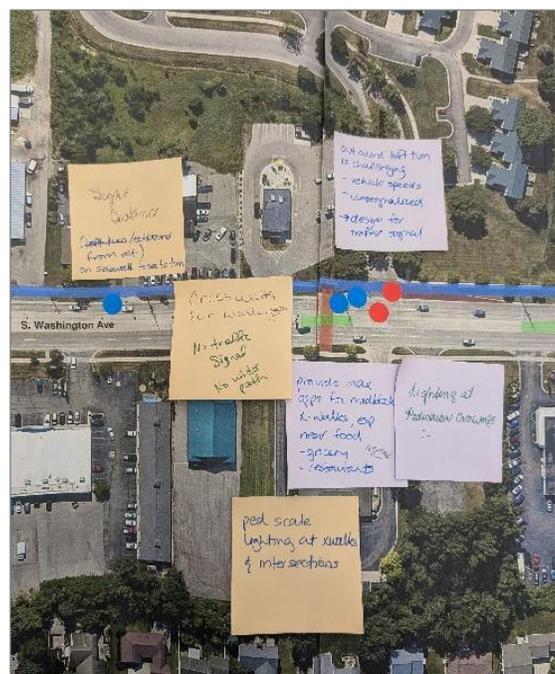
Figure 22 –Community Input: Michigan Ave @ W.36th St Intersection



Figure 23 –Community Input: Michigan Ave @ W.40th St Intersection



Figure 24 –Community Input: Washington Ave @ Meadow Lane Dr Intersection



10.0 ACTION MATRIX & IMPLEMENTATION STRATEGIES

Recommendations for the Washington corridor may be implemented individually, in groups, or as possible with consideration to external funding opportunities, City priorities and resources. The City of Holland is certified with the Michigan Economic Development Corporation (MEDC) as a redevelopment ready community, making the City eligible for funding related to this project. Potential grant funding sources for this project are listed below. The Action Matrix shown in Table 12 documents the recommendations and elements related to plan implementation. Recommendations are grouped by those that improve safety and mobility, those that improve safety, and those that improve mobility. They are listed alphabetically within each group.

- (Congestion Mitigation Air Quality (CMAQ)
- FTA grant programs
- Highway Safety Improvement Program (HSIP)
- MEDC Revitalization and Placemaking Program
- MEDC, other grant programs
- MDOT Small Urban Program
- Safe Routes to School (SRTS)
- SS4A Demonstration Project and/or Implementation Grants
- Transportation Alternatives Program (TAP) grants

Table 12: Action Matrix for Washington Corridor Plan Recommendations

WASHINGTON CORRIDOR PLAN – ACTION MATRIX	
SAFETY & MOBILITY IMPROVEMENTS	
Access Management – Median Sections	
Action	Construct median sections at designated locations along the Washington corridor to support implementation of mid-block pedestrian crossings and access management strategies.
Partners	City in coordination with businesses and property owners, MAX, Holland School District, and residents.
Effort	Effort varies based on the corridor segment. The south segment can be modified independently from other projects. Median sections should be added to the middle section as part of its reconfiguration.
Impact	Implementation of median sections will have a positive impact on safety (through traffic calming), access management, and corridor aesthetics, including benefits to vulnerable road users.
Funding	External funding sources based on list above (to be refined for this treatment)
Cost	Since implementation of median sections may be done individually or by corridor segment; cost could range from relatively low to medium.
Corridor Reconfiguration	
Action	The Washington corridor is divided into three segments for the recommended reconfiguration: <ul style="list-style-type: none"> – I-196 to 31st Street: Retain existing 5-lane configuration, add treatments to improve and enhance the corridor (i.e., shared use path, median sections, pedestrian scale lighting, access management, etc.) – 31st Street to Cherry Street: Reconfigure as 3-lane roadway with center turn lane, shared use path (to Pine Ave), median section, pedestrian scale lighting, access management, etc. – Cherry Street to State Street: Retain existing 4-lane configuration, add treatments to improve and enhance the corridor (i.e., median sections, pedestrian scale lighting, access management, etc.)
Partners	City led
Effort	The concepts identified in this plan need to advance into design then construction. Coordination with property owners, businesses, agencies and schools located along the corridor is expected.
Impact	Reconfiguration of the corridor is expected to have a positive impact on motorized and non-motorized safety and mobility, including benefits to vulnerable road users.
Funding	External funding sources based on list above (to be refined for this treatment)
Cost	If accomplished as a single project, the cost of corridor reconfiguration is expected to be fairly high.

WASHINGTON CORRIDOR PLAN – ACTION MATRIX	
Signalize Michigan / State Intersection	
Action	Convert intersection from stop control to signal control. This may include realignment of the State St approach, if feasible.
Partners	City
Effort	This improvement can be done as an isolated project, making it straightforward to implement.
Impact	Signalization of this intersection will have a significant positive impact on motorized and non-motorized safety and mobility, including benefits to vulnerable road users.
Funding	External funding sources based on list above (to be refined for this treatment)
Cost	Depending on whether the signal is span wire or mast arm, cost could be medium to high.
Signalized Intersection Improvements – Corridor-Wide Improvements	
Action	Corridor-wide improvements include: <ul style="list-style-type: none"> – Washington Corridor signal optimization – Signal Warrant Analysis
Partners	City-led
Effort	Both improvements are studies; they are straightforward and should be relatively easy to conduct.
Impact	The results of the studies will inform additional corridor recommendations and potential treatments to improve corridor operations, safety and mobility, including anticipated benefits to vulnerable road users.
Funding	External funding sources based on list above (to be refined for this treatment)
Cost	Study costs should be relatively low.
Signalized Intersection Improvements – General	
Action	General intersection improvements include: <ul style="list-style-type: none"> – Add left turn arrows, where needed and appropriate – Modernize the existing traffic signals to improve signal head alignment with travel lanes – Convert to count down pedestrian signal heads – Convert from diagonal to box span (or mast arm) signals – Upgrade vehicle detection equipment
Partners	City-led
Effort	Effort will vary based on improvement, some are straightforward (i.e., convert to count down pedestrian signal heads) while others will require more effort to study, design and implement.
Impact	All improvements are expected to have a positive impact on motorized and non-motorized safety and mobility, including benefits to vulnerable road users.
Funding	External funding sources based on list above (to be refined for this treatment)
Cost	Cost will vary by improvement, with some fairly low cost and others medium cost.
Signalized Intersection Improvements – Specific Intersections	
Action	Intersection-specific improvements include: <ul style="list-style-type: none"> – Convert Michigan Ave @ 24th St and Michigan Ave @ State St to signalized intersections – Michigan Ave @ W. 27th Street left turn lanes and phasing – Washington Ave @ Matt Urban / 27th Street Intersection Left Turn Phases
Partners	City-led
Effort	Effort varies for each location; some require further investigation to understand specific needs and to support the recommendation.
Impact	All improvements are expected to have a positive impact on motorized and non-motorized safety and mobility. Signalization of the two intersections is expected to also benefit vulnerable road users
Funding	External funding sources based on list above (to be refined for this treatment)
Cost	Cost will vary by location and specific improvement elements.

WASHINGTON CORRIDOR PLAN – ACTION MATRIX	
South Washington Gateway	
Action	Transform the southern entry to the corridor with landscaping, median section, signage, etc. to welcome drivers to the community and convey their entry into a corridor where slower speeds are expected.
Partners	Although the City would lead this project, there may be benefit from engaging with other civic organizations. Given the area's proximity to I-196, MDOT coordination is anticipated.
Effort	This is an isolated area so the effort to implement this treatment should be less complex than other recommendations.
Impact	This treatment is expected to have a significant positive impact on safety (through traffic calming and access management), including benefits to vulnerable road users, as well as aesthetics.
Funding	External funding sources based on list above (to be refined for this treatment)
Cost	Depending on the plan that is developed, cost could be fairly low or medium.
SAFETY IMPROVEMENTS	
Access Management – Driveway Consolidation & Narrowing	
Action	<ul style="list-style-type: none"> – -Consolidate driveways for businesses that have multiple access driveways. Narrow access driveways that are wider than necessary or appropriate. – -Install a westbound W 32nd St passing flare at the existing Walgreens driveway to allow westbound left turn vehicles to queue while maintaining westbound mobility and operations without impacting the eastbound W 32nd St approach left turn lane and with the signalized intersection.
Partners	City-led, with close coordination with impacted businesses and property owners.
Effort	Although physical modifications are not difficult, extensive coordination with impacted businesses and property owners is expected to take effort.
Impact	These access management improvements are expected to have a positive impact on motorized and non-motorized safety, including benefits to vulnerable road users.
Funding	External funding sources based on list above (to be refined for this treatment)
Cost	Driveway modifications can be done individually, in groups, or as part of the corridor reconfiguration project. Costs associated with driveway consolidation and narrowing are expected to be low.
Pedestrian Scale Lighting	
Action	Install pedestrian lighting along corridor sidewalks
Partners	City-led
Effort	This improvement would be most effective if implemented as a single project.
Impact	This improvement will have a significant positive impact on pedestrian safety and comfort as well as corridor aesthetics.
Funding	External funding sources based on list above (to be refined for this treatment)
Cost	If implemented as a single project, this improvement will likely be fairly high cost.

WASHINGTON CORRIDOR PLAN – ACTION MATRIX

Other Recommendations

Action	<p>Multiple additional and varied recommendations came out of the plan development process. Based on the nature of each recommendation, a range of additional work is expected to be needed to advance the recommendations. The recommendations include:</p> <ul style="list-style-type: none"> – Relocate School Bus Stop to Meadow Lane Drive – Install School Zone surrounding Jefferson Elementary School – Install Bus Pullouts – Close Maple Ave North of W.29th St – Corridor Streetscape & Transit Waiting Environments – Michigan Ave @ W.32nd St Intersection & SRTS Plan – Mid-Block Crossing between W.27th St and 32nd St – Michigan Ave @ Maple Ave Intersection – Michigan Ave between W.24th St and W.22nd St – Michigan Ave @ State St Intersection – Michigan Ave @ W.36th Street Intersection – Michigan Ave @ W.40th St Intersection – Washington Ave @ Meadow Lane Dr Intersection – Michigan Ave @ W 33rd St convert to ¾ access driveway prohibiting exiting left turns
Partners	City-led, other partners vary based on the recommendations
Effort	Varies.
Impact	Although the recommendations vary, they all contribute to improving motorized and non-motorized safety and mobility as well as improving corridor operations.
Funding	TBD
Cost	Varies

MOBILITY IMPROVEMENTS

Corridor Reconfiguration – Shared Use Path

Action	Construct a shared use path along the west side of the Washington corridor.
Partners	City led
Effort	Provision of the recommended shared use path should be included as part of the corridor reconfiguration project rather than as a standalone project.
Impact	Reconfiguration of the corridor is expected to have a positive impact on motorized and non-motorized safety and mobility, with specific benefits to non-motorized travelers.
Funding	External funding sources based on list above (to be refined for this treatment)
Cost	Design and construction costs for the shared use path should be integrated into the cost of the corridor reconfiguration project.

Mid-Block Pedestrian Crossings

Action	Construct mid-block crossings at designated locations along the Washington corridor to facilitate pedestrian crossings to/from pedestrian generator land uses where signalized intersections are far and pedestrian diversion is significant.
Partners	City in coordination with MAX, Holland School District, residents and businesses.
Effort	Given the safety concerns identified by City staff, this treatment will require careful consideration of pedestrian safety. Treatments should include measures to optimize pedestrian and vehicular safety.
Impact	Implementation of mid-block crossings will have a positive impact on non-motorized mobility.
Funding	External funding sources based on list above (to be refined for this treatment)
Cost	Implementation of mid-block crossings may be done individually or in groups; costs could range from relatively low to medium.



APPENDICES