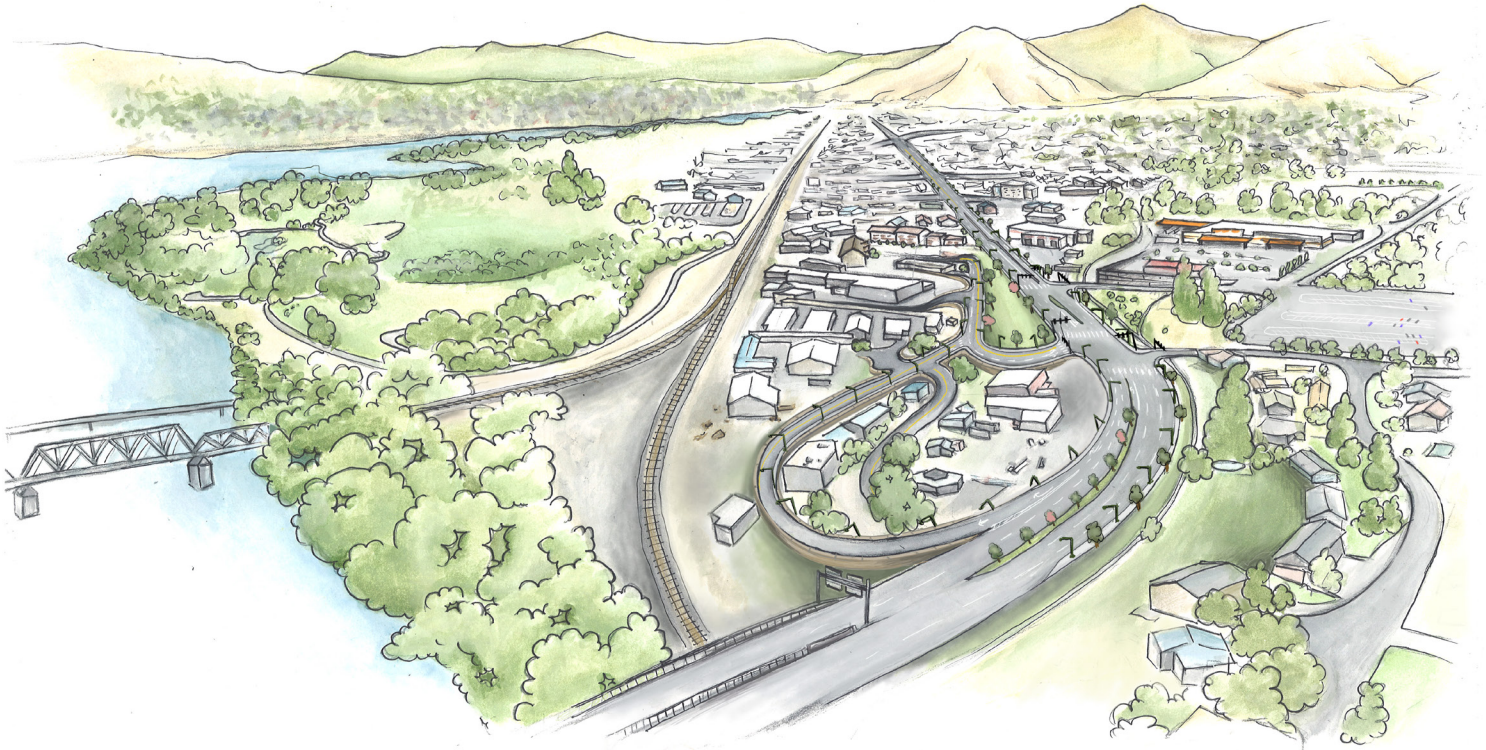


North Wenatchee Avenue (SR 285) Preliminary Engineering Summary Report



January 24, 2020

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North Wenatchee Avenue (SR 285)
Preliminary Engineering
Summary Report

Prepared for:

City of Wenatchee

In association with:

WSDOT

Prepared by:

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Executive Summary

The following report provides a summary of the North Wenatchee Avenue (SR 285) Preliminary Engineering Design. This project produced a 10% level design of North Wenatchee Avenue focusing on capacity, safety, visual appearance, pedestrian, multimodal, and transit improvements.

The purpose of this project is to identify design parameters for the full length of the North Wenatchee Avenue corridor, guide the implementation of currently funded portions of the corridor, and identify future projects to be funded with Federal, State and local funds in the future. Recommendations for the corridor are coordinated with the most current design concepts for Confluence Parkway, but also provide immediate and long-term benefits to the corridor that are not dependent on Confluence Parkway.

The project builds upon previous planning studies and adds engineering detail to adopted planning level concepts. Deliverables include design plans, figures, typical sections, identification of individual projects, cost estimates, recommendations for project prioritization, identification of property impacts, transportation analysis, urban design look and feel concepts, and documentation of stakeholder and public involvement processes.

Recommendations for the corridor are characterized by a 5-lane facility with 4-foot shoulders, median access control to address left turn safety, designated U-turn locations to maintain business access, wide sidewalks with landscaped buffer strips, bus pullouts to minimize transit impacts on corridor capacity, transit signal priority to minimize transit delays, options for implementation of Intelligent Transportation Systems (ITS), urban design, and gateway features to create a vibrant and inviting urban corridor.

Recommended improvements in the vicinity of Maiden Lane and Horselake Road are distinct from the rest of the corridor and include additional features such as: frontage roads, multi-purpose outside lanes, mid-block U-turns, and mid-block crosswalks to address capacity, safety, and access considerations that are unique to the north end of the project.

Identified projects have been ranked according to level of priority based on locations of greatest need, consistent with the stated goals of the project, and with consideration of stakeholder and public comments using the best available information at the time this report was written. It is anticipated that priorities will shift as conditions, goals, and funding availability changes. It is also anticipated that the delineation of individual projects will change to meet future needs and conditions.

Projects are prioritized in the order shown below. The estimated cost for the full suite of identified improvements ranges from about \$50M to \$65M. \$18M of state funding has been secured through Connecting Washington which is likely to fund the top three projects in the ranking. Approximately \$3.7M of federal and local funds are secured for an initial phase of the McKittrick project and is scheduled for construction in 2020.

1. **ITS Level 1 (\$300K-\$500K):** Improvements will interconnect existing signals using spare conduit that has already been installed for this purpose with the goal of maximizing the operational capacity of the existing roadway. This project is well suited for use of Connecting Washington funds.

2. **Maple Option 1 (\$75k-\$150k):** Provides for relatively low-cost operational improvements to the existing signal system at Maple which will reduce current safety concerns and benefit intersection operations. This project is well suited for use of Connecting Washington funds.
3. **North End Projects – Phase 1 (\$16-\$19M):** The north end project area represents the crux of safety, capacity, access, and aesthetic concerns along the corridor in the vicinity of Maiden Lane and Horselake Road. Public outreach has yielded strong support for the recommended improvements. This project is well suited for use of Connecting Washington funds.
4. **McKittrick Street (\$7M-\$9M):** Approximately \$2M is already secured to begin recommended improvements and construction of the funded portion of the project is anticipated in 2020. Once the full project is complete, it will set the stage for the proposed eastward extension of McKittrick Street under the BNSF railroad, and redevelopment under the North Wenatchee Master Plan.
5. **North End Projects – Phase 2 (\$20M-\$24M):** Phase 2 will complete the North End Projects by finalizing the Phase 1 improvements identified above with an emphasis on aesthetics, gateway, and multimodal project elements.
6. **Walnut and Hawley (\$6M-\$8M):** The Walnut and Hawley project will provide access control, U-turns, transit, multimodal, and urban design improvements consistent with the other projects identified by this design project.
7. **Trail, Horselake Road to Walnut (\$2M-\$4M):** A trail will provide multimodal connections extending from the multiuse trail at Horselake Road to Walnut Street, utilizing the unused Pioneer irrigation alignment. Extension of the trail across the Wenatchee River is not covered by this report.
8. **ITS Level 2, or Level 3 (Cost Varies):** Improvements would build upon ITS Level 1 improvements to implement adaptive signal control (Level 2), or also develop a fully equipped Traffic Management Center (Level 3). These projects require additional planning to identify ITS goals for the City and the regional area.
9. **Maple – Option 2, Option 3, or Confluence Parkway (Cost Varies).** Large scale projects at Maple are currently ranked as a lower priority awaiting a funding schedule for Confluence Parkway. However, this ranking should be reconsidered if Confluence Parkway either moves forward with secured funding or ceases to be the preferred alternative.

Recommendations contained in this report have been guided by input from extensive agency stakeholder group and public outreach efforts. Highlights of the public outreach campaign include: distribution of nearly 50,000 bi-lingual postcard invitations, 120 in person open house attendees, 2300 online visitors, and 766 completed project surveys. Survey results provided feedback on the importance of individual project elements resulting in the following ranking:

1. Reduce traffic congestion
2. Improve safety

3. Improve business access
4. Improve visual appearance
5. Improve walking experience
6. Improve bus travel time
7. Improve biking facilities

The following Summary Report provides an in-depth description of the project, design considerations, alternatives evaluated, and project deliverables. It is intended to provide a reliable foundation for planning, development of funding strategies, and subsequent design efforts for projects along North Wenatchee Avenue.

Introduction and Background

The City of Wenatchee, Washington State Department of Transportation (WSDOT), the Chelan Douglas Transportation Council (CDTC), and Link Transit, along with multiple local partners and stakeholders have been engaged in identifying and implementing improvements to North Wenatchee Avenue (SR 285) for over a decade. Improving this urban street corridor is a significant component of the Apple Capital Loop, which has been identified as the number one regional priority for the CDTC.

Recently, the Washington State legislature allocated approximately \$23 million in Connecting Washington gas tax funding for improvements to the North Wenatchee Avenue (NWA) corridor and the SR 2/Easy Street intersection. In order to prioritize the best use of funds, the City of Wenatchee and WSDOT teamed up to develop a comprehensive preliminary engineering design for the NWA corridor. This report provides a description and summary of the preliminary design effort and recommended improvements.

Previous Plans and Studies

The preliminary engineering design effort for NWA acknowledges and builds upon several previous planning documents. Below is a brief summary of the plans that were used as a basis for preliminary engineering design:

Confluence 2030 (2010). This regional metropolitan transportation plan explored several potential alternatives to improve regional capacity including new crossings of the Columbia River, a new Wenatchee River bridge between US 2 and Western Avenue, and a new bridge across the Wenatchee River on the east side of the BNSF railroad. The latter alternative known as Confluence Parkway, advanced as the preferred alternative, and is currently moving forward through preliminary design and environmental documentation phases.

North Wenatchee Transportation Master Plan (February 2011). This plan identified the need for future vehicle capacity improvements in the North Wenatchee area to address forecasted traffic demand. Recommendations in the plan included improvements to NWA, improvements to US 2

in Olds Station, construction of Confluence Parkway, and other improvements in the North Wenatchee area.

Transportation 2040 (2015). This document is the CDTC’s regional transportation plan update which applied 2040 travel demand forecasts and established a priority for future projects. The plan prioritized funding to include the NWA improvements for construction between 2016-2027 and Confluence Parkway improvements for construction between 2028-2040.

North Wenatchee Master Plan (2016). This document focused on the land use redevelopment of the east side of North Wenatchee Avenue between Hawley Street and Maple Street. It outlines a strategy for redevelopment after the 2015 Sleepy Hollow fire that destroyed several warehouses in the area. The plan builds upon the adopted 2011 North Wenatchee Transportation Master Plan and provides new concepts in response to new land use opportunities that emerged as a result of the fire, such as the extension of McKittrick Street under the BNSF rail line as a new connection to Confluence Parkway and to support future development to the east of the tracks.

North Wenatchee Avenue Concept Plan (2017). This plan, also known as the “Form and Function Study”, looked at both land use and multimodal transportation concepts for the North Wenatchee Avenue corridor. The transportation concepts included access management improvements, bicycle and pedestrian facilities, and high-capacity transit options. This plan introduced the idea of transit queue jump/bypass lanes at NWA intersections that was explored early in the preliminary design effort. A description of this alternative is included under the heading “Design Summary” in this report.

Wenatchee Urban Area Comprehensive Plan: Planning to Blossom 2037 (2017). This is the most recent update the City of Wenatchee’s Urban Area Comprehensive Plan. The plan is the primary overarching planning document for the City, providing the overall context for discipline specific planning efforts.

North Wenatchee Capacity Improvements Risk Assessment (2017). This “pre-NEPA” study compared No Action, a six-lane NWA, and the Confluence Parkway alternatives based on consistency with city goals and policies, potential risks related to permitting and approvals, mitigation complexity and costs, and meeting project’s established purpose and need statement. Results found that the Confluence Parkway alternative meets the purpose and need and provides high levels of mobility benefits, but also has moderate-to-high risks related to permitting and mitigation.

***Draft Purpose and Need Statement
from the 2017 Pre-NEPA study:***

The purpose of the project is to provide capacity for general-purpose, freight, non-motorized, and transit traffic, and to improve system connections and redundancy within North Wenatchee in order to meet predicted travel demand, relieve congestion, improve safety, and support planned economic development in North Wenatchee and the city as a whole.

Wenatchee Valley Bicycle Master Plan Update (2018). This plan documents the long-term vision for local and regional bicycle programs and facilities within the greater Wenatchee urbanized area. The plan focused on community engagement and education, existing conditions, establishing the recommended bicycle network, and identifying priority projects. In response to coordination between the preliminary engineering effort (summarized in this report) and the Regional Bicycle Advisory Committee (RBAC) during development of the 2018 plan, the plan identified the NWA corridor as an area requiring further study.

Project Objectives and Deliverables

This project builds upon the adopted planning documents and concept studies listed above. The goal of this design effort is to add detailed traffic analysis, engineering design, and placemaking concept development, integrated with guidance received from stakeholder coordination and public involvement to recommend improvements for NWA that address the following project design objectives:

- Reduce congestion
- Improve safety
- Provide adequate clearances for emergency service vehicles
- Identify opportunities for urban design and gateway elements
- Improve pedestrian, bicycle, and multimodal functionality
- Improve transit travel time
- Minimize property impacts
- Coordinate improvements with future Confluence Parkway and North Wenatchee Master Plan projects

Final deliverables for this project include, but are not limited to:

- 10% level design plans for recommended improvements

- Transportation Analysis Report that documents traffic analysis and provides justification for recommended improvements from a traffic operations standpoint.
- Project cost estimates for recommended improvements.
- Project prioritization strategy that identifies best use of Connecting Washington funds
- Identification of right of way impacts
- Urban design and gateway corridor “look and feel” concepts
- Summary of public involvement efforts
- Project Summary Report that documents the project and provides an overarching context for individual reports and deliverables

These deliverables can be used to reliably inform future activities along the NWA corridor. Examples of which include, but are not limited to, the following:

- Final design of Connecting Washington projects
- Final design of subsequent North Wenatchee Avenue projects
- Coordination with currently funded projects at or near McKittrick Street
- Grant applications and funding strategies
- Budgeting for future projects
- Identification of future right of way needs
- Establishing setback requirements for future development
- Coordination with regional stormwater improvements
- Coordination with planned utility improvements
- Coordination of access for future development
- Establishment of urban design and landscaping standards
- Design and funding efforts to implement gateway features
- Planning for transit improvements
- Planning for pedestrian, bicycle, and multimodal improvements

Project Area

The project area includes the North Wenatchee Avenue portion of SR 285 that extends between the Wenatchee River Bridge and the intersection at Miller Street. North Wenatchee Avenue is part of a set of regional roadways designated as the Apple Capital Loop, which consists of a circular network of state routes that serve Wenatchee, East Wenatchee, and the surrounding area. The loop is comprised of US 2/SR 97 on the north side of the loop, Sunset Highway in East Wenatchee (SR 28), and SR 285 on the west side in the City of Wenatchee.

Included in the regional loop, is the proposed Confluence Parkway concept that will provide a new parallel alignment to NWA connecting Miller Street at the south end and SR 97A/US 2 at the north end. It will include a new bridge crossing of the Wenatchee River. Construction of the

new Confluence Parkway alignment coupled with improvements along NWA is the preferred transportation solution for the North Wenatchee area.

This Summary Report provides recommendations for North Wenatchee Avenue, with consideration for how these improvements will support the addition of Confluence Parkway and proposed North Wenatchee Master Plan projects in the future. The report also considers the effects of multiple implementation timelines for Confluence Parkway, both short term and long term, and seeks to provide recommendations for North Wenatchee Avenue that work well for multiple scenarios.

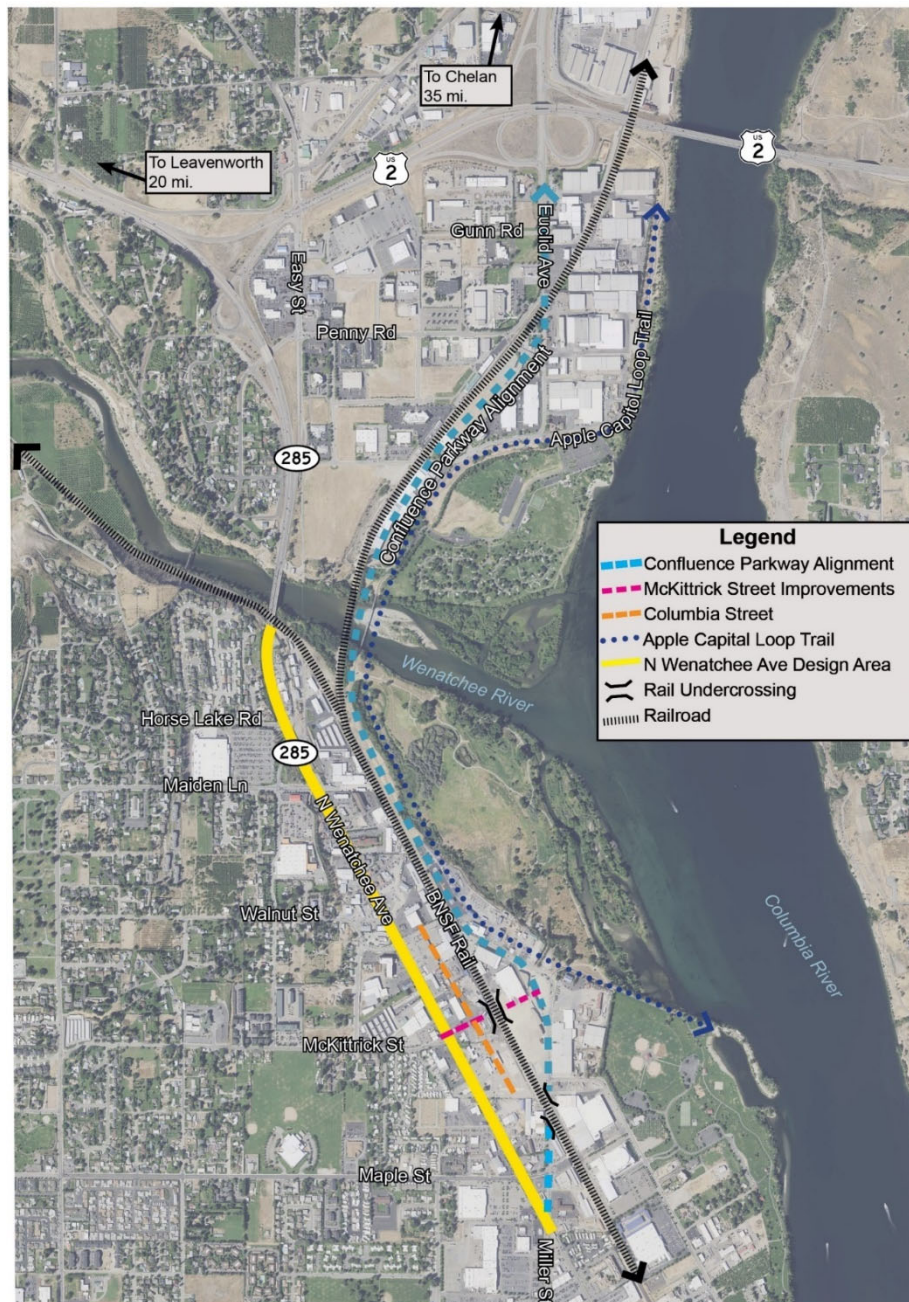


Figure 1. North Wenatchee Avenue Project Area

Summary of Recommendations

Overview of Improvement Strategies

In general, recommended improvements are characterized by a 5-lane facility with 4-foot shoulders, median access control to address left turn collision safety, designated U-turn locations to provide business access, wide sidewalks with landscaped buffer strips, bus pullouts, transit signal priority, and options for implementation of Intelligent Transportation Systems (ITS), combined with urban design and gateway features that are integrated into the various project elements. Projects at the north end are distinct from the rest of the corridor with the addition of frontage roads, multi-purpose outside lanes, and mid-block U-turns to address unique capacity, safety, and access considerations.

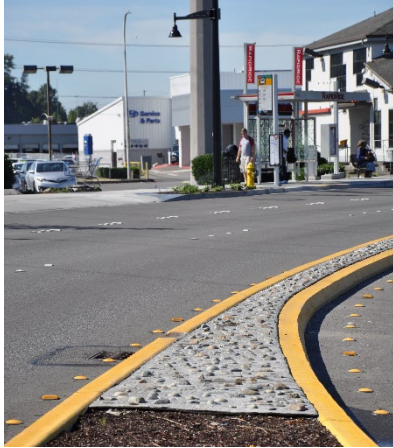
Medians

Recommended improvements include the phased introduction of access median control along the length of the project corridor. Recommended median width varies from 3 feet to 15 feet and is designed to include a combination of decorative hardscape adjacent to turn lanes and irrigated landscaping in areas without left turn pockets.

The WSDOT Design Manual requires 52 feet for U-turn clearance, which yields an available 3 feet of roadway width, necessary to accommodate U-turns, but not needed for lane width. Using this width to achieve the goal of providing aesthetic improvement along the corridor provides a practical solution and a potentially low-cost way to address two design objectives at once. Provisions for snow storage, and mountable curbs types for emergency vehicles are recommended for consideration under subsequent median design efforts.

As further justification, the proposed median widths and recommended treatments are supported by a precedence of successful implementation on other urban state route corridors. Many of these projects have similar goals (access limitation, increased capacity, multimodal improvement, and aesthetic improvement), and present good models of successful projects that can be used for consideration during the development of North Wenatchee Avenue improvements. Examples of similar projects include, but are not limited to:

- Rainier Avenue South (SR 167) in Renton, from SW Grady Way to SW Sunset Boulevard
- Pacific Highway South (SR 99) in Federal Way, from S 340th Street to S 304th Street
- Aurora Avenue North (SR 99) in Shoreline, from N 145th Street to N 205th Street



Hardscaped Median, Rainier Avenue S (SR 167) Improvements, Renton



Wide Landscaped Median, Rainier Avenue S (SR 167) Improvements, Renton

Curb to Curb Clearance

The recommended curb to curb width will include 4-foot-wide shoulders for adequate emergency service vehicle width. Coordination with emergency services identified that additional shoulder width is needed as a consequence of the addition of hard medians. New hard medians will limit the ability of emergency service vehicles to utilize the existing center turn lane as the do under current conditions. Adequate curb to curb clearance is needed for traffic to move right and allow safe and timely passage of emergency services. The corridor has been designed to include a minimum curb to curb width of 28 feet for the traveled way in each direction.

Subsequent design efforts along the corridor should also consider curb type options such as a mountable rolled curb and a hardscape buffer that is designed to accommodate emergency vehicle loading. These considerations could provide additional flexibility for the operation of emergency service vehicles.

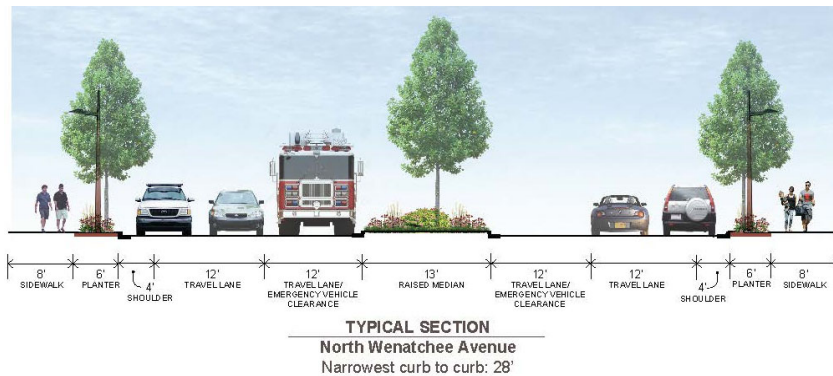


Figure 2. Typical Section

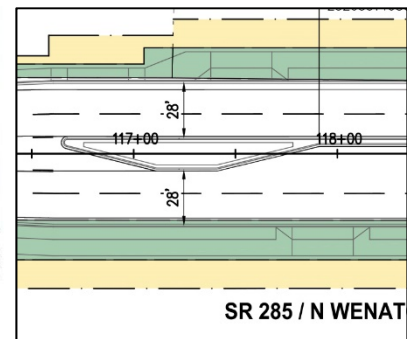


Figure 2.1 Curb Clearance

Sidewalks and Landscape Buffers

Pedestrian facilities are typically 8-foot-wide concrete sidewalks with 6 ft buffers, resulting in a total width of 14 feet measured from the back of curb to the back of walk. The buffer strips are anticipated to consist of irrigated landscaping but alternative treatments such as LID stormwater facilities could be considered during the design of individual projects. At bus stops, intersections, and high pedestrian use areas, the buffer strips may be replaced by a full 14-foot sidewalk width. Recommended driveway entrance types should maintain sidewalk grade, similar to a Type 3 driveway entrance per WSDOT Standard Plan F-80.10. Depressed driveway entrances should only be considered where existing grades or other special conditions require.



Landscaped Buffer, Rainier Avenue S (SR 167) Improvements, Renton

Urban Design Treatments

Custom urban design details for sidewalk treatments add a unique element to the corridor and are consistent with the project goal to improve the aesthetics of North Wenatchee Avenue. Recommended treatments such as stamped concrete, scoring patterns, or colored concrete should be considered for implementation throughout the corridor. These treatments may be more concentrated at strategic locations such as intersections, mid-block crosswalks, adjacent to park frontages, and in conjunction with areas identified for art integration or as part of a gateway feature. Other urban design considerations should include custom crosswalk treatments, cast iron detectable warning surfaces, decorative illumination and signal pole details, custom street furniture, and custom bus shelters.



Driveway Entrance, Rainier Avenue S (SR 167) Improvements, Renton

Depending on the funding source utilized for the implementation of projects along the corridor, it is possible that certain urban elements may not be eligible for funding. In these cases, it is important that the project provide the infrastructure and basic geometry needed for implementation of urban design elements in the future. In general, if constructed projects do not include urban design and landscape features, the project should take care not to limit the opportunity to implement urban design features in the future.

The scope of this preliminary engineering design project included a significant task component dedicated to developing urban design concepts and integrating those concepts into the proposed improvements to the corridor. Portions of the stakeholder and public outreach was dedicated to the topic of developing “look and feel” concepts for the corridor. Input from that outreach was used to inform the development of the recommended improvements presented in this report.

The inclusion of urban design into recommended projects is consistent with the adopted 2011 Transportation Master Plan which states that *“improvements in the North Wenatchee Avenue corridor focus on improving safety, circulation/accessibility to businesses, and upgrading the look and feel of transportation facilities serving the business district”*. It will be the task of future project design teams to make studious decisions about how to implement these improvements to the maximum extent feasible while balancing the limitations of funding and other concerns. For more detailed information on look and feel concepts, see Appendix C.



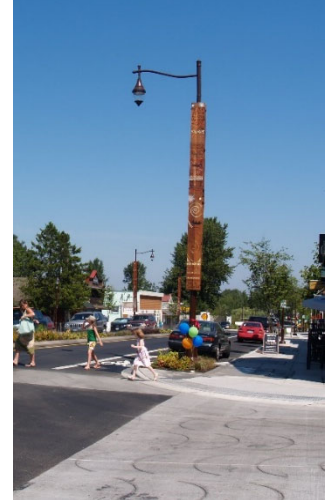
*Sidewalk Treatment,
Town Center
Improvements,
Snoqualmie*



*Sidewalk Treatment,
Bear Creek Parkway,
Redmond*



*Sidewalk Treatment,
2nd Street
Improvements, Langley*



*Sidewalk Treatment,
Main Street,
Snoqualmie*

Signals and Illumination

New illumination, decorative poles, and roadway and pedestrian level lighting are recommended for individual project design implementation. The aesthetic elements of illumination poles and fixtures should be coordinated with signal poles and be of a consistent type, design, and color along the entire corridor. Look and feel concepts for the corridor were developed for this project, but a more detailed establishment of decorative lighting and signal standards should be developed before, or as part of, the implementation of the first project.

Additionally, signal and detection equipment should be consistent with the City and WSDOT's goals for the application of ITS strategies along the corridor and potential adaptive signal timing at intersections. Preliminary recommendations for ITS are located in this report under the heading “Description of Individual Projects”.



Decorative Illumination/Signal Pole, Town Square, Burien



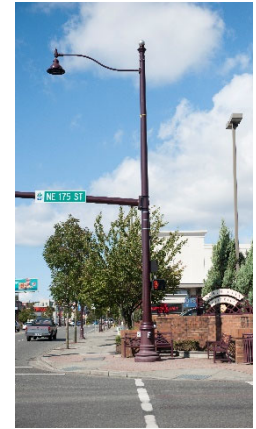
Decorative Illumination/Signal Pole, Cleveland Street, Redmond



Decorative Illumination Pole, 216th Street, Des Moines



Decorative Illumination Pole, Town Center Improvements, Snoqualmie



Decorative Illumination/Signal Pole, North City Business District, Shoreline

Transit Facilities

Transit facilities are located along the project corridor consistent with the “Transit and BRT Recommendations for North Wenatchee Avenue” memorandum that was developed with coordination and input from the City of Wenatchee and LINK Transit. See Appendix E. Transit facility recommendations include near side stops with transit queue jump signal capabilities, and far side stops with transit signal priority to help buses re-enter traffic. Far side bus stops are co-located with U-turn pockets and provide adequate space for both uses. All transit stops are located outside the traveled lane and should include the appropriate geometry, size, conduit stub outs, and other infrastructure needed for future implementation of a BRT system should one be needed.



Bus Transit Facility, Rainier Avenue S (SR 167) Improvements, Renton

Bus stops are a good opportunity to introduce urban design features into the project. Custom transit shelters, benches, and garbage receptacles at these locations will help provide an aesthetic improvement to the roadway that is consistent with the City’s vision for the NWA corridor.

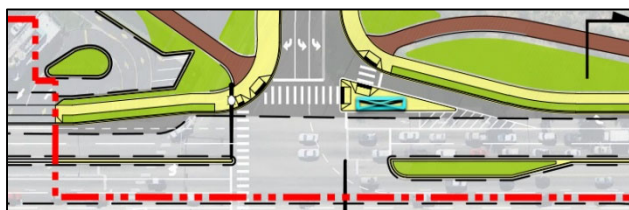


Figure 3. *N Wenatchee Avenue Transit Facility Location (shown in blue)*

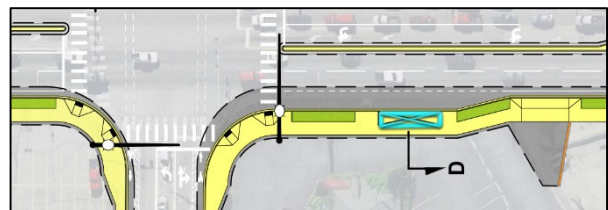


Figure 3.1. *N Wenatchee Avenue Transit Facility Location (shown in blue)*

Access and Business Impacts

Recommended improvements identified by this project are focused mainly at intersections, where improvements will have the greatest effect. Although figures have not been produced, it is assumed that a five-lane roadway section with hard medians and 4 foot shoulders will ultimately extend the full length of the corridor as future development and longer-range municipal projects begin to modify the areas between intersections in a manner that is consistent with the recommended improvements presented in the figures.

Adjacent land use along the North Wenatchee Avenue corridor is constricted and typically consists of small irregularly shaped parcels. Available space is limited by the BNSF railway to the east and steep slopes to the west. Minimization of business impacts has been a consistent project goal, however some level of property impacts is unavoidable in many cases. Below are examples of how the recommended improvements in this summary report attempt to minimize impacts:

- In locations where the proposed sidewalk and planted buffer strip will impact existing private structures along the corridor, the sidewalk section has been reduced to 6 feet with no planter strip to avoid impacts to buildings. Avoiding existing structures has been a consistent goal of this design effort.
- A multiuse path on the east side of the roadway, consistent with the form and function study was considered as an alternative. However, this concept did not advance to the recommended design partly because the property and business impacts are too great.
- The roadway has been limited to a five-lane section except where needed to accommodate U-turns, transit, or right turn lanes.
- At locations where double left turn lanes could be justifiable based on traffic volumes, such as the NB left turn at the Maiden Lane intersection, the recommended improvements are limited to one lane with a longer turn pocket. This configuration demands more green time at the signal, however the impacts to businesses as a result of adding an additional left turn lane prohibit double lefts a viable design solution unless no other option is available.
- Access consolidation has been included in recommended improvements in order to increase safety and capacity; however, this objective has been balanced with the goal of minimizing business impacts as much as possible.

Description of Individual Projects

It is the intent of this preliminary engineering design effort to develop a consistent and standardized approach to improvements along the whole corridor. In general, projects have

focused on intersection improvements with the expectation that the area between individual projects will fill in as a result of future City projects and private development in a manner that is consistent with the recommended improvements presented here.

Figures and plans have been developed for each of the recommended improvements. Plans and figures are at the 10% design level with sufficient detail to serve as a basis for development of individual projects, budgeting, and pursuit of funding opportunities. Plans and figures for recommended improvements are located in Appendix A.

As a general consideration, the influence of Confluence Parkway on design considerations for NWA increases as you move from north to south along the corridor. For example, Confluence Parkway does not significantly influence design considerations for NWA at Horselake Road, Maiden Lane, or Hawley Street. Moving south to McKittrick Street, assuming completion of the McKittrick Street Extension, the schedule and phasing of Confluence Parkway will affect traffic at McKittrick. At the south end of the project area, recommended improvements to NWA at Maple and Miller differ significantly depending on the final design of Confluence Parkway at these intersections. To the maximum extent possible, recommended improvements for NWA are designed to be well integrated with the future Confluence Parkway on multiple implementation timelines.

North End Projects – Horselake Road and Maiden Lane

The intersections of Horselake Road/Duncan Road and Maiden Lane are closely spaced, and these intersections and their immediate vicinity experience the highest concentration of traffic congestion and safety concerns along the NWA corridor. The close proximity of the intersections combined with higher traffic volumes and closely spaced driveways make this area more complex than the rest of the corridor. Due to the interrelated nature of the intersections, recommended improvements have been combined into a single large project area which is referred to in this document as the “North End Projects.” It is anticipated that the North End Projects will be split into two or more phases due to overall cost and funding availability.



Figure 4. North End Projects – Horselake Road and Maiden Lane

Recommendations for the North End Projects focus on identifying deficiencies and systematically providing solutions that address each area of concern. Operational performance measures for proposed improvements are reflected in the Transportation Analysis Report located in Appendix D. Project cost estimates are in Appendix B. The North End projects have been divided into two Phases, Phase 1 and Phase 2 in order to help facilitate implementation of the projects based on expected project funding strategies. Plans and figures that delineate project phasing are located in Appendix A.

Recommendations include the addition of hard center medians and designated U-turn locations at intersections to manage access to local businesses and address left turn collision safety issues. A mid-block U-turn is recommended for southbound traffic between Maiden Lane and Hawley Street to provide access to businesses on the east side near Starbucks. This area experiences a high concentration of left-turn related traffic accidents and close calls, and a hard center median will provide a much-needed safety improvement along the corridor.

Under existing conditions, this project location consists of a 5-lane roadway and several right turn lanes both southbound and northbound. The North End Projects will link up the new widening required for U-turns with existing right turn lanes to provide a short distance of continuous multi-purpose outside lanes for business access, transit, and U-turns. Providing space for these activities outside the through lanes will benefit traffic capacity, safety, transit, and business access. Additionally, the multi-use lanes will provide more clearance for emergency vehicles, which may be warranted due to congestion and complexity of traffic movements that exist at the North End Project area.

The North End Projects have been divided into two phases in anticipation of multiple funding sources being required for the completion of the overall vision for the north end. Additional details about individual phases can be found in the Plans and Figures, Appendix A, and in the project prioritization section of this Summary Report.

Horselake Road East Extension

A frontage road will extend from the east leg of the Horselake Road intersection and extend south along the east side of the roadway to provide consolidated access to businesses in the vicinity of Starbucks. The Horselake Road East extension will facilitate the removal of the existing east leg of the Maiden Lane intersection. Removing this leg of the intersection will improve traffic operations due to simpler signal phasing, adding capacity to the Maiden Lane intersection.

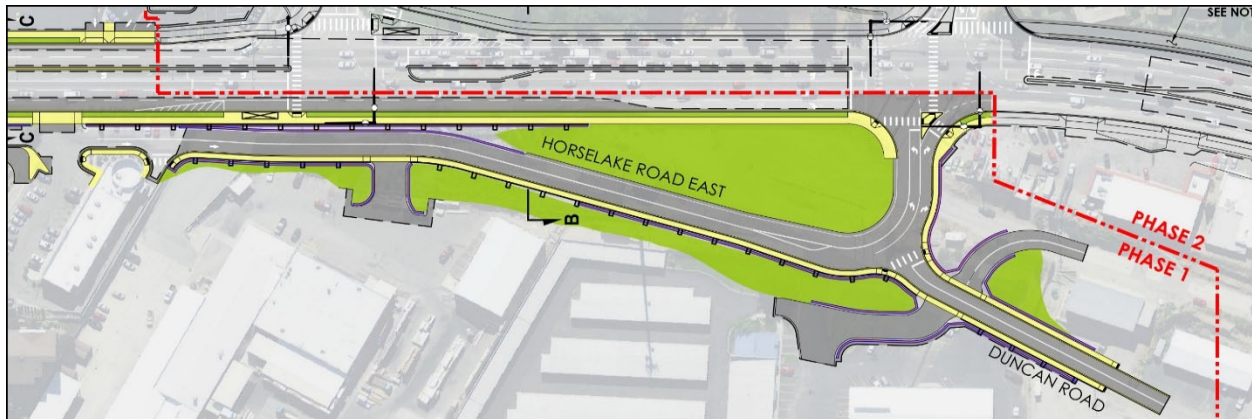


Figure 5. *Horselake Road East Extension*

Access to businesses will be limited to right-in/right-out movements with the introduction of medians. The Horselake Road East extension will provide a route for southbound vehicles leaving businesses in the vicinity of Starbucks to utilize the frontage road and take a left at the Horse Lake Road signal. Alternatively, southbound vehicles would have to enter northbound traffic and make a U-turn at Maiden Lane (likely only an option during low traffic conditions) or at Horse Lake Road. The east extension of Horse Lake Road as Horse Lake Road East will provide a capacity and safety benefit to NWA by providing an exit route for southbound vehicles that doesn't require use of the northbound lanes, reduces merging, and reduces use of left turn/U-turn lanes.

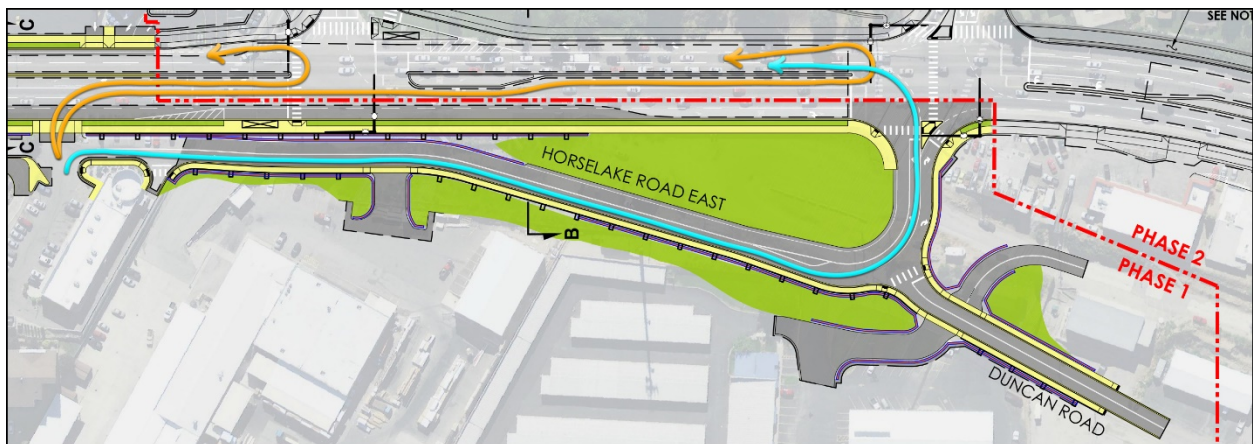


Figure 5.1. *Horselake Road East Extension Business Access Routes*

Additionally, the Horselake Road East extension provides an alternative access to Starbucks area businesses for southbound vehicles approaching the area from the north. As a southbound business entrance route, the east extension of Horselake Road will benefit NWA capacity by providing a route to businesses that does not require vehicles to continue south through the Maiden Lane intersection to utilize the mid-block U-turn. This route will also provide an access for trucks and delivery vehicles which would be unable to utilize U-turn routes.

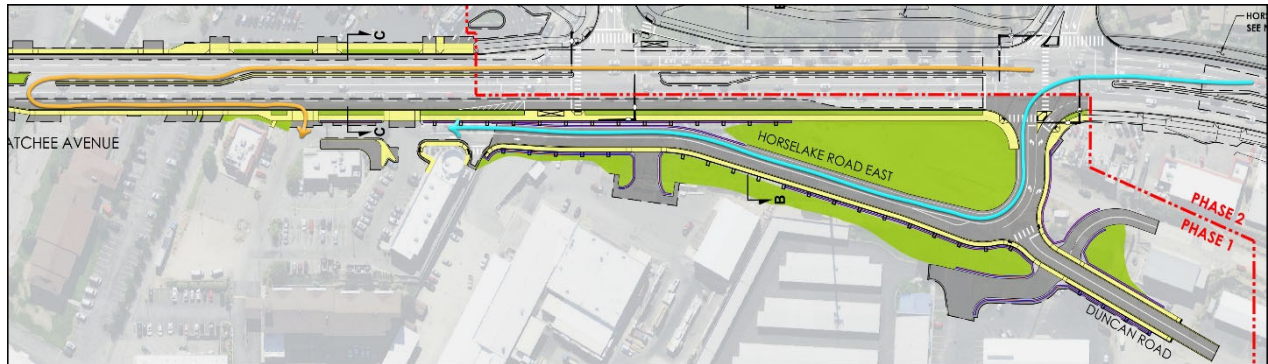


Figure 5.2. Horselake Road East Extension Business Access Routes

Duncan Road Extension

The Duncan Road Extension serves businesses located north of Horselake Road and the bridge. Without the extension, southbound vehicles would be forced to cross the Wenatchee River bridge and improvise a U-turn route in the Olds Station area. The extension will also provide a convenient loop access for businesses in this area and provide a viable truck route for business access to Duncan Road.

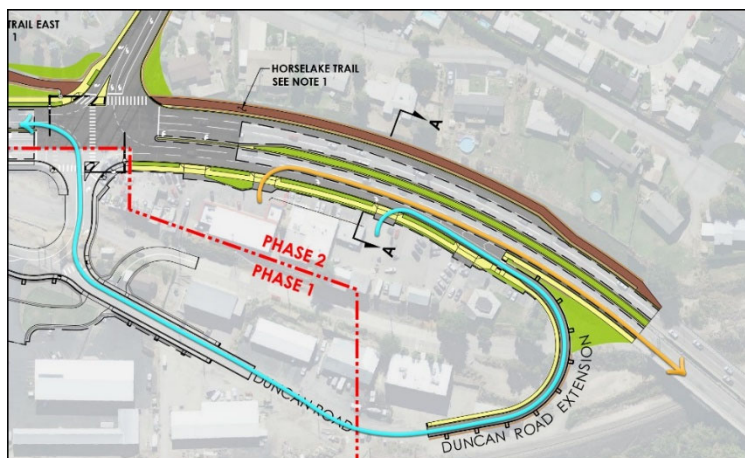


Figure 6. Duncan Road Extension Business Access Routes

Horselake Road Intersection

Eastbound and westbound through movements will be eliminated. The intersection will be configured with a single mid-intersection pedestrian crosswalk that can also run concurrently

with the east-west movements. These recommended improvements will increase intersection capacity and signal efficiency. Other intersection improvements include: improvements to intersection grading to correct current deficiencies, pedestrian refuge islands, and extra wide crosswalks and curb ramps on the west leg of the intersection to accommodate the proposed multi-use trail. More discussion of the multi-use trail is provided under the heading “Multimodal Improvements”.

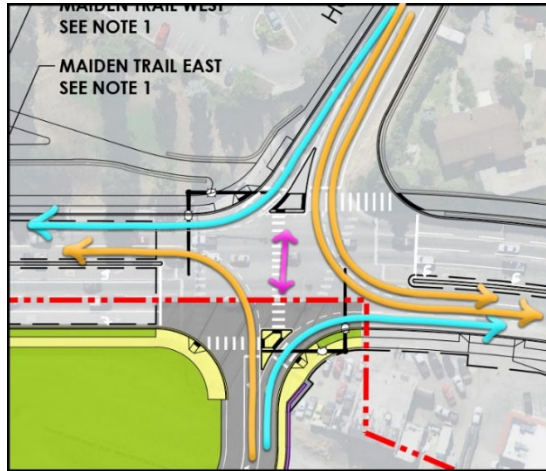


Figure 7. Horselake Road Intersection

Maiden Lane Intersection

The extension of Horselake Road facilitates the removal of the existing east leg of the intersection. The east leg currently serves Marson & Marson Lumber and several other commercial/industrial businesses. The recommended T-intersection configuration will increase intersection capacity. Other improvements at this intersection include realignment of the existing skew, pedestrian crossing on the south leg of the intersection to serve the proposed near side northbound bus stop, a large pedestrian island that includes the southbound near side bus stop, and wide crosswalks on the west leg to accommodate the proposed multi-use trail.

We analyzed Maiden Lane intersection and sized the turn pockets using 2040 CDTC forecasts for the PM peak hour. In order to balance the need for turn pocket storage with the desire of the stakeholders not to impact existing buildings along the corridor, the northbound NWA to westbound Maiden Lane turn movement is limited to a single lane which will need to balance turn lane length and storage capacity with the mid-block U turn lane storage capacity. The proposed improvements will remove of the existing east leg of the intersection, increasing green time for other movements. Signal timing can be adjusted to accommodate traffic demands, and improved control equipment may be used to adjust timing “on the fly” to meet unexpected demands.

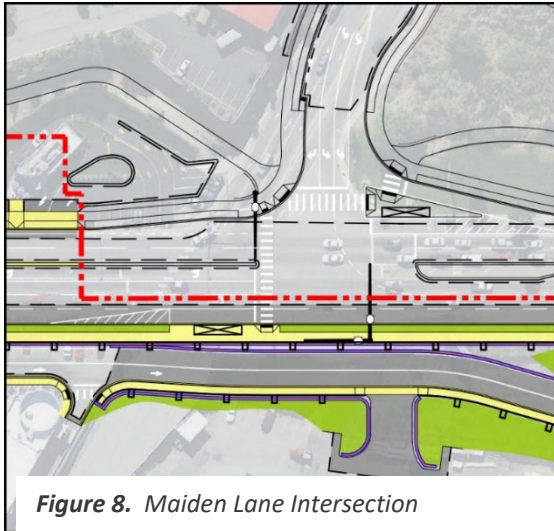


Figure 8. Maiden Lane Intersection

Coordination of Horselake Road and Maiden Lane Intersections

The operations of Horselake Road and Maiden Lane are closely related due to the short distance between intersections. In order to provide substantive capacity improvement to the NWA corridor, capacity improvements of both intersections should be coordinated with each other using a balanced approach. When reviewing the functionality of these intersections together, the addition of significant improvements at one intersection has the tendency to only relocate the problem to the other. The recommended improvements at Horselake Road and Maiden Lane intersections are both focused on limiting movements in order to benefit capacity. The improvement at each intersection is similar in magnitude which helps to maximize the benefit to the corridor.

Mid-Block Facilities

A mid-block U-turn between Maiden Lane and Hawley will provide business access and a signalized pedestrian crossing at the same vicinity will add safety and mobility for pedestrians. The mid-block U-turn will be essential for business access and will facilitate the addition of medians that will provide a significant safety benefit. The distance between the Maiden Lane and Hawley Street intersections is nearly 2000 feet, and the proposed mid-block signalized crosswalk will provide a much-needed mobility enhancement, allowing pedestrians to safely cross NWA without walking long distances. It is anticipated that the pedestrian signal can be coordinated with the adjacent intersection signals to minimize the impacts to NWA.

As an additional consideration, pedestrian crossings have been limited to one leg of both the Maiden and Horselake intersections. The net result is a higher frequency of evenly spaced pedestrian crossing locations between Hawley and the bridge which helps to balance the need for pedestrian connectivity, with the conflicting need for increased capacity along the corridor in the most efficient way possible.

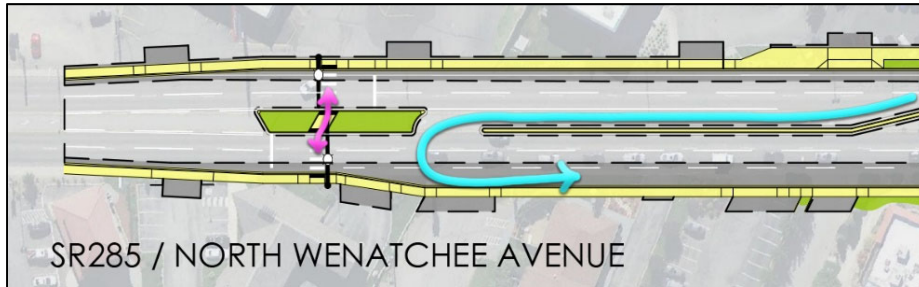


Figure 9. Mid-Block Facilities

Transit

Transit stops will be located at Maiden Lane with near side stops in the new outside lanes assisted by transit queue jump signal priority. The southbound transit stop will be located adjacent to a large pedestrian island that provided a dedicated space for a bus to stop outside the traveled way while allowing southbound right turns onto Maiden Lane to occur while a bus is stopped. A transit queue jump will provide transit signal priority for buses to “jump” ahead of the queue. This configuration increases capacity of North Wenatchee Avenue by providing a bus stop that is outside the traveled way and provides a benefit to transit travel times. Existing grades may present some challenges for the design of the island in order to maintain ADA compliance and additional evaluation and tweaking of the design may be needed once a topographical survey is available.

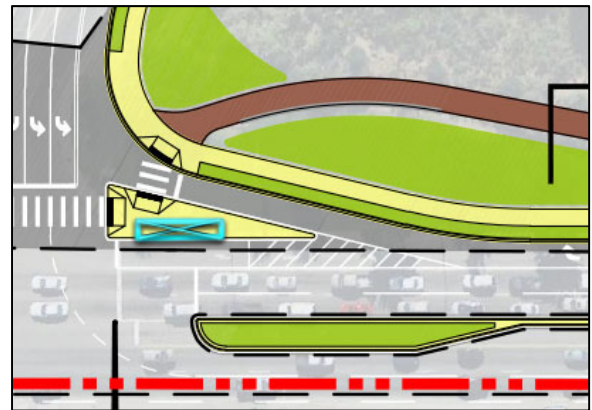


Figure 10. N Wenatchee Avenue Transit Facility Location (shown in blue)

The northbound transit stop will be located at the near side of the Maiden Lane intersection in the new outside multi-purpose lane. This configuration will benefit NWA capacity by removing the existing in-lane facility at one of the longest stops on the LINK Transit system. The near side configuration also lends itself to maintaining only one south leg crosswalk, which is a benefit to traffic congestion.

A detailed transit memo has been prepared and is located in Appendix E.

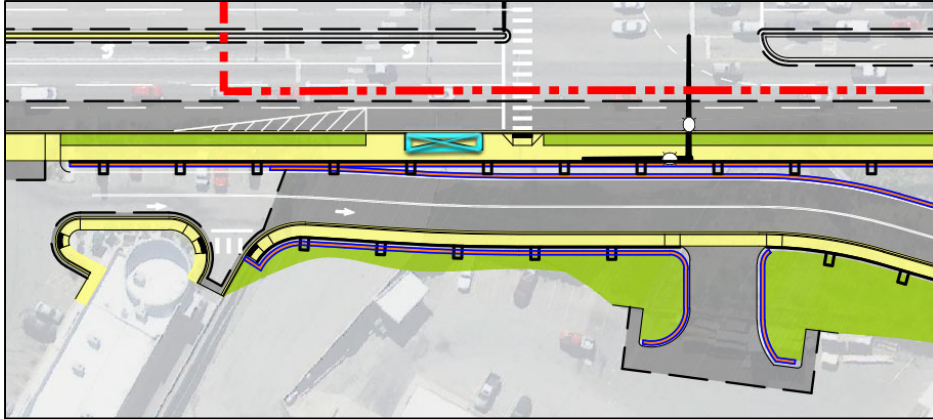


Figure 10.1. N Wenatchee Avenue Transit Facility Location (shown in blue)

Multimodal Improvements

The North Wenatchee Transportation Masterplan identifies a multiuse trail as the preferred bicycle facility along North Wenatchee Avenue. The proposed alignment is adjacent to the west side of North Wenatchee Avenue between the bridge and Maiden Lane and then continues south as a separated facility along the abandoned irrigation alignment, terminating at Walnut Street with connections to existing bike facilities at Walnut Street and along Pine Avenue extending to McKittrick Street. This project will also extend a downhill bike lane along Maiden Lane between the trail connection and the Home Depot/Walmart intersection. No bike improvements are proposed for Horselake Road.



Figure 11. Multi-Use Trail

There are current efforts to advance the multiuse trail concept in this area. The City of Wenatchee is working to determine the cost and feasibility of the proposed path alignment along the former Pioneer irrigation alignment between Maiden Lane and Walnut Street. WSDOT has furnished a report titled “Wenatchee Avenue SB Type, Size and Location Report, Bridge No.285 / 20W to the City of Wenatchee. It is anticipated that the report will be used to help determine the next steps for development of a multiuse facility.”



Right of Way, Business, and Property Impacts

The North End Projects have significant property impacts. The following is a discussion of impacts grouped into areas that have similar characteristics:

Properties North of Horselake Road. The right of way requirements at parcels north of Horselake Road are minimal. Widening for an additional northbound lane and pedestrian improvements can mostly be completed within the existing right of way. However, many of these businesses are currently benefiting from the utilization of the existing right of way for parking, vehicle circulation, and other uses. Widening for this project will limit their continued use of the right-of-way. No private parking spaces will be directly impacted by right of way acquisition.

The project design has optimized driveway locations in order to minimize impacts. Also, the addition of a new outside lane and the extension of Duncan Road will provide a replacement for some of the current informal circulation routes that exist and will provide a loop route to the Horselake Road intersection for vehicles traveling southbound.

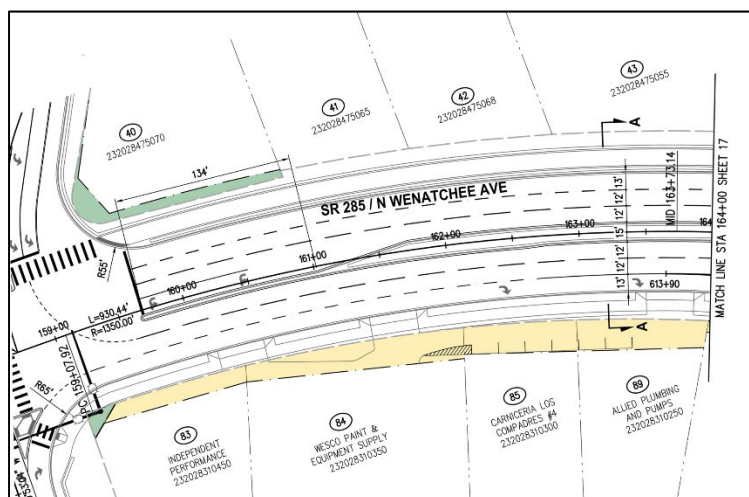


Figure 12. Property Impacts: North of Horselake Road

Properties Near Horselake Road East Extension and Duncan Extension. The proposed system of frontage road extensions that provide much of the basis for capacity improvements also have significant right of way implications. These frontage roads will require several large area acquisitions on parcel numbers 76, 78, and 81. However, these acquisition areas are on steep slopes and on properties that are currently underutilized. Existing uses for these parcels are either bare land or single occupancy residential structures that are in poor repair.

The frontage road extensions will require significant regrading and steep slopes. Grades and roadway geometry to accommodate truck access to businesses have the potential to be challenging. The preliminary design effort has accounted for slopes and grading using available GIS contour data, but it is anticipated that subsequent design will need to carefully consider

grading and truck access for businesses once a full survey is available and final design is underway. The most challenging locations will be:

- The driveway serving Carpet One and North Wenatchee Self Storage
- The driveway that serves Marson & Marson Lumber, Sav Mart, etc.

It will be important to coordinate with these business and property owners to gain a full understanding of current use and vehicle access requirements. It will also be important to understand the utility impacts of the proposed frontage roads. Businesses in this area are currently not on City sewer. As an example, the proposed driveway location at Carpet One is likely impacting an existing on-site septic system. There may be other on-site septic systems or utility services that need to be relocated or replaced.

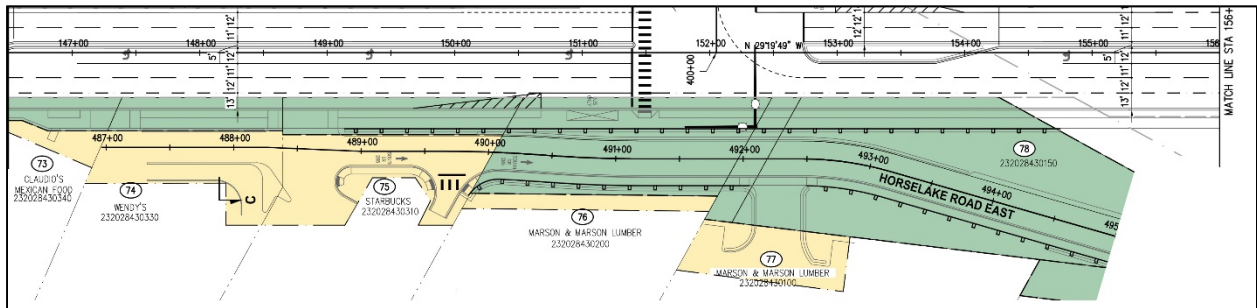


Figure 13. Property Impacts: Horselake Road East Extension

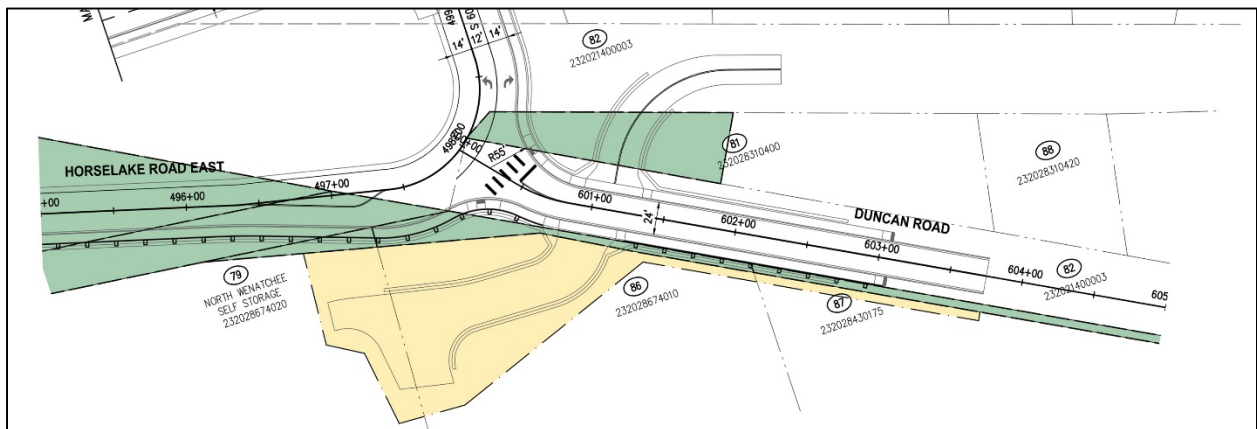


Figure 14. Property Impacts: Horselake Road East Extension and Duncan Road Extension

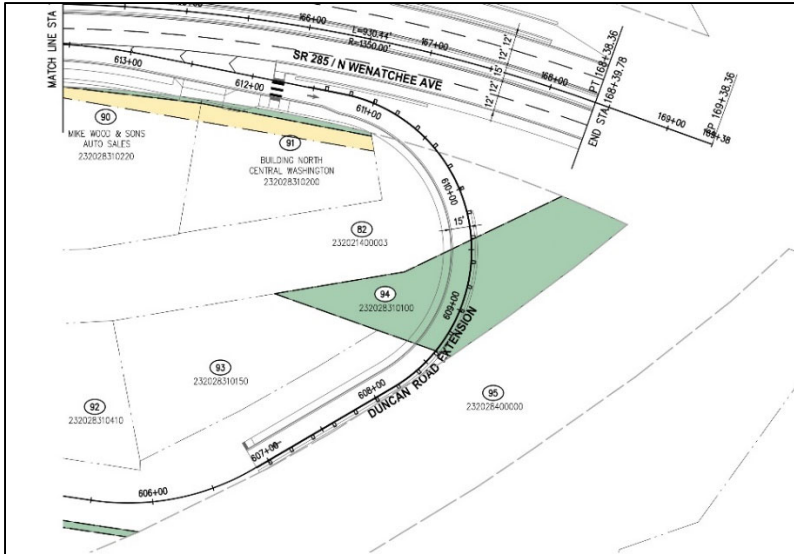


Figure 15. Property Impacts: Duncan Road Extension

Properties in the Vicinity of LaQuinta and Starbucks. Widening of NWA on the east side of the street between LaQuinta and Starbucks will require acquisition of right-of-way with impacts to private business signs, landscaping, parking, and circulation. The preliminary design effort has devoted considerable energy on coordination with these property owners to understand existing use and identify circulation route concepts for that could be useful for businesses in this area.

The existing configuration for these businesses is not optimal. There are multiple small lots in this business area and parking for individual businesses is not well defined, circulation routes are informal, and it is likely that proper easements are not always in place for shared driveway access.

The proposed new multi-purpose lane will provide essential access for these businesses but will also require the acquisition of valuable parking and frontage improvements. The extension of Horselake Road East to Starbucks will also provide excellent business access options, but to be fully utilized it will require coordination among business owners to develop an effective circulation route through the business area and parking lots.

This project has prepared a concept for circulation improvements that can be used as a basis for coordination and further design. As subsequent design efforts are advanced, it will be important to coordinate with these business and property owners to gain a full understanding of current use and vehicle access requirements, and to help facilitate productive coordination for private improvements.

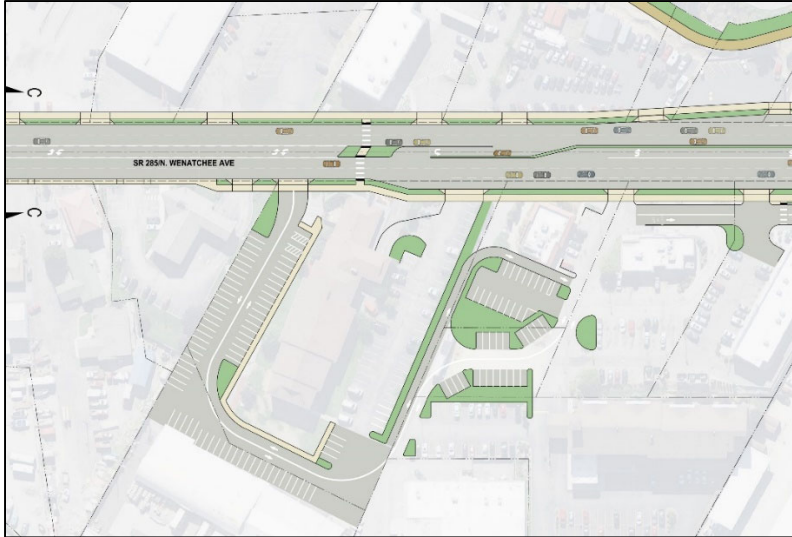


Figure 16. Property Impacts: LaQuinta/Starbucks vicinity

EZ's Burgers and Properties on the West Side of North Wenatchee Avenue. EZ's Burgers will be impacted by right of way acquisition requirements for sidewalks and widening for U-turns at the intersection. The existing EZ's lot is small and space is limited. Proposed improvements will reduce the available queue length for the EZ's drive thru, but it may be possible to place the entrance driveway adjacent to the exit driveways to provide more on-site queue capacity. The final location of the driveway should be determined after coordination with the business and property owner and after performing a detailed analysis of circulation requirements within the parcel.

Recommended improvements will also impact existing parking spaces; however, the parking on the south side of the EZ's site will not be impacted. The new sidewalk will extend to the existing patio area which could be an opportunity to provide a desirable interface between the patio and the sidewalk if grades allow. The preliminary design shows a full sidewalk buildout with 8 foot sidewalks and 6 foot planters along the EZ's frontage. This could be reduced to 6 foot sidewalks to meet site constraints if needed.

Other properties along the west side of NWA will also require acquisition of right-of-way with impacts to private business signs, landscaping, parking, and circulation. However, the impacts to these parcels is not likely to significantly the existing businesses.

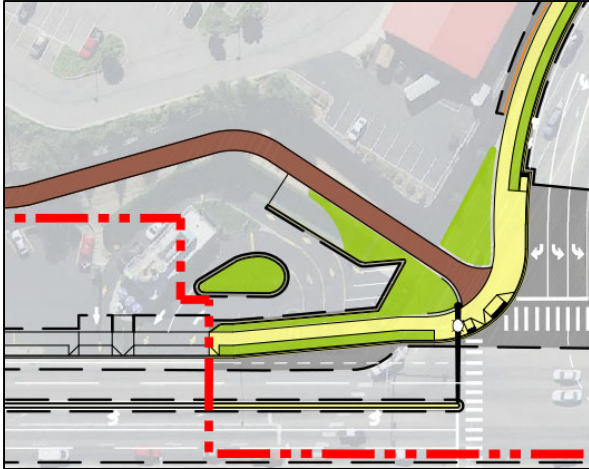


Figure 17. Property Impacts: EZ Burger's and Properties West of North Wenatchee Avenue

Hawley/Walnut Intersection

Recommended improvements for the intersection of North Wenatchee Avenue with Hawley/Walnut Street will maintain the existing 5-lane configuration on NWA with the addition of hard medians, 4 foot wide shoulders to accommodate emergency vehicles, and full lane widening at the northeast and southwest corners to provide space for combined dual-purpose U-turn pockets and far-side bus stops. Signals can be equipped with transit signal priority capabilities using a signal hold strategy to facilitate buses exiting the far side bus stops. The project will include wide sidewalks with a landscaped buffer, and urban design features such as decorative sidewalk treatments, decorative poles, custom bus stops, and other amenities will be implemented consistent with the City's urban design vision for the corridor.

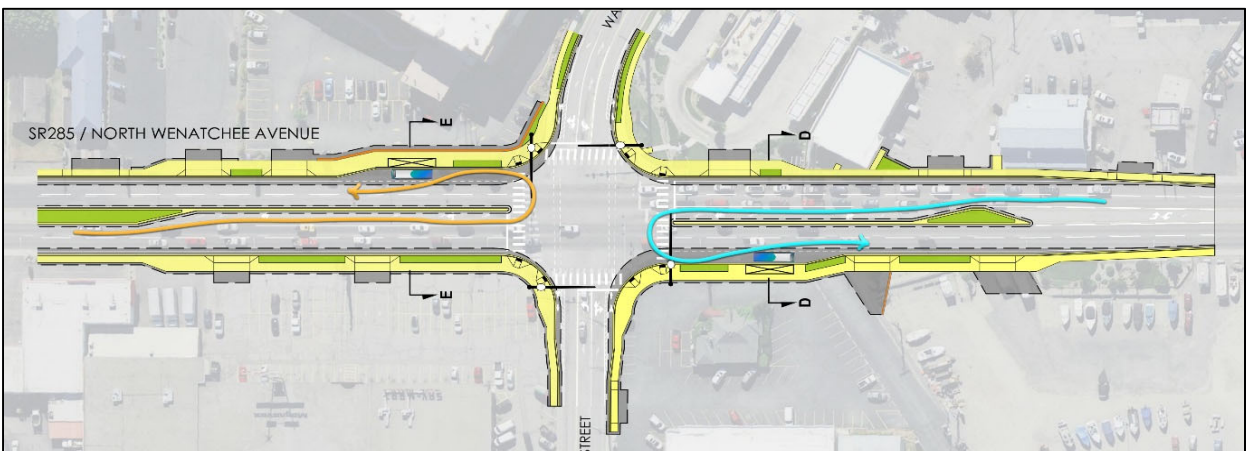


Figure 18. Hawley/Walnut Intersection

The introduction of hard medians will benefit the overall safety of the corridor by limiting left turns which is consistent with the City's vision for the corridor and justified by current and projected traffic volumes on NWA. The northern extent of the project will transition to the

existing roadway, setting the stage for future project phases and development activities to fill-in the proposed medians, roadway section, and buffered sidewalks between the Red Barn and the southern extents of recommended improvements at Maiden Lane. The southern extent of the project will connect directly with recommended improvements at McKittrick Street. The final project extents will depend upon decisions made by future design efforts, funding availability, project phasing, and other considerations.

Multimodal Improvements

North Wenatchee Avenue as it currently exists is a barrier between pedestrian and bicycle facilities on the west side of the corridor which connect to large residential areas extending to the foothills, and the Apple Capital Loop Trail on the east side of the corridor which provides a multimodal network with access to parks, natural areas, downtown, the waterfront, and East Wenatchee. Recommended improvements at Hawley/Walnut Street will extend the existing bike lanes on Walnut Street across the busy NWA corridor as buffered bike lanes, providing added safety and comfort for cyclists crossing North Wenatchee Avenue. Signalized pedestrian crossings will be provided on all four legs of the intersection. These combined improvements will benefit connectivity between neighborhoods and multimodal destinations and provide increased safety for multimodal users.

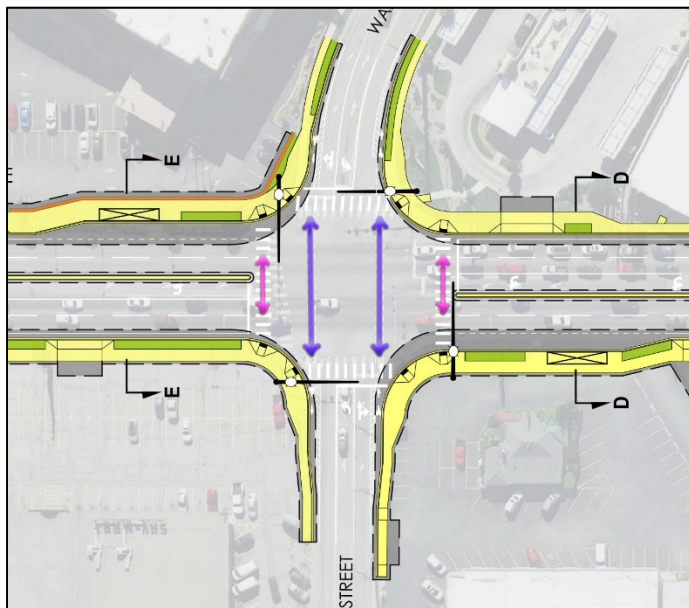


Figure 18.1. Hawley/Walnut Intersection Multimodal Improvements

Coordination with Other Projects

As a consequence of initial conversations with BNSF regarding the future extension of McKittrick Street as a grade separated underpass of the BNSF railroad, it is assumed that the at grade BNSF crossing at Hawley Street will be decommissioned and Hawley Street will no longer extend across the railroad. As part of the addition of a McKittrick Street underpass of the railroad,

Hawley Street will terminate on the west side of the tracks as a cul-de-sac or other dead end treatment to be determined by future design efforts.

Also, the City is currently advancing the Columbia Street project which will extend from the planned McKittrick Street Extension to a location mid-block between McKittrick Street and Hawley Street. Future projects and development may eventually connect Columbia Street all the way through to Hawley Street.

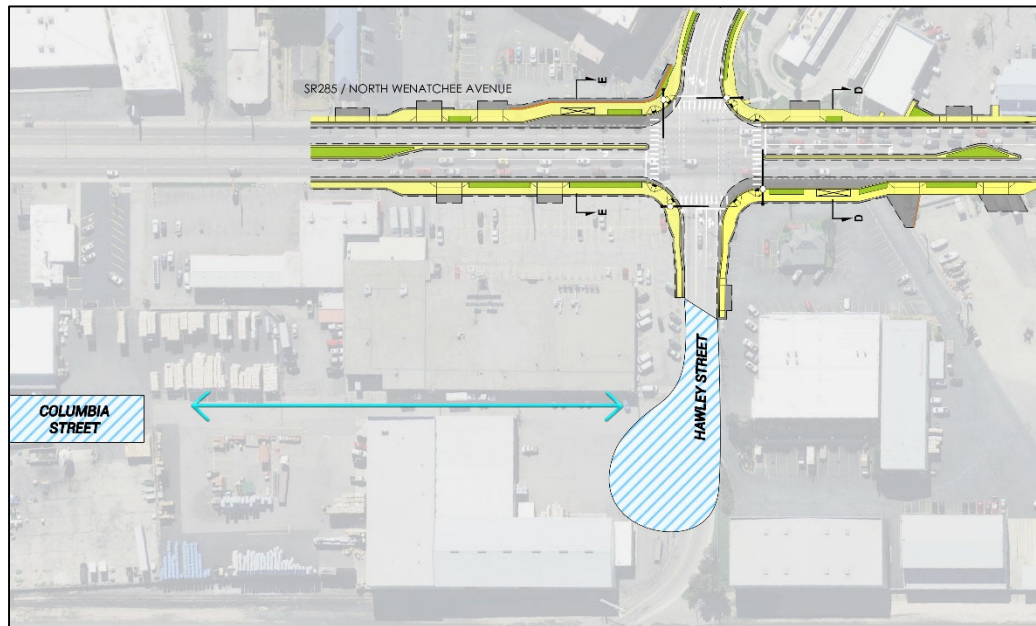


Figure 18.2. Hawley/Walnut Intersection Coordination with Other Projects

Right of Way, Business, and Property Impacts

Widening of North Wenatchee Avenue for recommended improvements at Walnut/Hawley Street will require acquisition of right-of-way with impacts to private business signs, landscaping, parking, and circulation. The preliminary design has avoided impacts to buildings by eliminating the landscape buffer and reducing the sidewalk width to 6 feet in locations where the full buffered sidewalk section conflicts with existing structures. The most significant impact to business as a result of this project is related to parking. Below is a summary of notable property impacts:

- At the Springhill Suites hotel, parking stalls adjacent to the right of way will be affected.
- At Sav Mart, existing parking stalls will not be affected but the current access to stalls and existing circulation routes may need to be revised.
- At Visconti's Italian Restaurant, parking stalls adjacent to the right-of-way will be affected.

During future design phases, it may be desirable to consider widening the roadway section of Hawley Street to include angle parking in order to mitigate some of the parking losses and reconfiguration of parking at Sav Mart. This could be done in conjunction with the elimination of the Hawley Street at grade BNSF crossing.

McKittrick Intersection

Recommended improvements for the intersection of North Wenatchee Avenue with McKittrick Street will maintain the existing 5-lane configuration on NWA with the addition of hard medians, 4 foot wide shoulders to accommodate emergency vehicles, and full lane widening at the northeast and southwest corners to provide space for combined dual-purpose U-turn pockets and far-side bus stops. Signals can be equipped with transit signal priority capabilities using a signal hold strategy to facilitate buses exiting the far side bus stops. The project will include wide sidewalks with a landscaped buffer, urban design features such as decorative sidewalk treatments, decorative poles, custom bus stops, and other amenities consistent with the City's urban design vision for the corridor.

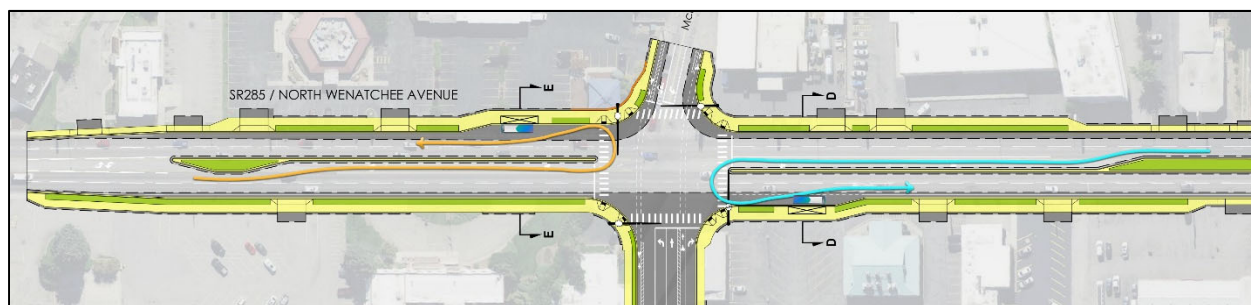


Figure 19. McKittrick Intersection

The introduction of hard medians will benefit the overall safety of the corridor by limiting left turns which is consistent with the City's vision for the corridor and justified by current and projected traffic volumes on NWA. The northern extent of the project will connect with recommended improvements at Hawley/Walnut Street. The Southern extent of the project will transition to the existing roadway, setting the stage for future project phases and development activities to fill-in the proposed medians, roadway section, and buffered sidewalks between the McKittrick project and recommended improvements at Maple Street. The final project extents will depend upon future design efforts, project phasing, and other considerations.

Multimodal Improvements

North Wenatchee Avenue as it currently exists is a barrier between pedestrian and bicycle facilities on the west side of the corridor which connect to large residential areas extending to the foothills, and the Apple Capital Loop Trail on the east side of the corridor which provides a multimodal network with access to parks, natural areas, downtown, the waterfront, and East Wenatchee. Recommended improvements at McKittrick Street will extend the existing bike lanes on the west side of McKittrick Street across the busy NWA corridor as buffered bike lanes,

consistent with the North Wenatchee Master Plan, providing added safety and comfort for cyclists crossing North Wenatchee Avenue. Signalized pedestrian crossings will be provided on all four legs of the intersection. These improvements combined will benefit connectivity between neighborhoods and multimodal destinations and provide increased safety for multimodal users.

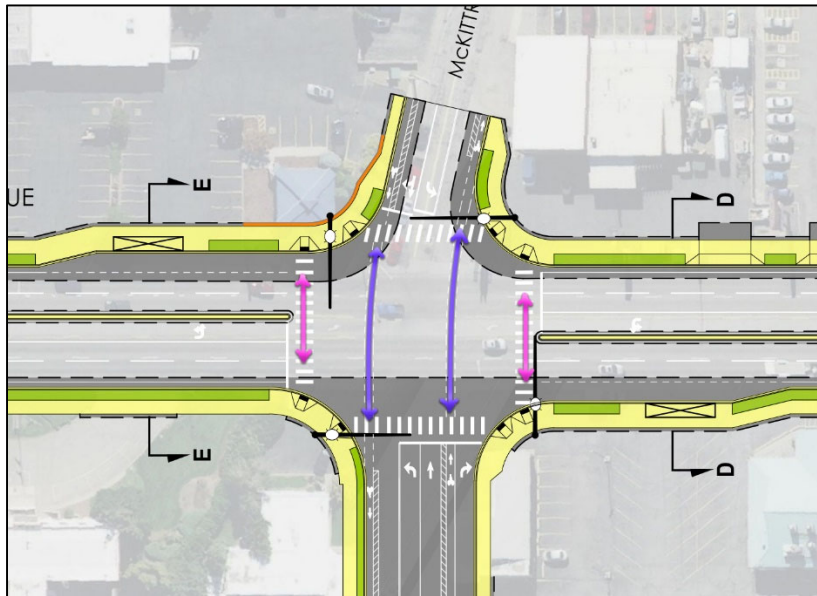


Figure 19.1. McKittrick Intersection Multimodal Improvements

Coordination with Other Projects

The North Wenatchee Master Plan outlines a plan for redevelopment of the area east of McKittrick Street after the fires in 2015. The plan provides a vision for the extension of McKittrick Street under the BNSF railroad to provide a new connection between NWA and the intersection of Miller Street and Hawley Street near the waterfront. This future extension is supported by the intersection improvements at McKittrick Street and the new connection will be an integral part of the future Confluence Parkway Project. The City is currently advancing 30% design and environmental documentation for this project for the McKittrick Street Extension and BNSF underpass. The projected construction date has not been determined.

Closely related is the federally funded signal improvements at McKittrick Street. Design for this project began several years ago and was temporarily put on hold. The City also has separate federal funding for medians and sidewalk improvements on the east side of North Wenatchee Avenue near McKittrick Street. The City is planning to incorporate the recommendations provided in this summary report into the design documents for the signal project and the median and sidewalk project in preparation for an anticipated 2020 construction timeline.

Also closely related to the McKittrick Street Extension is the planned Columbia Street access which will include a new intersection of Columbia Street and McKittrick Street between NWA and the BNSF railway. Columbia Street will provide business access to existing and future

development in the area between NWA and the tracks. The City is currently advancing final design and environmental approvals towards 2020 construction of this project.

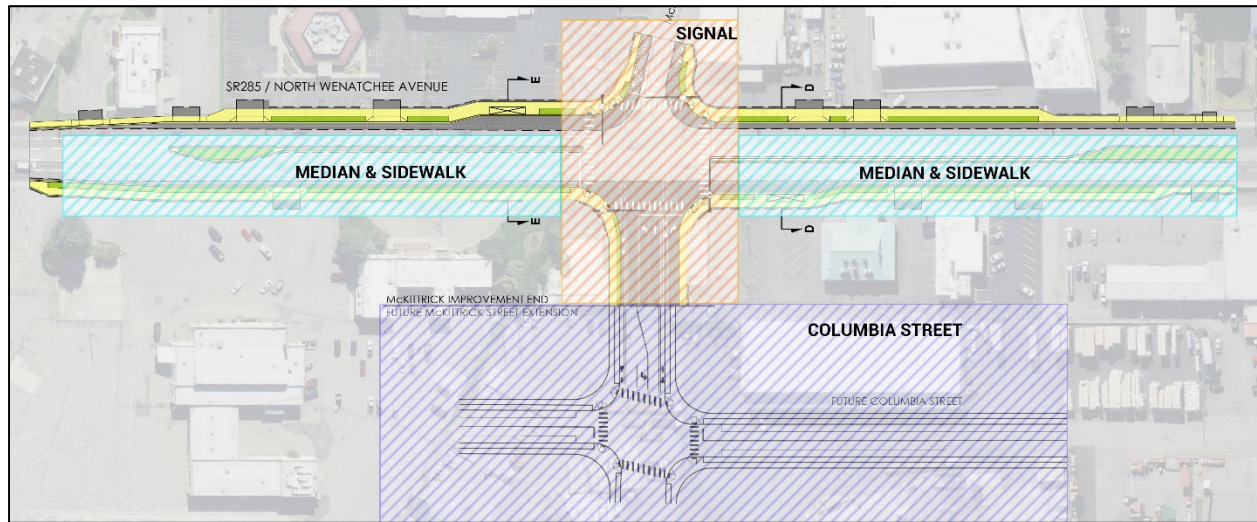


Figure 19.2. McKittrick Intersection Coordination with Other Projects

Right of Way, Business, and Property Impacts

Widening of North Wenatchee Avenue for recommended improvements at McKittrick Street will require acquisition of right-of-way with impacts to private business signs, landscaping, parking, and circulation. Impacts to buildings have been avoided in all cases by eliminating the landscape buffer and reducing the sidewalk width to 6 feet in locations where the full buffered sidewalk section conflicts with existing structures. The most significant impact to businesses as a result of this project is at ChimChimney, where parking and circulation will be affected by the roadway widening.

Maple Intersection

Recommended improvements for the area around Maple Street and Miller Street are highly dependent upon coordination with the planned Confluence Parkway project. Confluence Parkway will introduce a new parallel route to North Wenatchee Avenue extending from Miller Street, across the Wenatchee River, to the US 2/ SR 97A interchange in Olds Station. As the southern connection point for Confluence Parkway to SR 285, the Maple and Miller Street intersections will undergo significant reconfiguration when that project moves forward in order to accommodate the expected vehicle volumes using the new facility (or Confluence Parkway). The ultimate design of the southern terminus of Confluence Parkway is currently in the preliminary design phase and the ultimate configuration of this intersection has not yet been determined. To demonstrate the scope of possible improvements, below is a figure showing one of the concepts under consideration.

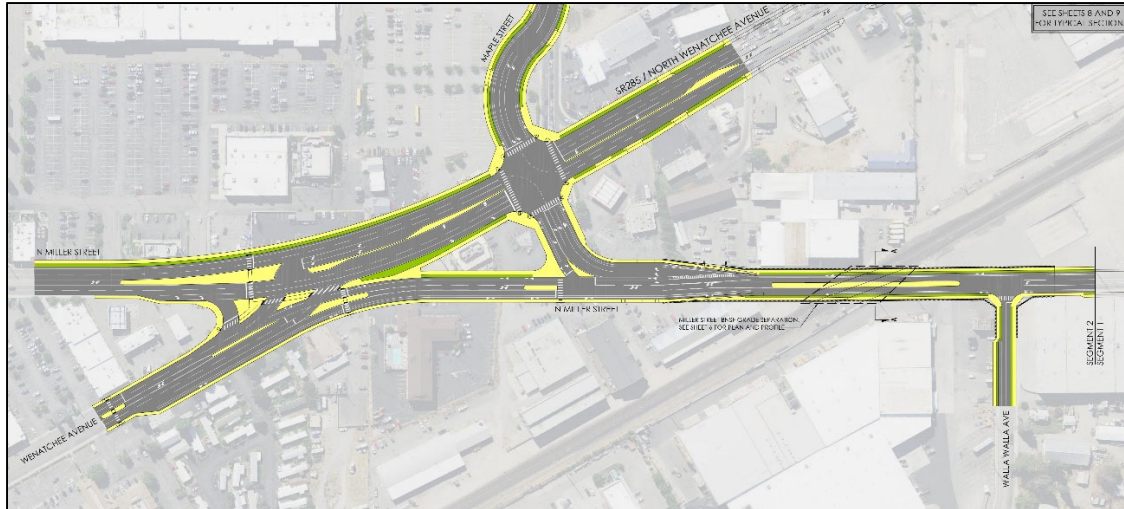


Figure 20. Maple Intersection

Large scale improvements at Maple Street that should account for the ultimate configuration of the intersection as part of the southern terminus for Confluence Parkway. The City is currently advancing preliminary design and environmental documentation and is actively pursuing federal funding for the project. However, intersection designs and the project schedule are not currently known and recommendations for Maple Street improvements under this design effort need to accommodate multiple timeline scenarios for Confluence construction.

Due to the current uncertainty of Confluence Parkway, recommended improvements for Maple Street include multiple options ranging from limited operational improvements to existing signals, to full build out of the intersection. The following project options provide a basis for future design and it is anticipated that these options may be used in a piecemeal fashion to develop a hybrid project, consisting of elements drawn from two or more of the options presented below as future conditions necessitate.

Maple Option 1 – Operational Improvements

Under existing conditions, eastbound and westbound left turns at Maple Street occur as a concurrent permissive phase. Increased traffic, partly due to recent development and relocation of the US Post Office to the west leg of the intersection, produces left turn queue lengths in both directions. The east leg of the intersection has minimal storage length due to the short distance between intersections. Additionally, the skewed intersection configuration makes it difficult for drivers making westbound left turns because available sight distance to observe and yield to the westbound through and right turn movements is limited by vehicles occupying the westbound left turn lane.

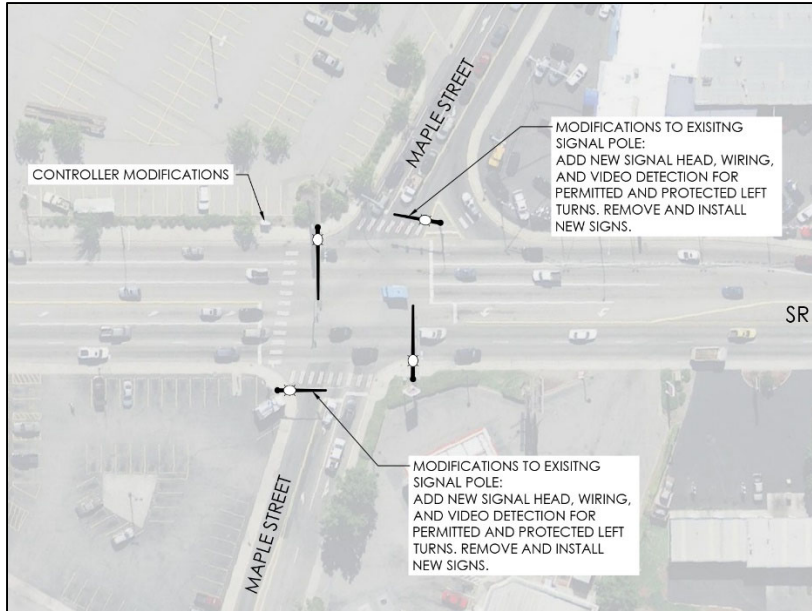


Figure 21. Maple Option 1 – Operational Improvements

These safety and congestion issues can be at least partially addressed in the near term by operational revisions to the existing intersection. Option 1 focuses on improvements that can be made to solve current problems utilizing current intersection geometry. This option will revise existing signal operations by replacing the current permissive eastbound and westbound left turn movements with protected/permissive left turn signal phasing. This will clear the majority of left turn movements during a protected left turn phase. This will reduce queuing and sight distance safety concerns that result from the skewed intersection geometry, without committing to large scale intersection improvements that may not be well-coordinated with the future Confluence Parkway. This option is geared to address a scenario in which the following conditions exist:

- The Confluence Parkway project remains an active priority for the region.
- The schedule for Confluence Parkway is unknown.
- The ultimate Miller/Maple intersection design for Confluence Parkway is unknown.

Maple Option 2 – Medium Term Improvements

Option 2 is directed towards addressing specific intersection needs for lane capacity, safety, multimodal, and transit improvements. It provides additional capacity for eastbound right turning vehicles, bicycle lanes and improvements for transit operations. However, it does not attempt to re-align the skewed intersection geometry or to build out wide sidewalks, landscaped buffers, and decorative urban design elements. This option is geared to address a scenario in which the following conditions exist with a reasonable degree of certainty:

- The Confluence Parkway project remains an active priority for the region.

- The schedule for Confluence Parkway is at least 15 to 20 years out, and there is little or no chance that the schedule will be advanced.
- The ultimate Miller/Maple intersection design for Confluence Parkway is not known.

Option 2 contains the following project components:

- Additional eastbound right turn lane for increased capacity and reduced queue lengths.
- Buffered bike lanes consistent with recommendations at McKittrick and Hawley.
- Space for a northbound far-side bus stop and future U-turn capacity.
- A new pedestrian crossing on the north leg of the intersection.

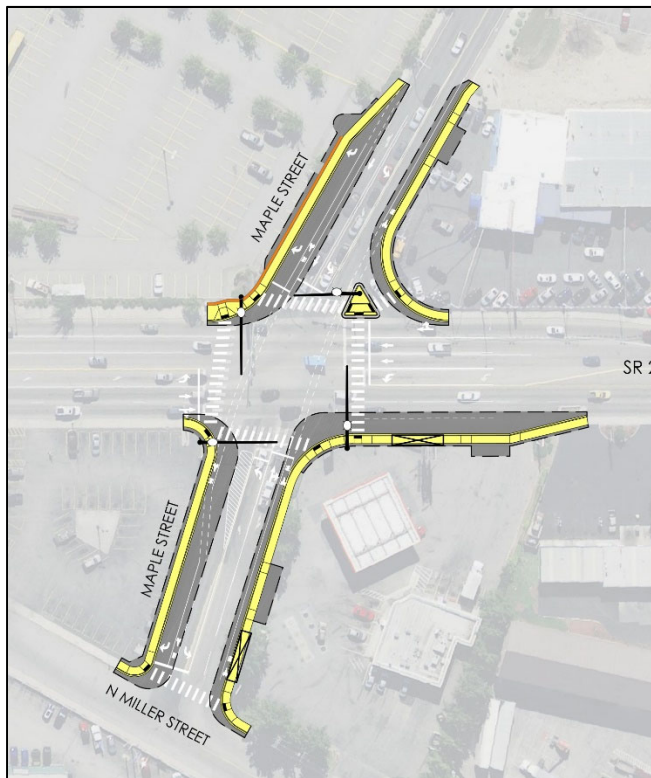


Figure 21.1. Maple Option 2 – Medium Term Improvements

Maple Option 3 – Long Term Improvements

Option 3 addresses all of the project objectives identified in Option 2 and provides for additional project elements such as: realignment of the skewed intersection, median access control, wide sidewalks, planter strips, and urban design detail. Option 3 is a full intersection buildout consistent with the ultimate vision for the North Wenatchee Avenue corridor. This option is geared to address a scenario in which the following conditions exist with a reasonable degree of certainty:

- The Confluence Parkway project is either no longer an active priority for the region or, if it is still an active priority, the schedule is long term.

- The ultimate Miller/Maple intersection design for Confluence Parkway is not known.

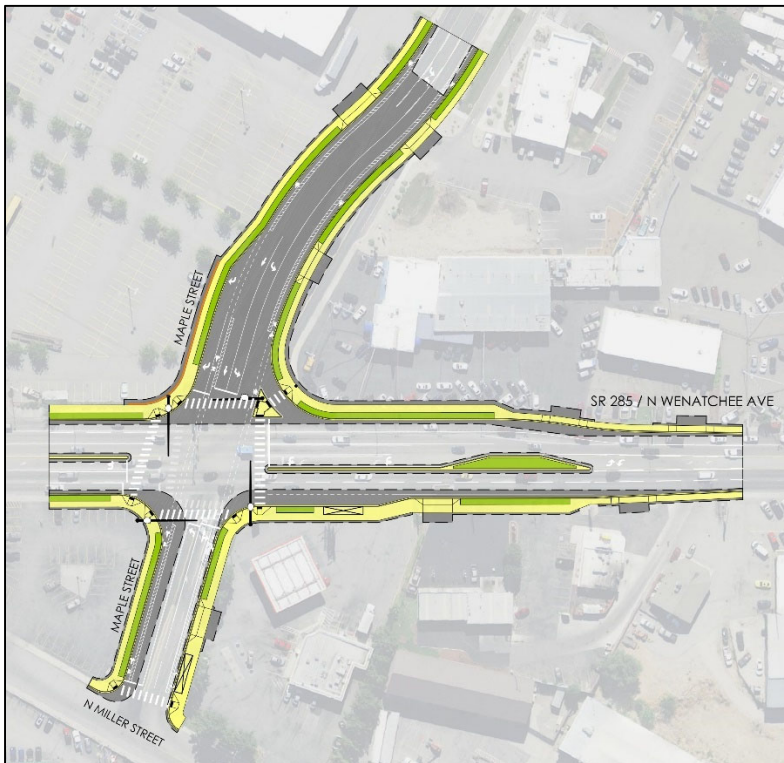


Figure 21.2. Maple Option 2 – Long Term Improvements

Other Considerations

The other scenario which is not addressed by these options, is the case where the ultimate configuration of Miller Street and Maple Street is advanced to a design level where improvements can be made at Maple Street that are consistent with the future vision for the Confluence Parkway connection and implementation of Confluence Parkway is eminent. Under this scenario, improvements could be made at Maple Street which are well coordinated with the Confluence design and represent an initial phase of the Confluence Parkway build out.

Gaps Between Individual Projects

The goal of this preliminary engineering design effort to develop a consistent and standardized approach to improvements along the whole corridor. The delineation of individual projects along the corridor have focused on intersections and intersection approaches. It is expected that the area between individual projects will fill-in as a result of future City projects and frontage improvements provided by private development in a manner that is consistent with the recommended improvements presented here. The ultimate vision for the corridor is full length median access control, wide buffered sidewalks, and adequate clearances for emergency vehicles. The gaps between the recommended improvements identified in this summary report should continue to be developed as opportunities arise, in a manner that is consistent with the geometry provided in these recommended intersection improvements.

ITS Improvements

Three ITS strategies are proposed for the North Wenatchee Avenue Project. These strategies include implementation of a coordinated/interconnected signal system, installation of adaptive signal controls, and implementation of a Traffic Management Center (TMC). The following provides a description of the strategies, the features and benefits, key considerations, key elements, and potential costs. This information is presented as three phases, which are structured to build upon one another sequentially to provide an increasing level of adaptability depending on the option chosen.

For this discussion, the project extents for ITS have been limited to Mission Street to Horselake Road due to the transition from two-way traffic to one-way couplet at Mission which offers a logical limit to the analysis. However, subsequent design efforts may yield justification for extending the limits.

It is important to note that the ITS improvements and cost analysis described here represent a high-level look at strategies for future implementation of ITS along the corridor. Additional planning and identification of goals and policies will be needed to develop a coordinated plan and strategy for ITS implementation along the corridor. The City and stakeholders will need to identify ITS goals for the Wenatchee Valley and coordinate those goals with WSDOT and other transportation agencies for implementation. Without an overarching ITS plan in place, this report is limited to high level discussion and cost estimating.

Coordinated/Interconnected Signal System (Level 1)

This improvement connects the North Wenatchee Avenue corridor signal into a single system between Mission Street and Horse Lake Road by synchronizing traffic movements, improving vehicle flow and managing corridor speeds by limiting interruptions in flow along the corridor. Using the existing conduit installed along the corridor, improvements include installation of fiber optic cable, splice enclosures, and trays; controller programming; and system installation and testing.

Features and Benefits

- Interconnection keeps signals operating as a system.
- Reduces delay, fuel consumption, and vehicle emissions.
- Maintains traffic flow at a designated speed.
- Maintains vehicle progression along corridor.
- Allows time of day signal timing plans to accommodate variation in travel demand.

Key Considerations

- Typically increases delay on minor street approaches.
- May attract additional traffic volumes or increase speeds on main street.
- High left turn movements, short signal spacing, long signal spacing, or complicated signal phasing can make coordination difficult.
- May require cycle lengths.
- Need to determine if coordination is needed outside of peak hours.

Costs

The estimated construction cost is approximately \$184,000. Approximately \$77,000 would be for the installation of fiber optic cabling along the corridor, which includes installation of fiber optic cable into the existing conduit, as well as needed splice enclosures, equipment trays, and racks along the corridor. Approximately \$107,000 is needed for signal controller equipment upgrades which include the installation of new controllers at three intersections (Walnut Street, Maple Street and Miller Street), installation of fiber optic switches, terminal panels, and reprogramming of controllers for coordinated operations and new signal timing plans. The existing controllers along North Wenatchee Avenue are typically produced by the same manufacturer and can be interconnected using the conduit that has already been installed between the intersections.

Adaptive Signal Controls (Level 2)

Adaptive signal controllers allow real-time variation in the signal cycle length, split times and offsets in response to changes in traffic conditions. The proposed adaptive system would be implemented along North Wenatchee Avenue between the intersections of Mission Street and Horse Lake Road using the interconnected fiber optic system developed in Level 1.

Features and Benefits

- Allows signals to respond to variations in travel demand, such as near event venues or where traffic patterns are not consistent.
- Can adjust cycle lengths and/or split times during off-peak times, potentially reducing left turn and minor street delays.
- Reduces delay caused by inefficient signal timing.
- Eliminates cost related to periodic reprogramming of signal timing, establishing time of day signal plans or accommodating new corridor demand.
- Allows for implementation of transit signal priority to improve corridor transit travel times and provide for improved schedule adherence.
- Establishes priority for emergency vehicles improving response times.

Key Considerations

- Requires vehicle detection at signalized intersections.
- May result in longer delays to pedestrians and side street traffic during peak hours, particularly if adaptive cycle length become longer or if side street signal phases are skipped or shortened.
- Not as effective if applied to corridor during peak travel times or on a corridor with saturated traffic conditions.
- Benefits can be difficult to quantify.

Costs

Providing adaptive signal control capabilities is estimated to have a construction cost of approximately \$215,000, not including the costs for the Level 1 improvements. About \$55,000 would be for the installation of conduit and a fiber optic cable along McKittrick Street between North Wenatchee Avenue and the Public Works Building at 1350 McKittrick Street. The remainder would be for computer equipment, software licensing, installation, training and set up cost for the adaptive system. Additionally, there would be on-going costs for system maintenance, programming, and software licensing.

Traffic Management Center (Level 3)

The Transportation Management Center (TMC) creates a hub for managing and controlling the transportation system. The TMC is made up of infrastructure that creates a two-way communication network between the North Wenatchee Avenue corridor and Public Works staff. Elements include installation of traffic-monitoring cameras, display monitors, signal-controller interfaces, and communications systems. Potential features include remote adjustments to signal timing and phasing; collection of real-time data to produce information for sharing with media, other agencies, and the traveling public; and implementation of incident management control strategies.

Features and Benefits

- Traffic cameras enable TMC staff to view operations in real time, respond to changes in conditions and adjust traffic signal timing from the center as needed. Allows the management of traffic and planned responses during special events, road construction and road closures.
- Communication links connect signalized intersections to the TMC and the Central Signal System and improve communications network reliability and redundancy.
- Incident management, dispatch emergency vehicles from TMC.
- Data collection to provide a real-time traffic conditions flow map and incident detection, travel speeds.
- Use of collected data for planning and performance measurement purposes.
- Establishes an initial framework for developing a regional TMC system that could be used to provide driver information, establish detour routes and improve incident response.
- Potential data sharing with WSDOT office or link to regional TMC system.

Key Considerations

- Design of a TMC should include a study to establish the goals and parameters of the system and to identify the system requirements, equipment and facility requirements. This study should also identify what data will be collected, processed and distributed, as well as the degree of automation.
- System should be adaptable to handle data from multiple sources (Bluetooth, and formats designed to be adaptable to future technologies).
- Consider the use of social media and establish procedures and protocols. Develop a uniform policy for social media (Facebook, Twitter, YouTube, and others).
- Identify staffing requirements at the TMC and the level of automation.
- Consider how best to support regional needs for traffic data.
- Key Elements
 - CCTV cameras
 - Video displays
 - Controller interface
 - Communications equipment between cameras and TMC
 - External communications for incident response
 - Data collection and processing and software systems

Costs

TMCs have a wide range of costs depending on the location of the TMC, system requirements, building improvements, furniture and finishes, backup systems, as well as the level of data collection desired, programming for data processing and reporting, and staffing requirements. The estimated construction cost is \$200,000 assuming the installation of the TMC into the existing Public Works building and the completion of Level 1 and 2 ITS improvements.

Project Prioritization and Phasing

Below is a list of the recommended projects in ranked order according to level of priority with a summary of the justification used in the ranking for each. Prioritization has been evaluated based on locations of greatest need along the corridor, consistent with the stated goals of the project, and with consideration of stakeholder and public input. Prioritization also considers current secured funding.

Most of the recommended projects are not currently funded and it is anticipated that projects will be implemented as funding becomes available. Currently, there is \$18M available for improvements along North Wenatchee Avenue as part of the Connecting Washington program. The first three projects in the following list have been prioritized in part, due to the availability of these funds and the ability for Connecting Washington to implement many of the identified project elements.

WSDOT, in coordination with other stakeholders, will continue to develop the final design of Connecting Washington projects using this report as a starting point. They will provide

additional study and analysis before a final determination is made on how to define and implement the projects. Phasing and delineation of project boundaries will be evaluated to look for more cost effective ways to construct and phase the project improvements while still meeting the intent of the project improvement goals identified in this report.

1. **ITS Level 1:** The existing signals along North Wenatchee Avenue have limited coordination capabilities. Proposed ITS improvements will utilize recently installed spare conduits that have been installed in conjunction with other City and WSDOT projects. Using the available raceway which is continuous within the project extents and beyond, proposed ITS Level 1 improvements will interconnect the signals between Horse Lake Road to the north and Mission Avenue to the south. Three ITS phases have been developed. These levels are structured to build upon one another sequentially, with each level increasing the adaptability of signals along the corridor.

The ITS Level 1 project will make use of existing raceways, interconnect all eight signals, including the proposed McKittrick Street signal, from Horse Lake Road to Mission Street. The signal controllers at three intersections will be upgraded (Walnut Street, Maple Street and Miller Street) and the system will be reprogrammed to utilize coordinated signal timing plans. The ITS Level 1 project is an excellent candidate for use of the Connecting Washington dollars.

2. **Maple - Option 1:** After the north end of the corridor, the Maple Street intersection experiences the most significant levels of traffic collisions and congestion issues. Given the current status of the future Confluence Parkway project (Miller/Maple design not yet complete, and ultimate project schedule unknown) providing relatively low-cost operational improvements to the existing signal system represents an excellent and cost-effective way to provide meaningful safety and capacity improvements along the corridor. The Maple – Option 1 project is an excellent candidate for use of the Connecting Washington dollars.
3. **North End Projects - Phase 1:** The north end project area represents the crux of safety capacity, access, and aesthetic concerns along the corridor. Phase 1 of the North End Projects has been delineated from Phase 2 in order to fit within the \$18M budget allocation for use of secured Connecting Washington dollars for improvements along North Wenatchee Avenue.

Phase 1 will introduce median access control south of Maiden Lane where the greatest number of collisions occur, eliminate the east leg of the Maiden Lane intersection, eliminate a phase from the Horselake Road signal, provide a northbound multi-use lane that removes transit stops from the through lane and provides a dedicated lane for business access.

The Phase 1/Phase 2 delineation leaves much of the multimodal, urban design, and gateway features, which WSDOT desires to minimize for use with Connection Washington funds, for Phase 2. However, Phase 1 is no way limited to only achieving safety and capacity goals. Phase 1 includes many of the multimodal, transit, urban design, and aesthetic gateway amenities that are a hallmark of the North End Projects. These elements are integral to the design of Phase 1 and in many cases cannot be separated from the project without excluding the possibility of their implementation in the future.

Additionally, Phase 1 as a stand-alone project will independently provide capacity, safety, multimodal, and aesthetic improvement to the corridor that does not require the implementation of Phase 2 in order to realize the project benefits. Having independent utility, Phase 1 provides a meaningful interim improvement while future funding is being secured for Phase 2. This project is an excellent candidate for use of the Connecting Washington dollars.

4. **McKittrick Street:** McKittrick Street is a high priority project based on its relationship to the proposed extension of McKittrick Street which the City is actively pursuing and the fact that portions of proposed improvements are already funded, and design is underway. Federally funded projects will install the McKittrick intersection signal and provide portions of the median access control and sidewalk widening identified by this preliminary design. The City is also working towards the first phase of the McKittrick Extension as part of the Columbia Avenue project that will provide access to new business development identified in the North Wenatchee Master Plan. Improvements at McKittrick Street will provide multimodal improvements by introducing a safe signalized crossing of NWA for pedestrians and cyclists where one currently does not exist and will help fulfill the City's urban corridor vision by integrating urban design concepts into the project scope.
5. **North End Projects - Phase 2:** Once the full scope of Phase 1 has been implemented, Phase 2 will finish the median access control, upgrade the signals, and provide a dedicated bus stop location that is outside the through lane. Phase 2 will provide multimodal improvements with introduction of a multiuse trail along the east side of the roadway, wide sidewalks, and landscaped buffer areas. Completion of this phase of the project will be a significant step towards the City's vision for a welcoming gateway corridor by adding landscaped green space, providing opportunities for public art, and adding decorative retaining walls with custom urban design features.
6. **Walnut and Hawley:** The intersection of Walnut/Hawley Street provides significant benefit to each of the project goals, including safety, capacity, multimodal improvement, transit improvement, and aesthetic improvement. Once McKittrick Street and the North End Projects are complete, improvements at Walnut and Hawley Streets represent a logical next step towards filling in the gaps to transform the entire corridor.

7. **Trail – Horselake Road to Maple:** Assuming that the results of feasibility studies that are currently underway to determine the viability of retrofitting a cantilevered multiuse path on the existing Wenatchee River bridge, and acquisition of right of way along the Pioneer irrigation alignment, the proposed multiuse trail between Horselake Road and the bike lanes at Walnut Street will complete the multimodal network for North Wenatchee identified by the RBAC and the North Wenatchee Transportation Master Plan.
8. **ITS Level 2 and 3:** Three ITS phases have been developed. These levels are structured to build upon one another sequentially increasing the adaptability and capabilities depending on which option is chosen.
 - **Level 2 – Adaptive Signal Controls.** Building upon Level 1, add adaptive signal controllers that extend from Mission Street to Horselake Road using the interconnect developed in ITS Level 1.
 - **Level 3 - Traffic Management Center.** Building upon Level 2, extend a new conduit raceway from the intersection of NWA and McKittrick Street to the City of Wenatchee Public Works office at 1350 McKittrick Street. Repurpose space within the existing building to be equipped as a Traffic Management Center (TMC), select a different location, or construct of a new facility to house the TMC.
9. **Maple - Option 2, Option 3, or Confluence/Miller/Maple Intersection Phase 1:** Under the City’s current vision for North Wenatchee, the Maple and Miller intersections will be significantly modified by the future connection of Confluence Parkway. Maple Options 2 and 3 do not include provisions for Confluence Parkway and are included in this report to provide viable recommendations that can be implemented if the Confluence Parkway concept is abandoned or delayed significantly.

Ideally, Maple Option 1 will provide adequate interim improvements at Maple Street until funding is secured to begin construction of Confluence Parkway. If Confluence Parkway is constructed, project elements identified in Maple Option 2 and Option 3 will be replaced by the ultimate Confluence/Miller/Maple intersection plan which will be developed and constructed as part of the Confluence Parkway project. A preliminary design of the Confluence/Miller/Maple intersection plan is currently underway as part of the Confluence Parkway NEPA effort.

Cost Estimates

Detailed project cost estimates have been developed for each of the recommended projects described in this report. Cost estimates are based on the 10% level design plans, located in

Appendix A. The full detailed version of each cost estimate is located in Appendix B. Below is a summary of the individual project costs.

The estimated cost for the full suite of identified improvements ranges from about \$50M to \$65M. ITS Level 2 & 3 and Maple Option 1 & 2 are not included in this total figure due to their variability in scope and budget. \$18M of state funding has been secured through Connecting Washington, and approximately \$3.7M of federal and local funds are secured for an initial phase of the McKittrick project and is scheduled for construction in 2020. After subtracting out secured funding, the total estimated cost of unfunded projects ranges from \$30M to \$45M.

Cost Summary					
Project Title	Opinion of Probable Cost		Secured Funding	Unfunded Project Cost	
	Low	High		Low	High
ITS Level 1	\$400,000.00	\$600,000.00	\$18,000,000.00	(\$1,525,000.00)	\$1,750,000.00
Maple Option 1	\$75,000.00	\$150,000.00			
North End Projects Phase 1	\$16,000,000.00	\$19,000,000.00			
McKittrick Street	\$7,000,000.00	\$9,000,000.00	\$3,700,000.00	\$3,300,000.00	\$5,300,000.00
North End Projects Phase 2	\$20,000,000.00	\$24,000,000.00	\$0.00	\$20,000,000.00	\$24,000,000.00
Hawley and Walnut Street	\$6,000,000.00	\$8,000,000.00	\$0.00	\$6,000,000.00	\$8,000,000.00
Trail (Horselake to Walnut)	\$2,000,000.00	\$4,000,000.00	\$0.00	\$2,000,000.00	\$4,000,000.00
ITS Level 2 & 3 (Cost Varies)	N/A	N/A	\$0.00	N/A	N/A
Maple Option 2 & 3 (Cost Varies)	N/A	N/A	\$0.00	N/A	N/A
Total (Rounded)	\$50M	\$65M		\$30M	\$45M

Figure 22. Cost Estimate Summary

Urban Design and Gateway Elements

Urban design and gateway elements are an integral part of recommended improvements along North Wenatchee Avenue. Project elements such as wide sidewalks, landscaped buffer strips, and wide landscaped median areas are examples of urban design features that are built into the basic geometry of the project. Detailed selection of materials and patterns for features such as sidewalk scoring patterns, hardscaped median treatments, wall details, detectable warning surfaces, decorative and painted signal and illumination poles, and illumination fixtures add depth and interest to the corridor while simultaneously performing essential functions that must be present in the project anyway. Accommodations for decorative gateway elements, public art features, decorative benches, and custom transit facilities add an additional layer of depth to the project and help to create the vibrant and inviting entrance to Wenatchee that the public and stakeholders desire.

Each of the recommended projects include urban design elements that are embedded in the basis geometric design. The “look and feel” document, located in Appendix C, should be considered a companion document that guides the selection and detailing of custom aesthetic elements for each of the recommended projects. This document provides a guide and a pallet for basic themes and material types that have been vetted by the stakeholder and public

outreach performed during the course of this preliminary design effort. This document does not go so far as to develop an urban design standard for the corridor, but it may be used as a guide in the development of that standard during future design efforts. We recommend the development of a complete urban design standard for the NWA corridor that includes material types, required dimensions, and construction details for each of the proposed urban design elements proposed for the corridor. We also recommend that these details be applied consistently throughout the corridor on each of the individual projects as they are implemented.

Design Summary

The development of project recommendations included significant preliminary engineering design effort and stakeholder and public feedback. This section provides a record of relevant work and decision making that contributed to the final project recommendations.

Survey and Right of Way

Design for this project was completed using an aerial base-map, and no topographical survey was completed. Available GIS contours were utilized to provide a reasonable approximation of grading considerations appropriate for a 10% level preliminary design effort. Google Earth, project site photos, and field visits were used to further identify existing conditions on an as needed basis.

The right of way centerline used for design has been calculated based on survey crew field work completed in late 2017. This effort included locating and surveying monuments in the field utilizing RTK GPS localized to nearby WSDOT survey control stations. Research of recorded surveys was conducted and the alignment centerline and right of way were calculated from this information in conjunction with the surveyed monuments.

Property lines, boundaries, and ownership information are based on available Chelan County GIS data. In cases where linework discrepancies between the calculated right of way centerline and the GIS based parcel data exists, the linework has been trimmed, extended, or otherwise adjusted so that the parcel data is reconciled with the right of way. Parcel lines have not been calculated and no title research has been conducted as part of this project.

It is anticipated that future design efforts for individual projects can utilize the right of way centerline produced for this preliminary design and combine that data with topographic surveys and parcel information developed during the next design phase.

Alternatives Evaluated

Six Lane Queue Bypass Lanes

The North Wenatchee Avenue Concept plan (aka Form and Function Study), identified transit queue jump lanes as a preferred alternative for intersections along the NWA corridor. This configuration, as shown in the figure from the Form and Function Study below, would widen the

roadway intersections to six lanes to provide for transit bypass lanes with signal priority. The concept also included a wide multi-use path buffered by landscaping on both sides of the street.

Building upon the form and function study, this concept became one of the first alternatives evaluated. Consistent with the concept, six lane intersections were developed for the whole corridor transitioning back to four lanes between intersections. This design alternative was presented to the large stakeholder group in May of 2018 and formed the basis of discussion for the initial stakeholder coordination effort.

Based on stakeholder input, this alternative was ultimately abandoned in favor of a narrower roadway section and wide sidewalks instead of multi-use paths. Justification to move forward with a narrower roadway alternative included concerns about impacts to businesses and existing structures. Additionally, the character of a wide roadway section did not fit the vision for North Wenatchee Avenue that the stakeholder group had in mind, and concerns about the safety of bike use on a multiuse path with a high number of driveways as vehicle conflict points.



Figure 23. Six Lane Queue Bypass Lanes

North End Alternative

An alternative concept that was explored at the north end of the corridor involved consolidation of the Maiden Lane and Horselake Road intersections into a single signalized intersection at Maiden Lane. A layout of this option is shown in the figure below. This option was not chosen because the combined volumes for the west leg of consolidated Horselake Road and Maiden Lane intersection are forecasted to exceed 2,100 vehicles during the PM peak hour, resulting in poor intersection operations and extensive queuing at the intersection.

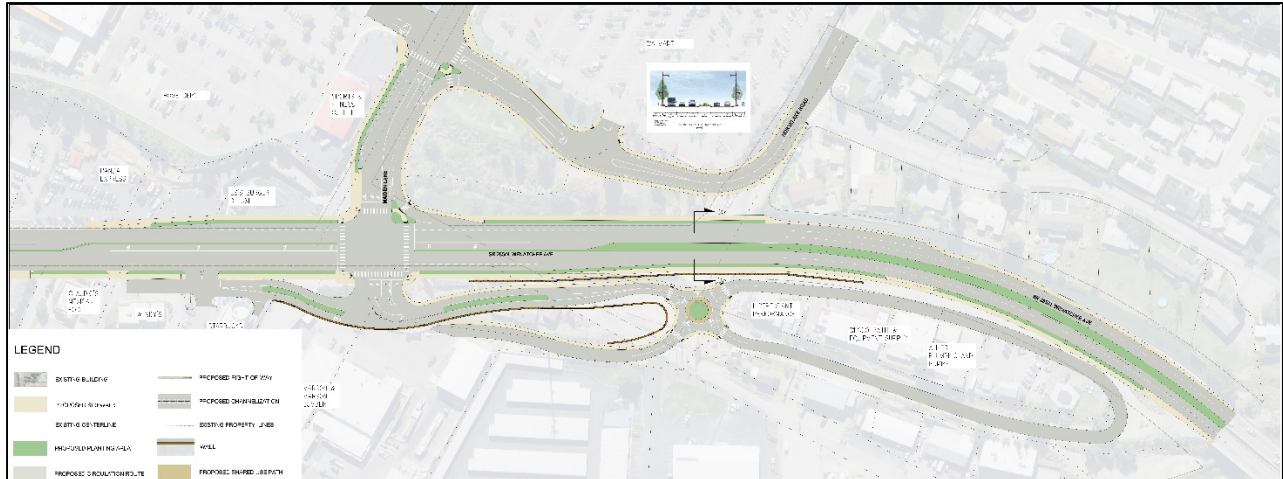


Figure 24. North End Alternative

Maple & Miller Alternatives

Early in the project, several alternative intersection layouts were developed for the area around Maple Street and Miller Street. Previous studies have not provided any preliminary concepts to start from. As a result, several initial concepts were developed to evaluate their validity. An important conclusion that was drawn from the development of these initial concepts is that the configuration of the Maple Street and Miller Street intersection is highly dependent upon the timing of their future roll as the southern terminus of Confluence Parkway. As a result, design of these intersections under the scope of work for this project was stopped and has resumed under a separate scope of work for Confluence Parkway preliminary design.

No recommendations for the ultimate configuration of Maple Street and Miller Street (with Confluence Parkway) has been provided with the preliminary design work for North Wenatchee Avenue described in this report, however the alternatives that were developed are described below.

Parallel North-South Routes

The most viable intersection layout that was explored during the NWA preliminary design effort involves a complete reconfiguration of the existing intersections at Miller Street and Maple Street. This alternative maintains much of the same functionality at Miller Street but provides for an extension of Wenatchee Avenue that connects to the future Confluence Parkway completely independent of the North Wenatchee Avenue and SR 285 intersection. It also adds a signalized pedestrian crossing of NWA at Miller that currently does not exist. Left turns for southbound Confluence Parkway continuing south on SR 285 are located at the Maple Street intersection. Likewise, northbound movements from SR 285 to Confluence Parkway are configured as a right turn at Maple Street.



Figure 25. Parallel North-South Routes Alternative

Single Roundabout Alternative

The City and WSDOT tasked the design team with layout and testing of possible roundabout options at the Miller Street and Maple Street intersections. The figure below shows a single roundabout that replaces both intersections. This alternative has significant right of way impacts and an analysis of traffic operations revealed capacity limitations.

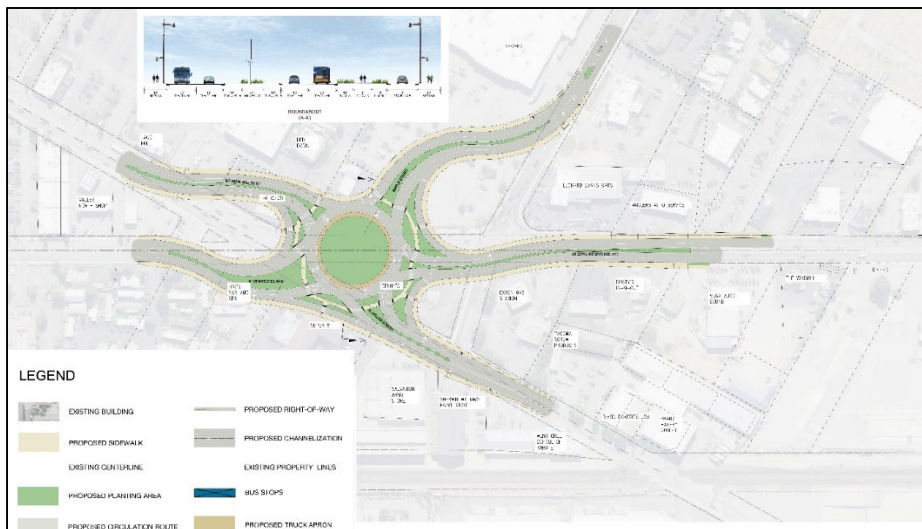


Figure 26. Single Roundabout Alternative

The design team also designed and analyzed the performance of a dual roundabout at the Miller Street and Maple Street intersections. The figure below shows the existing Miller Street and Maple Street intersections replaced by roundabouts. Similar to the single roundabout options, this alternative has significant right of way impacts and an analysis of traffic operations revealed capacity limitations.

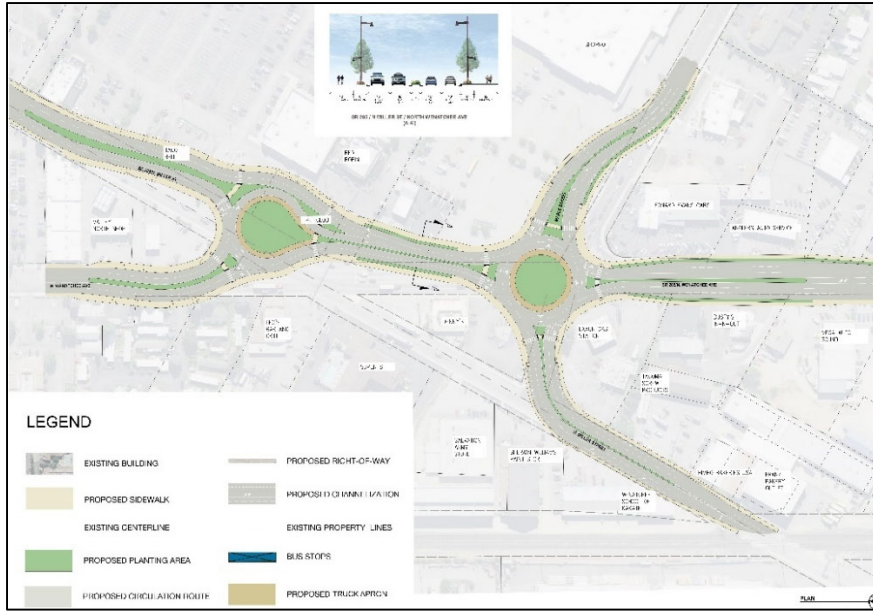


Figure 27. Double Roundabout Alternative

Miller Dead End Alternative

The design team considered using the intersection at Maple Street for the terminus of Confluence Parkway. This design widened the Maple Street adding turn lanes and intersection improvements to accommodate the additional volumes. The option was not selected because the addition of Confluence Parkway volumes to the forecasted 2040 volumes at the Maple Street intersections revealed capacity limitations.

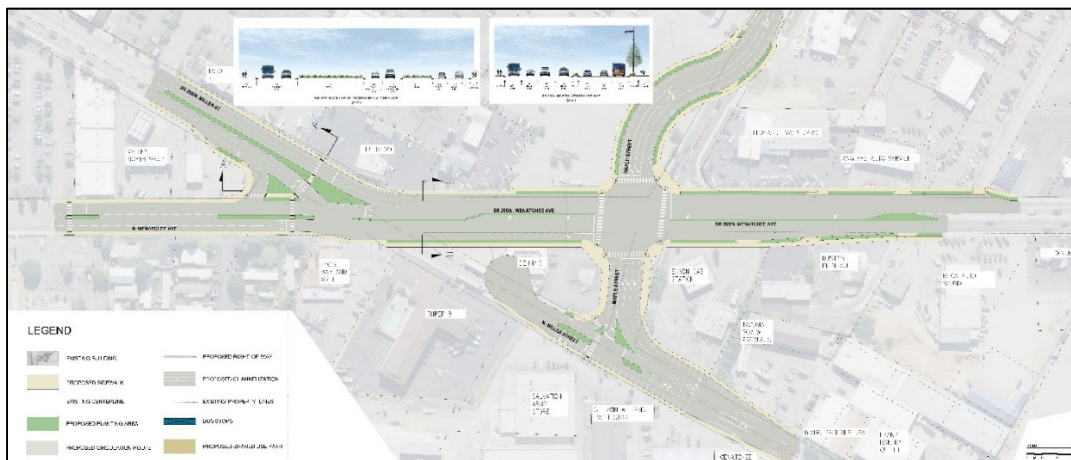


Figure 28. Miller Dead End Alternative

Limitations of Preliminary Design

The scope of this project is limited to the production of 10% level engineering design based on aerial images and available GIS data. In some cases, the level of design may exceed what is

typical for a 10% design, however, without a surveyed topographical basemap, all plans associated with this project should be considered as 10% level design.

It is anticipated that future design efforts will be able to utilize the design files from this project for use as a starting point for development of 30% level design once a full topographic survey is complete.

Stakeholder Coordination

Project stakeholders provided a high level of involvement in the development of this project. Stakeholder coordination has been divided into three levels of involvement, with group members and roles described below:

City of Wenatchee and WSDOT. The City of Wenatchee and WSDOT met with the design consultant on a weekly or bi-weekly basis for the duration of the project. Weekly design meetings began in early 2018 to maintain consistent coordination between the agencies and the consultant. Meetings continued on a weekly basis through the end of 2018 and transitioned to bi-weekly meetings in the early spring of 2019, which continued through the end of the project in September 2019. In total, this group met over 45 times. These meetings were relatively informal and were not limited to any topic. Meetings were focused on design, coordination, and project decision making tasks. Regular attendees included:

- Wenatchee Public Works Director, Rob Jammerman
- Wenatchee Public Works Director, Matt Leonard (in early 2018)
- Wenatchee City Engineer, Gary Owen
- WSDOT State Programs Manager, Terry Mattson
- WSDOT Project Engineer, Kevin Waligorski (attendance began in summer 2019)
- KPG Project Manager, Josh Fedora

Invitations were regularly extended to other attendees depending on topics included in the agenda. Typical guest attendees included representatives from: City of Wenatchee, WSDOT, KPG, CDTC, Link Transit, RBAC, Emergency Services, Chamber of Commerce, and the Downtown Association.

Core Stakeholder Group. The core stakeholder group consisted of the City of Wenatchee, WSDOT, the CDTC, and Link Transit. Participation in this group included a wider range of departments and staff from the City of Wenatchee and WSDOT than those who attended the weekly and bi-weekly meetings described above. Below is a specific list of individuals that compose the core stakeholder group:

- City of Wenatchee
 - Gary Owen

- Rob Jammerman
- Steve King
- Allison Williams
- WSDOT
 - Terry Mattson
 - Dave Bierschbach
 - Nick Manzano
 - Kevin Waligorski
- Chelan Douglas Transportation Council
 - Jeff Wilkens
- LINK Transit
 - Richard DeRock
 - Lauren Loeb sack

The role of the core stakeholder group is distinguished from the broader stakeholder group by a higher level of direct coordination, technical project input, and technical review of design documents and reports. For example, the CDTC provided KPG with regional traffic data for use in transportation analysis, and provided review of the Transportation Analysis Report, Appendix D. Link Transit provided extensive input on existing transit operations that was essential for the development of meaningful transit recommendations along the corridor. Link Transit also provided technical review of the North Wenatchee Avenue Transit Memo, Appendix E. In general, project deliverables were reviewed by the core stakeholder group before being edited and circulated for comment among the large stakeholder group.

Large Stakeholder Group. Membership for the large stakeholder group for this project evolved during initial coordination with the core stakeholder group. The initial vision for the stakeholder group during the development of the scope of work was limited to what is now referred to as the core stakeholder group. During initial coordination, members of the core group identified the need for broader input to guide the development of this project. As a result, a large stakeholder group was formed. Membership for the large stakeholder group eventually grew to include the following individuals:

- City of Wenatchee
 - Gary Owen
 - Rob Jammerman
 - Steve King
 - Allison Williams
 - Glen Devries
 - Stephen Neuenschwander
- WSDOT
 - Terry Mattson
 - Dave Bierschbach
 - Nick Manzano

- Kevin Waligorski
- Chelan Douglas Transportation Council
 - Jeff Wilkens
 - Nicole Campbell
 - David Fletcher
- LINK Transit
 - Richard DeRock
 - Lauren Loeb sack
- Wenatchee Police Department
 - Steve Crown
- Chelan County Fire District No 1
 - Brian Brett (previously Mike Burnett)
- Wenatchee Downtown Association
 - Linda Haglund
- Wenatchee Chamber of Commerce
 - Jerri Barkley
 - Shiloh Burgess
- Wenatchee Parks Department
 - Scott Griffith

The large group kicked off with a series of three meetings over the course of three weeks in May 2018. These meetings were arranged by individual topic:

- Preliminary Engineering Design, May 25, 2018,
- Urban Design, May 29, 2018
- Public Involvement, June 5, 2018

These meetings provided the group with an introduction to the project objectives and an opportunity to give feedback on the design work that had been completed in early 2018. Feedback received during these meetings was essential to the direction of subsequent design and development of public outreach events and messaging that was completed in November 2018. These meetings also provided the design team with an understanding of individual group member concerns which provided the basis for numerous follow up meetings and discussions that focused on specific topics of interest. The group did not assemble again until June 2019, but during that time coordination was ongoing via email updates, phone calls, requests for document review, and numerous smaller focus group meetings.



Public Open House

Other Stakeholder Outreach. In addition to formal stakeholder coordination, the project team provided outreach to various stakeholder groups and organizations during project development. Stakeholder outreach presentations that were performed outside the official stakeholder meeting and coordination process are listed below:

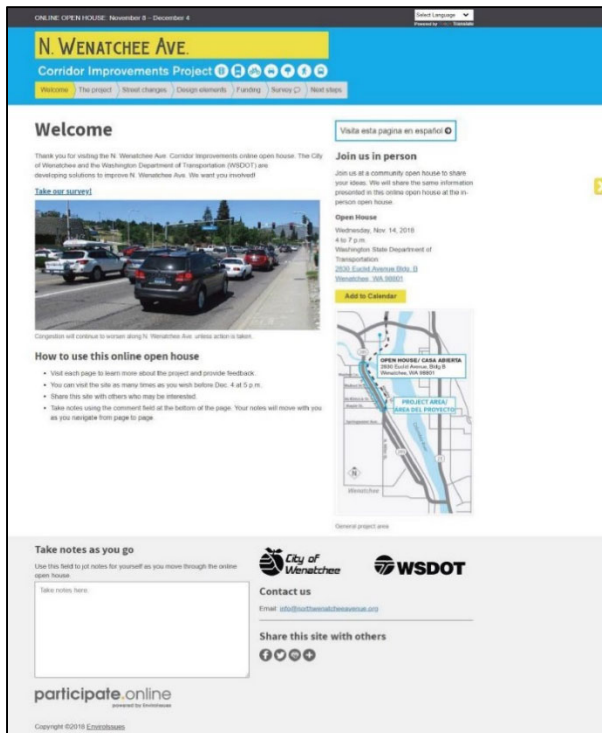
- **Regional Bike Advisory Board:** The project team provided guest presentations at two RBAC meetings in June 2018 and June 2019.
- **Arts, Recreation, and Parks Commission:** Guest presentation in September 2018
- **Chelan Douglas Transportation Council:** Guest presentation in June 2019
- **WSDOT:** Guest Presentation in June 2019
- **Chamber of Commerce Board Meeting:** Guest presentation in September 2019

Public Involvement

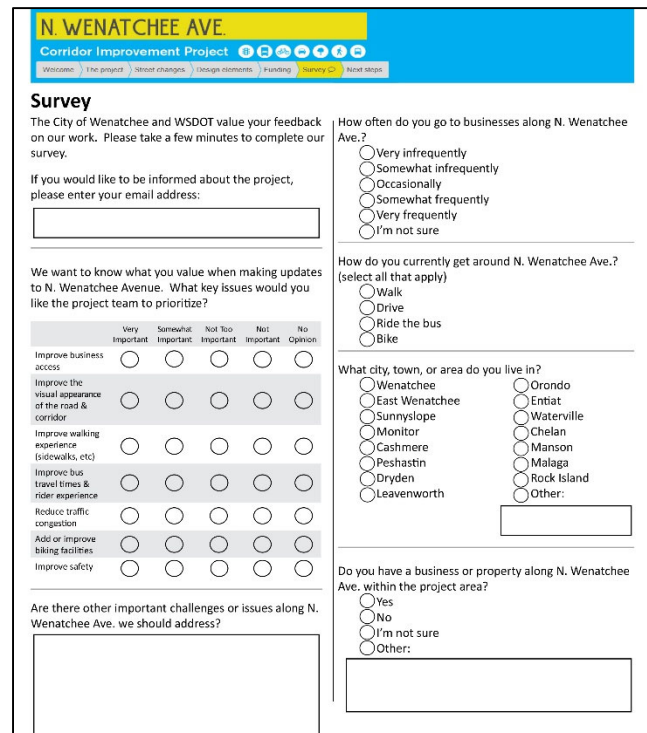
Public Open House and Online Virtual Open House. Public involvement for this project involved a large-scale effort to reach out to the population of the entire regional area. An open house was held on November 14, 2018 that received nearly 120 in person attendees. The open house included a complete overview of the project in both English and Spanish. Announcements for this event included the mailing of 49,655 bilingual postcards, multiple newspaper ads, radio ads, social media announcements, and email distribution lists.



Public Open House



Online Open House



Online Public Survey

The open house had an online virtual open house counterpart that was visited by over 2,300 users and resulted in the completion of over 766 surveys that provided the project team with valuable information that helped to guide the prioritization of project elements and ultimately shaped the end result of recommended improvements along NWA. A detailed summary of the general open house is included in Appendix G.

The survey questions asked participants to provide a level of importance evaluation on the various project objectives. A ranked order list of the results is as follows, listed from most important, to least important:

8. Reduce traffic congestion
9. Improve safety
10. Improve business access
11. Improve visual appearance
12. Improve walking experience
13. Improve bus travel time
14. Improve biking facilities

Recommended improvements for NWA are well-aligned with the results of feedback provided during the public outreach process. Below is a summary of how feedback received during the public involvement process has been applied and is reflected in the recommended improvements along the corridor.

1. **Reduce Traffic Congestion.** Reduction of traffic congestion is a primary focus of each of the recommended projects along the corridor. It is perhaps best exemplified by the North End Projects where congestion issues are worst. Recommended improvements in this area provide for a system of new frontage road connections that consolidate access points and facilitate the removal of intersection signal phases which are essential to providing increased capacity.
2. **Improve Safety.** Recommended improvements consistently include median access control as a much-needed safety measure along the corridor. Additional safety measures such as multi-use lanes, locating of bus stops outside of the through lane, and wide buffered sidewalks are also a consistent element of proposed improvements.
3. **Improve Business Access.** Improvement of business access is a project goal that is in direct conflict with the goal of reduction of traffic congestion and improvement of safety. Recommended improvements include significant evaluation and balancing of these conflicting goals. U-turn accommodations, business access lanes, and the extension of frontage roads are geared towards mitigation of capacity and safety improvements that would otherwise tend towards limitation of business access.
4. **Improve Visual Experience.** Identification of urban design themes and opportunities for the introduction of gateway elements, landscaping, and public art is a large component of this preliminary design process. Application of aesthetic improvements and urban design themes to the construction of recommended improvements is directly in-line with feedback from public outreach and has been one of the primary goals of this project development.
5. **Improve Walking Experience.** Each recommended project includes wide sidewalks with buffered landscape strips to improve the walking experience as well as the safety of pedestrians along the busy corridor. In areas where wide sidewalks and landscape strips

will greatly impact businesses, sidewalk recommendations call for narrower sidewalks to provide a balanced approach to project goals.

- 6. Improve Bus Travel Time.** Opportunities to increase transit travel time along NWA have been included on each of the recommended project improvements. Whenever possible, transit improvements are combined with other needed project elements, like the combination of bus pullout areas in conjunction with U-turn pockets, and the implementation of low-cost transit signal priority improvements.
- 7. Improve Biking Facilities.** Due to the limited space along the corridor and the impact that additional widening will have on businesses, new bike facilities have not been included as a parallel element along the corridor. To balance competing needs for space, recommended bike facilities are focused on the implementation of a separated multiuse path consistent with the North Wenatchee Transportation Master Plan. Compared to a multiuse path within the NNW roadway corridor, the separated facility will provide better safety, and lower right of way impacts.

Business and Property Owner Open House. An exclusive version of the open house was provided for property and business owners directly affected by the recommended improvements. This open house meeting was held a week before the general open house and was by invitation only for business and property owners along the corridor. It provided a platform to introduce the project and receive feedback from these individuals before the general open house. This meeting provided the basis for several follow up one-on-one meetings in the months that followed. Announcements for this meeting included sending 115 letters, and the meeting was attended by about 25 business and property owners. A detailed summary of the property and business owner meeting is included in Appendix H.

Traffic Analysis

The transportation analysis provided an overview of the existing transportation system, identified issues, investigated alternatives, and developed improvements. Building upon previous planning efforts, the transportation analysis is focused on key issues such as the north end intersections (Horselake Road and Maiden Lane), access management in high collision areas, and addressing existing and future corridor operational needs. Forecasted future volumes, provided by the CDTC, were used to understand future conditions with and without the proposed Confluence Parkway and to develop improvements that will increase mobility, safety and circulation within the North Wenatchee corridor. Improvements were focused mainly at intersections, where changes to signal phasing and intersection channelization will improve traffic operations. Strategic widening of the roadway was included to improve transit operations or to accommodate U-turn movements related to improved access controls on the corridor. All improvements were designed to be complementary with Confluence Parkway and to allow for future growth within Wenatchee and the region.

The full *N Wenatchee Avenue Transportation Analysis Report* (August 2019) is found in Appendix D. The report includes an evaluation of existing conditions (as of 2018), including an assessment of non-motorized, transit, and safety needs; an evaluation of future 2040 intersection operations; and recommendations for improvements to specific intersections and roadway segments along the corridor. Improvements include street and intersection improvements, Intelligent Transportation System (ITS) elements, and transit strategies that address the existing and future multimodal needs of the corridor. Results of the study were instrumental in the development of the preliminary engineering design for the corridor.

Conclusion

The plans, cost estimates, and recommended improvements provided in this Summary Report offer a comprehensive 10% level design that can be used as a basis for funding acquisition and a phased reconstruction of North Wenatchee Avenue. The design concepts are supported by extensive and well-documented stakeholder and public outreach efforts, and seek to provide a well-balanced approach to achieving the goals outlined in this report. It is anticipated that the delineation of individual projects and proposed design elements will evolve during subsequent design and construction efforts. This report can serve as a platform for the City of Wenatchee, WSDOT, and other stakeholder groups to move forward with improvements to create a safe, efficient, and well-functioning corridor that serves the business district, and provides a welcoming and inviting gateway into the City of Wenatchee.