



Downtown Pontiac Transportation Assessment

Final Report • Draft • April 2014

Prepared for



by

**PARSONS
BRINCKERHOFF**



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ACRONYMS

DDA	Downtown Development Authority
ADA	American with Disabilities Act
ADT	Average Daily Traffic
APTA	American Public Transportation Association
FTA	Federal Transit Administration
MDOT	Michigan Department of Transportation
LID	Low Impact Development
LOS	Level of Service
SMART	Suburban Mobility Authority for Regional Transit
SEMCOG	Southeast Michigan Council of Governments
PAT	Planning Advisory Team
CAG	Community Advisory Group
DBA	Downtown Business Association
V/C	Volume-to-Capacity Ratio



Top: Downtown Pontiac, 1940.

Middle: Downtown Pontiac, 1964: Land is acquired, river is enclosed, buildings are torn down, the Loop is built and neighborhoods are cut off from their downtown. 25,000 residents and 30,000 jobs are lost.

Bottom: The Loop, 2012: The Loop, which takes drivers around, rather than to downtown Pontiac, was built for far more cars than use it today.

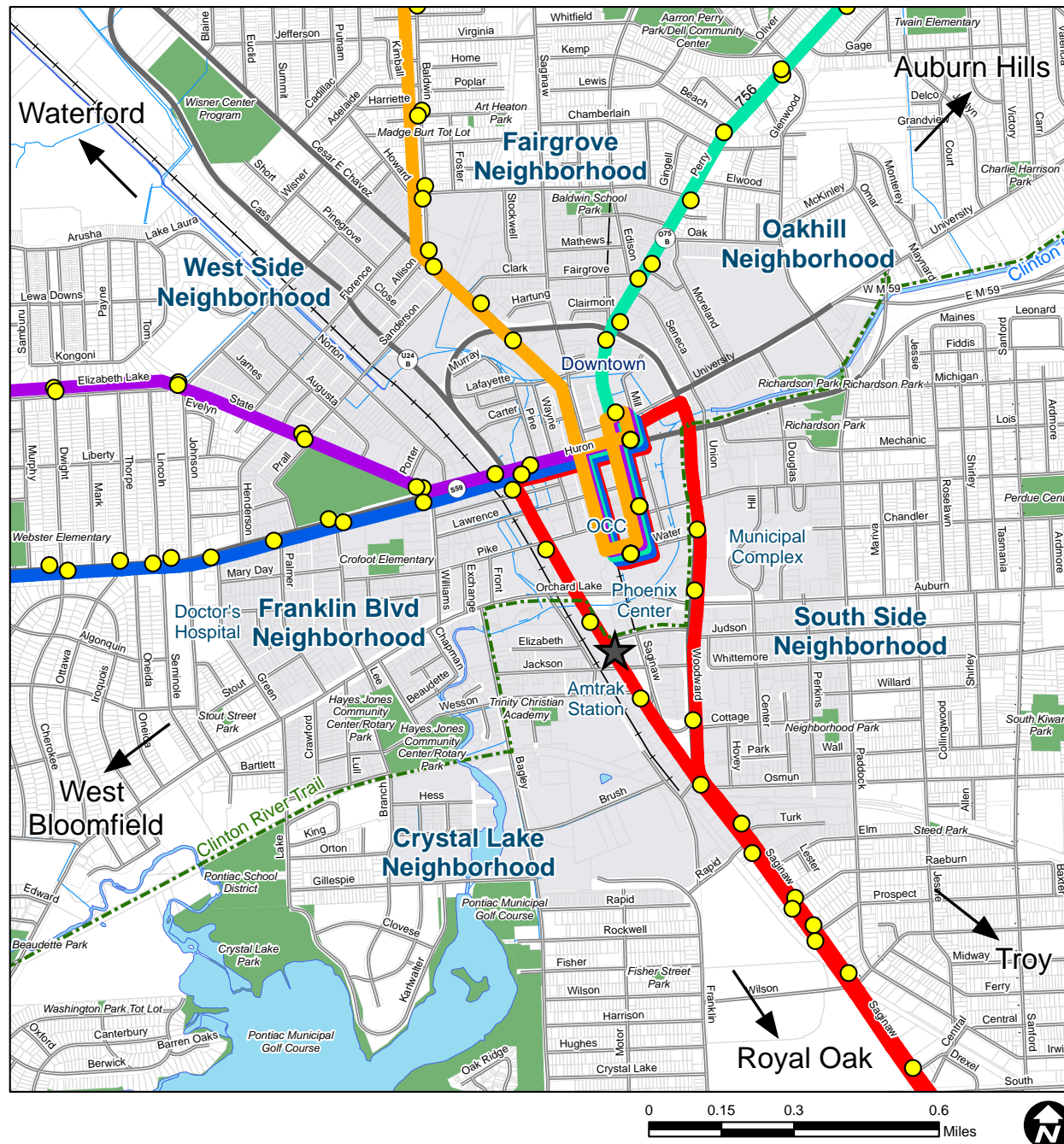
PROJECT PURPOSE

The purpose of this study is to improve the connectivity between downtown Pontiac, the adjacent neighborhoods, and the broader community by adapting the Woodward Loop transportation network. This transportation network includes the street, sidewalk, and bike path system. It is envisioned that adapting the network will improve livability and the long term economic health of the downtown and surrounding neighborhoods. Oakland County Planning & Economic Development Services, in partnership with the City of Pontiac, applied for and was awarded a grant from the TIGER II program of the United States Department of Transportation (USDOT) in October 2010, from which this study is funded. This report summarizes the downtown Pontiac Transportation Assessment project process and recommendations that arose from the assessment. The recommended improvements and costs to the Woodward Loop ("Loop") are provided. MDOT's role in approving and implementing the plan is presented. The impacts and mitigation will be provided in the detailed report. The figure on the previous page shows the project study area and critical components of the transportation system. This material is based upon work supported by the FHWA under Cooperative Agreement No. P-27. Any opinions, findings, and conclusions or recommendations expressed in this publication are those of the Author(s) and do not necessarily reflect the view of the FHWA.

PROJECT BACKGROUND

In the middle of the 20th Century, the vision for growth in the region and the need to increase automobile throughput surrounding Pontiac drove the design of the Woodward Loop. However, demographics and economic conditions changed and traffic has decreased along this arterial. Today, rather than connecting Pontiac's neighborhoods and destinations, as a key transportation corridor should, the Loop segregates downtown Pontiac from surrounding communities – hindering economic growth, cutting off downtown from surrounding neighborhoods, and leaving small residential pockets isolated from community context and amenities.

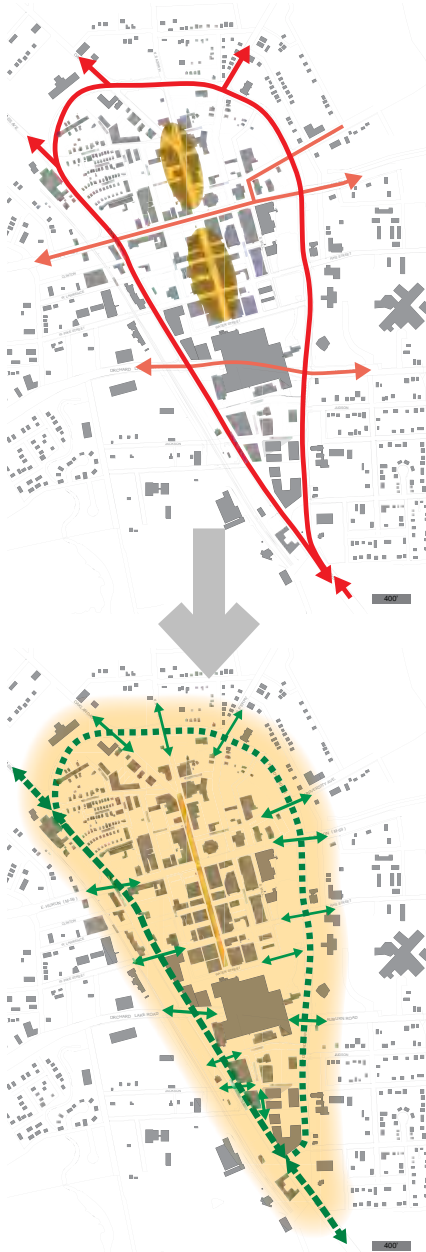
Early in this Downtown Transportation Assessment, the Pontiac community identified the Loop as a major barrier to both access and activity in downtown Pontiac. The four lane built right-of-way is a physical barrier to pedestrians. The one-way direction of the Loop promotes high-speed travel, and in some areas makes it difficult and confusing for motorists to access the downtown. The Loop is a roadway that circles downtown Pontiac in a counter clockwise direction. These two four-lane, one-way arterials are very effective at moving traffic quickly around downtown Pontiac; however the configuration forces motorists to go out of their way and double-back to access downtown. A series of one-way streets and limited



Existing Conditions Study Area

Legend

- SMART Bus Stops
 - US & M Route
 - Local Road
 - Water Body
 - Recreation Land
 - Study Area
 - Clinton River Trail
- SMART Routes**
- Route 275
 - Route 752
 - Route 753
 - Route 756
 - Route 450



The long-term aim is to make Downtown Pontiac a place that people go to, not around and through.

wayfinding further hinder access. The result is that a once vibrant economic center has become isolated from the adjacent neighborhoods and surrounding communities. Additionally, there are no adequately signed, or appropriately treated, entrances to downtown Pontiac from the Loop.

The TIGER II program is a partnership between the USDOT, the Department of Housing and Urban Development (HUD), and the Environmental Protection Agency (EPA) that encourages communities to develop plans addressing the Six Livability Principles:

1. Provide more transportation choices
2. Promote equitable, affordable housing
3. Enhance economic competitiveness
4. Support existing communities
5. Coordinate policies and leverage investment
6. Value communities and neighborhoods

The project cannot and will not address all of Pontiac's challenges. However, it focuses on improving the transportation system surrounding and within Downtown by preparing and substantiating a detailed transportation connectivity plan that addresses many of the livability principles cited above. The goal of the plan is to enhance the livability and economic viability of downtown Pontiac and surrounding neighborhoods; also, to outline a clear implementation plan that will identify short-, medium-, and long-term steps, responsible parties, and potential funding sources. Implementation strategies for the proposed improvements include "balancing" the local needs with those of the State's by designating the western half of the Loop as the "main" route and the eastern half of the Loop as "local" route.

Funding sources that could be utilized for the proposed improvements may include Federal formula grant programs, Federal discretionary grants, and various state, local and private sources. The applicability of the funding recommendations to the proposed project phases varies. Project development after this study would generally proceed in three phases:

- Phase I. Preliminary Engineering and Environmental Study
- Phase II. Contract Plan Preparation and Right-of-Way Acquisition
- Phase III. Construction

The goal of the plan is to enhance the livability and economic viability of downtown Pontiac and surrounding neighborhoods

Several potential innovative funding sources could be considered during Phase III:

- **Special Assessments** impose special charges on property close to a new facility. The assessment is levied only against those parcels that receive a special benefit that can be clearly identified and measured.
- **Joint Development** refers to the development of a transportation facility and/or adjacent private real estate development, in which a private sector partner: (1) with respect to the transportation facility either provides the facility or makes a financial contribution to offset its costs; and/or (2) incorporates a profit sharing mechanism into the private portion of the project that enables the public sector to share in the private returns.
- **Private Sector Contributions** include donations provided by private entities in exchange for a specific benefit (i.e. advertising). Using federal or local project financing techniques along with special assessments, joint development, and other revenues can be bonded against under the right set of circumstances.

Goals and conceptual plans for altering the physical configuration of Pontiac's transportation network were previously adopted through the Pontiac 2008 Master Plan and the 2001 Updated Pontiac Downtown Development Plan. The project team also reviewed and addressed in the final report MDOT's September 2008 response letter to the City of Pontiac Master Plan recommendation to convert the Woodward Loop to two-way traffic and the concerns it raised about safety and issues with a two-way street system. The project's final report has more detailed information about previous studies and how the current study would meet the Six Livability Principles. Major components of the study include:

- Review and analyze previous studies and reports
- Assess current and future traffic conditions
- Address stakeholder input, ideas, and concerns
- Define Woodward Loop alternatives
- Review and select a Recommended Woodward Loop Alternative
- Recommend and provide strategies to implement the plan



Top: Approaching Pontiac, signs direct drivers to the regional highway system but not to Downtown Pontiac, which is straight ahead.

Bottom: Along the Loop, cyclists and pedestrians share the narrow sidewalk, while the wide roadway remains underutilized by cars.



Traffic modeling software, including Synchro (shown above) and Vissim, was used to evaluate the existing traffic conditions as well as the traffic impacts of the various proposed alternatives.

EXISTING TRAFFIC CONDITIONS

Synchro models were already created from a previous MDOT Signal Optimization Project based on volumes from 2009. Additional traffic volume and intersection timing information was obtained from the Road Commission for Oakland County and added to the Synchro models for Huron Street through downtown Pontiac.

From these Synchro models, it was found that all existing signalized intersections operate at Level of Service (LOS) C or better under existing conditions in the peak hours, with most operating at LOS A or LOS B. The Transportation Assessment Report (Appendix A) documents the existing traffic conditions and analysis of the recommended improvements in this Final Report.

PROJECT METHODOLOGY

Future Traffic Volumes

The 2035 Southeast Michigan Council of Governments (SEMCOG) Travel Demand Forecasting Model was used to determine any future traffic growth rates in the study area. Traffic growth in downtown Pontiac is not expected to increase and there is a small expected increase in traffic on Woodward Avenue (2-3% over 25 years). A larger 5-10% increase in traffic is expected on eastbound Huron Street (M-59) to Cesar Chavez Avenue (BUS-24). In the future, it is desired that the levels of service on the roadway network would remain at an acceptable level of service in the peak hours of the day (LOS D or better).

The SEMCOG Model was also used to evaluate traffic patterns with changes in the roadway configuration for the various alternatives. Traffic was redistributed in the Synchro model, and intersection capacity was evaluated for each alternative.

Public Involvement

The Public Involvement Report (Appendix B) documents Oakland County's and the City of Pontiac's commitment to public involvement and identifies the array of public involvement activities focused on informing the broad range of stakeholders at specific stages during the study. The report and defines the methods relied upon to invite public inquiry and comment. A comprehensive outreach program was used to inform residents and project stakeholders of the study's progress questions and comments reviewed as part of the decision-making process. Since February 2012, over 400 stakeholders including residents and nearly 30 groups have participated in the Project Advisory Team (PAT), Community Advisory Group (CAG), community workshops, planning charrette and other local meetings.

Oakland County has presented the project findings and recommended improvements to the Pontiac City Council, Pontiac Downtown Business Association, Pontiac Planning Commission and to numerous Pontiac groups including, Golden Opportunity Club, Pastoral Alliance and Rotary.

The evaluation methodology in the Public Involvement Plan was divided into three evaluation stages, with three community workshops:

- Explain the study and identify alternatives for the Woodward Loop--March 17, 2012
- Three day charrette to refine the alternatives--June 11-13, 2012
- Present the recommended improvements--September 26, 2012

Prior to the public meetings and at key stages in the project schedule, the Project Advisory Team (PAT) held five meetings to brief Oakland County, MDOT, SEMCOG, and other agencies. Additionally, Community Advisory Group (CAG) meetings were held open to the public seven times at the Crofoot in downtown Pontiac. An agency meeting was held on September 26, 2012, in the morning prior to Public Workshop #3. Project updates and public meeting presentations were posted at www.pontiaclivability.org.

Public survey and comment forms were provided at Public Meetings #1, #2 and #3. The same survey was also made available at other meetings and on the project web site. As of October 5, 2012, over one hundred and eighty (190) surveys have been collected. Survey respondents supported the following objectives:

- Make it easier and safer for pedestrians to cross Woodward
- Improve sidewalks and bike paths
- Improve the connection between the neighborhoods and downtown
- Improve transit
- Convert the Loop to two-way traffic
- Connect Saginaw to the Loop

Objectives derived from meetings include:

- Improve navigation for drivers into and out of downtown
- Improve accessibility to the downtown, as the Loop serves the interest of pass through drivers better than local drivers



Top: The March 17, 2012 public meeting at the Crofoot.

Middle: Participants provide feedback on the project teams work during the June 11 - 13, 2012 charrette.

Bottom: Participants explore greenway route options during the June charrette.



Top: People discuss the 11 alternatives presented at the March 17, 2012 public Meeting at the Crowfoot.

Middle: Community members provide feedback on the design team's work at the June Charette.

Bottom: Attendees discuss the designs at the September 26, 2012 public presentation.

On opposite page: The recommended alternative for the loop was selected through a tiered evaluation process including thorough technical analysis and public input.

Woodward Loop Alternatives

A total of 11 Woodward Alternatives were initially developed based on previous plans and stakeholder and public input received at Public Meeting #1. The alternatives included variations of the following options:

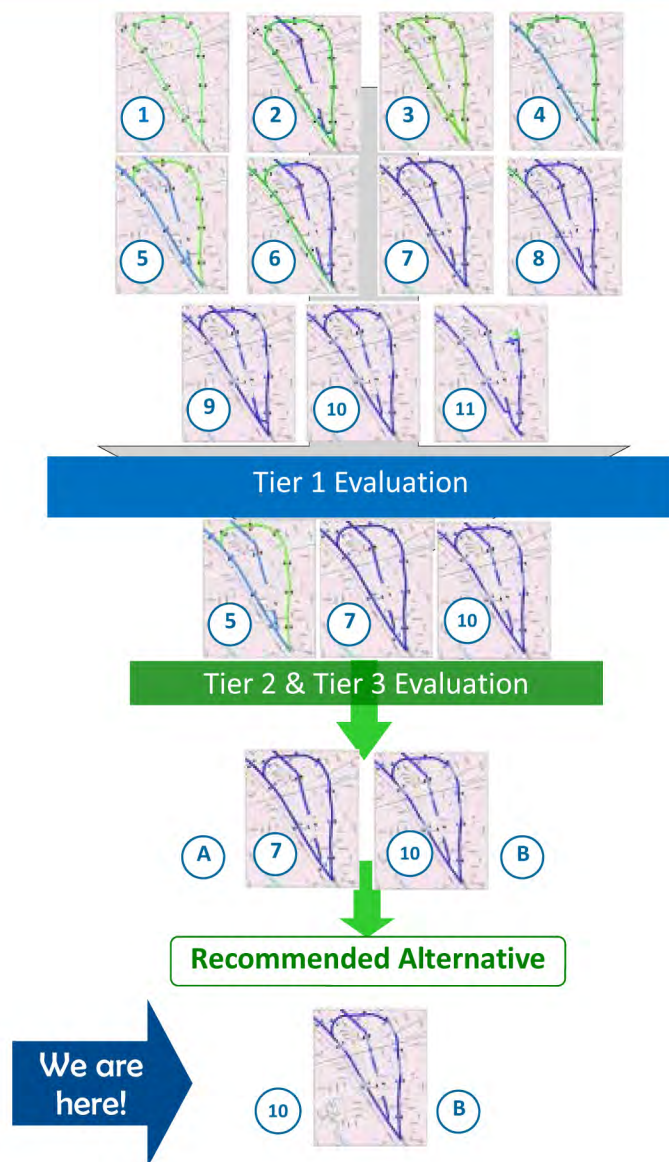
- One-way (as it exists)
- Partial two-way Loop
- Convert whole Loop to two-way
- Remove the Loop

Based on the analysis, three alternatives were feasible and remained for further study. In May 2012, based on broad stakeholder input, the PAT, the CAG and a detailed traffic analysis, one alternative was eliminated. The two remaining, feasible alternatives were recommended to the public at the charrette/ Public Meeting #2:

- Woodward Two Way with Road Diet, Saginaw Reconnected (Alt. 7 or A)
- Woodward Two Way with "Local" and "Main" Routes , Saginaw Reconnected (10 or B)

On June 26, 2012, alternative (Alt. 10 or B) was recommended to the CAG.

Narrowing Down the Alternatives



What is Evaluated in Tier 1...

Downtown Accessibility

Does the alternative improve vehicular connections to downtown Pontiac (e.g. reconnecting Saginaw, two-way streets)?

Pedestrian Environment

Does the alternative make Pontiac more walkable (e.g. narrower streets, medians, slower traffic speeds)?

On-Street Parking

Does the alternative provide for additional on-street parking or eliminate it?

Connection to Transportation Center - Vehicular/Transit and Pedestrian

Does the alternative improve motorized access (e.g. two-way traffic on Woodward)? Does the alternative improve non-motorized access (e.g. narrower roadway, median)?

Traffic Operations

How do the overall network and intersection operations compare to existing conditions (e.g. delay, level of service, vehicle miles traveled)?

What is Evaluated in Tier 2 and Tier 3...

Land Use Catalyst

How does the alternative support changes to land use within and around Downtown?

Connections to Neighborhoods

Does the alternative provide better connections to surrounding neighborhoods?

Travel Distance

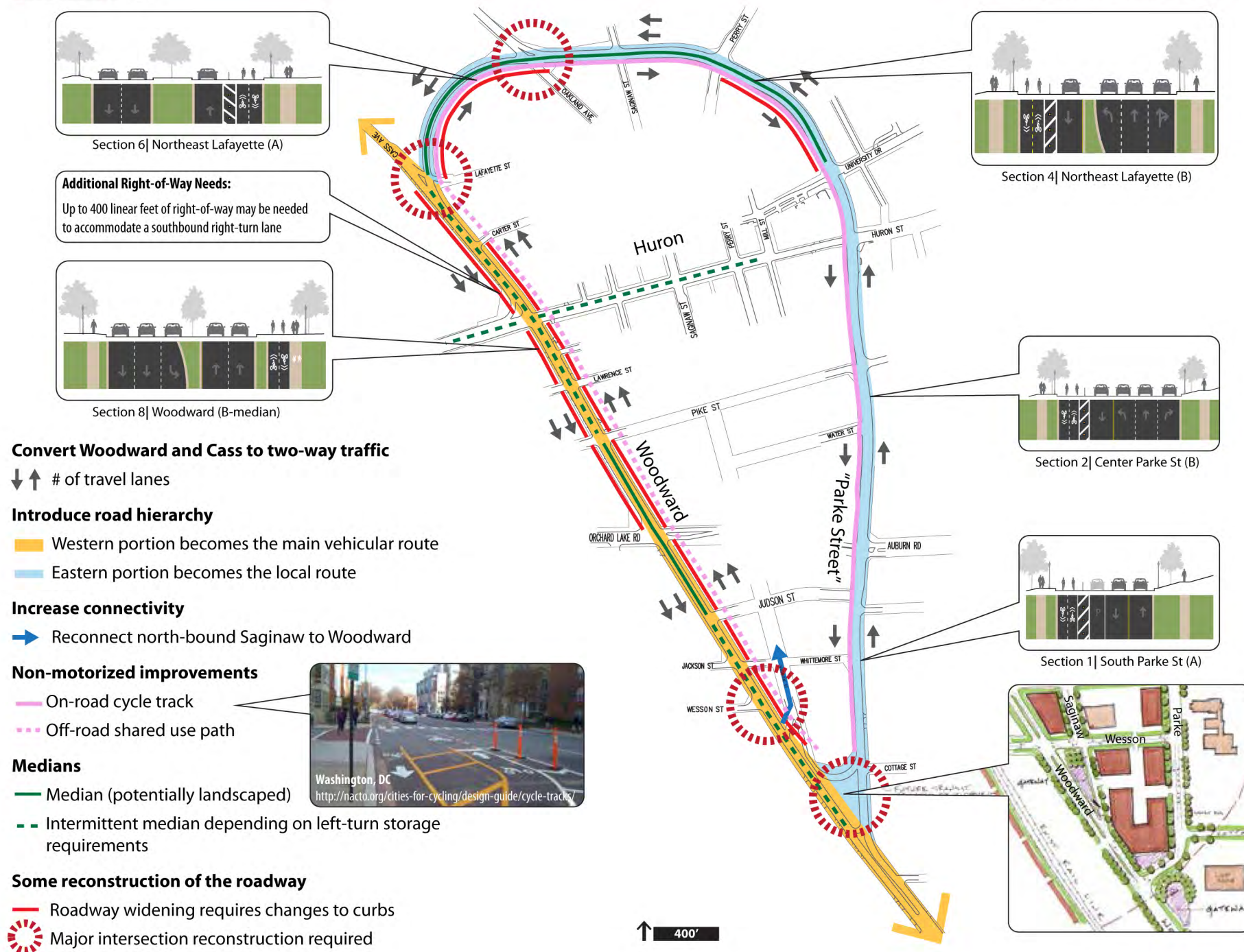
Does the alternative change the current travel distance and/or travel time?

Non-Motorized Environment

How does the alternative support an improved environment for pedestrians, cyclists and other users?

Construction Cost & Right-of-Way Impacts

How much does the alternative cost and will any property need to be purchased?



RECOMMENDED IMPROVEMENTS

Alternative 10 or B was chosen as ‘the Recommended Alternative’ from the original 11 alternatives developed. The Recommended Alternative is a balanced improvement that serves the needs of all; including Pontiac, the State, surrounding communities, DBA, and neighborhoods. The Recommended Alternative consists of:

- A two-way conversion of the entire Woodward Loop
 - a four to five lane cross section on the west side serving as a through route
 - a two to three lane cross section with parking (where appropriate) on the east side serving as a local street. This type of facility fits the downtown and neighborhood context and functions as a local street with an on-road cycle track and some on-street parking.
- Enhanced bicycle and pedestrian amenities
 - completion of the sidewalk network
 - two-way on-road cycle track on east side
 - two-way shared use path on the west side
 - addition of a narrow landscaped median
 - rerouting the Clinton River Trail through downtown Pontiac using Pike Street
- Connection of Wesson Street across Woodward Avenue
- Creation of a “Gateway” at the southern end of the Woodward Loop

The diagram on the previous page shows the minimum number of through travel lanes required on each section to accommodate the 2035 traffic on the network (each lane is represented by an arrow), as well as proposed locations for the cycle track, and areas requiring reconstruction to implement the recommendations. Conceptual cross sections were developed for each unique portion of the existing Woodward Loop. A selection of these cross sections are provided in the Appendices (Page A-1).

The Recommended Alternative could be implemented with or without changes to Saginaw Street. For the purposes of discussion of the Recommended Alternative, the west side of the Loop is referred to as Woodward Avenue, and the east side is referred to as Parke Street. Parke Street is proposed in reference to the city street that existed in this location before the Loop was completed in the 1960s.

All the proposed modifications to Woodward Avenue are expected to fit within the existing right-of-way, with the exception of the extended 400 foot right-turn storage length needed for southbound Woodward Avenue at West Huron Street (See Section 7B on page A-6).

The Recommended Alternative is a balanced improvement that serves the needs of all; including Pontiac, the State, surrounding communities, DBA, and neighborhoods.



The preferred alternative is discussed at the September 26, 2012 public meeting.



EXISTING

The intersection of Parke Street (The Loop road east) and Pike Street before (above) and after (right) implementing the changes recommended in this report.



PROPOSED



EXISTING

The intersection of Parke Street (The Loop road east) and Perry Street before (above) and after (right) implementing the changes recommended in this report.



PROPOSED



The intersection of Woodward Avenue and Huron Street before (above) and after (left) implementing the changes recommended in this report.



The intersection of Woodward Avenue and Pike Street before (above) and after (left) implementing the changes recommended in this report.



Existing (above) and proposed (right) cross section of the loop along Parke Street looking North. The section illustrates the ability to incorporate bicycle facilities and even, in some locations, on-street parking within the existing curb-lines over this segment of the loop.



Existing (above) and proposed (right) cross section of the northern segment loop (Lafayette) looking west. The section illustrates the inclusion of a planted median into the northern segment of the loop.



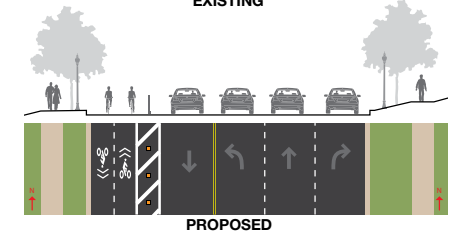
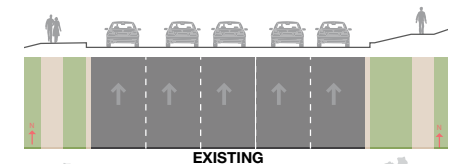
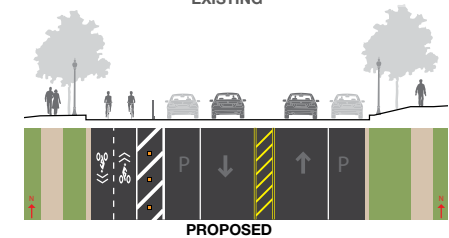
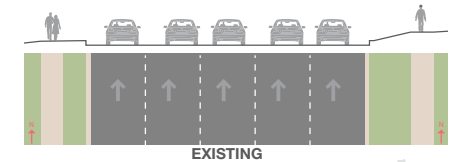
Existing (above) and proposed (right) cross section of the southern end of the Woodward Avenue section of the loop, looking south. The section illustrates the potential incorporation of BRT into the roadway design in the long-term.



Complete Streets and Non-Motorized Transportation

The Recommended Alternative includes several elements which will serve to open the Loop to all forms of travel and applies the Complete Streets concept. The table below details how features of this plan are designed to improve the comfort, safety and accessibility for non-motorized users.

Proposed Improvement	Non-Motorized Benefit
Restore Two-way Traffic and Implement Road Diet	By constructing and designating “main” and “local” segments of the Loop, the Recommended Alternative allows for reduction in lanes and road width. This change accommodates through traffic movements while integrating most of the eastern half of the Loop into the surrounding context of the community at a scale that is more appropriate to its location, enhancing connectivity, and creating more opportunities for streetscaping, development, and non-motorized facilities.
Add Pedestrian and Bicycle Facilities	An on-street two-way 10-foot bike lane (also known as a cycle track) is proposed on the west side of Parke Street to accommodate bicycle traffic. This proposed cycle track was identified as the preferred concept by the public. On Woodward Avenue, between Cass Avenue and the southern gateway, bicycle accommodations would consist of a 10-foot off-road shared-use path on the east side of the roadway. These facilities will increase the comfort and safety level for pedestrians and bicyclists. Sidewalk facilities are to be provided around the Loop to ensure connectivity for pedestrians.
Add Landscaped Medians	A landscaped median with trees along the Woodward Loop was identified in the Pontiac Downtown Plan (2001) and Master Plan (2008). The concept was supported by the public during the charrettes/Public Meeting #2. The traffic analysis assumed utilizing the center lane as a left-turn lane at each of the 19 intersections along the Woodward Loop. If desired, the center left-turn lane could be replaced by a raised median. However, in some locations the side-street or driveway access may become an issue. The Cross Section Report (Appendix D) includes a spreadsheet and figures outlining the potential median locations and what conflicts may be present along the corridor (see Appendix Figures 7, 8, and 9 with median). Sketches were developed to assist in visualizing sections of roadway for existing and concept plan conditions.
Increase Access	The plan increases the number of potential entrances to downtown and improves the ability to make those connections for all modes of travel. The Recommended Alternative improves access to the southern triangle, which opens up a number of potential development sites and enables the creation of a needed southern gateway to downtown that announces the existence of Pontiac, while providing a clear and welcoming entrance.
Reroute Clinton River Trail Downtown	Currently, the Clinton River Trail follows Orchard Lake Road to southbound Woodward Avenue, to Judson Street, to northbound Woodward Avenue and ends at Huron Street (M-59). The plan proposes a route that brings trail users through downtown on Pike Street, improving access to businesses, and increasing non-motorized connectivity to neighborhoods east and west of downtown and to adjacent communities.



Recommended changes along the eastern (“local”) side of the Loop calm traffic, introduce on-street parking and increase space for cyclists and pedestrians without changing curb lines.



Southern Gateway Recommendation

With Woodward Avenue converted for two-way traffic around the Loop, the southern connection would need to be rebuilt. A number of concepts, including a roundabout and more traditional intersection configurations, were explored during the three day charrettes (Public Meeting #2). A traditional three-legged “T” intersection was recommended. A traffic signal warrant analysis would need to be performed to determine if this intersection should be signalized. Plans on the opposite page show the existing and proposed geometry in this area.

The through route on Woodward Avenue (on the west side of the Loop) remains straight, to help keep through traffic flowing. Parke Street, the narrower “local” road on the east side would curve around and meet Woodward Avenue as a T-intersection at the southern gateway. This design will encourage through traffic to stay on Woodward Avenue, while creating a gateway entrance via Parke Street and Saginaw Street. The 90-degree right turn onto Parke Street will serve to slow traffic and modify driver behavior as they transition from the through route to the local route along the east side of the Loop.

It is also proposed that Wesson Street be extended across Woodward Avenue to Parke Street to improve the grid system in the southern downtown area and improve access to the parcels for potential development. Traffic volumes were not available for Wesson Street, so this connection was not included in the travel demand forecasting model or Synchro traffic models. Wesson Street has an at-grade rail-road crossing west of Woodward Avenue. Building this connection would increase the accessibility to the southern portion of downtown Pontiac. The southern gateway lies across the street from the newly renovated Amtrak Station. There are long term plans for this area that include the potential for Bus Rapid Transit (BRT), enhancing the notion that the Southern Gateway could be a regional transit-connected node. With improved access, visibility, and a stop for both rail and BRT, this area could become a strong gateway into Pontiac from the south, with accessible connections supporting a Main Street-oriented downtown.

This design will encourage through traffic to stay on Woodward Avenue, while creating a gateway entrance via Parke Street and Saginaw Street.

On opposite page: The plans and renderings illustrate the current (top) and proposed (bottom) conditions for the Southern Gateway.



Traffic models of the Woodward Avenue / East Huron street intersection.

Traffic Operations Impacts

According to the 2035 Synchro models, all intersections are expected to operate at Level of Service (LOS) C or better under project conditions with a few approaches operating at LOS D or LOS E (Woodward and Perry, Woodward and East Huron).

Woodward Avenue/ East Huron Street (M-59): The left-turn movement may not be allowed on eastbound Huron Street (M-59), just west of Woodward Avenue (M-1), due to the railroad bridge pier in the middle of the roadway. This railroad bridge center pier is approximately 200-feet west of the intersection, thus only 50-feet of left-turn storage can be accommodated. With Woodward Avenue currently only being southbound, this is not an issue; however, with a conversion to a two-way street, there is not adequate storage length to safely accommodate all the vehicles that will want to make this eastbound to northbound turn. There are four options available if an eastbound left-turn is desired at this location (all are costly):

- Remove the center bridge pier – There are currently two railroad bridges (one in each direction) and both bridges would need to be modified to remove the center piers. The removal of the piers would then allow a left-turn lane.
- Move the intersection east – This would involve acquiring right-of-way on the eastern side of the intersection, as well as the removal of buildings in the southeastern quadrant. This option may only provide an additional 100-feet for the left-turn pocket, which may be adequate.
- Convert Woodward Avenue to a boulevard – This would involve acquiring right-of-way and the removal of buildings along the western side of Woodward Avenue. The left-turn would then be accomplished as an in-direct left-turn (a Michigan left turn).
- Remove eastbound right-turn and realign eastbound Huron Street further south to allow for an eastbound left-turn lane. This would involve acquiring right-of-way and removing buildings in the southeastern quadrant of the intersection.

However, left-turns can be prohibited, as there are other options along eastbound Huron Street for those needing to go north, including Wayne Street, Saginaw Street, Perry Street, and Parke Street.

At the intersection of Huron Street and southbound Woodward Avenue is a southbound right-turn movement that is currently free-flow with high traffic volumes. With the conversion to two-way traffic, the traffic volume is expected to decline, as it will be dispersed elsewhere. However, a right-turn southbound pocket is still recommended. The roadway is currently five lanes north of Huron Street (M-59), so an additional right-turn lane will require an additional 400-feet of right-of-way.

Maintenance

There are some improvements that would require maintenance in addition to what exists today. A landscaped median will require mowing and weed/trash up keep. There are some low maintenance vegetation options that could be explored for use. The bicycle facilities will require separate snow plowing with a sidewalk plow. This could however, be accommodated when clearing snow from the sidewalks.

Transit

The western segment of the Loop will carry through traffic and accommodate connections to the key east-west corridors of Huron Street and Orchard Lake Road/Auburn Road. This segment will still serve as a complete street (vehicles, transit buses, pedestrians, and bicyclists) enhancing overall connectivity of Pontiac's street network with a revitalized downtown. Creating safe operating intersections for road users is critical to enhancing connectivity and encouraging development of vacant parcels along Woodward Avenue. Intersections need to address the different modes of travel with east-west crossings particularly for pedestrians at the existing Amtrak Station and potential future BRT stations. Connecting transit across east and west will also be an important consideration. Along the internal eastern side of Woodward Avenue is a large parking lot (currently known as Lot #9) that could become an attractive development site and/or location as a BRT station. With a new two-way street pattern, pedestrian and bicycle infrastructure, enhanced transit connections and better wayfinding, the western entry to downtown is strengthened for western Pontiac residents as well as visitors arriving by car or transit.

Other Considerations

Woodward Avenue Limited Access Designation

Woodward Avenue is designated as a limited access roadway for almost the entire length of the project area - between Whittemore Street on the east side and Saginaw Street on the southwest side. By definition, a limited access roadway has little or no vehicular access from side-streets or driveways. The limited access designation does not necessarily limit travel in the right-of-way to vehicular travel, so it is possible for non-motorized facilities to be built in a limited access right-of-way. The implementation of the two-way conversion (reduction in laneage on the east side and implementation of the two-way cycle track) may result in the need to revisit this definition. However, the section of Woodward Avenue between Huron Street and Pike Street on the west side is already a departure from the typical limited access roadway, with four closely spaced intersections and multiple large driveways. The proposed connection of Wesson Street across Woodward Avenue and Parke Street constitutes additional vehicular access, so the appropriate approval for these curb cuts would be necessary.



(B) Potential BRT stop locations

The proposed route and stop locations future BRT bring the bus route into downtown Pontiac, enhancing transit options and multi-modal connections for the city and region. With two-way traffic on the loop, the BRT could run in either direction through Downtown.



Adjacent parcels and ROW constraints north of Huron Street.

CONSTRUCTION COST

Based on an estimated cost per mile for curb reconstruction, excavation, drainage, utilities, full-depth lane construction, and sidewalk and median construction, a rough cost estimate for the Woodward Loop portion of the project was developed. Based on preliminary engineering estimates there are no major utility concerns, as the proposed changes are largely within the existing roadway. This estimate was based on the recommended cross-sections developed in Appendix D. Cost construction estimates for the Woodward Loop and Parke include minor realignment of the intersections along the roadways. Major reconstruction of the following intersections is included:

- Woodward Avenue and Parke Street
- Parke Street and Cesar Chavez Avenue
- Woodward Avenue, Parke Street and Cass Avenue

Changes to Huron Street through downtown Pontiac or east of the Loop are not included. Costs related to the connection of Orchard Lake Road and Saginaw Street also are not included. Sign costs are based on approximately eight 3-foot by 3-foot signs. It is understood that signs are also required to address changes for one-way to two-way street conversions. The table on the following page provides the estimated construction cost for the Loop portion of the project, which is under \$7 Million (2012 dollars), including 10% maintenance of traffic and 10% contingency. The sequencing was chosen to address the function of the Loop and improve the “Main” route to be two-way prior to reductions on the east side for “Parke Street”. The time frame for improvements would be contingent on a project development timeline for the project and proposed funding for each phase.

Up to 400 linear feet of right-of-way may be needed to accommodate a southbound right-turn lane at Woodward Avenue (M-1) and Huron Street (M-59). The sidebar figure shows that a 12-foot wide lane (approximate area shown in yellow) would be required adjoining four parcels owned by MDOT and the Grand Trunk Railroad. Estimated cost for right-of purchase is yet to be determined, as there might be potential for agencies to participate in unconventional ways to accomplish this, such as through donation, land swap, or other means.

Time Frame and Improvements	Design Cost 2012 Dollars	Right-of-way Cost	Construction Cost	
			2012 Dollars	2035 Dollars (4% inflation)
Short Term (1-3 years) Signage, two-way internal streets	\$84K	N/A	\$840K	\$2.1M
Medium Term (3-10 years) Woodward two-way from South Gateway to Cesar Chavez	\$300K	Cost for 400' linear feet to be determined	\$3.0M	\$7.4M
Long Term (over 10 years) Parke Street two-way from South Gateway to Cesar Chavez	\$250K	N/A	\$2.5M	\$6.2M
Total	\$634K	TBD	\$6.3M	\$15.7M

Estimated Construction Costs (2012 and 2035)

Implementation Steps

Short Term

Roadway Conversion One-Way to Two-Way:

- Mill Street between Huron and Water
- Lawrence Street from Woodward to Mill Street
- Pike Street from Mill to Woodward

Three Signals:

- Pike at Mill
- Saginaw at Lawrence
- Pike at Woodward

Pavement markings, intersections, signs, and ADA ramps

Medium Term

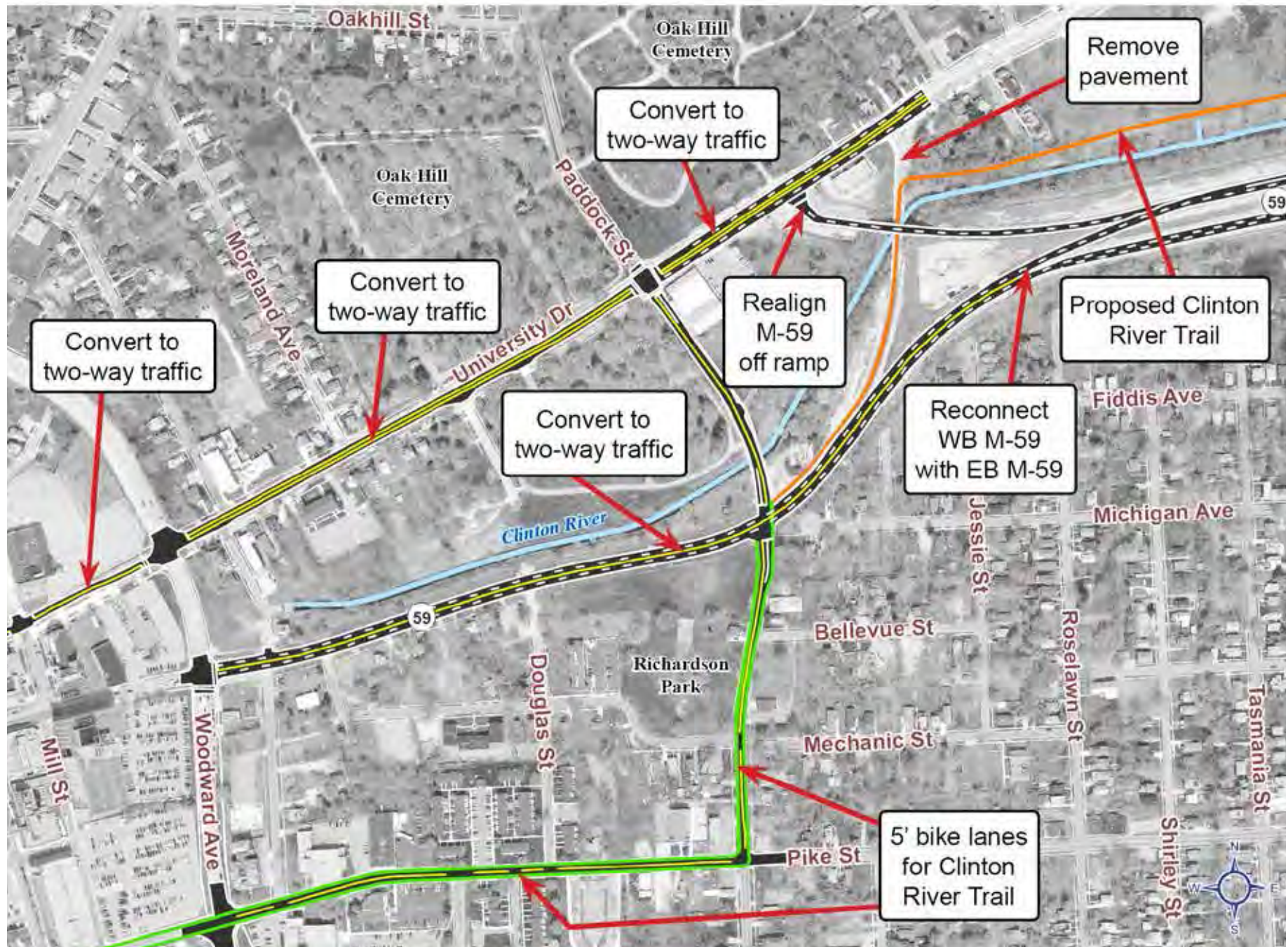
Woodward Two Way with "Local" and "Main" Routes, Saginaw Reconnected:

- Curbs
- Medians
- Lane reduction on Woodward
- Left turn lanes
- Sidewalks
- Two way bike path on east side of Woodward
- Median landscaping
- Signage

Long Term

Woodward Two-Way from South Gateway to Cesar Chavez:

- Curbs
- Medians
- Lane reduction on Parke
- Left turn lanes
- Sidewalks
- Cycle track along east side of Parke
- Median landscaping



NEXT STEPS

Next steps include additional analysis to the east and north, signal warrants analysis, and the Huron Street design. Several design issues were identified as result of the traffic analysis for the Woodward Loop and are detailed in Appendix A. Other considerations include:

- MDOT approval for operational assessment
- MDOT approval to move forward with engineering for the proposed changes to the Loop
- Addressing Woodward Avenue limited access designation
- Appropriate MDOT and SEMCOG transportation planning processes
- Implementing and phasing two-way street conversion of the Woodward Loop
- Designing the cycle track along the inside lane of the Woodward Loop
- Designing the landscape median along the Woodward Loop
- Converting Huron Street from one-way to two-way between Mill Street and Woodward Avenue/Parke Street
- Accommodating the eastbound to northbound movement either at West Huron Street and Woodward Avenue or along Huron Street through downtown Pontiac

Access to the Clinton River Trail

Outside the study limits to the east, a proposed modification of the Clinton River Trail would be needed for it to travel east along Pike Street and turn north on Paddock Street. Pike Street connects the trail more directly with downtown Pontiac than other streets. Conversion of Huron Street to two-way between Mill Street in downtown Pontiac and the freeway portion of M-59 will accomplish an improved trail connection to downtown. With the two-way conversion, one of the existing M-59 bridges over the Clinton River would be available for use by the trail. University Drive would also be converted to a slower-speed two-way road. A concept was developed to ensure that the Clinton River Trail recommendation (previous page) addressed the needs of the proposed Huron Street two-way conversion between Mill Street and Parke Street.



Top: Cyclists on the Clinton River Trail West of Downtown Pontiac.

Bottom: As it passes through downtown, the Clinton River Trail is infrequently signed and requires cyclists to share the sidewalk with pedestrians.

On opposite page: The diagram on the facing page shows proposed changes to create connections for the Clinton River Trail.



Improvements to the North

Outside the study limits to the north along Cesar Chavez and Cass, a traffic operations analysis should be performed. With the Loop being proposed as a two-way street, these two important connector streets should be addressed to ensure the two-way operation on the Loop does not pose challenges to the north.

On opposite page: The diagram on the facing page illustrate design options explored for Huron Street (M-59) during the June 11 - 13, 2012 charrette.

Signals

Additional traffic signals were assumed in the Synchro models at the intersections of Parke Street and Woodward Avenue in the southern gateway and at the intersection of Orchard Lake Road and Saginaw Street. A traffic signal warrant analysis would need to be performed to determine if these intersections should be signalized prior to implementation.

Proposed Huron Street Design

A median is proposed along Huron Street in downtown Pontiac between Woodward Avenue and Parke Street. The existing laneage consists of two through lanes in each direction and a center left-turn lane. The proposed median would allow for direct left turns at the major signalized intersections. The traffic analysis assumed 100 feet of storage for each left-turn lane. Further design investigation is necessary to determine the appropriate dimensions of the left-turn lanes and the landscaped median shown in the drawings. The eastbound to northbound left-turn movement at Huron Street and Woodward Avenue and at the three signalized intersections in downtown Pontiac should be synchronized, so that all anticipated traffic movements are accommodated safely and efficiently. In addition, Huron Street between Mill Street and Parke Street is proposed to be converted from one-way to two-way traffic. A traffic operations analysis was not performed for the proposed lane change on Huron Street east of Mill Street. Although Huron Street, east of downtown Pontiac, is outside the scope of this project, there has been discussion of access to Pontiac from the east as well as the potential connection to the Clinton River Trail.



The preferred alternative is presented at the September 26, 2012 Agency Meeting.

Future Participating Groups/Agencies

The current study includes a Recommended Alternative and stages the project for a future detailed roadway engineering study. A future study for the Woodward Loop would include an environmental study, roadway design, right-of-way (ROW) acquisition, permits, funding, phasing, partnering opportunities, and development of maintenance agreements. Additionally, other steps may need consideration, such as a potential jurisdictional transfer or other ways of making the loop more local and the State more amenable to these improvements. Oakland County and the City of Pontiac are committed to continue the local coordination and public participation in the project through all phases of development. On September 6, 2012, the Community Advisory Group (CAG) recommended the creation of a coalition to “shepherd” the project through to fruition. Recommended coalition members include representatives from the following agencies:

- Oakland County
- City of Pontiac
- MDOT
- Pontiac Downtown Business Association

Over thirty agencies, local groups, hospitals and local business leaders summarized below have participated in the project as CAG members and should continue to participate in future phases of the project :

Federal/State:

- Federal Highway Administration
- AMTRAK
- Michigan Department of Transportation
- Michigan Economic Development Corporation

Regional:

- Southeast Michigan Council of Governments
- Suburban Mobility and Regional Transit (SMART)
- The Friends of Clinton River Trail
- Woodward Avenue Action Association
- Oakland University
- Oakland Community College
- Baker College
- McLaren Hospital Pontiac
- St. Joseph Mercy Hospital
- Doctors Hospital of Michigan
- Oakland Livingston Human Services Agency

Oakland County:

- Economic Development and Community Affairs
- Office of the Water Resource Commissioner
- Parks & Recreation
- Health Division

City of Pontiac:

- City of Pontiac
- Downtown Business Association
- Chamber of Commerce
- Greater Pontiac Sesquicentennial Commission
- Transform Pontiac Now
- Pontiac Urban League
- Religious, community, and other local groups
- Local businesses

With a new two-way street pattern, pedestrian and bicycle infrastructure, enhanced transit connections and better wayfinding, the western entry to downtown is strengthened for western Pontiac residents as well as visitors arriving by car or transit.

APPENDIX

Select before and after cross sections

1 | South Parke (A)

2 | Center Parke (B)

4 | Northeast Lafayette (B)

6 | Northwest Lafayette (A)

7 | North Woodward Ave (B)

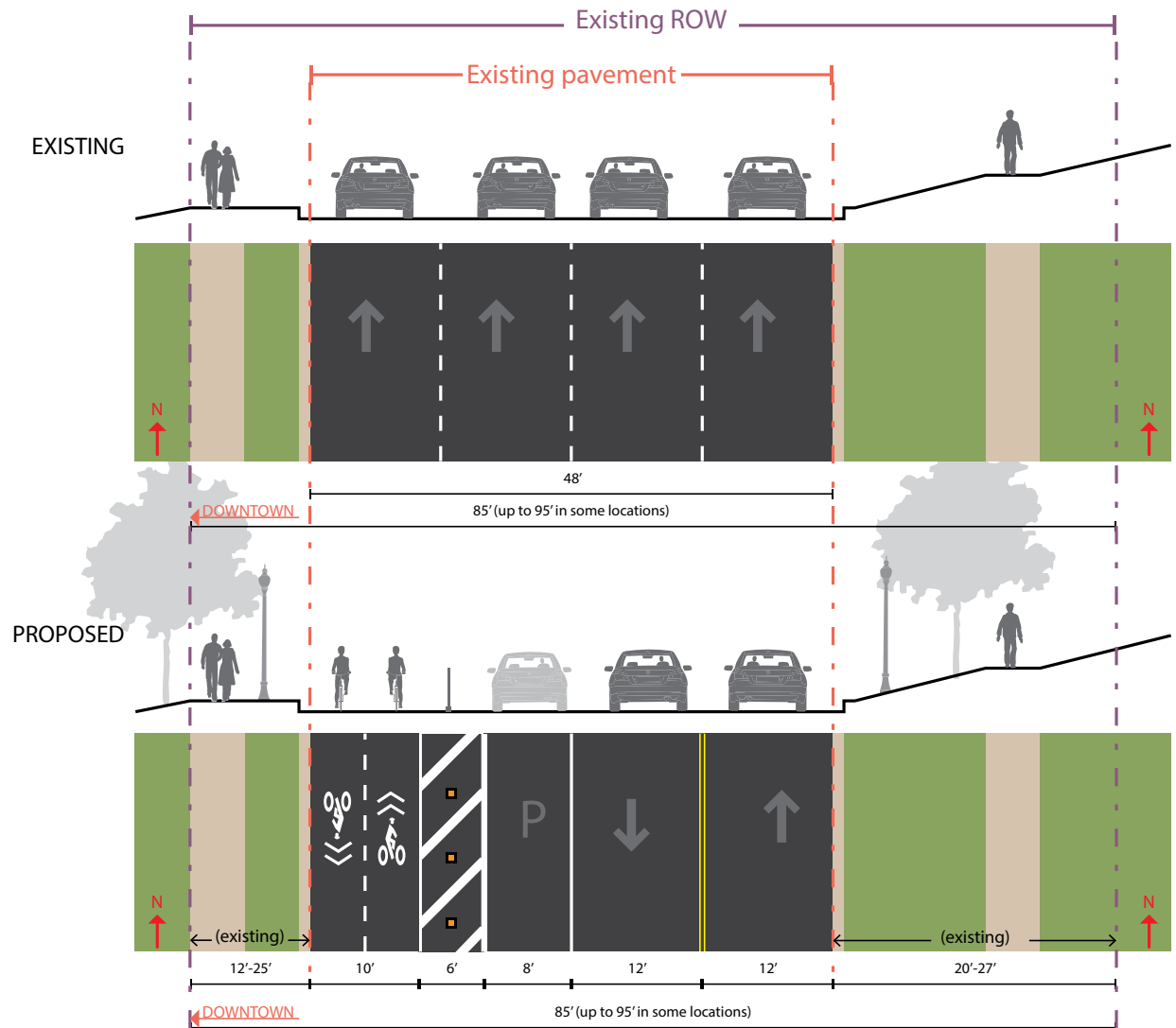
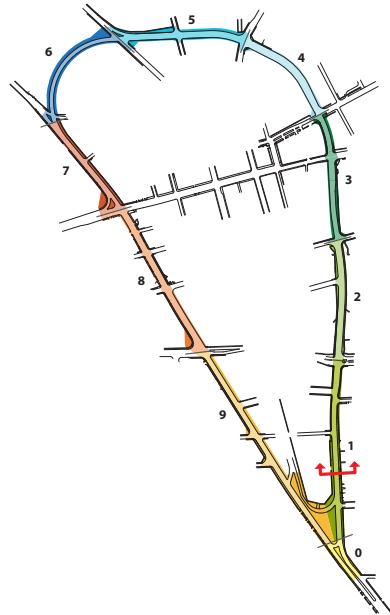
7 | North Woodward Ave (B-Median)

8 | Woodward (B-Median)

1 | South Parke St (A)

Southern Gateway to Auburn St, mid-block

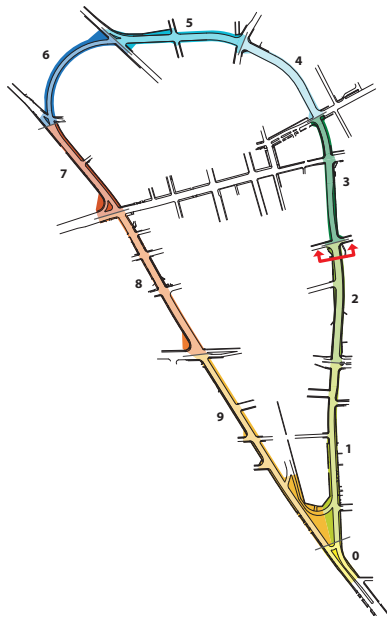
Two-way on-road bike path(10') with striped buffer (min 5') to vehicular traffic on interior (west) side of loop. No changes to curbs or ROW required.



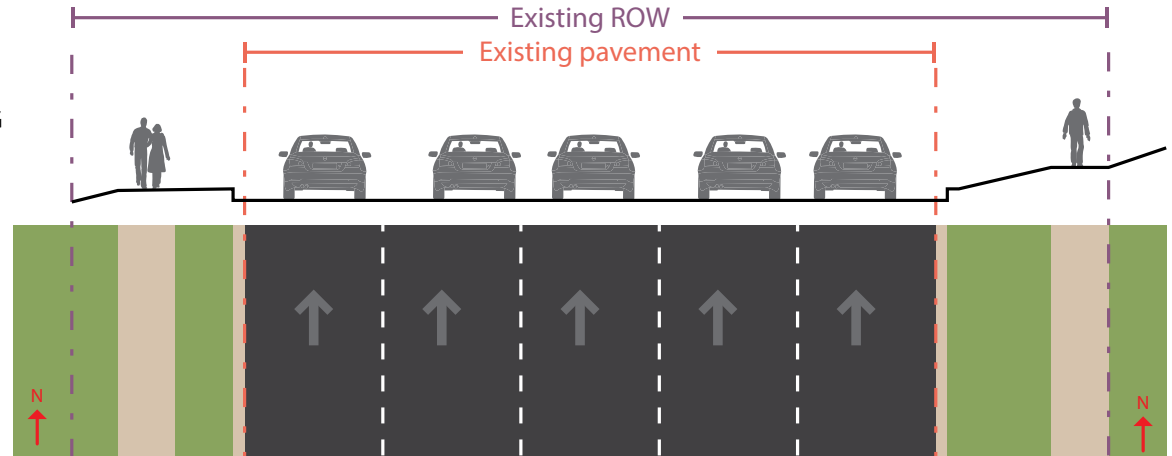
2| Center Parke (B)

South of intersection at Pike St

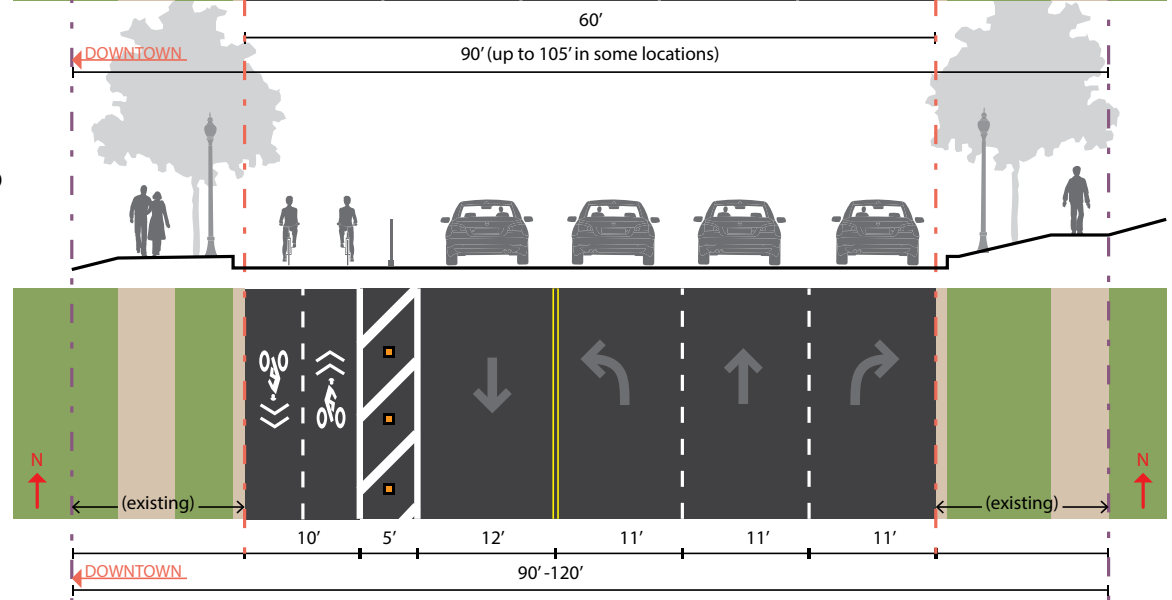
At the intersection, existing right-turn only lane will be maintained without changes to the proposed cross-section or curb. Left-turn only lane will be accommodated without changes to the curb.



EXISTING



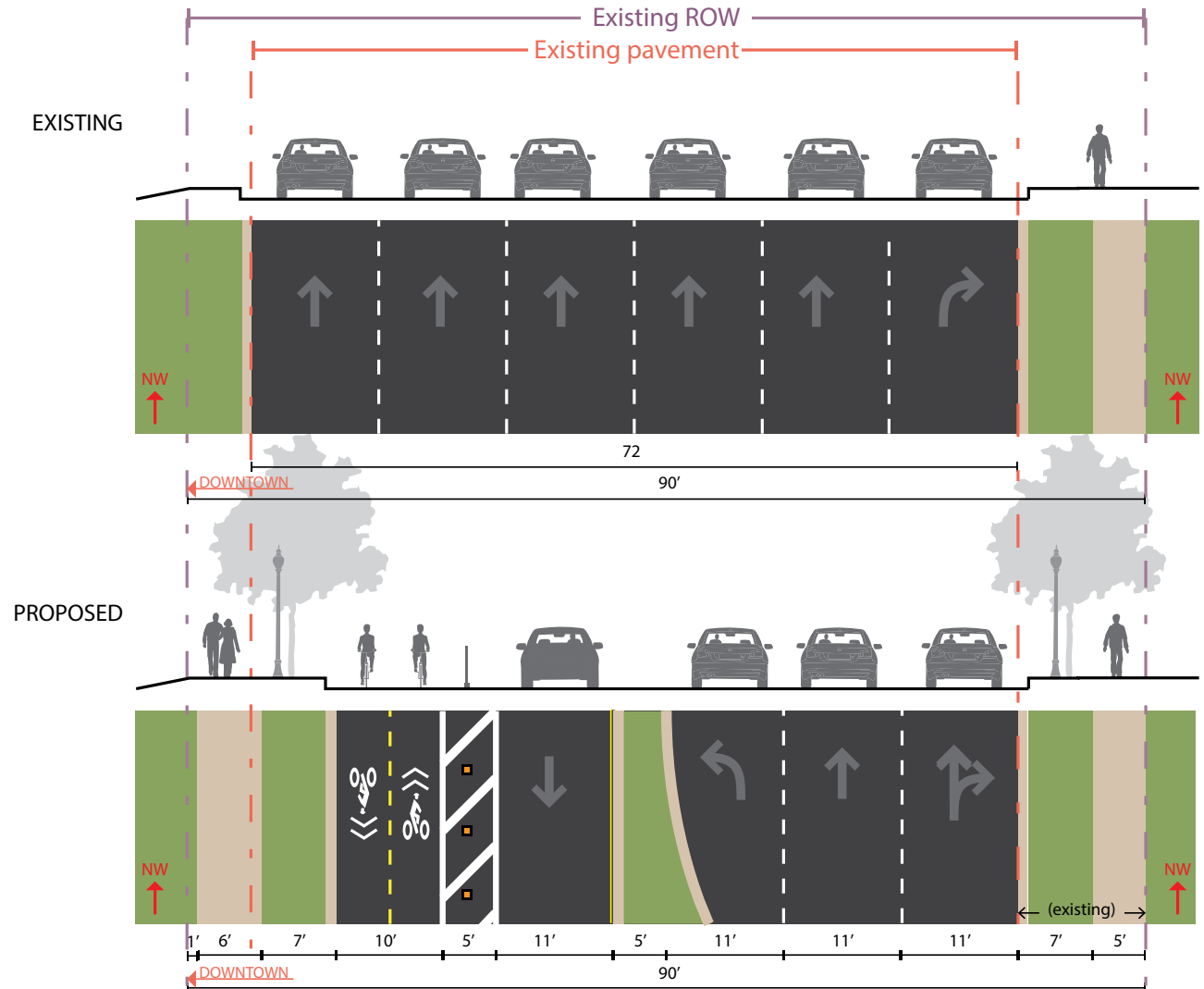
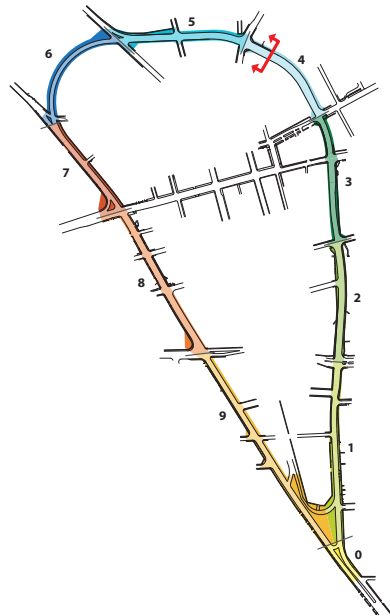
PROPOSED



4| Northeast Lafayette (B)

Southeast of Perry St, transition to intersection

It is proposed that the southern curb line be moved in to provide room for a sidewalk within the Right-of-Way. A center median is proposed with space for exclusive left-turn lanes at signalized intersections.



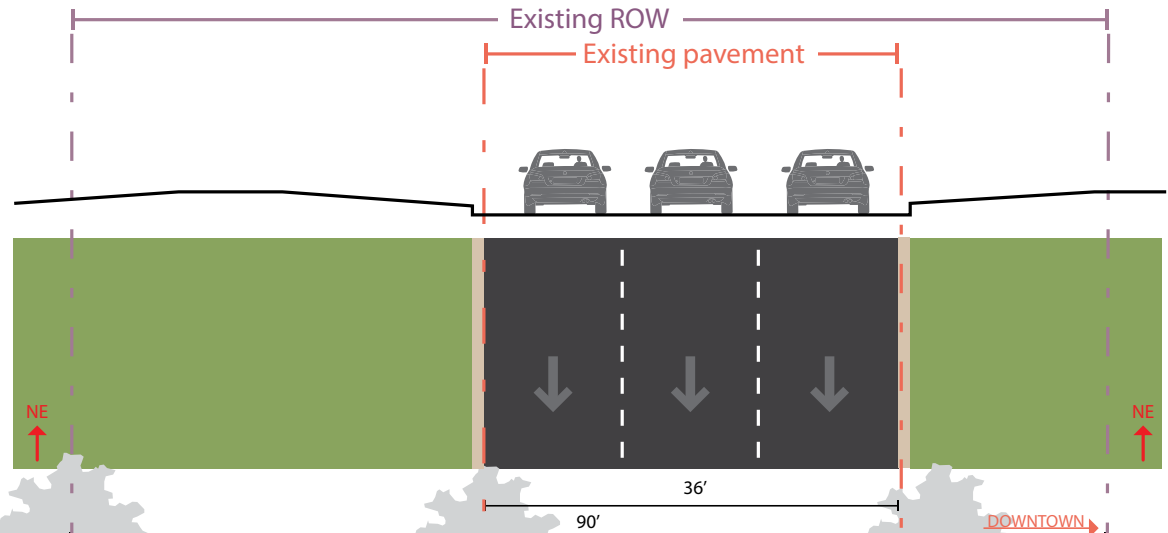
6| Northwest Lafayette (A)

Cesar Chavez ave / Oakland Ave to Lafayette St, midblock

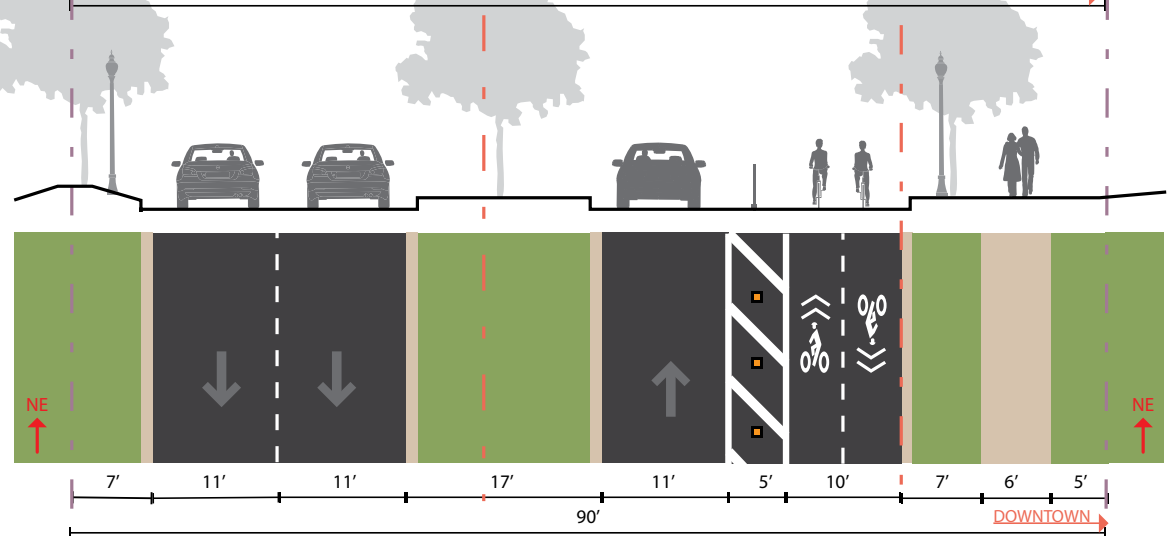
A sidewalk is proposed to be added on the south side of the Right-of-Way. A wide median is proposed, and the northern curb would be moved significantly. The intersection at Cesar Chavez will need to be rebuilt so that westbound travel lanes align properly.



EXISTING



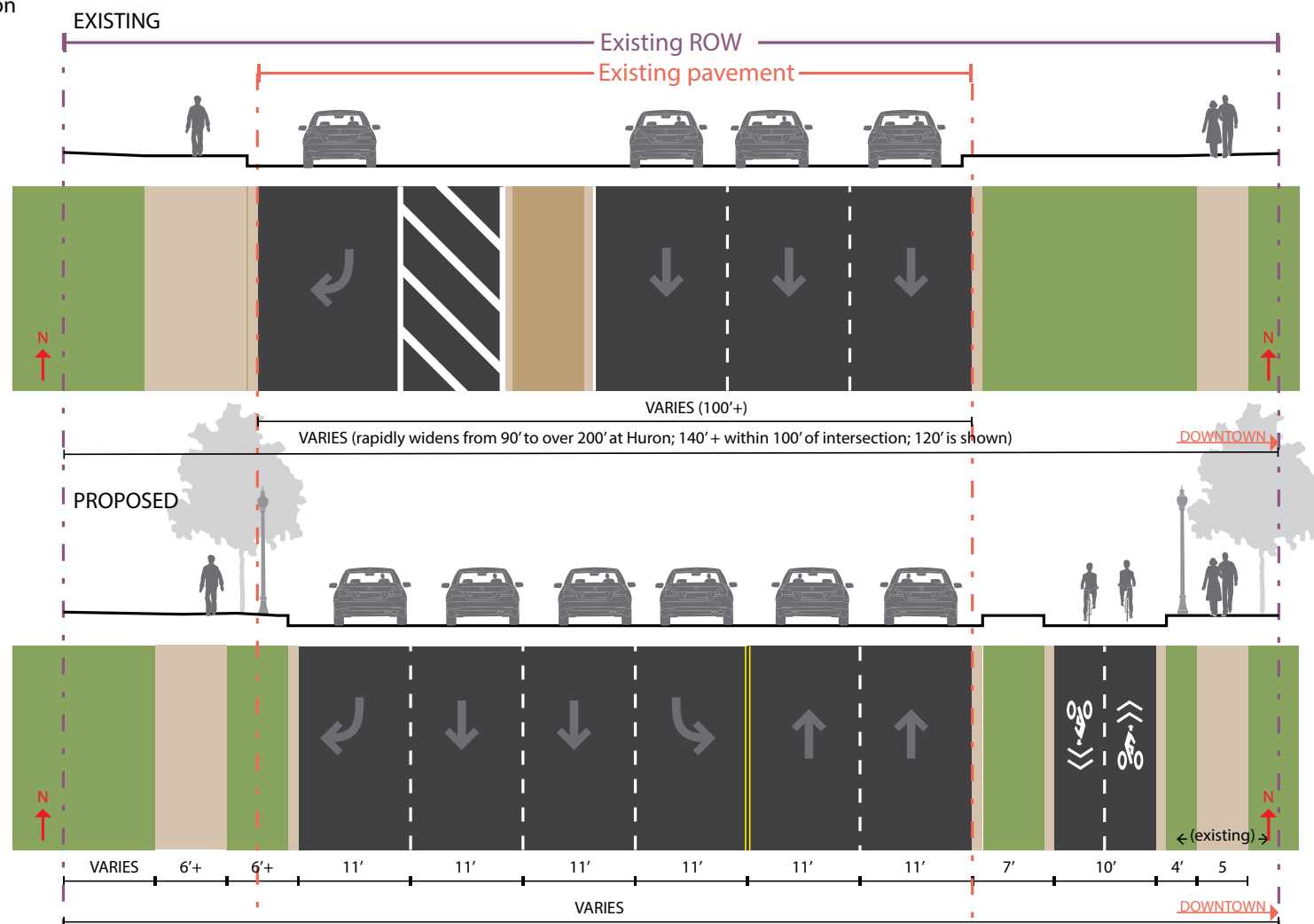
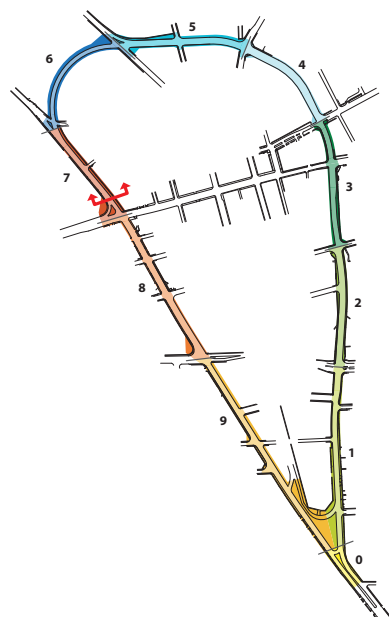
PROPOSED



7| North Woodward Ave (B)

Lafayette St to Huron St (M59), Huron approach from the north

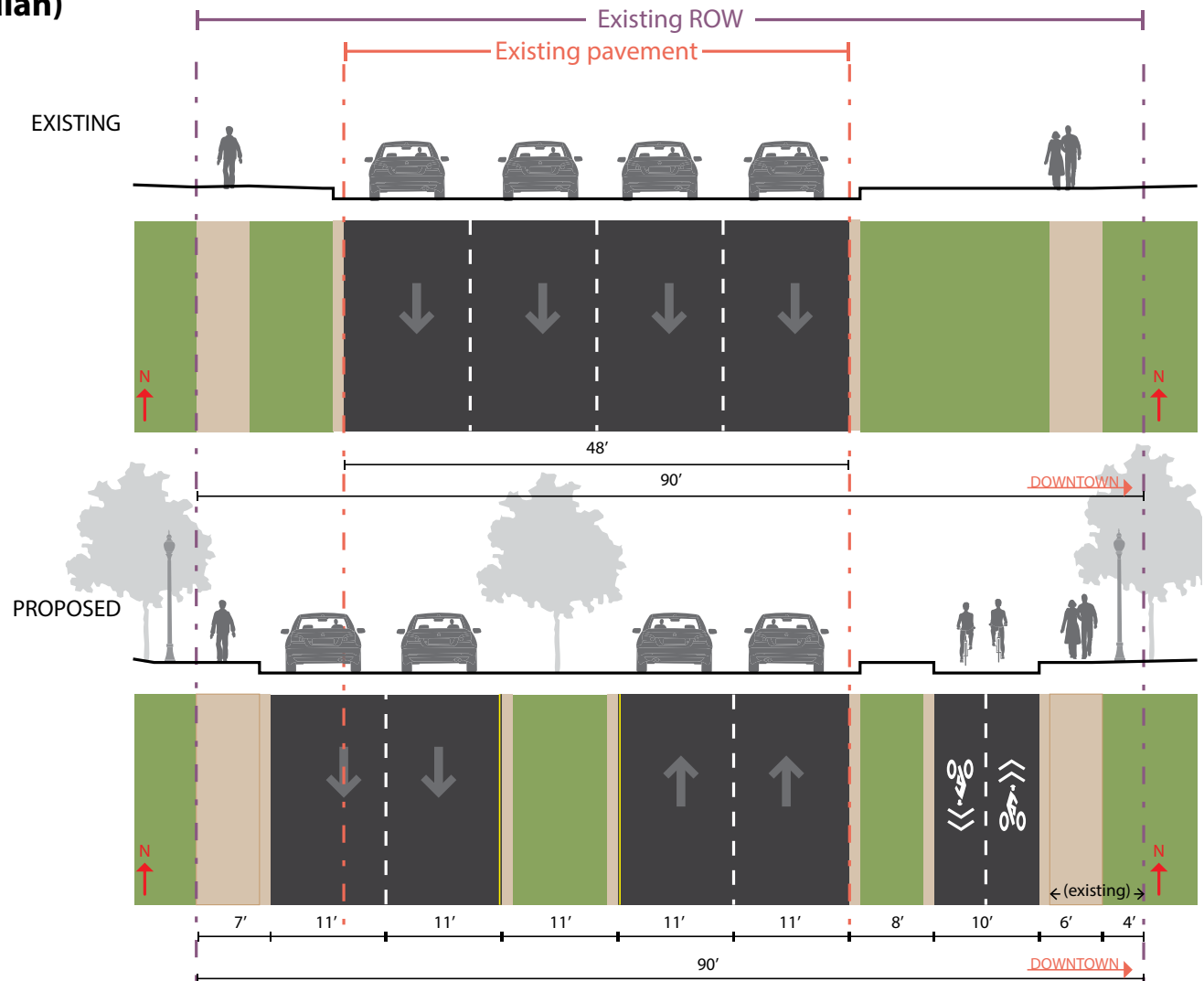
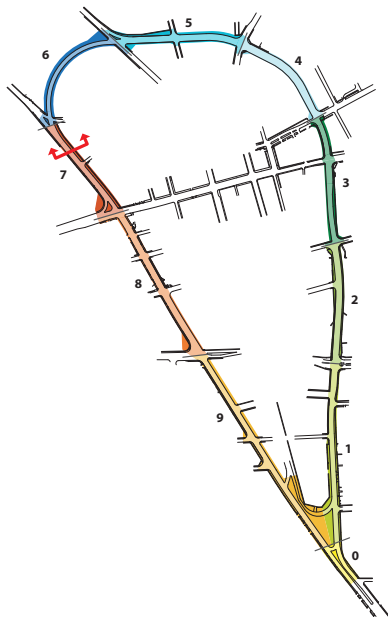
The two-way bicycle path is proposed as an off-road facility on the west side of Woodward Avenue. Exclusive left-turn and right-turn lanes are proposed at West Huron (M-59). If the western curb is moved, there is room for approximately 100 feet of storage for the southbound right turn. Right-of-Way would need to be acquired to accommodate additional storage depending on expected queuing.



7| North Woodward Ave (A-median)

Lafayette St to Huron St (M59), mid-block

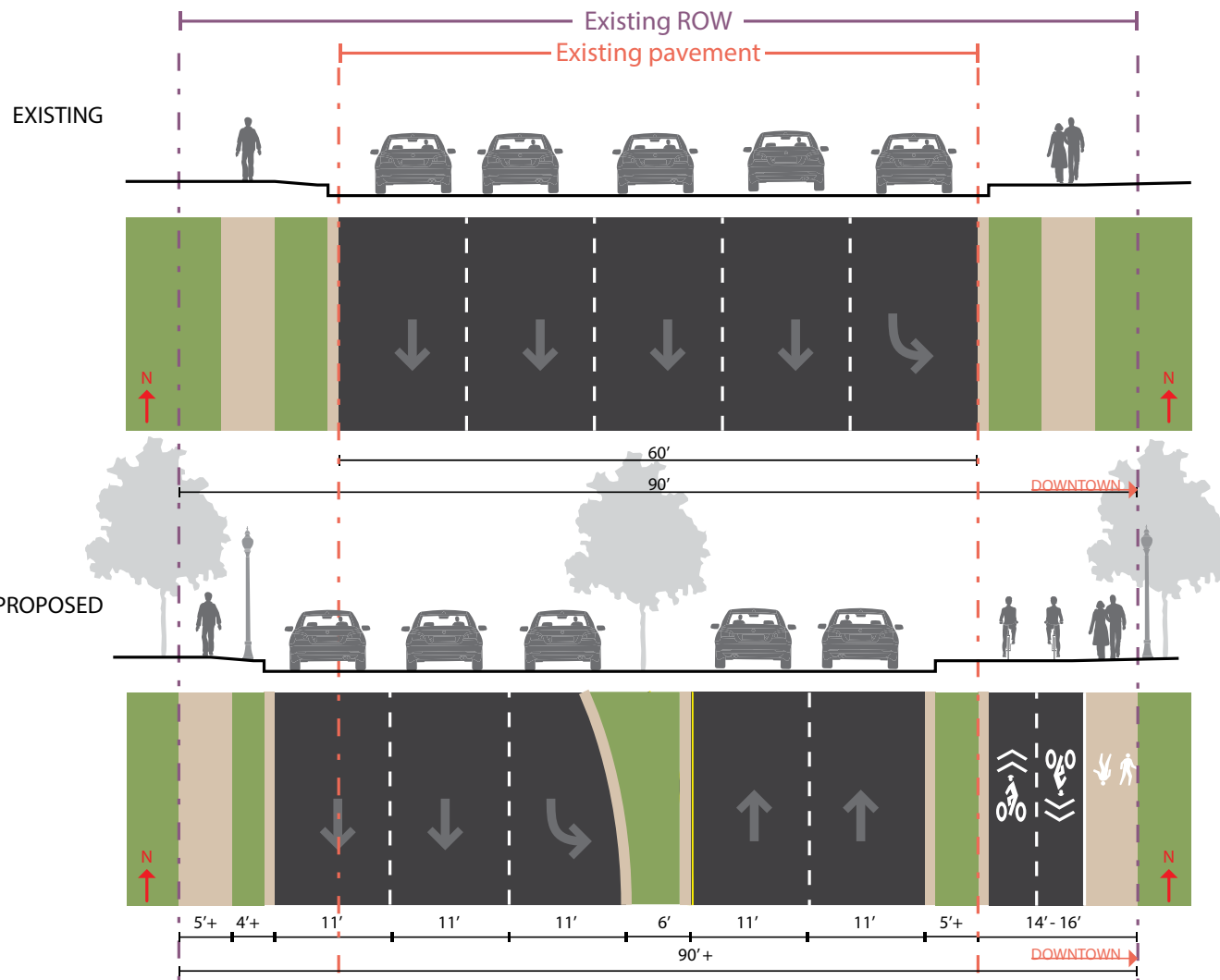
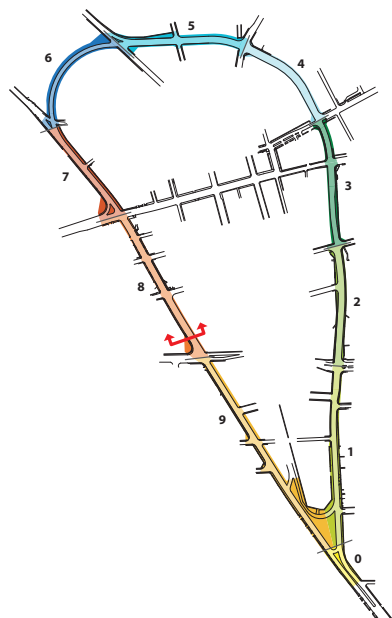
This alternative explores the option of also incorporating a median. The western curb would need to be moved.



8| Woodward (B-median)

Huron Ave (M59) to Orchard Lake / Auburn,
Intersection approach

This alternative explores the option of also incorporating a median. The western and eastern curbs would need to be moved.



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