Confluence Parkway
Transportation Discipline Report

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City of Wenatchee

In association with

WSDOT

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Introduction

State Route (SR) 285 is the sole corridor that connects the City of Wenatchee to the regional transportation system. As more residents and jobs have come to the Wenatchee Valley, higher traffic volumes have resulted in congested roadways and intersections as well as safety issues for vehicles, pedestrians and bicyclists. The Washington State Department of Transportation (WSDOT), the City of Wenatchee, and the Chelan-Douglas Transportation Council (CDTC) have been working together to identify and implement potential solutions to address the existing and future transportation needs of the region.

The study area for this analysis is the northern portion of Wenatchee that extends between the north end of downtown and the Olds Station area. The analysis focuses on the N Wenatchee Avenue (SR 285) corridor, the primary arterial roadway in the area and the only crossing of the Wenatchee River in the city. This analysis evaluates two alternatives, a No Action Alternative that includes the transportation network improvements currently being planned for N Wenatchee Avenue, and the Confluence Parkway Alternative (Proposed Action) that will construct a new arterial roadway between Miller Street and the US Highway 2 (US 2)/Euclid Avenue interchange in Olds Station. **Figure 1** shows the study area in the context of the surrounding regional transportation system.

Study Purpose

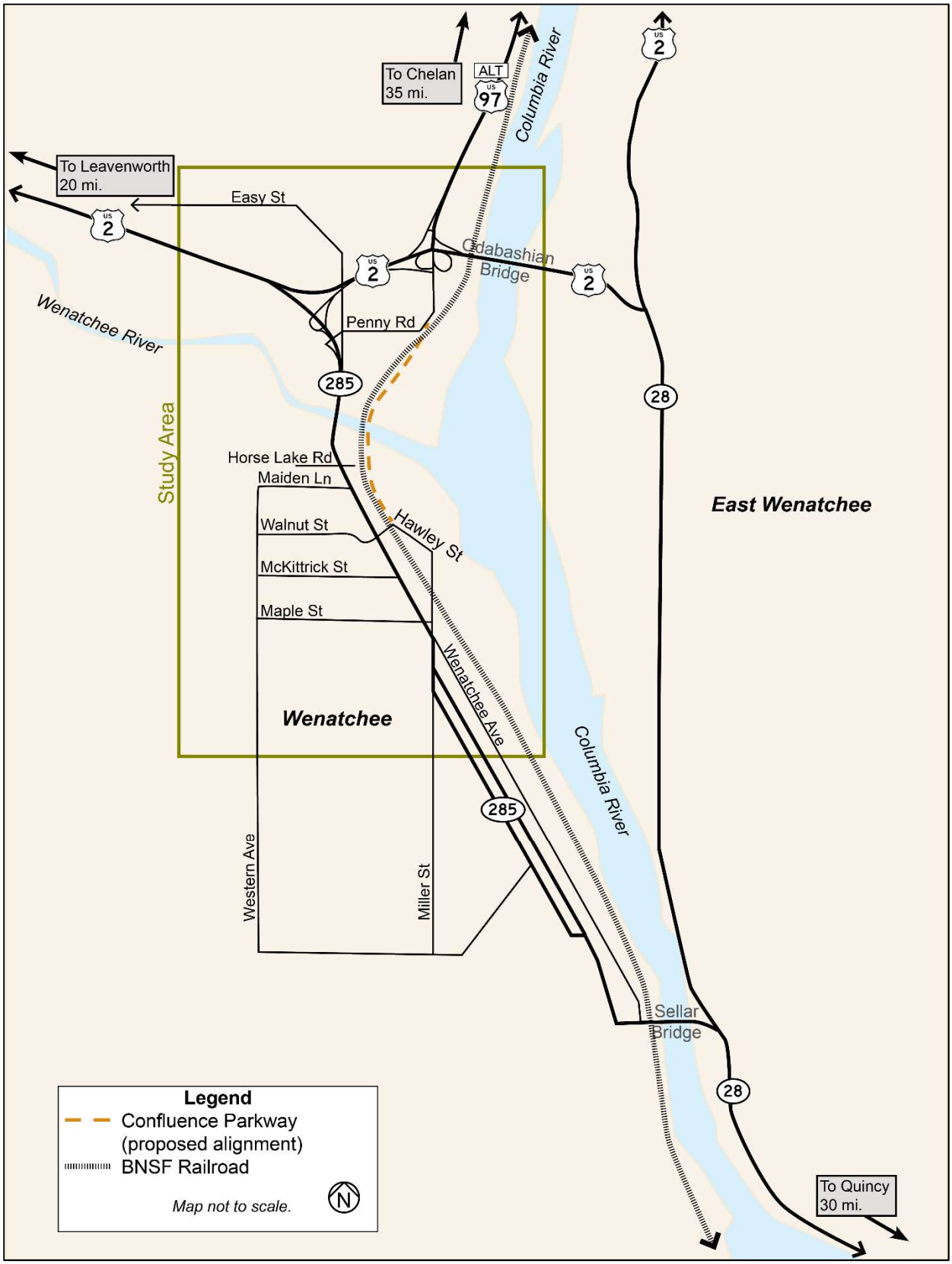
This Transportation Discipline Report identifies environmental impacts that may result from the construction and operation of the proposed project and recommends mitigation measures that are commensurate with the impacts. The contents of this analysis will support the National Environmental Policy Act (NEPA) Environmental Assessment (EA) that the project team is preparing. The purpose of an EA is to determine the impacts on the environment as a result of the project. The EA document typically provides a brief environmental review of the project impacts of the No Action and Proposed Action alternatives.

Outline of Report

This report has six primary sections, as follows:

- **Introduction** – Describes the study area and intersections; summarizes the previous planning efforts, the alternatives considered in the analysis and the findings of the study.
- **Affected Environment** – Summarizes transportation conditions under existing conditions and describes the transportation system and traffic operations within the project area.
- **Description of Alternatives** – Lists alternatives previously considered, describes the analysis methodology, and describes the two project alternatives being evaluated.
- **Alternatives Analysis** – Compares alternatives to one another; identifies transportation impacts to the affected environment which may be caused by each alternative.
- **Mitigation** – Provides recommended mitigation measures for identified impacts associated with each alternative.
- **Appendices** – Provides source data used in analysis.

Figure 1. Regional Context of Study Area



Study Area

The study area for this analysis is bounded by State Route (SR) 285 to the west, US Highway 2 to the north, Miller Road (SR 285) to the south and the Columbia River to the east. It includes the major highways, local arterials and surface streets located within the area listed above.

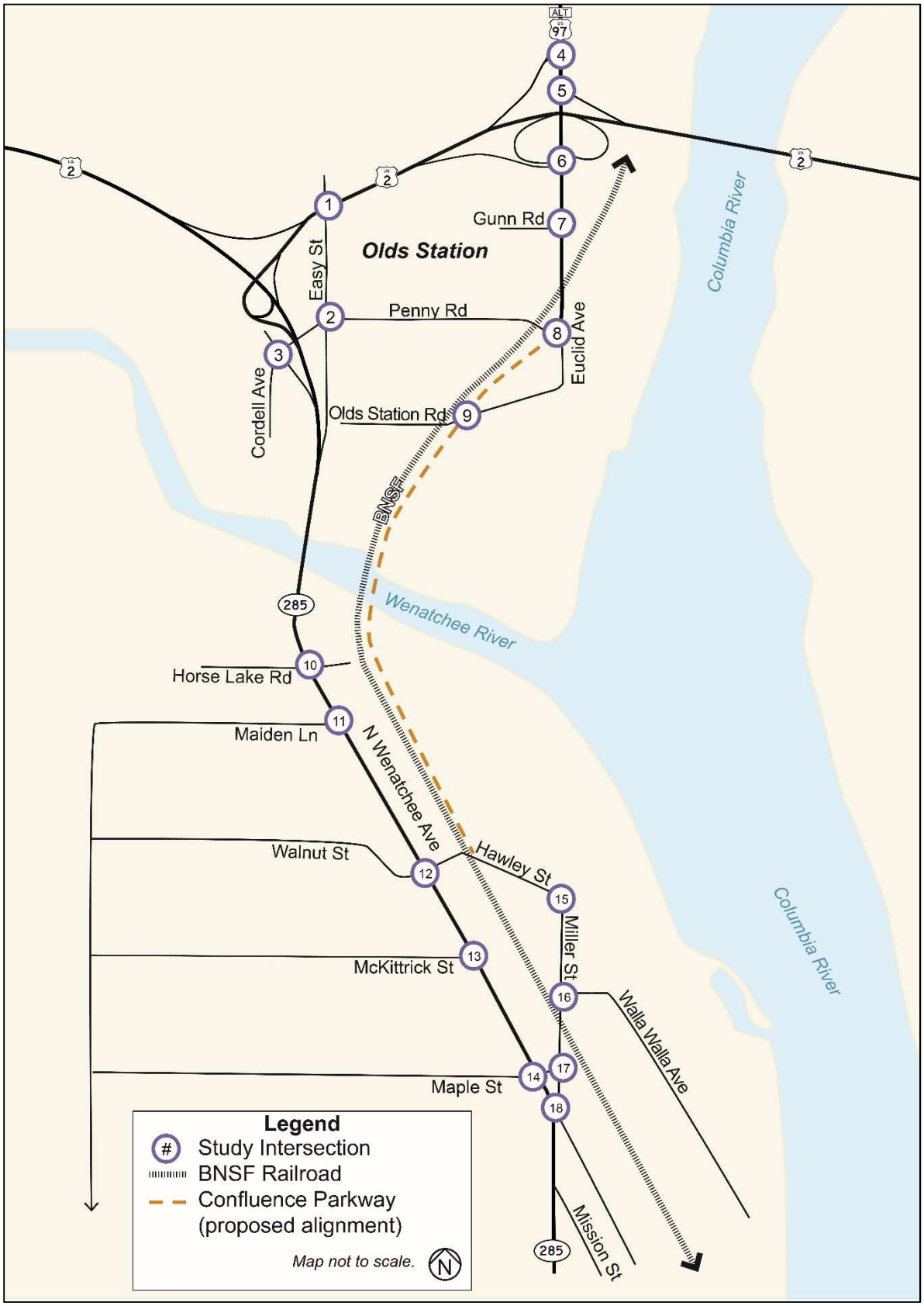
The Proposed Action adds Confluence Parkway, a new north-south transportation facility that runs parallel to N Wenatchee Avenue (SR 285). The Parkway will connect the Euclid Avenue/US 2/SR 97-A interchange to the north with the N Wenatchee Avenue/Miller Street intersection to the south, providing a bypass of N Wenatchee Avenue and creating a new arterial travel corridor that serves Olds Station and areas to the east of the Burlington Northern Santa Fe (BNSF) railroad tracks.

There are 18 intersections included in the analysis. These intersections are used to assess and compare existing traffic operations with forecasted future traffic operations for the No Action and Proposed Action alternatives. The study intersections are the major intersections located within the study area or are intersections likely to be impacted by the alternatives. The study intersections and the existing type of traffic control are listed below:

1) Easy Street/US 2 (Signal)
2) Easy Street/Penny Road (Signal)
3) SR 285 Southbound On-Ramp/Cordell Avenue (Signal)
4) Euclid Avenue/US 2 Westbound On-Ramp (Stop-Controlled)
5) Euclid Avenue/US 2 Westbound Off-Ramp (Stop-Controlled)
6) Euclid Avenue/US 2 Eastbound Ramps (Stop-Controlled)
7) Euclid Avenue/Gunn Road (Stop-Controlled)
8) Euclid Avenue/Penny Road (Stop-Controlled)
9) Confluence Parkway/Olds Station Road (Future)
10) N Wenatchee Avenue/Horse Lake Road-Duncan Road (Signal)
11) N Wenatchee Avenue/Maiden Lane (Signal)
12) N Wenatchee Avenue/Walnut Street-Hawley Street (Signal)
13) N Wenatchee Avenue/McKittrick Street (Stop-Controlled)
14) N Wenatchee Avenue/Maple Street (Signal)
15) Miller Street/McKittrick Street (Future)
16) Miller Street/Walla Walla Avenue (Stop-Controlled)
17) Miller Street/Maple Street (Stop-Controlled)
18) Miller Street/N Wenatchee Avenue (Signal)

Figure 2 shows the study intersections and the Confluence Parkway alignment.

Figure 2. Study Area and Intersections



Planning Context

This Transportation Discipline Report builds upon previous studies of the North Wenatchee area that analyzed the corridor's congestion, safety and mobility issues. These plans included community outreach, participation and review, and can be found online at the Apple Capital Loop project website (applecapitalloop.info) and the City of Wenatchee and CDTC websites. A brief summary of each of these plans is provided below:

Confluence 2030 (2010). This regional metropolitan transportation plan identified a number of potential alternatives to improve regional capacity including new crossings of the Columbia River, and a new Wenatchee River crossing that connects between US 2 and Western Avenue.

North Wenatchee Transportation Master Plan (2011). This plan focused on improving transportation safety, traffic congestion, and connectivity along the N Wenatchee Avenue corridor, while accommodating existing and planned growth within the region. The plan's recommendations included improvements to N Wenatchee Avenue, changes to the US 2/SR 285 interchange, and the construction of Confluence Parkway.

Transportation 2040 (2015). This regional transportation plan update applied 2040 travel demand forecasts and established a priority for future projects. The plan prioritized funding to include the N Wenatchee Avenue 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 N Wenatchee Avenue between Hawley Street and Maple Street. The plan included the extension of McKittrick Street under the BNSF rail line as a new connection to Confluence Parkway and to support future development east of the railroad 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 N Wenatchee Avenue corridor. The transportation concepts included access management improvements, bicycle and pedestrian facilities, and high-capacity transit options.

North Wenatchee Avenue Capacity Improvements Risk Assessment (2017). Also known as the "Pre-NEPA" study, this document compared No Action, a six-lane N Wenatchee Avenue, 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

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.

also has moderate-to-high risks related to permitting and mitigation.

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. The plan identified the N Wenatchee Avenue corridor as an area requiring further study.

N Wenatchee Avenue (SR 285) Preliminary Engineering (2019). This analysis applied the concepts from previous studies to identify specific transportation improvements for the corridor. The study developed preliminary engineering designs, project phasing, and preliminary construction cost estimates for improvement to the N Wenatchee Avenue corridor. The plan included intersection, access management, multimodal, intelligent transportation systems (ITS) and transit mobility improvements as part of the design.

Alternatives Analyzed

The study alternatives address how best to improve operations, safety and mobility for all users of the transportation system. The study compares two alternative scenarios: (1) No Action Alternative and (2) Confluence Parkway (Proposed Action) Alternative.

No Action Alternative

The No Action Alternative assumes the construction of planned intersection and corridor improvements on N Wenatchee Avenue between Horse Lake Road and Maple Street. These improvements include access management, modifications to signal operations and intersection channelization, and improvements to transit and non-motorized facilities along N Wenatchee Avenue. Included in the No Action Alternative are the planned improvements identified in the N Wenatchee Avenue (SR 285) Preliminary Engineering study, the McKittrick Street signal and rail underpass, and the Easy Street/US 2 intersection projects.

Confluence Parkway (Proposed Action)

The Proposed Action assumes the improvements from the No Action Alternative plus the construction of Confluence Parkway, a new roadway between N Wenatchee Avenue/Miller Street and US 2 in Olds Station, north of the Wenatchee River. Confluence Parkway will have one travel lane in each direction and a center turn lane to provide access to cross streets and properties, except for the segment between Hawley Street and Olds Station Road that will have only two total lanes. The project includes a new bridge over the Wenatchee River, improvements to intersections, and ADA-compliant sidewalks, landscaping, and bicycle facilities that will meet expected future transportation needs.

Summary of Findings

The key findings of the transportation analysis are summarized below, which show the direct, indirect and cumulative impacts (both positive and negative) of the No Action and Proposed Action alternatives.

Direct Transportation Impacts

- The No Action Alternative will improve traffic operations, but does not provide the capacity to meet projected traffic growth, resulting in increased congestion along N Wenatchee Avenue.
- The Proposed Action will redistribute a portion of the traffic from N Wenatchee Avenue to Confluence Parkway, a new parallel arterial. The addition of Confluence Parkway will result in lower 2040 traffic levels on N Wenatchee Avenue, resulting in lower levels of congestion and improved operations along the N Wenatchee Avenue corridor.
- The Proposed Action will improve non-motorized mobility, providing new sidewalks and bicycle lanes. The undercrossing of the BNSF railroad tracks at Miller Street will connect to the planned non-motorized network and will improve access to the Apple Capital Loop Trail.
- The Proposed Action includes intersection improvements at the US 2/Euclid Avenue interchange on-ramps and off-ramps and at the N Wenatchee Avenue/Miller Street intersection to accommodate the expected traffic volumes using Confluence Parkway. These improvements will include signal and channelization improvements.
- The Proposed Action provides a parallel transit corridor that may result in improved service and higher levels of transit ridership and allows for the expansion of transit services.
- Both alternatives would manage access along N Wenatchee Avenue, reducing collisions associated with left turns into and from driveways. The Proposed Action is expected to reduce volumes on N Wenatchee Avenue and may result in fewer congestion-related collisions as well.

Indirect Impacts

- The Proposed Action adds north-south capacity resulting from the combination of improvements to N Wenatchee Avenue and Confluence Parkway that may divert vehicle trips from parallel corridors such as Western Avenue or SR 28.
- The added north-south capacity may increase vehicle travel and may increase the number of discretionary trips as a result of improved mobility on area roadways.
- The Proposed Action provides an additional bicycle corridor and connection that may increase bicycle ridership.

Cumulative Impacts

- The No Action and Proposed Action alternatives are consistent with *Transportation 2040* and the Apple Capital Loop regional transportation improvements and will provide needed capacity to meet regional population and employment forecasts.
- Both alternatives provide needed multimodal improvements and will offset the negative impacts from increased traffic volumes in the region.

Construction Impacts

During construction, most traffic impacts will be isolated to the roadways and intersections of the proposed Confluence Parkway. The largest impacts will likely occur at the north and south ends of the corridor, where Confluence Parkway will connect to the existing roadway network.

- The No Action Alternative will have construction impacts at several N Wenatchee Avenue intersections and for the proposed US 2/Easy Street roundabout. Many of these improvements will require full or partial street closures and detour routes during construction.
- The Proposed Action will have minimal transportation impacts during construction of the Confluence Parkway segment between Euclid Avenue and Hawley Street and the new bridge across the Wenatchee River.
- The Proposed Action will install traffic signals at the US 2/Euclid Avenue westbound off-ramp and eastbound ramps intersections and may impact the interchange during construction.
- The Proposed Action will impact segments of Euclid Avenue, Hawley Street and Miller Street during construction as the streets are reconstructed to become part of the Confluence Parkway alignment. In addition, the alignment's intersection improvements, such as those at Euclid Avenue/Penny Street and Miller Street/Walla Walla Avenue, may require detour routes or partial road closures during construction.
- The Proposed Action improvements at the Miller Street/N Wenatchee Avenue intersection will require lane closures and temporary detour routes during construction.

Affected Environment

This section describes the existing transportation system and operations within the project area. It includes an overview of the existing roadway network, transit facilities, non-motorized facilities, and traffic volumes, as well as the intersection operations at the study intersections.

Existing Roadway Network

Within the study area, the existing roadway network is characterized by two highways, two interchanges, and a network of surface streets. The intersections of these roadways define the study intersections considered in this analysis.

- **US 2** is an east-west limited access roadway crossing northern Washington, between Everett and Spokane.
- **SR 285** is a highway that connects between US 2 in Olds Station and East Wenatchee. It travels along N Wenatchee Avenue, Miller Street, Mission Street (northbound), Chelan Avenue (southbound), Stevens Street, crosses the George Sellar Bridge and terminates at SR 28 (Sunset Highway) in East Wenatchee.
- **Easy Street** is a north-south principal arterial between the northbound SR 285 off-ramp (for Olds Station) and Ohme Garden Road located north of US 2. From the end of the northbound off-ramp to Penny Road, Easy Street is one-way with two northbound lanes. Easy Street then becomes a two-way, four-lane street between Penny Road and Ohme Garden Road.
- **Penny Road** is an east-west principal arterial between Easy Street and Euclid Avenue. West of Easy Street, Penny Road provides access to southbound SR 285 towards Wenatchee.
- **Euclid Avenue** is a north-south principal arterial between Penny Road and US 2.
- **Miller Street** is the southern terminus of Confluence Parkway where it connects with N Wenatchee Avenue.
- Other major streets in the study area include: Horse Lake Road-Duncan Road, Maiden Lane, Walnut Street-Hawley Street, McKittrick Street, Walla Walla Avenue, and Maple Street. These streets intersect with N Wenatchee Avenue (SR 285).

Figure 3 and **Figure 4** show the existing intersection channelization and traffic controls for each of the study intersections.

Figure 3. Existing Study Intersection Channelization (North)

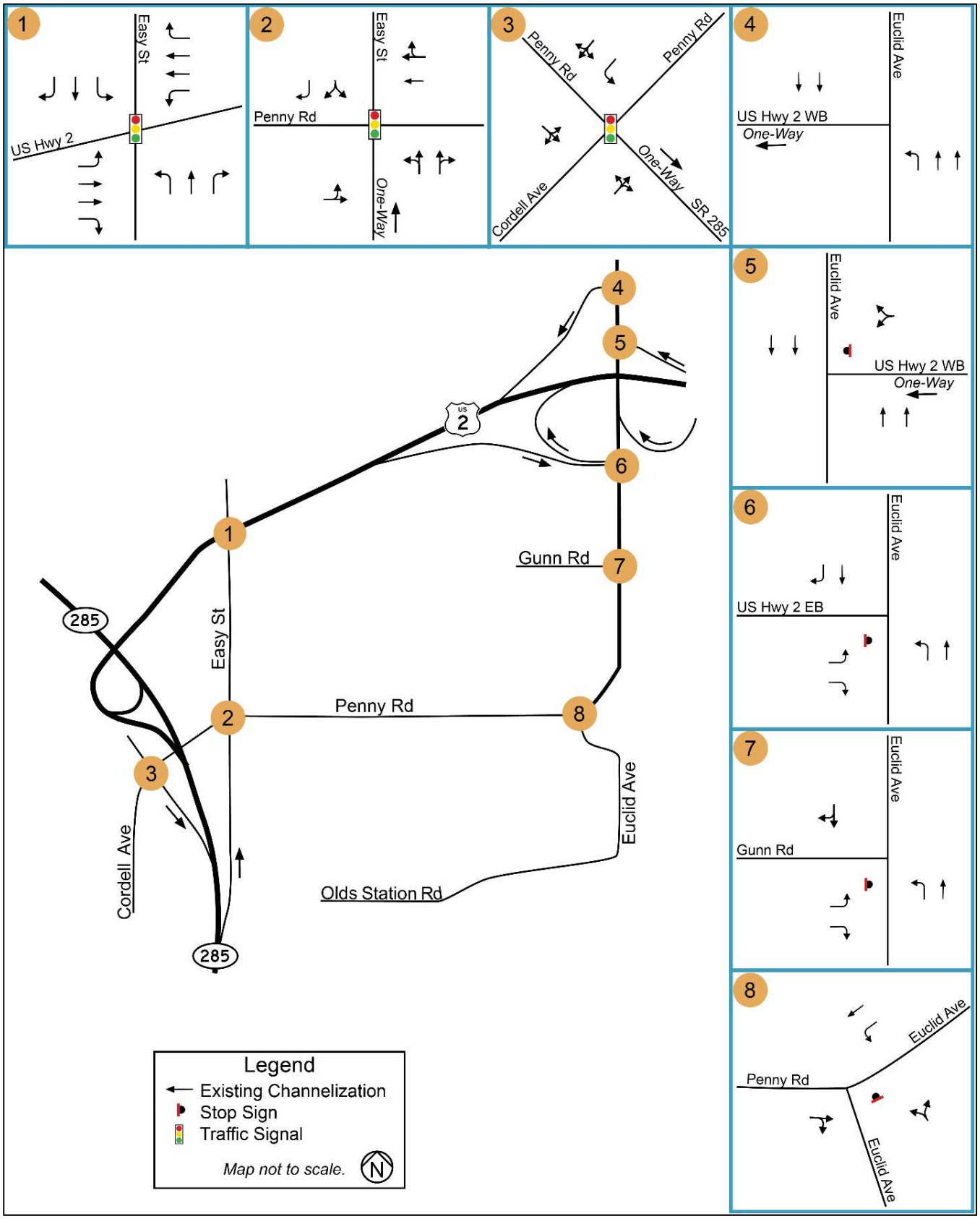
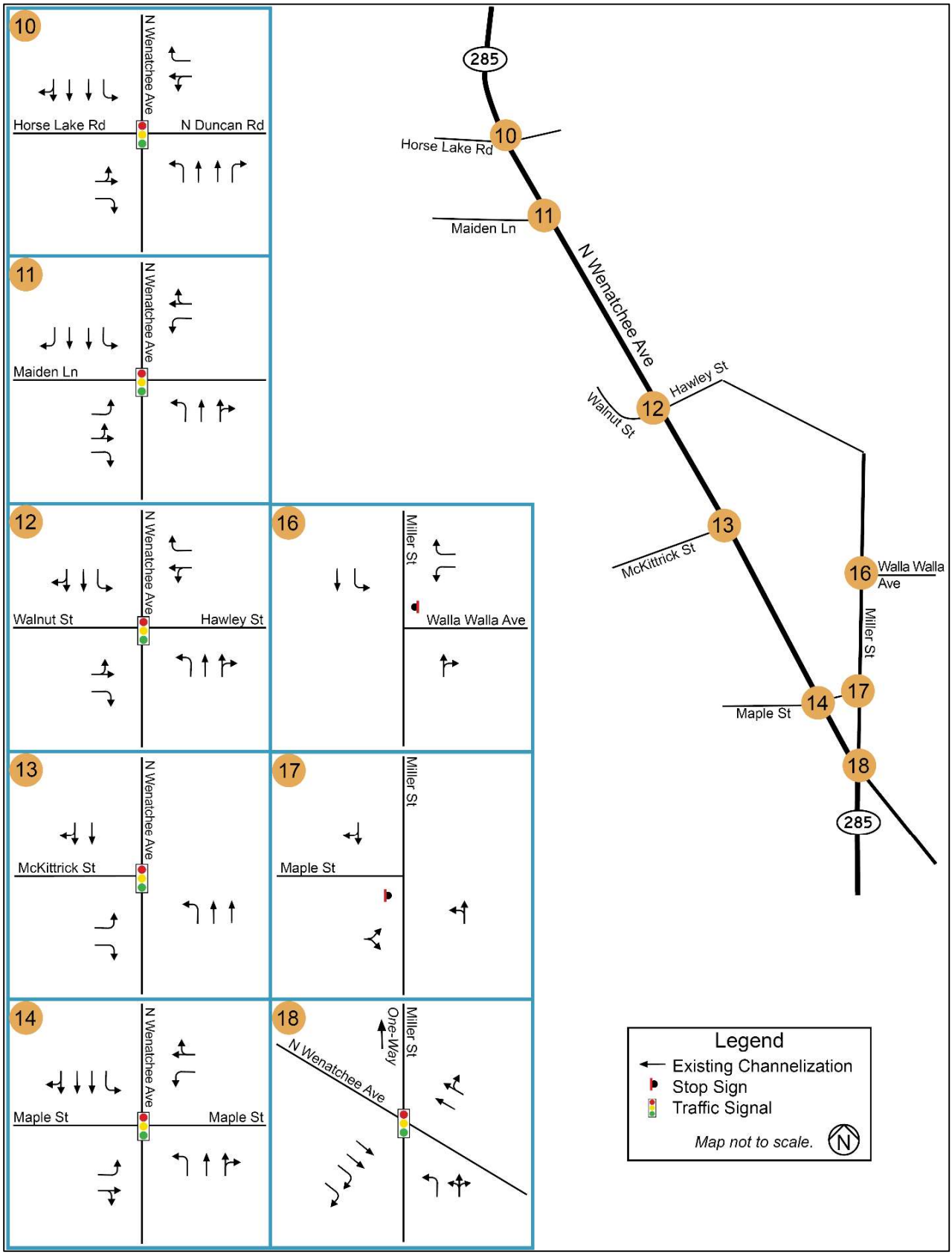


Figure 4. Existing Study Intersection Channelization (South)



Transit Facilities

Link Transit routes 8E/8W, 20, 21, 22, 26, 28, and 40 provide service within the N Wenatchee Avenue and Olds Station area. **Table 1** provides a summary of the transit routes in the area, the destinations they serve, and number of buses each day.

- Route 8 connects riders from Wenatchee to East Wenatchee and runs 30-minute headways Monday through Friday and one-hour headways on Saturdays. This route is the only route that does not use the bus stop in front of the Exxon/Circle K gas station on Maple Street between N Miller Street and N Wenatchee Avenue.
- Route 20 provides intercity service from Wenatchee to Chelan and Manson. It runs on the east side of the Columbia River, stopping in Orondo. It runs five times per day Monday through Friday.
- Route 21 provides intercity service from Wenatchee to Chelan and Manson, operating on the west side of the Columbia River and stopping in Entiat. It runs twelve buses each day Monday through Friday, and five buses on Saturdays.
- Route 22 serves riders traveling between the North Wenatchee area and Leavenworth. During the week, it operates at 30-minute headways from 5:00 am to 8:00 pm, with 21 buses per day. On Saturdays there are five buses, approximately one bus every two hours.
- Route 26 connects Wenatchee with the town of Ardenvoir, and operates five buses per day, Monday through Friday.
- Route 28 connects Wenatchee with Cashmere and operates on 90-minute headways Monday through Saturday, totaling six buses per day.
- Route 40 (seasonal) provides free transit service from mid-November to April to connect Wenatchee with the Mission Ridge Ski Area. It runs on weekends and holidays only.

Table 1. Transit Service

Route	Start	End	Mon-Fri Buses	Mon-Sat Buses
8E/8W	Wenatchee	East Wenatchee	20	10
20	Olds Station	Chelan via Orondo	4	0
21	Wenatchee	Mansion via Entiat	11	5
22	Wenatchee	Leavenworth	16	5
26	Olds Station	Ardenvoir	5	0
28	Wenatchee	Cashmere	2	6
40	Wenatchee	Mission Ridge Ski Resort	N/A	7*

*Seasonal Saturday, Sunday, and holiday service only.

Under existing conditions, most regional bus routes must operate on N Wenatchee Avenue, which experiences frequent congestion and delays. This affects the ability for buses to maintain schedules and provide reliable service in the area, potentially affecting Link Transit's ability to add service to meet future ridership demand.

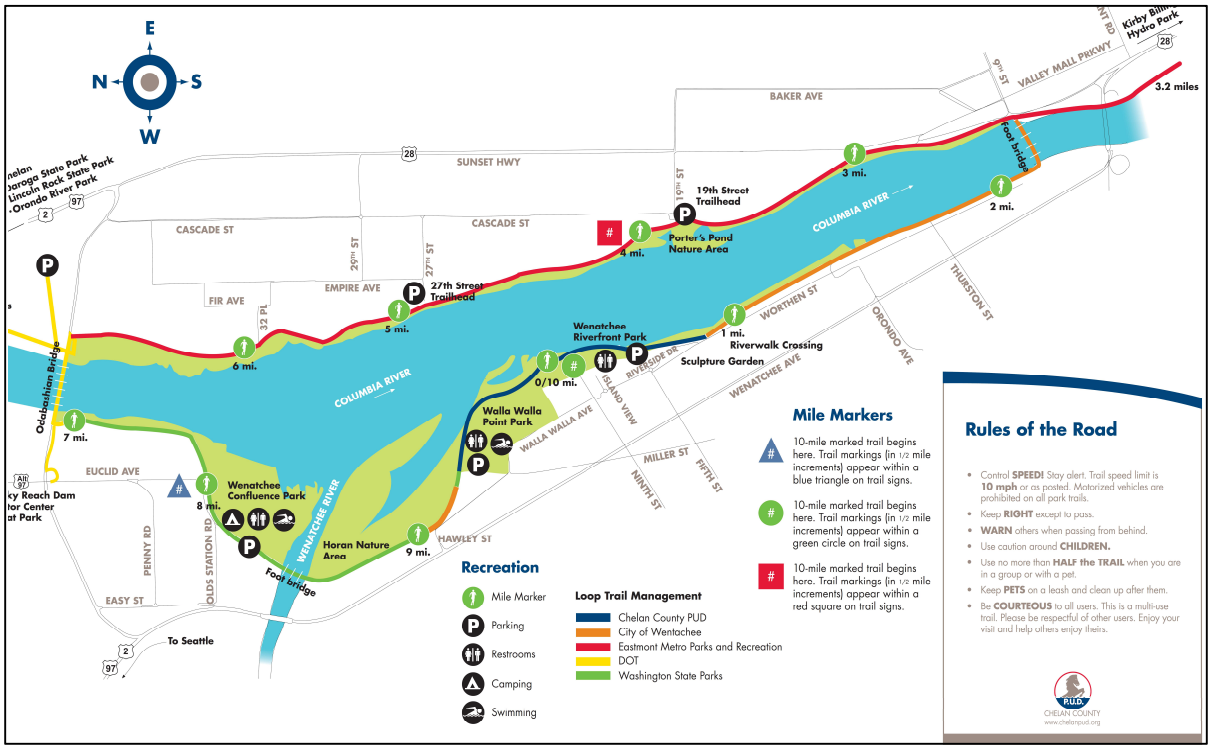
Non-Motorized Facilities

Most of the area provides 5- to 6-foot-wide sidewalks on one or both sides of the street. Crosswalks are mainly located at signalized intersections, although marked crosswalks are found at many stop-controlled intersections along Penny Road. Sidewalks in the study area are found on both sides of N Wenatchee Avenue, Easy Street and Penny Road (east of Easy Street), but are mainly on only one side of the street on Miller Street and Hawley Street, and are missing along many segments of Euclid Avenue. Areas with newer sidewalks have curb ramps that are compliant with the American with Disabilities Act (ADA) guidance.

Several streets within the area are marked on the Wenatchee Valley Bike Map as "most comfortable" and "somewhat comfortable" for riding a bicycle. These include Penny Road, Euclid Road, and Olds Station Road in the Olds Station area, as well as Hawley Street, Miller Street, and Walla Walla Avenue in the area south of the Wenatchee River Bridge. In 2019, a new shared use trail was completed along the south side of US 2 between Easy Street and Euclid Street.

The Apple Capital Recreation Loop Trail is 10 miles long and travels along both sides of the Columbia River in Wenatchee and East Wenatchee. It crosses the Columbia River on the Odabashian Bridge (US 2) and the foot bridge at 9th Street. The trail's alignment on the west bank of the Columbia River is mostly through green spaces, including Wenatchee Confluence State Park, Walla Walla Point Park, and Wenatchee Riverfront Park. **Figure 5** provides a map of the trail.

Figure 5. Apple Capital Recreational Loop Trail Map



Source: Chelan County Public Utilities District.

Collision History

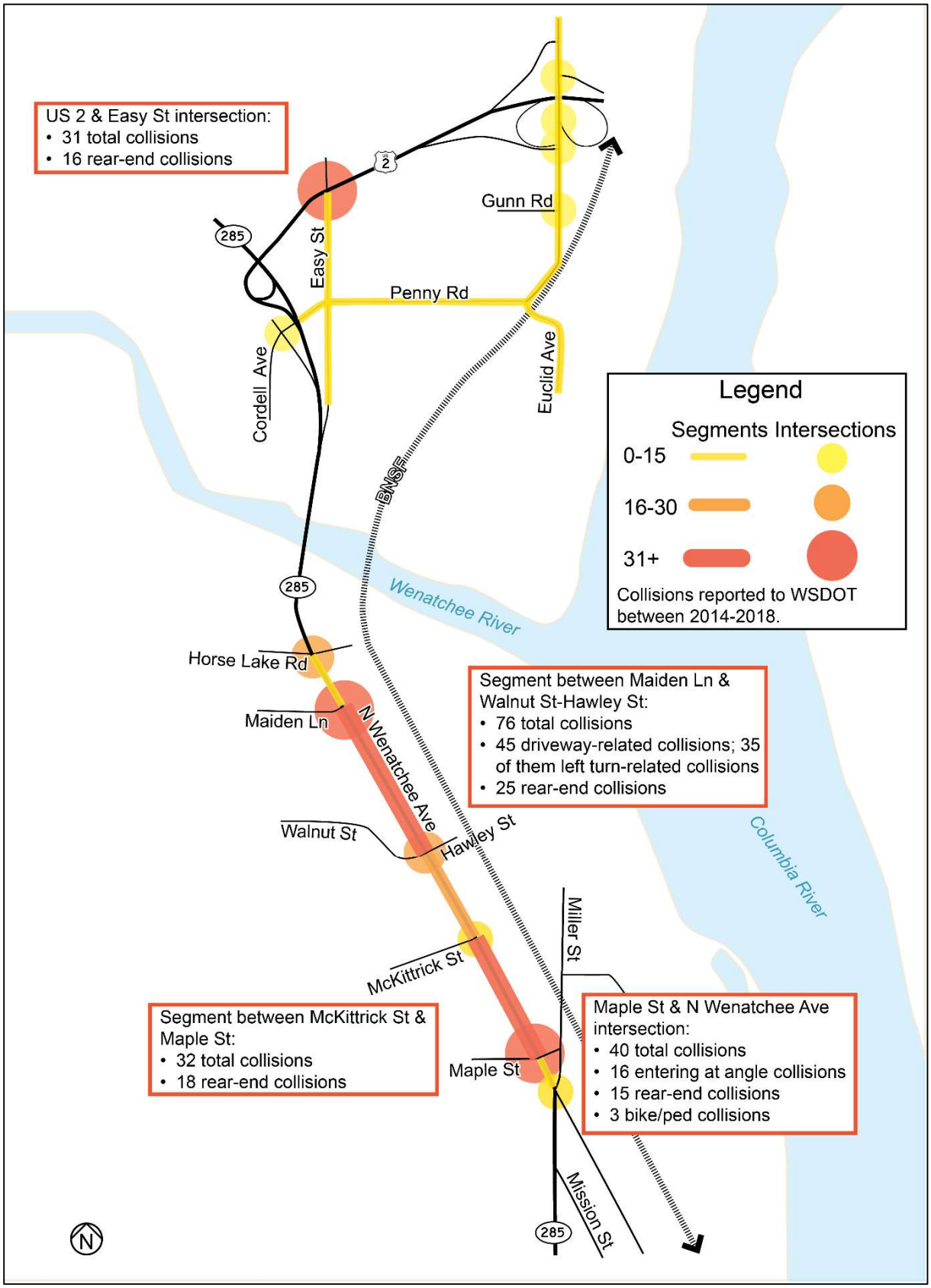
WSDOT manages a database of collision report data collected from local law enforcement agencies. For this analysis, collisions which occurred in the study area during the five-year period between 1/1/2014 and 12/31/2018 were evaluated to recognize problem areas and identify risk factors in the transportation network. The analysis identifies the intersections and roadway segments with the highest number of collisions, identifying the total number and primary types of collisions at each location. The analysis did not evaluate crash rates. **Figure 6** shows the five-year collision history for study intersections and street links.

The N Wenatchee Avenue/Maple Street intersection was the site of 40 collisions including 16 entering at angle collisions, 15 rear-end collisions, and 3 reports of a vehicle striking a person walking or biking. This location is characterized by several closely-spaced intersections, frequent driveways, and high vehicle volumes. There were 31 collisions reported at the Easy Street/US 2 intersection. Half (16) were rear-end collisions, which often occur near congested intersections controlled by traffic signals.

Other intersections with high numbers of collisions in the last five years include N Wenatchee Avenue/Maiden Lane (32 collisions) and N Wenatchee Avenue/Horse Lake Road (28 collisions).

Along the segment of N Wenatchee Avenue between Maiden Lane and Walnut Street-Hawley Street, there were 76 collisions. Most (45) of these collisions occurred at or near driveways and 35 occurred when drivers were making left turn movements. The second highest number of collisions happened on the segment of N Wenatchee Avenue between McKittrick Street and Maple Street with 32 collisions, the majority of which were rear-end collisions.

Figure 6. High Crash Locations (2014-2018)



Traffic Volumes

The analysis included recent traffic counts that show the turning movements at individual intersections. **Table 2** summarizes the existing traffic volumes for the afternoon (PM) peak hour. The PM peak hour occurs between 3:15 and 4:15 PM in the Olds Station area and between 4:30 and 5:30 PM along N Wenatchee Avenue.

Table 2. Existing Traffic Volumes

Intersection	Count Date	PM Peak Hour	Peak Hour Volume
1) Easy St/US 2	5/16/2019	3:15-4:15 PM	3,250
2) Easy St/Penny Rd	5/16/2019	3:30-4:30 PM	1,350
3) SR 285 Southbound On-Ramp/Cordell Av	5/16/2019	4:30-5:30 PM	600
4) Euclid Av/US 2 Westbound On-Ramp	5/16/2019	3:15-4:15 PM	950
5) Euclid Av/US 2 Westbound Off-Ramp	5/16/2019	3:15-4:15 PM	1,100
6) Euclid Av/US 2 Eastbound Ramps	5/16/2019	3:15-4:15 PM	950
7) Euclid Av/Gunn Rd	5/16/2019	3:15-4:15 PM	700
8) Euclid Av/Penny Rd	5/16/2019	3:00-4:00 PM	700
9) Confluence Parkway/Olds Station Rd	Future	--	--
10) N Wenatchee Av/Horse Lake-Duncan Rd	5/9/2017	4:30-5:30 PM	4,150
11) N Wenatchee Av/Maiden Ln	5/9/2017	4:30-5:30 PM	4,000
12) N Wenatchee Av/Walnut-Hawley St	7/26/2012	6:00-7:00 PM	3,150
13) N Wenatchee Av/McKittrick St	2009	--	2,450
14) N Wenatchee Av/Maple St	1/30/2018	4:30-5:30 PM	3,700
15) Miller St/McKittrick St	Future	--	--
16) Miller St/Walla Walla Av	11/7/2017	5:15-6:15 PM	500
17) Miller St/Maple St	--	--	250
18) Miller St/N Wenatchee Av	4/12/2017	4:30-5:30 PM	3,550

Figure 7 and **Figure 8** show the existing PM peak hour turning movement counts for each of the study intersections.

Traffic Operations Analysis

The study analyzed the PM peak hour intersection operations using Synchro 10 traffic operations modeling and analysis software. The Synchro model includes lane geometry, turning vehicle volumes, and signal timing and phasing information to provide a detailed analysis of intersection operating conditions. SimTraffic software, a micro simulation model and an extended feature of Synchro, was also used to evaluate the interactions between intersections and to identify areas of congestion and vehicle queuing. The traffic operations model was calibrated to match intersection delays and queue lengths observed in the field.

Figure 7. Existing PM Peak Hour Turning Movements (North)

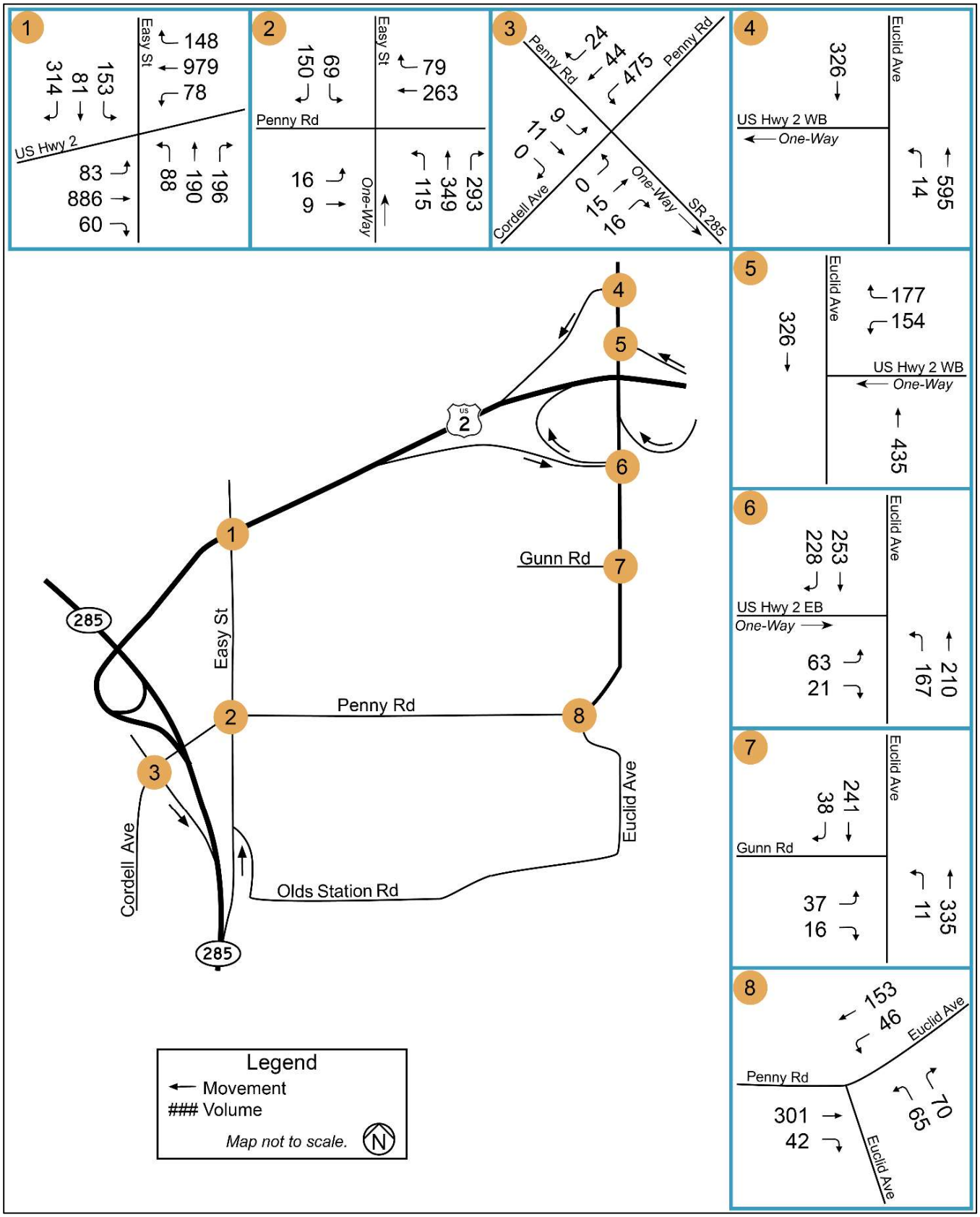
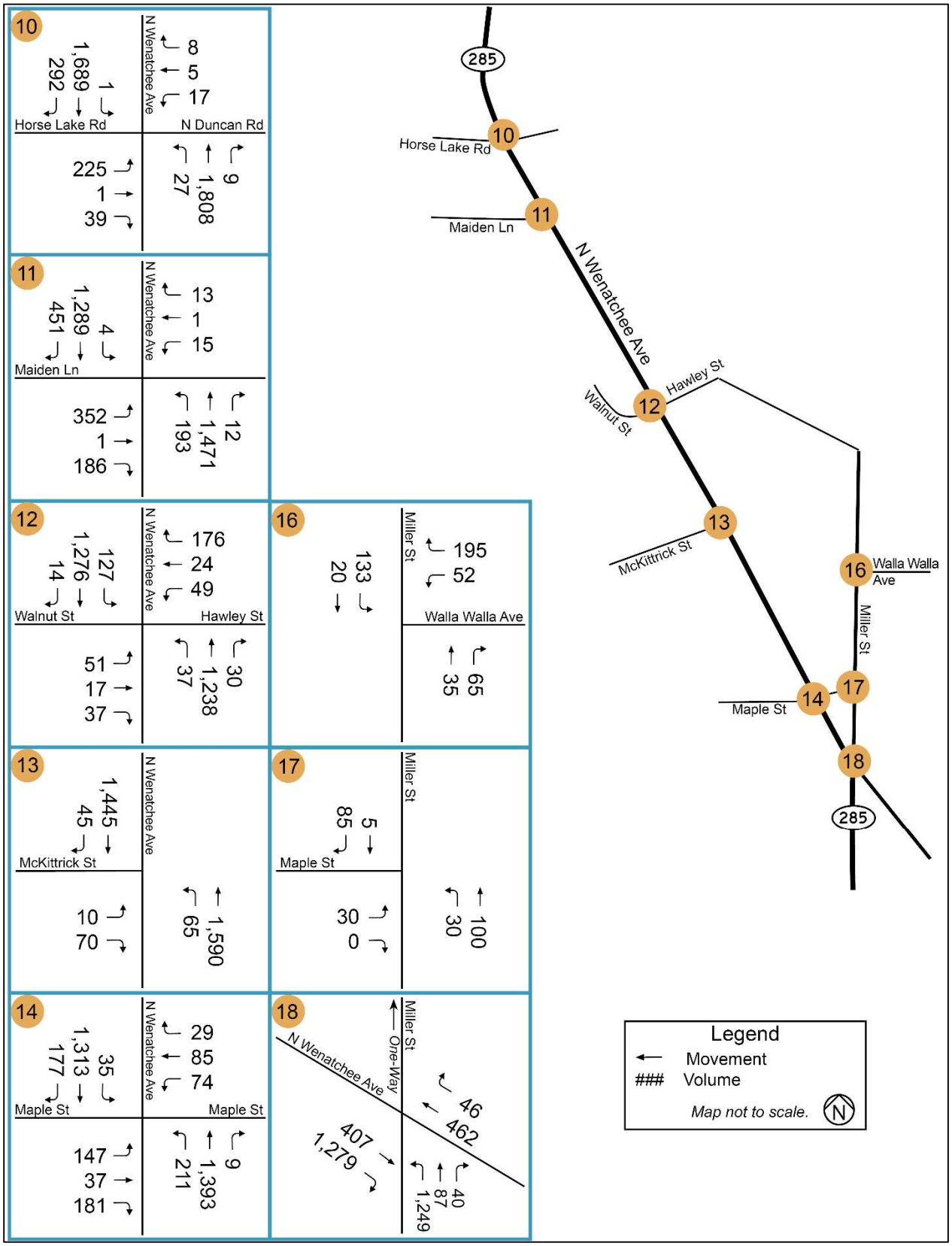


Figure 8. Existing PM Peak Hour Turning Movements (South)



Synchro was used to calculate intersection delay and level of service (LOS). The intersection level of service (LOS) ranges from A to F, with LOS A assigned when minimal delays are present and LOS F when lengthy delays occur. The City of Wenatchee has established LOS E as the LOS standard for city street intersections and WSDOT uses LOS D as its standard for state highway intersections. For this analysis, LOS D or better is the desired outcome of the project. **Table 3** shows the LOS criteria for signalized and stop-controlled intersections.

Table 3. LOS Criteria for Intersections

Level of Service	Signalized Intersections Average Delay per Vehicle (seconds)	Stop-Sign Controlled Intersections Average Delay per Vehicle (seconds)
A	0 to 10	0 to 10
B	10 to 20	10 to 15
C	20 to 35	15 to 25
D	35 to 55	25 to 35
E	55 to 80	35 to 50
F	> 80	> 50

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The existing PM peak hour traffic operations at the study intersections are summarized in **Table 4**. The intersections at N Wenatchee Avenue/Horse Lake Road and N Wenatchee Avenue/McKittrick Street operate at LOS E. All other intersections operate at LOS D or better.

Table 4. Existing PM Peak Hour Intersection Level of Service

Intersection	Intersection Control	Existing LOS (Delay)
1) Easy St/US 2	Signal	D (51)
2) Easy St/Penny Rd	Signal	C (22)
3) SR 285 Southbound On-Ramp/Cordell Av	Signal	B (10)
4) Euclid Av/US 2 Westbound On-Ramp	Stop Sign	A (8)
5) Euclid Av/US 2 Westbound Off-Ramp	Stop Sign	B (10)
6) Euclid Av/US 2 Eastbound Ramps	Stop Sign	C (18)
7) Euclid Av/Gunn Rd	Stop Sign	B (13)
8) Euclid Av/Penny Rd	Stop Sign	C (15)
10) N Wenatchee Av/Horse Lake-Duncan Rd	Signal	E (57)
11) N Wenatchee Av/Maiden Ln	Signal	D (46)
12) N Wenatchee Av/Walnut-Hawley St	Signal	D (38)
13) N Wenatchee Av/McKittrick St	Stop Sign	E (47)
14) N Wenatchee Av/Maple St	Stop	B (11)
16) Miller St/Walla Walla Av	Signal	D (39)
17) Miller St/Maple St	Signal	B (14)
18) Miller St/N Wenatchee Av	Signal	B (10)

Highway Capacity Manual, 6th Edition. LOS reported is the average delay for signalized intersections and the worst-performing approach for stop-controlled intersections.

Alternatives Previously Considered

The search for a solution to Wenatchee's transportation issues has extended back more than 10 years. Each new study has built upon previous planning efforts, better defining and adding specifics to formulate a preferred alternative. This section summarizes the previous alternatives that have been considered in past planning efforts.

The region's long-range Metropolitan Transportation Plan entitled *Confluence 2030*, published in 2010, identified several improvements to enhance regional mobility. These improvements were focused primarily on reducing regional congestion by adding corridor capacity or adding new crossings of the Wenatchee River and the Columbia River. As part of the development of the *North Wenatchee Transportation Master Plan*, published in 2011, four regional alternatives were evaluated based on the potential benefits and impacts the alternatives would have on the N Wenatchee Avenue corridor. These alternatives were:

- Second bridge over the Columbia River which, with the George Sellar Bridge, would form a one-way couplet extension
- New Central Columbia River Bridge
- New Wenatchee River Bridge aligned with an extension of Western Avenue
- N Wenatchee Avenue widening to six lanes

An initial screening process evaluated these alternatives based on safety, highway mobility, urban accessibility, and economic impacts and benefits as related to the N Wenatchee Avenue corridor. When the results of the screening process found that none of the four alternatives fully satisfied the screening objectives, the following set of refined concepts were developed and used for the *North Wenatchee Transportation Master Plan*:

- Minimal Improvements Concept – Focused improvements on the N Wenatchee Avenue corridor and streets south of the Wenatchee River without widening any roadways.
- Modified N Wenatchee Avenue Concept – Added lanes to N Wenatchee Avenue and developed additional circulation roads, added capacity at intersections, and implemented access management.
- Confluence Parkway Concept – Proposed a new parallel arterial connecting between Miller Street and the Euclid Avenue interchange with US 2.

The plan recommended the Confluence Parkway Conceptwhich also included access management and signal improvements to the N Wenatchee Avenue corridor as well as modifications to the US 2 interchanges at SR 285, Easy Street, and Euclid Avenue.

In 2015, the CDTC adopted *Transportation 2040*. This document confirmed the previous growth forecasts and prioritized improvements for the region. The CDTC's current *2019-2022 Regional Transportation Improvement Program* identifies N Wenatchee Avenue as a Phase 1 project with implementation scheduled between 2016 and 2027 and the construction of Confluence Parkway as a Phase 2 project scheduled between 2028 and 2040.

Description of Alternatives Evaluated

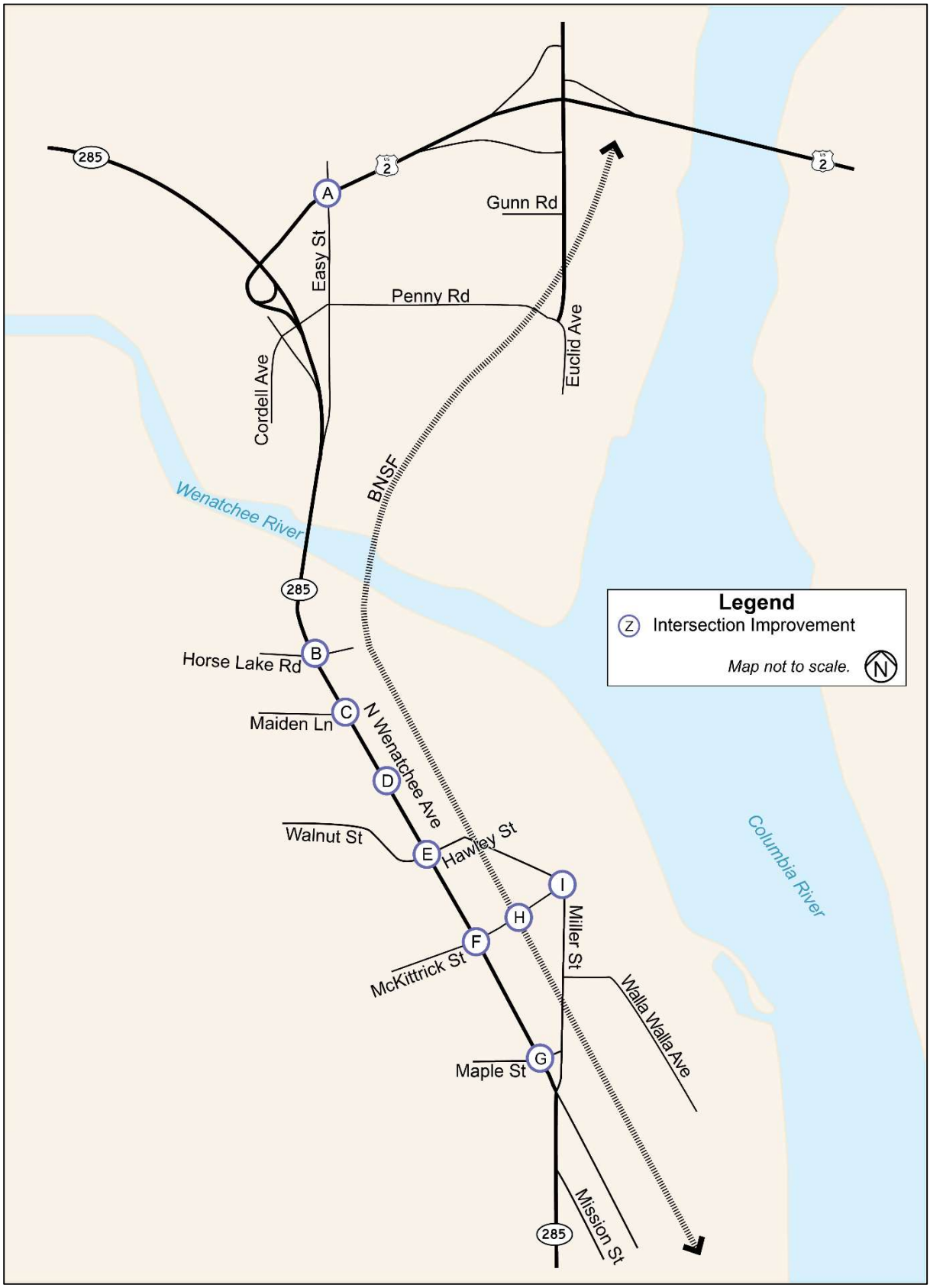
Two transportation alternatives were considered for this analysis to reflect the most likely scenarios for the study area. The alternatives consist of: (1) No Action Alternative and (2) Confluence Parkway (Proposed Action) Alternative.

No Action Alternative

The No Action Alternative improves operations and safety of the existing network. These include the improvements identified in the N Wenatchee Avenue (SR 285) Preliminary Design, the McKittrick Street intersection and BNSF underpass, and the Easy Street/US 2 roundabout. The No Action Alternative includes sidewalks, landscaping, bicycle facilities and intersection improvements. **Figure 9** summarizes the following No Action Alternative improvements:

- (A) **Easy Street/US 2 Intersection** – WSDOT plans to construct a new two-lane roundabout to replace the existing signal.
- (B) **N Wenatchee Avenue/Horse Lake Road Intersection** – A new Duncan Road frontage/circulation roadway will be created along the east side of N Wenatchee Avenue to connect local businesses to the Horse Lake Road intersection. The intersection will be redesigned to eliminate the low-volume eastbound and westbound through movements and allow for simultaneous eastbound and westbound left turn movements.
- (C) **N Wenatchee Avenue/Maiden Lane Intersection** – The east leg of the intersection will be eliminated as part of the development of the proposed frontage road to Duncan Road. A new southbound receiving lane will be added to create a bus bypass lane and to allow for northbound U-turn movements. The southbound bus stop is relocated to the island formed by the southbound channelized right turn lane. To reduce left turn conflicts, an access control median will be constructed to the south of the intersection.
- (D) **Mid-block Improvements** – A mid-block marked crosswalk will be installed midway between Maiden Lane and Walnut Street-Hawley Street, the longest segment of N Wenatchee Avenue without a pedestrian crossing. This location will also provide a break in the access control median to allow southbound drivers to make U-turns.
- (E) **N Wenatchee Avenue/Walnut Street-Hawley Street Intersection** – The north and south legs of the intersection will be widened to accommodate U-turn movements and to provide far-side bus stops at the intersection. The east and west approaches will be rechannelized, with the right turn lanes converted to shared through-right turn lanes, and the existing shared through-left turn lanes will be designated as left turn lanes. A north leg crosswalk will be added.
- (F) **N Wenatchee Avenue/McKittrick Street Intersection** – A new signal is planned for the McKittrick Street intersection. Northbound and southbound will have dedicated left turn lanes and receiving lanes to accommodate U-turn movements and to provide space for far-side bus stops.

Figure 9. Transportation Improvements of the No Action Alternative



Ⓖ **N Wenatchee Avenue/Maple Street Intersection** – Improvements include realigning the west leg and adding a 125'-long dedicated eastbound right turn lane. Eastbound and westbound bike lanes will also be added. Left turn phasing on the eastbound and westbound approaches will be upgraded to flashing yellow arrow (protected and permissive) left turn phasing. The northeast corner will revise the turning radius for westbound to northbound transit vehicles turning from Maple Street and to accommodate southbound U-turn movements.

Ⓗ **McKittrick Street Undercrossing** – The extension of McKittrick Street under the BNSF tracks and the closure of the Hawley Street rail crossing is included in the No Action Alternative.

Ⓘ **Hawley Street-Miller Street/McKittrick Street Intersection** – A 1-lane roundabout is planned for this intersection. The roundabout design will accommodate bicycle and pedestrian crossings and provide non-motorized access to the Apple Capital Loop Trail.

Non-Motorized Improvements – The No Action Alternative includes new walking and biking facilities as part of the corridor improvements. The alternative includes:

- A new pedestrian crosswalk and signal located mid-block between the N Wenatchee Avenue/Maiden Lane N intersection and Wenatchee Avenue/Walnut Street-Hawley Street intersection.
- The planned N Wenatchee Avenue/McKittrick Street intersection will include pedestrian crosswalks on all four legs. McKittrick Street will include a new undercrossing of the BNSF tracks and be designed with sidewalks and bicycle lanes, providing a new east-west connection to the Apple Capital Loop Trail.
- The N Wenatchee Avenue/Walnut Street-Hawley Street intersection will add a new north leg crosswalk and bicycle lanes on the east leg.
- N Wenatchee Avenue/Maple Street intersection will include east-west bicycle lanes through the intersection and add a north leg crosswalk.
- As part of the planned improvements on N Wenatchee Avenue, a new north-south 12'-wide mixed-use pathway will connect between the Wenatchee River Bridge and the existing bike lanes on Walnut Street. This new pathway will be constructed along an existing Pioneer Canal right-of-way (west of N Wenatchee Avenue) with at-grade crossings at Maiden Lane and Horse Lake Road. WSDOT is exploring if the west side of the SR 285 bridge across the Wenatchee River can be modified to provide an improved (wider) non-motorized facility.

Transit Improvements – The No Action Alternative includes the construction of far-side bus stop/U-turn areas along N Wenatchee Avenue. These improvements are anticipated at the Walnut Street-Hawley Street, McKittrick Street and Maple Street intersections. Other transit improvements include installation of queue jump signals for buses at the Horse Lake Road (northbound) and Maiden Lane (southbound) intersections, and the addition of transit signal priority technology to improve transit travel times along the corridor.

Figure 10 and **Figure 11** show the existing and future intersection channelization at each study intersection under the No Action Alternative.

Figure 10. Channelization – No Action Alternative at Study Intersections (North)

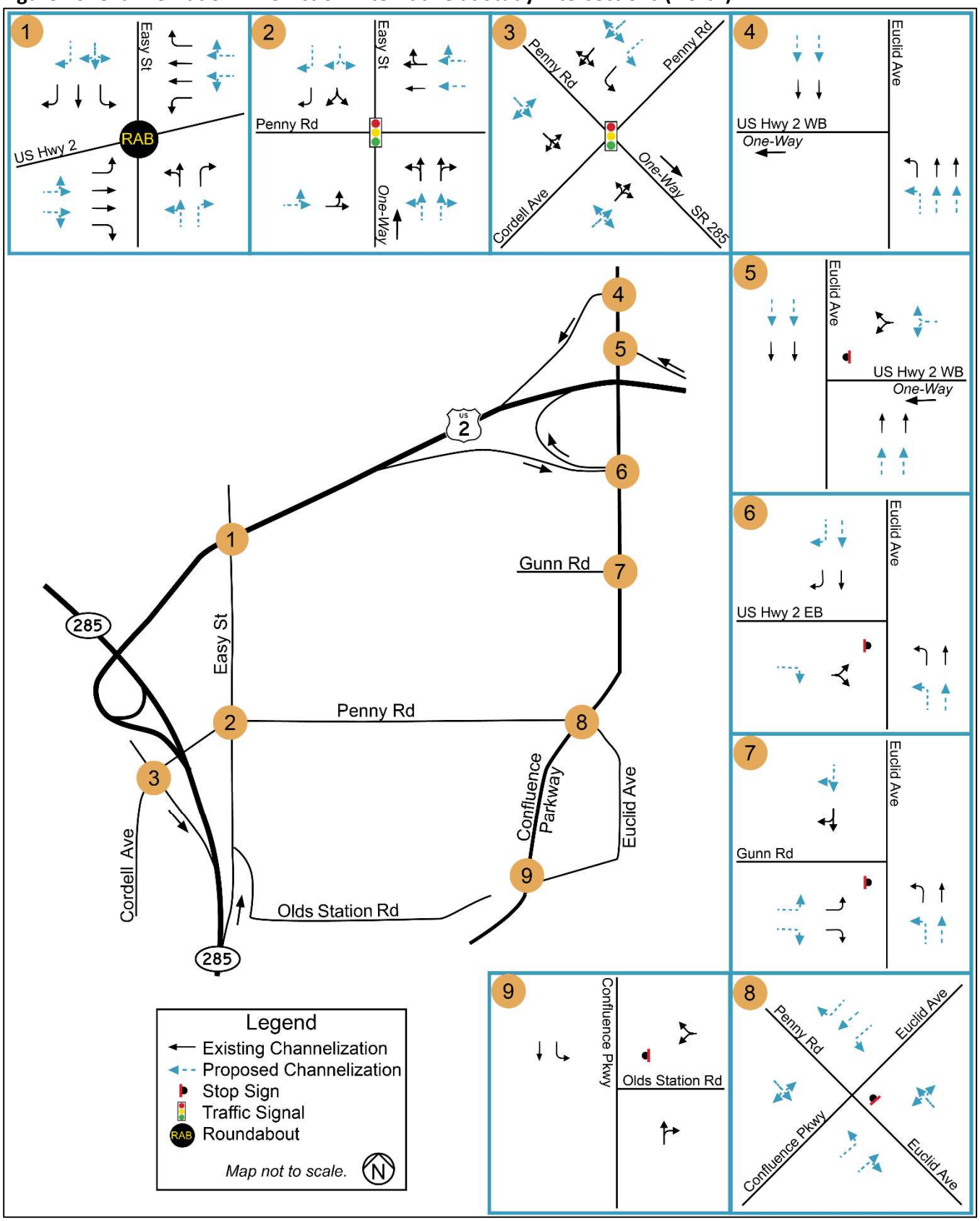
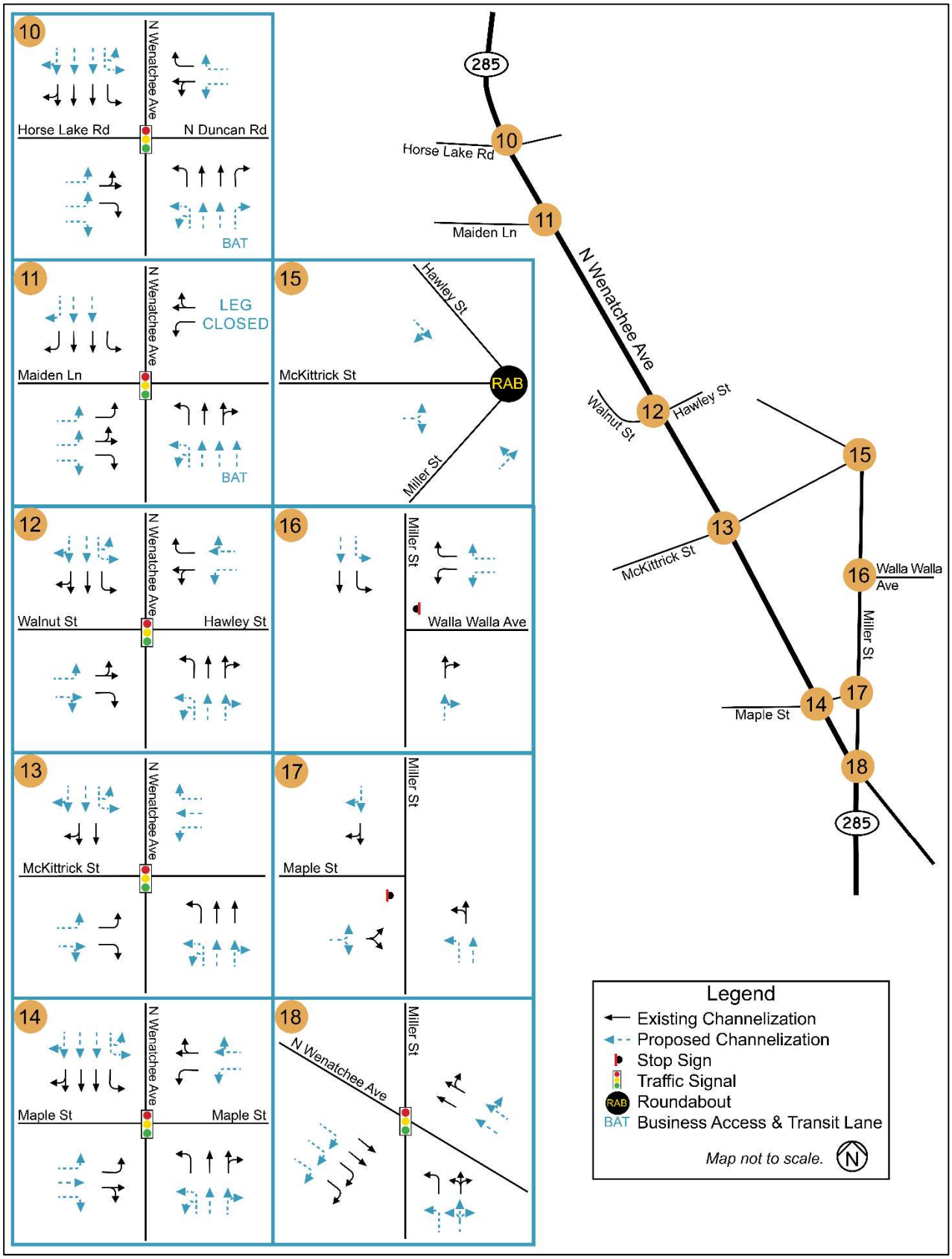


Figure 11. Channelization – No Action Alternative at Study Intersections (South)



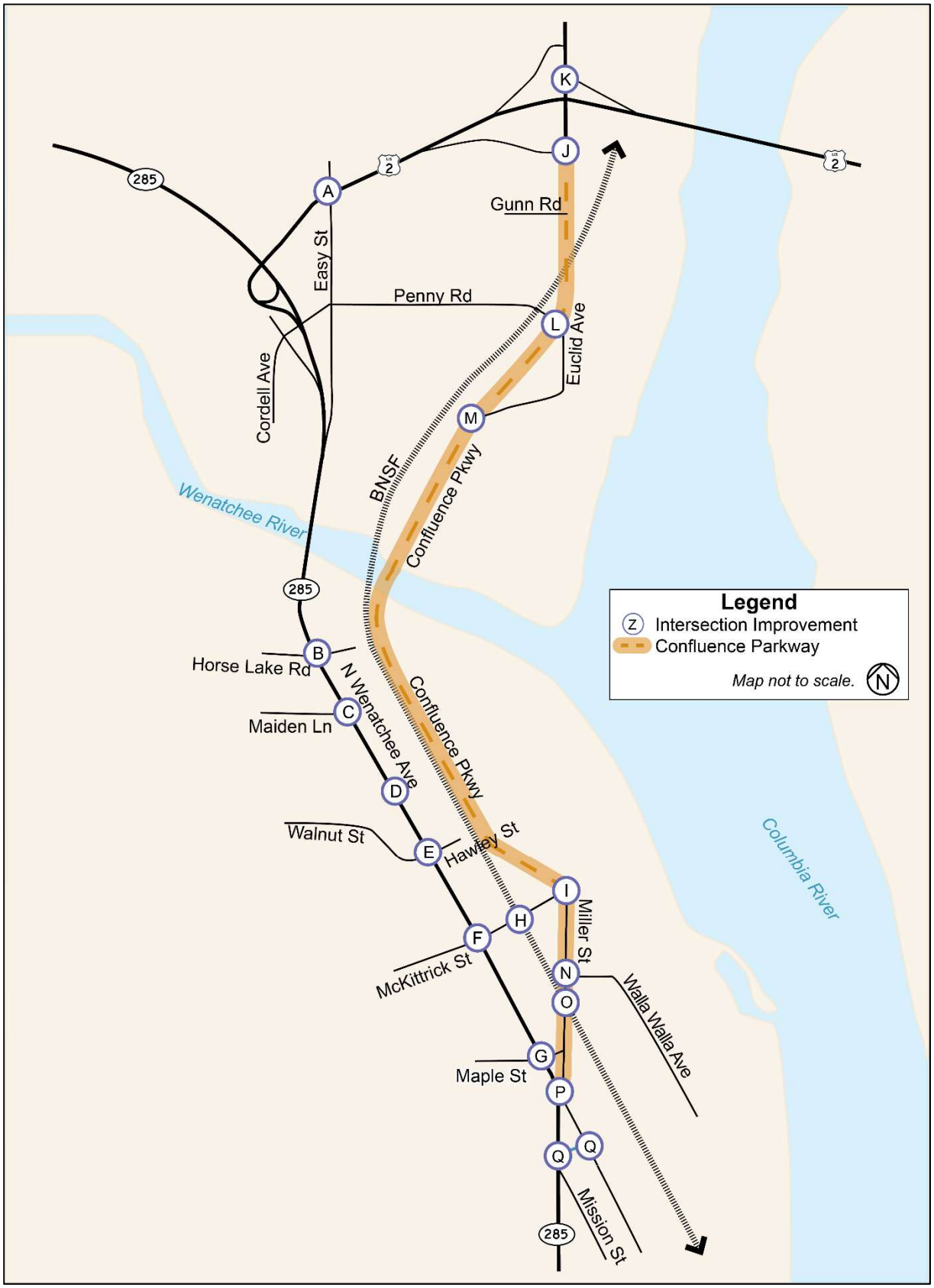
Confluence Parkway Alternative (Proposed Action)

The Proposed Action assumes the completion of all improvements from the No Action Alternative and constructs Confluence Parkway, a new arterial roadway between N Wenatchee Avenue/Miller Street and US 2 in Olds Station that includes a new bridge over the Wenatchee River. Confluence Parkway will have three lanes, one travel lane for each direction and a center turn lane to provide access to side streets and properties, except for the segment between Hawley Street and Old Station Road that will be one travel lane for each direction without a center turn lane. The Proposed Action includes pedestrian and bicycle facilities as well as intersection improvements necessary to meet expected future transportation needs. **Figure 12** shows the improvements assumed in the Proposed Action and each improvement is described below.

- (J) **Euclid Avenue/US 2 Westbound Off-Ramp Intersection** – A new a signal will be added to accommodate increases in future traffic volumes from Confluence Parkway (Euclid Avenue).
- (K) **Euclid Avenue/US 2 Eastbound Ramps Intersection** – A signal will be required to accommodate future traffic volumes from Confluence Parkway (Euclid Avenue). Integration of the US 2 multimodal trail crossing at the south leg of the intersection will be important in the design of the intersection.
- (L) **Euclid Avenue/Penny Road Intersection** – The alignment of Confluence Parkway (Euclid Avenue) will relocate the intersection to the southeast, creating a new signal with left turn channelization on all approaches.
- (M) **Confluence Parkway/Olds Station Road Intersection** – The Olds Station Road crossing of the BNSF tracks will be eliminated. The remaining east leg will form an unsignalized Flying-T intersection (see diagram) that provides a center refuge for vehicles making left turns onto Confluence Parkway.
- (N) **Miller Street/Walla Walla Avenue Intersection** – A new traffic signal is proposed at this location.
- (O) **Miller Street Underpass** – Confluence Parkway (Miller Street) will include a new undercrossing of the BNSF tracks at Miller Street.
- (P) **Miller Street/N Wenatchee Avenue Intersection** – The intersection will be modified to accommodate the traffic volumes from Confluence Parkway (Miller Street). Project will add dual southbound lefts from Miller Street and eliminate the northbound through movement. This configuration will allow the intersection to operate with only two signal phases.

A Flying-T Intersection

Figure 12. Transportation Improvements of the Confluence Parkway Alternative



Q **Miller Street-N Wenatchee Avenue Connection** – The preliminary design concept would connect Confluence Parkway at the north leg of the existing N Wenatchee Avenue/Miller Street intersection. As part of the design, a new east-west roadway connection would be constructed between Miller Street and N Wenatchee Avenue. This connection would become the access for traffic to/from downtown for the SR 285 corridor. The connecting street includes two new signalized intersections: one on Miller Street located midway between Mission Street and Wenatchee Avenue, and the other on Wenatchee Avenue approximately 400' south of the Miller Street intersection. The new road would provide pedestrian connections and provide an access to the Valley North Mall. **Figure 13** shows the preliminary concept for the intersection. Depending on the level of future development and the growth of traffic, the City may explore lower cost options for the design.

Figure 13. Miller Street-N Wenatchee Avenue Connection

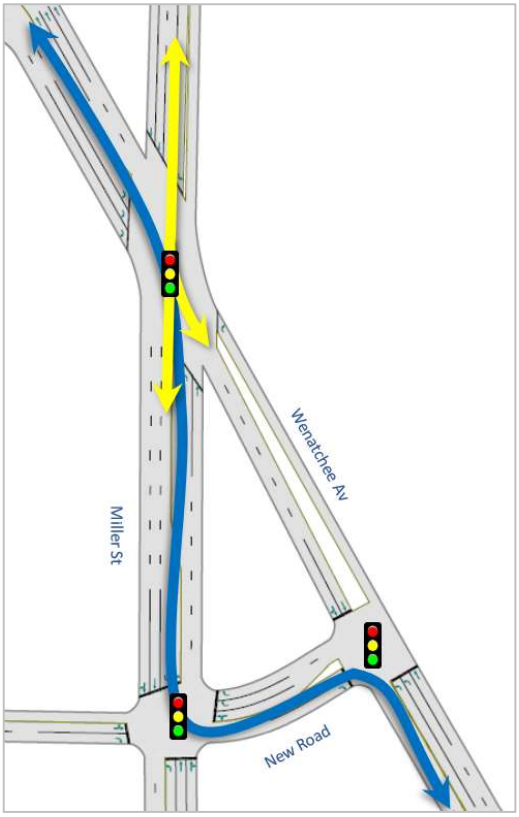


Figure 14 and **Figure 15** show the existing and future intersection channelization at each study intersection under the Confluence Parkway Alternative.

Non-Motorized Improvements – The Confluence Parkway Alternative will expand upon the bicycle and pedestrian improvements identified in the No Action Alternative. North of Olds Station Road, Confluence Parkway (Euclid Avenue) will add bicycle lanes and ADA-compliant sidewalks. Between Hawley Street and Olds Station Road, pedestrians will use the existing Apple Capital Loop Trail and existing non-motorized bridge crossing to the east for this segment. The Confluence Parkway bridge is planned to have bicycle lanes but no sidewalks. South of Hawley Street, Confluence Parkway will have both sidewalks and bicycle lanes connecting to existing and planned bicycle facilities on Maple Street and McKittrick Street. On Miller Street, the alternative will also construct a railroad underpass that will include sidewalks and bicycle lanes. At the south end of Confluence Parkway, the new connecting road between Wenatchee Avenue and Miller Street will add two new signals with marked pedestrian crossings.

Transit Improvements – One of the functions of Confluence Parkway is to serve regional transit routes, allowing Link to increase service on N Wenatchee Avenue. Only select locations along Confluence Parkway will have designated transit stops, allowing regional transit service to travel more rapidly through the corridor. The addition of Confluence Parkway will increase Link Transit's flexibility to route buses and improve transit service to areas east of the BNSF tracks.

Figure 14. Channelization – With Confluence Parkway Alternative (North)

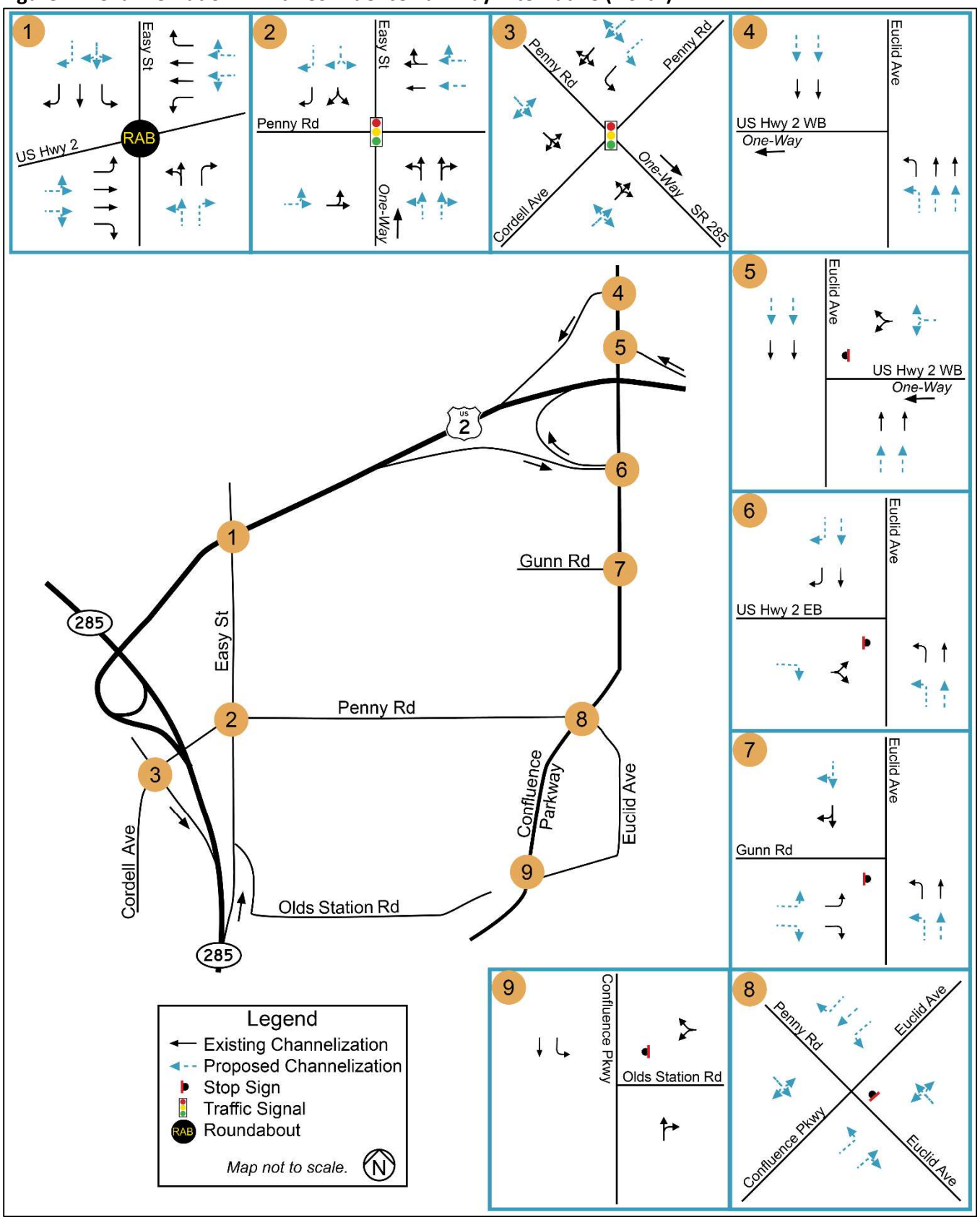
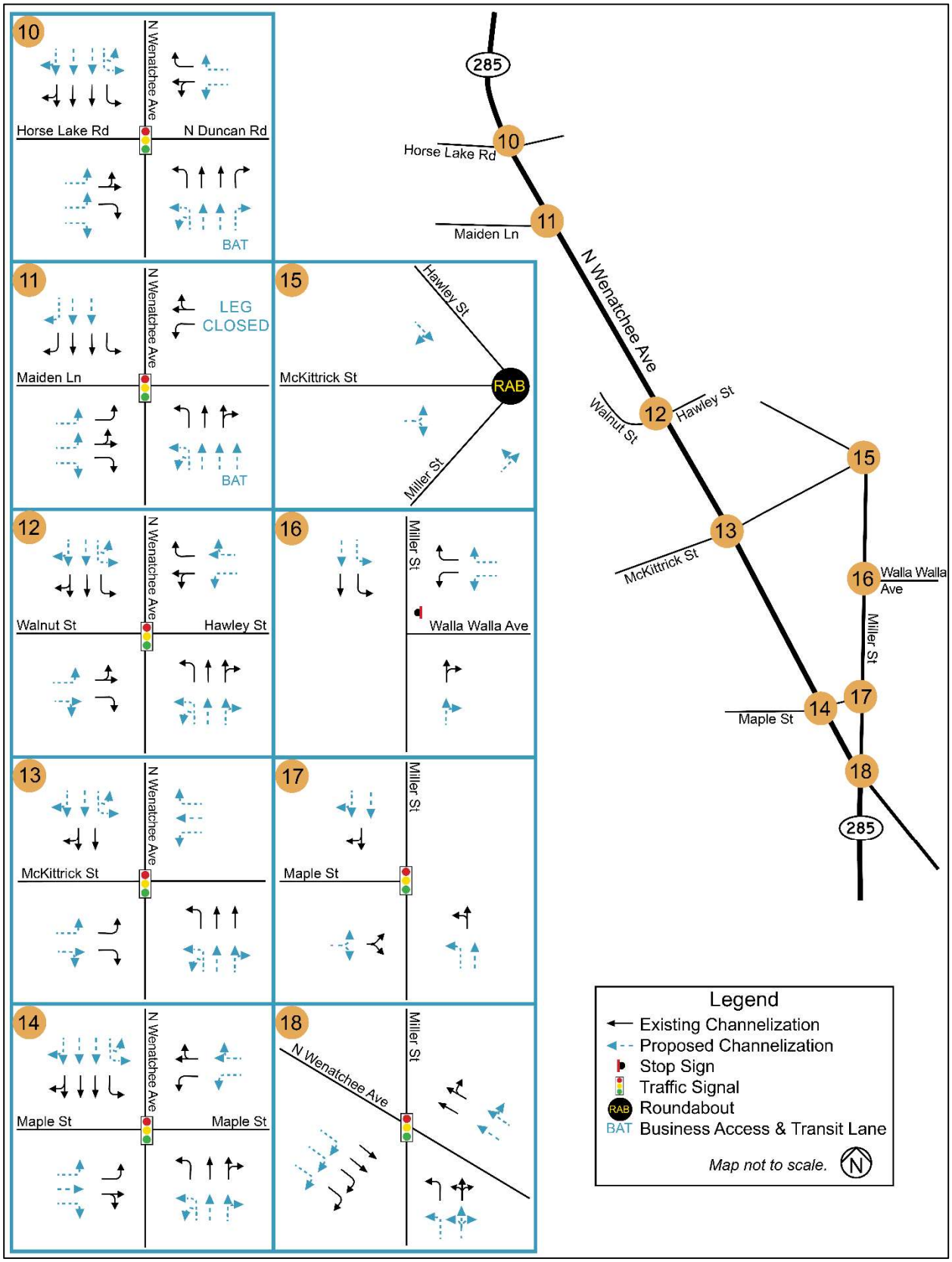


Figure 15. Channelization – With Confluence Parkway Alternative (South)



Traffic Forecasts

Traffic forecasts were developed to represent the 2040 No Action Conditions and 2040 Conditions with Confluence Parkway. This section describes traffic forecasting analysis methodology and applies the forecasts to the study network.

The year 2040 represents the horizon year for this project – the time by which the project will be completed and will be operating at its intended capacity.

Traffic Forecasts

The analysis is based on the CDTC's 2040 PM peak hour travel demand model forecasts developed in 2018, which were used in the *N Wenatchee Avenue Improvement Project Transportation Analysis Report* (2019). The CDTC completed a minor update to its model in mid-2019 and updated the forecast year to 2045. For this analysis, the 2040 forecasted volumes are used to maintain consistency with the earlier study.

The 2040 travel demand model uses traffic counts, roadway characteristics and land use assumptions to forecast future traffic volumes throughout the region. The CDTC provided two separate model scenarios: 2040 No Action conditions (without Confluence Parkway) and 2040 conditions with Confluence Parkway.

The following describes the street networks included in the two model scenarios:

- 2040 No Action: Completion of the N Wenatchee Avenue improvements, construction of the McKittrick Street signal intersection and rail undercrossing, and closure of the rail crossing at Hawley Avenue.
- 2040 with Confluence Parkway: Includes the 2040 No Action improvements and builds the Confluence Parkway, including the construction of the Miller Street rail undercrossing.

2040 Peak Hour Vehicle Volumes

Forecasts by the CDTC show that between 2019 and 2040 vehicle volumes are expected to increase by 15 to 20 percent under the No Action Alternative. With the addition of Confluence Parkway, approximately 1,600 peak hour vehicles will use Confluence Parkway, with a shift of approximately 900 vehicles from N Wenatchee Avenue compared to 2040 No Action conditions. These model volumes were used to create the 2040 PM peak hour Synchro models to evaluate future traffic conditions and to identify intersection improvements. **Figure 16** and **Figure 17** show the 2040 PM peak hour volumes for the study intersections for the No Action Alternative. **Figure 18** and **Figure 19** show the 2040 PM peak hour volumes for study intersections with the Confluence Parkway Alternative.

Figure 16. 2040 Intersection PM Peak Hour Volumes – No Action Alternative (North)

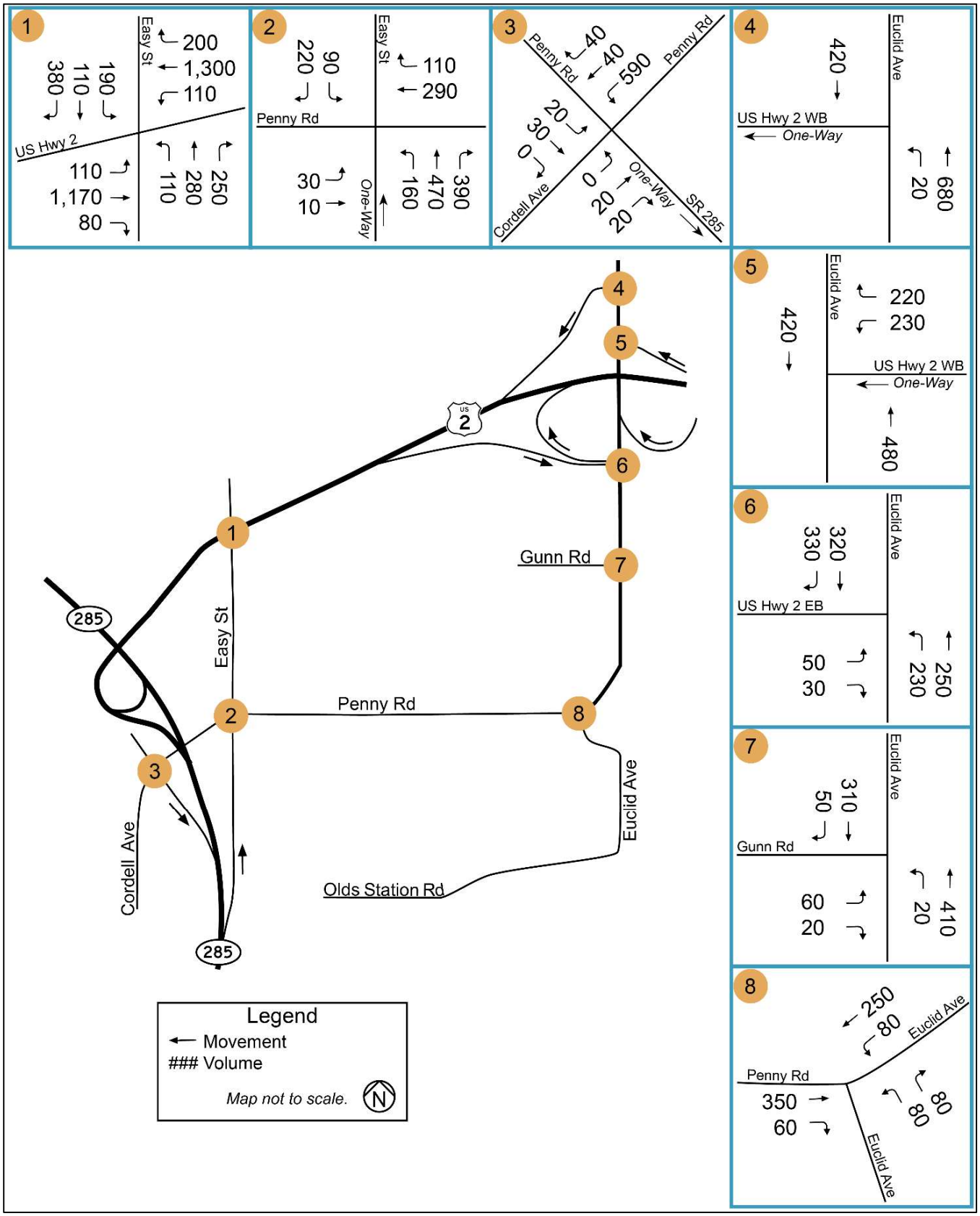


Figure 17. 2040 PM Peak Hour Intersection Volumes – No Action Alternative (South)

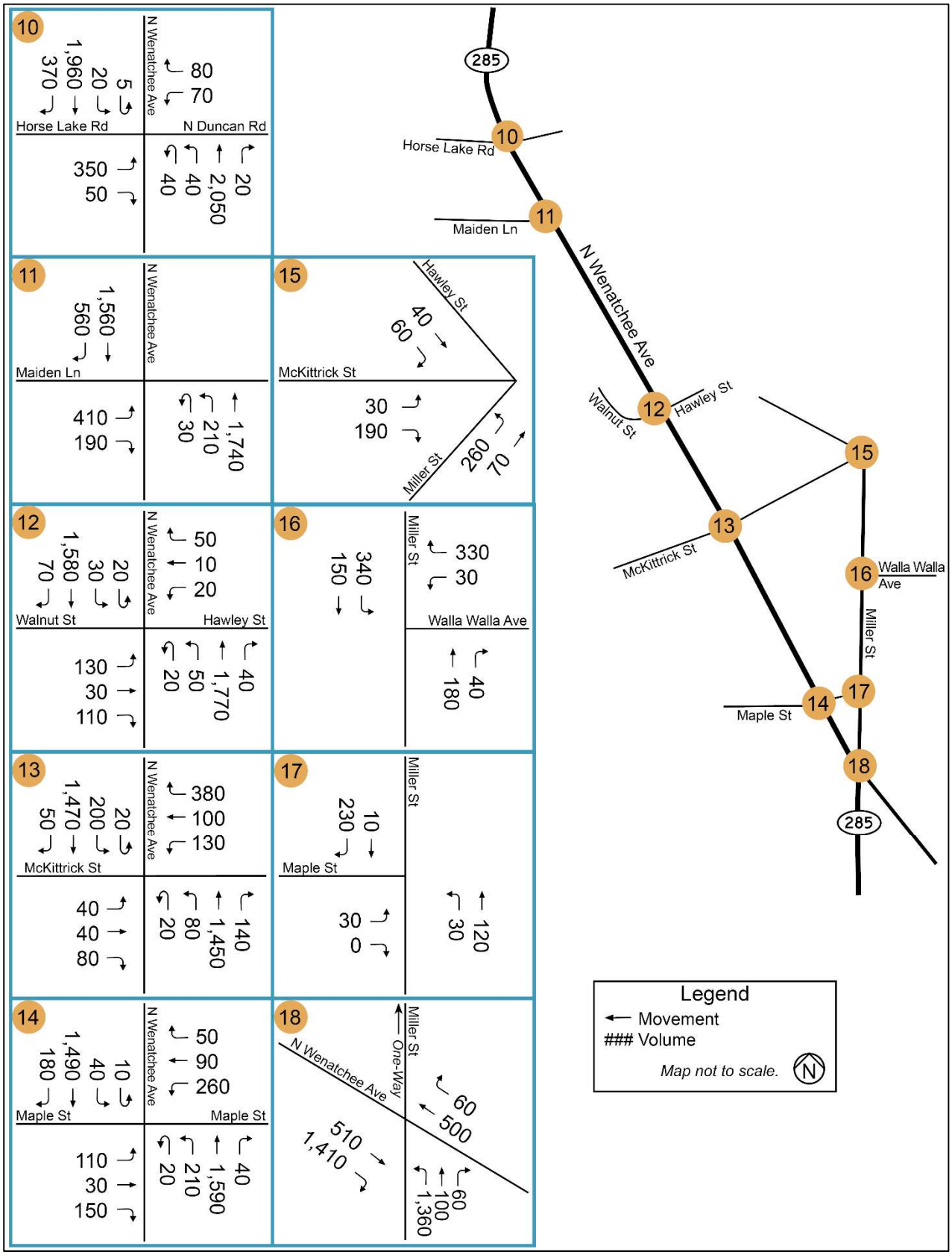


Figure 18. 2040 PM Peak Hour Intersection Volumes – Confluence Parkway Alternative (North)

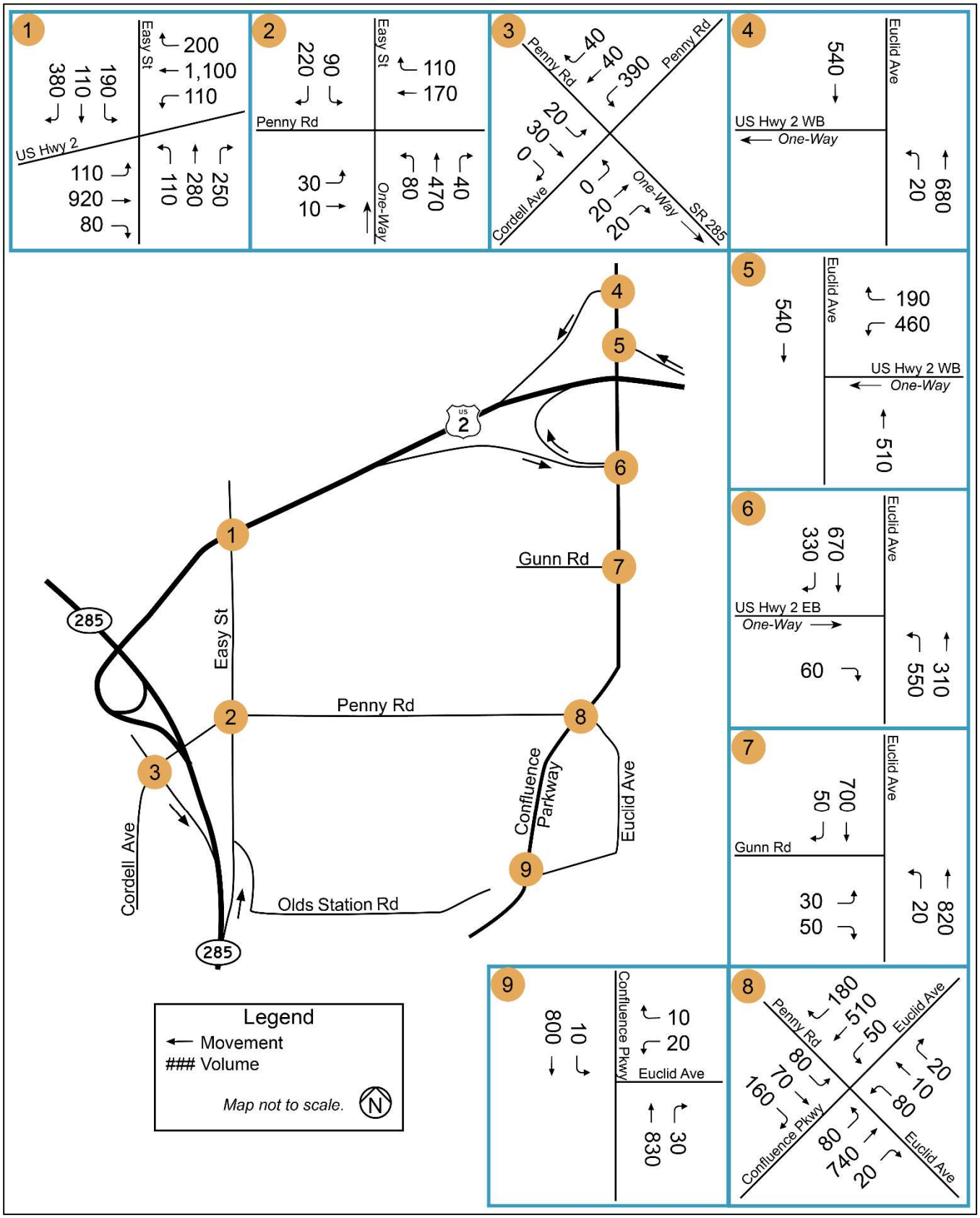
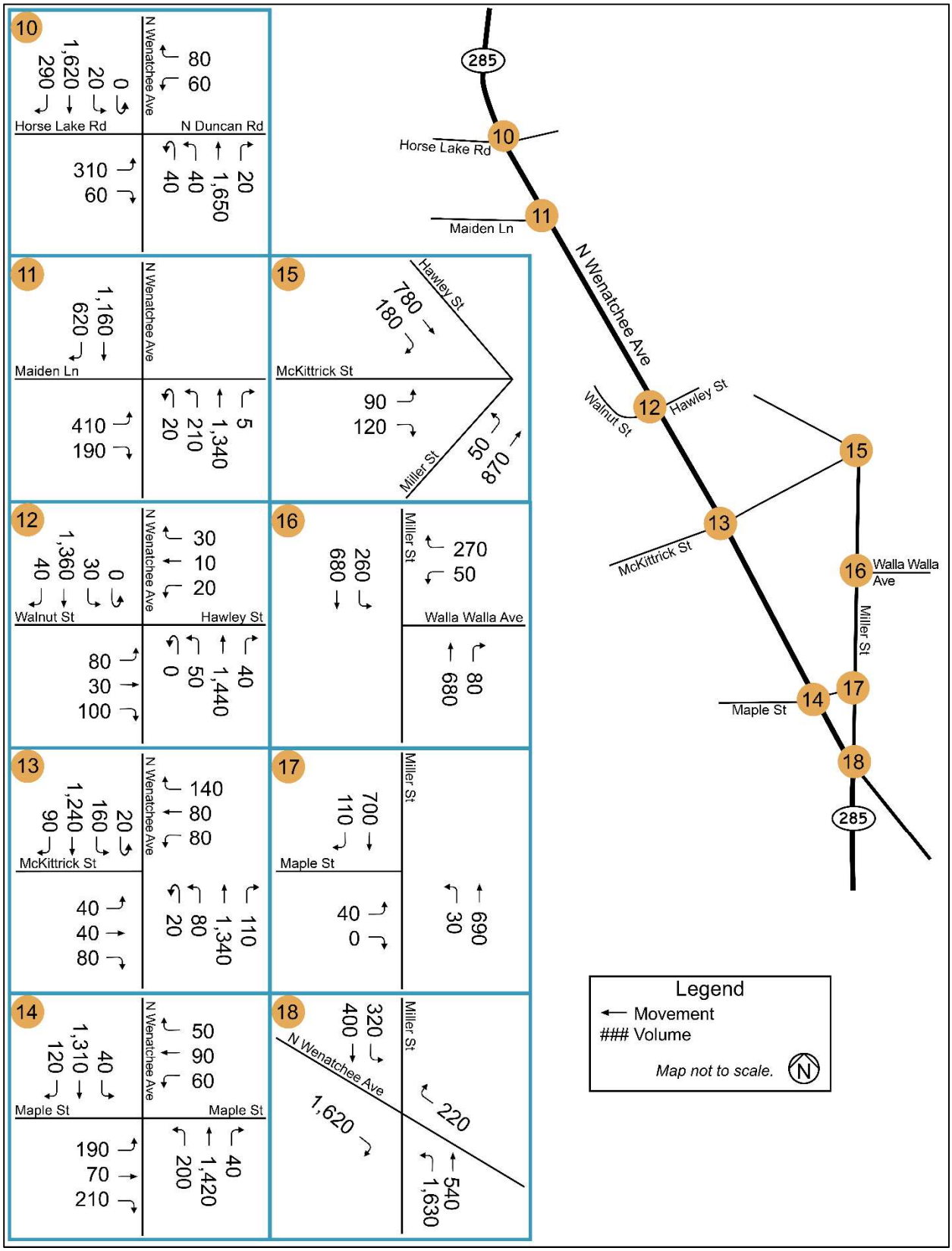


Figure 19. 2040 PM Peak Hour Intersection Volumes – Confluence Parkway Alternative (South)



Alternatives Analysis

The No Action and Preferred Action alternatives present two approaches to address future traffic growth. The No Action Alternative focuses primarily on improvements to N Wenatchee Avenue between the Wenatchee River Bridge and Miller Street, while the Confluence Parkway Alternative adds a new roadway and bridge crossing, increasing the capacity of the north-south corridor. Both alternatives include the completion of the No Action Alternative improvements on N Wenatchee Avenue. This section compares the No Action and Confluence Parkway alternatives to identify the benefits and potential impacts to safety, non-motorized, transit, freight, and intersection operations.

Safety

Both alternatives include safety improvements in high-collision locations by incorporating center medians and U-turn locations on N Wenatchee Avenue. Based on Federal Highway Administration's Crash Modification Factors Clearinghouse, these measures may reduce collisions by approximately 36 percent. The Confluence Parkway Alternative is expected to result in lower traffic volumes on N Wenatchee Avenue compared to the No Action Alternative, potentially resulting in fewer congestion-related crashes, such as rear-end and sideswipe collisions. Confluence Parkway also adds a second bridge crossing that will provide system redundancy and create a detour route of N Wenatchee Avenue. This bridge crossing will also improve access for emergency vehicles by providing an alternative and potentially more direct response route.

Non-Motorized Operations

The No Action Alternative will construct the non-motorized improvements recommended for the N Wenatchee Avenue corridor. The following benefits will be provided by the No Action Alternative:

- Improved crosswalk spacing by adding a new signal at McKittrick Street and a new midblock crosswalk located midway between Maiden Lane and Walnut Street-Hawley Street.
- New bicycle lanes and sidewalks along McKittrick Street and a new underpass of the BNSF railroad providing a new non-motorized connection to the Apple Capital Loop Trail.
- Extended bicycle lanes across N Wenatchee Avenue at the Walnut Street-Hawley Street and Maple Street intersections.
- A new 12'-wide multi-use trail along the west side of N Wenatchee Avenue between the Wenatchee River Bridge and Walnut Street.
- Space for transit stops to be located on the far side of intersections.

The Proposed Action includes the No Action Alternative improvements and adds bicycle lanes on both sides of the Confluence Parkway alignment. The following additional benefits are part of the Proposed Action:

- Continuous bicycle lanes between the Odabashian Bridge and Miller Street, improving the bicycle network connectivity to and from Olds Station. Pedestrians and recreational bicyclists would use the existing Apple Capital Loop Trail bridge to cross the Wenatchee River.
- A new Miller Street underpass of the BNSF tracks to further improve east-west bicycle and pedestrian mobility and safety.
- Connections between the existing and planned bicycle lanes and sidewalks to Confluence Parkway and the Apple Capital Loop Trail.

Figure 20 illustrates the relationship of Confluence Parkway with the proposed bicycle network from the *2018 Wenatchee Valley Bicycle Master Plan Update*.

Transit Operations

The No Action Alternative includes transit bypass and queue jump features as part of the N Wenatchee Avenue improvements that will support transit operations and reduce bus travel times. These corridor improvements will serve multiple functions. For example, the receiving lanes at intersections will allow buses to bypass queues using transit signal priority, provide space for far-side transit stops and allow vehicles to make U-turn movements. Other transit-related corridor improvements include new crosswalks and signals that will improve access to bus stops by reducing the distance between crossing locations for transit riders.

The Confluence Parkway Alternative creates a new regional transit corridor that connects Wenatchee and outlying communities and improves transit service in the Olds Station area. This will allow certain regional routes to be rerouted, providing capacity for new routes and service on N Wenatchee Avenue and provide an alternative corridor for transit in the event of major road work or other incidents on N Wenatchee Avenue. **Figure 21** illustrates the benefits to transit provided by Confluence Parkway.

Freight Operations

The 2040 No Action improvements are not specifically designed to improve freight travel along the corridor, however truck operations will likely benefit from reduced intersection delays and improved corridor facilities.

Confluence Parkway will provide a new freight corridor that connects to US 2 and SR 97-A and serves industrial areas located to the east of N Wenatchee Avenue and in Olds Station. While travel distances between the Euclid Avenue/US 2/SR 97-A interchange and the N Wenatchee Avenue/Miller Street intersection are approximately 10 percent shorter with Confluence Parkway, travel times are expected to be nearly 33 percent less for southbound travel and 23 percent less for northbound travel because of reduced intersection congestion and delays – a travel time saving of approximately 3 minutes.

Figure 20. Bicycle Network with Confluence Parkway

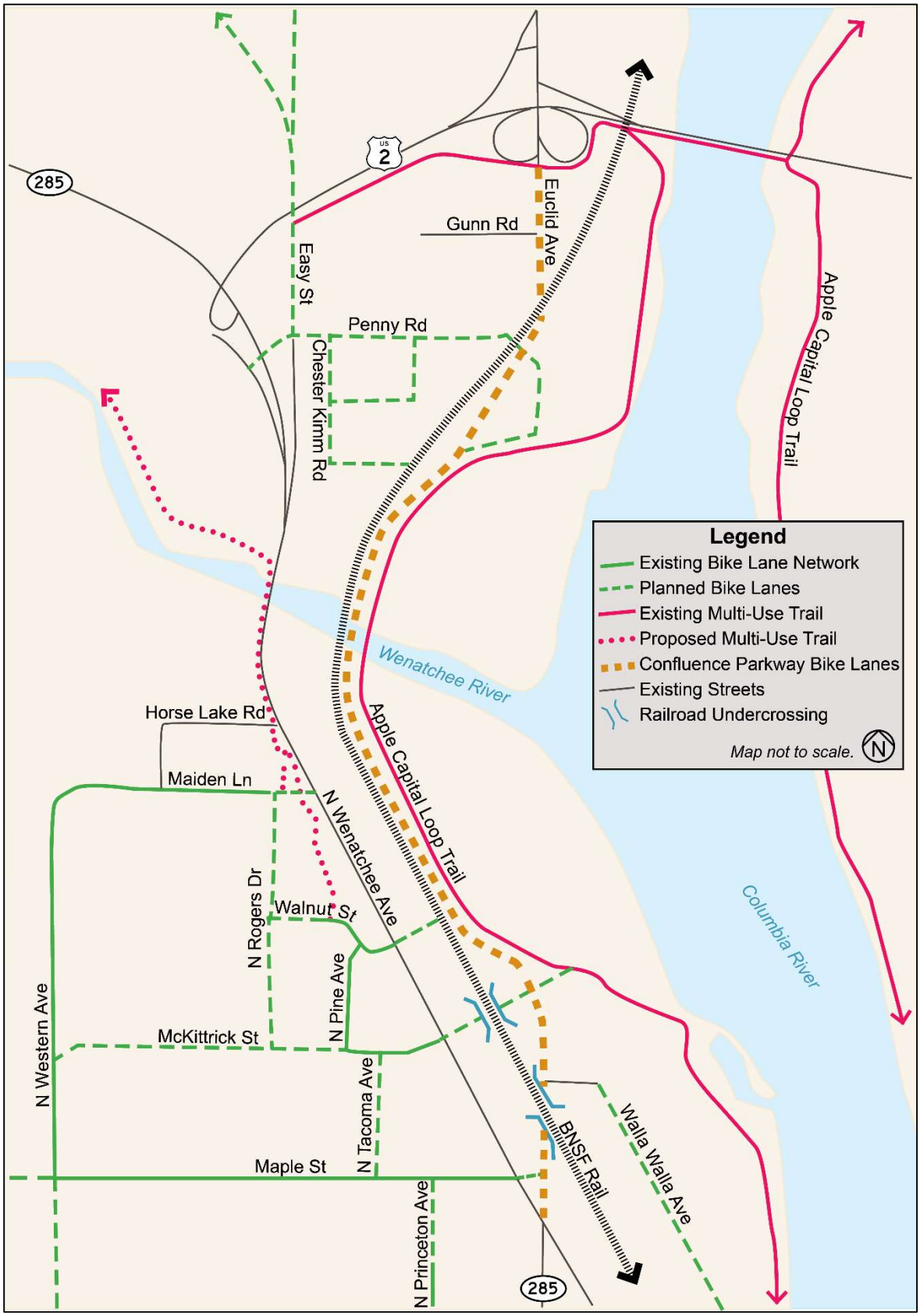


Figure 21. Transit Service Improvements Benefits with Confluence Parkway

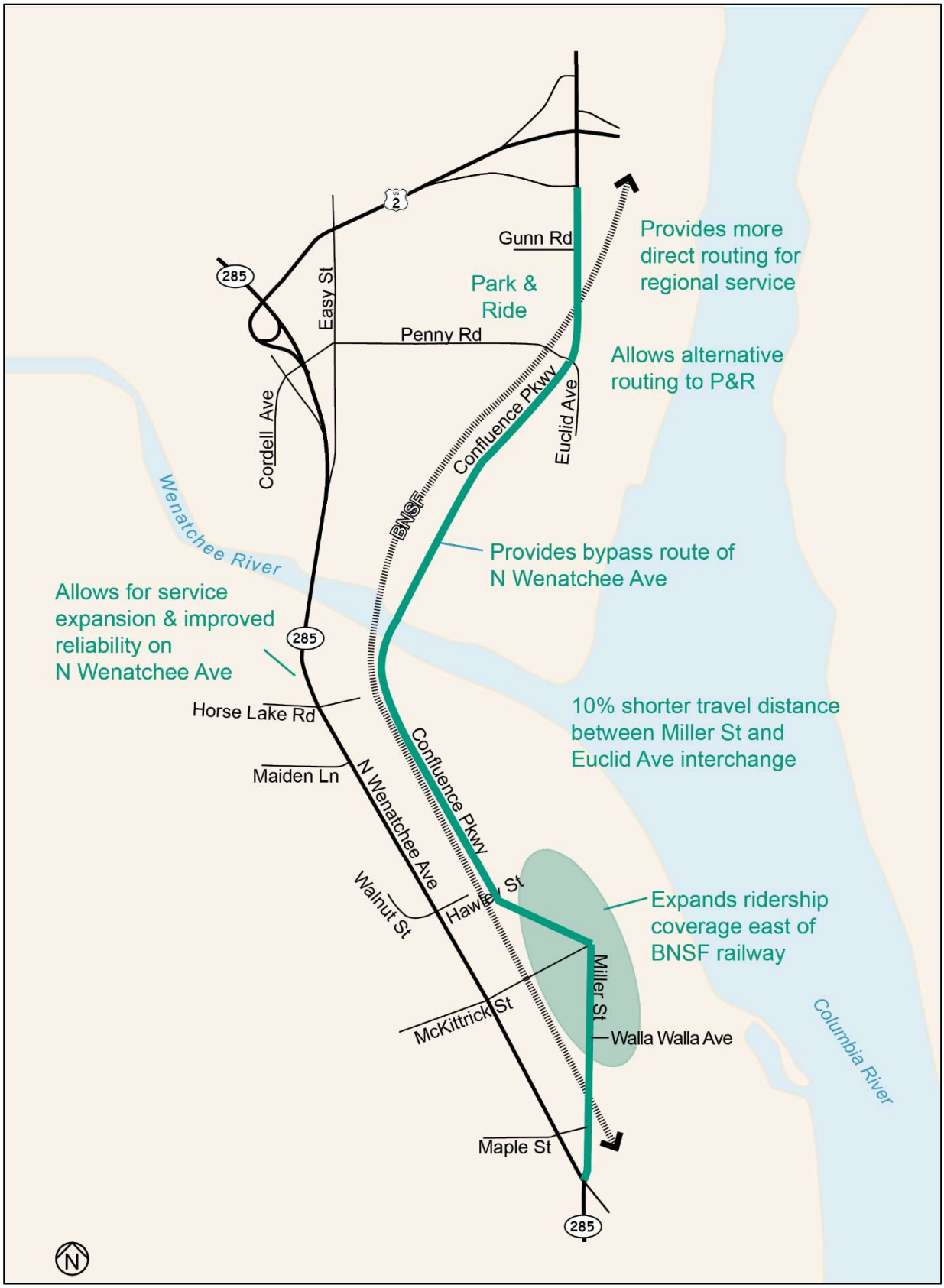


Table 5 summarizes the results of the travel time analysis.

Table 5. Travel Time Savings with Confluence Parkway
Between Euclid Avenue/US 2/SR 97-A Interchange and Miller Street/N Wenatchee Avenue

Direction	2040 Travel Time Savings with Confluence Parkway	
	Minutes	Percent
Southbound	2.9	33%
Northbound	1.9	23%

Source: KPG 2019.

Intersection Operations

The study area will experience increases in traffic volumes by 2040 because of the anticipated increases in the number of households and jobs within the City.

Under the No Action Alternative, most study intersections operate at LOS D or better, except for the N Wenatchee Avenue/Horse Lake Road intersection that will operate at LOS E with southbound traffic exceeding a volume/capacity ratio of 1.0. The other study intersections operate at LOS D or better. **Table 6** compares the expected intersection control, LOS and average seconds of delay per vehicle for the 2040 PM peak hour for the No Action and Confluence Parkway alternatives.

Table 6. 2040 PM Peak Hour Level of Service and Delay (Seconds) - Alternatives Comparison

Intersection	2040 No Action		2040 Confluence Parkway	
	Intersection Control	LOS (Delay)	Intersection Control	LOS (Delay)
Easy St/US 2	Roundabout#	C (22)*	Roundabout#	B (12)
Easy St/Penny Rd	Signal	C (32)	Signal	C (20)
SR 285 Southbound On-Ramp/Cordell Av	Signal	B (11)	Signal	B (10)
Euclid Av/US 2 Westbound On-Ramp	--	A (9)	--	A (9)
Euclid Av/US 2 Westbound Off-Ramp	Stop	C (18)	Signal	B (14)
Euclid Av/US 2 Eastbound Ramps	Stop	D (33)	Signal	C (34)
Euclid Av/Gunn Rd	Stop	C (15)	Stop	C (21)
Euclid Av/Penny Rd	Stop	C (22)	Signal	C (23)
Confluence Parkway/Olds Station Rd (new)			Stop	C (21)
N Wenatchee Av/Horse Lake Rd	Signal	E (57)	Signal	D (45)
N Wenatchee Ave/Maiden Lane	Signal	C (28)	Signal	C (27)
N Wenatchee Av/Walnut St-Hawley St	Signal	C (34)	Signal	C (31)
N Wenatchee Av/McKittrick St	Signal	D (48)	Signal	C (32)
N Wenatchee Av/Maple St	Signal	D (35)	Signal	D (35)
Confluence Parkway/McKittrick St (new)			Roundabout	A (7)
Miller St/Walla Walla St	Stop	D (35)	Signal	B (19)
Miller St/Maple St	Stop	B (11)	Signal	B (18)
N Wenatchee Av/Miller St	Signal	C (23)	Signal	C (20)

#WSDOT is proposing a 2-lane roundabout at the intersection.
**Southbound approach exceeds a volume/capacity ratio of 1.0 capacity.*

Transportation Impacts and Mitigation

The No Action and Proposed Action alternatives both include improvements to address traffic operations, safety, non-motorized facilities and transit operations. This section identifies potential transportation impacts, both positive and negative, and any mitigation measures that may be required with the implementation of the alternative. There are three types of transportation impacts that can occur:

Direct Impacts – Impacts that occur as a result of the project along the study corridor.

Indirect Impacts – Impacts that occur through a series of cause-and-effect relationships that can occur outside of the study corridor and may happen either in a short-term or longer-term time frame.

Cumulative Impacts – Long-term impacts to the local or regional transportation system that could be influenced by the direct and indirect impacts of the project in combination with other past or planned actions.

This discussion focuses on the transportation impacts of the project, other impacts such as those related to air quality, land use, environmental justice, cultural resources or the environment will be addressed in separate discipline reports.

Direct Impacts

This section describes the direct impacts to street and intersection operations under the No Action and with Confluence Parkway (Proposed Action) Alternatives. The Proposed Action assumes that the roadway network of the No Action Alternative is fully implemented and includes the improvements associated with the Confluence Parkway Alternative.

No Action Alternative

The No Action Alternative provides additional capacity at intersections along N Wenatchee Avenue to accommodate forecasted traffic volumes. The alternative also provides for access management along N Wenatchee Avenue by creating a median and formalized U-turn movements that will reduce the number of collisions associated with left turns into and out of commercial driveways.

Under the No Action Alternative in 2040, the N Wenatchee Avenue/Horse Lake Road intersection will operate at LOS E during the PM peak hour and will be at or near the capacity of the intersection. Additional widening of N Wenatchee Avenue, widening or replacement of the Wenatchee River Bridge, or other capacity measures will be required to accommodate projected traffic growth. Other intersections are expected to operate at LOS D or better.

The No Action Alternative includes improvements that address safety, capacity and circulation needs, precluding the need for further mitigation under this alternative.

Confluence Parkway Alternative

The Confluence Parkway Alternative will include the No Action Alternative improvements on N Wenatchee Avenue and provide a new parallel corridor and a second crossing of the Wenatchee River that will provide additional vehicle capacity and improved circulation. With the alternative, the expected 2040 traffic volumes on N Wenatchee Avenue would decrease to approximately existing levels, resulting in improved intersection operations with all study intersections operating at LOS D or better. The Confluence Parkway Alternative includes planned improvements that address identified safety, capacity and circulation issues. Both alternatives include access management along N Wenatchee Avenue designed to reduce collisions associated with left turns into and out of driveways. The Proposed Action is expected to reduce vehicle volumes on N Wenatchee Avenue and may result in fewer congestion-related collisions.

The Proposed Action provides a parallel transit corridor which may result in better service and higher levels of transit ridership and could allow for an expansion of transit services. Link Transit has stated that Confluence Parkway will be a primary route for regional bus service and may better serve the Park and Ride facility in Olds Station.

No further mitigation for operational impacts is required under this alternative.

Indirect Impacts

The Proposed Action creates new north-south capacity that may attract vehicle trips from parallel routes such as Western Avenue and SR 28 in East Wenatchee, reducing volumes and improving operations on those corridors. On N Wenatchee Avenue, newly diverted trips would be added to the mainline volumes with potentially reduced side-street traffic at intersections, which could improve intersection operations at Horse Lake Road and Maiden Lane.

The added north-south capacity and resulting improved operations may increase vehicle travel and discourage the use of alternative travel modes such as transit. The addition of capacity to a network will frequently result in higher levels of vehicle travel demand and may increase the number of discretionary trips as a result of increased mobility. The CDTC travel demand model indicates that the proposed action may increase north-south corridor volumes by approximately 8 percent compared to 2040 No Action conditions.

The Proposed Action provides an additional bicycle corridor and connections, increasing the viability of bicycling as a transportation mode. This expansion of the City's bicycle network will attract a wide range of riders of all ages and abilities.

Cumulative Impacts

In the past, most transportation improvements in the region have occurred as spot improvements to address access or operational needs at a single location. As traffic volumes in the region have increased in step with population growth and economic development, there has been an increasing need for transportation improvements that are regionally coordinated.

As part of its planning efforts, the CDTC developed a transportation model that uses regional forecasts of population and employment and identifies the transportation system improvements needed to meet the forecasted travel demand of the region. The No Action and Proposed Action alternatives are consistent with the vision of the CDTC and *Transportation 2040*, the region's Metropolitan Transportation Plan. These projects are part of the Apple Capital Loop, an effort to improve mobility and reduce congestion for the regional roadway system. The resulting regional transportation system includes the Cascade Interchange (US 2/SR 97), and Sunset Highway (SR 28), as well as improvements to N Wenatchee Avenue and the Confluence Parkway Project.

Generally, the project alternatives provide a beneficial effect on transportation by increasing or effectively managing roadway capacity and the efficiency of intersection operations by reducing congestion, enhancing safety, improving access, and improving the bicycle, pedestrian and transit networks. Cumulative negative impacts such as increased traffic volumes and additional vehicle miles traveled may be a result of a roadway capacity improvement project. Based on this analysis, no cumulative impacts were identified that require mitigation.

Construction Impacts

This section describes the construction impacts and mitigation for the No Action Alternative and Confluence Parkway Alternative.

No Action Alternative Construction Impacts

During construction of the No Action Alternative improvements, there will be significant disruption to the N Wenatchee Avenue corridor as intersections are rebuilt and roadway segments are widened. This may include temporary partial lane closures or detours.

The anticipated impacts during construction include:

- **N Wenatchee Avenue/Horse Lake Road Intersection** – Higher levels of construction impacts are expected at this intersection. The proposed design will reconstruct the west and east legs of the intersection, requiring temporary detouring of Horse Lake Road and Duncan Road traffic to alternative routes.
- **N Wenatchee Avenue/Maiden Lane Intersection** – Higher levels of construction impacts are expected. The west leg of Maiden Lane will be realigned, widened and reconstructed, and the east leg will be closed. A temporary detour route, most likely on Horse Lake Road, is anticipated during the realignment of Maiden Lane.
- **N Wenatchee Avenue/McKittrick Street Intersection** – Moderate levels of construction traffic impacts, typical of a new signalized intersection, are expected. Some temporary lane closures are anticipated with the widening of the west leg of the intersection and the construction of a new east leg of the intersection.
- **McKittrick Street Extension/Underpass** – Few roadway traffic impacts are expected during construction of this undercrossing of the BNSF tracks. Coordination with BNSF will determine appropriate mitigation for rail traffic during construction of the underpass.

- **N Wenatchee Avenue/Maple Street Intersection** – Moderate to high levels of impacts are expected as the intersection's west leg is realigned and widened, potentially requiring a detour route during construction.
- **Other improvements** – Various segments of N Wenatchee Avenue will include sidewalk improvements or widening to add U-turn facilities or turn lanes. These improvements are anticipated to require temporary lane closures during construction.

Confluence Parkway Construction Impacts

During the construction of Confluence Parkway, many phases will have little or no impacts to traffic operations, as most of the construction will occur away from existing regional travel routes. Higher levels of impacts are likely where the improvements are being constructed on or adjacent to existing transportation facilities including roadways, intersections, pedestrian and bicycle facilities, railroad tracks, and highway interchanges.

- **Confluence Parkway** – The new bridge across the Wenatchee River and the Confluence Parkway segment between Euclid Avenue and Hawley Street are expected to have few transportation impacts during construction.
- **Euclid Street, Hawley Street and Miller Street** – Low to moderate construction impacts are expected as segments of these streets are reconstructed to become part of the Confluence Parkway alignment. Will likely affecting street, sidewalk, and bicycle facilities. Construction may result in temporary lane closures.
- **Miller Street Underpass** – Higher levels of construction impacts are expected. The construction of the BNSF underpass will impact Miller Street and will require temporary detours using 9th Street and McKittrick Street (if underpass is available). Discussions with BNSF will determine appropriate mitigation for rail traffic during construction of the underpass.
- **Miller Street/Walla Walla Intersection –** Moderate levels of construction impacts are expected, typical of the installation of a new traffic signal. Temporary closures are expected.
- **Euclid Avenue/US 2/SR 97-A Interchange** – Moderate to high levels of construction impacts are expected at the eastbound ramps and westbound off-ramp intersection. This will include impacts related to roadway widening for turn lanes and installation of traffic signals.
- **N Wenatchee Avenue/Miller Street Intersection** – Moderate levels of construction impacts will likely occur where Confluence Parkway terminates at the N Wenatchee Avenue/Miller Street intersection. This will likely include lane closures and require temporary detour routes during construction.

Construction Mitigation

For both alternatives, mitigation for construction will require coordination between the City, WSDOT, BNSF and Link Transit to plan for detour routes, construction phasing, and temporary traffic control. A traffic control plan (TCP) will be developed to identify temporary mitigation measures required during each phase of construction. This plan will list measures to be utilized during each phase of construction including work zone scheduling (off-peak, night work), routes

for providing bicycle, pedestrian and ADA access through the work area, and establishment of temporary signage and traffic control to communicate detour routes, lane closures, work zones and businesses access. The TCP will be coordinated with emergency service providers to ensure emergency access through work areas. As part of the construction mitigation, a communication plan should be developed to notify the general public, businesses, transit agencies and other users of the anticipated closures, construction schedule and expected impacts to the transportation network.

Appendix A: References

The following documents were used to prepare the report. The following lists the document title, agency and date. Documents are in order by date published.

Wenatchee Urban Area Comprehensive Plan, City of Wenatchee, 2007.

Confluence 2030, Wenatchee Valley Transportation Council, 2010.

North Wenatchee Transportation Master Plan, Wenatchee Valley Transportation Council, 2011.

North Wenatchee Avenue Capacity Improvements Risk Assessment, Wenatchee Valley Transportation Council, 2013.

Transportation 2040, Chelan-Douglas Transportation Council, 2014.

North Wenatchee Master Plan: Economic Redevelopment Feasibility Study and Focused Subarea Plan, City of Wenatchee, prepared by Crandall Arambula, 2016.

North Wenatchee Avenue Concept Plan, City of Wenatchee, Crandall Arambula, 2017.

Wenatchee Valley Bike Map, Chelan-Douglas Transportation Council, 2017.

Greater Wenatchee Valley Bicycle Master Plan, Chelan-Douglas Transportation Council, 2018.

Wenatchee Valley Bicycle Master Plan: 2018 Update to the 2013 Bicycle Master Plan, Chelan-Douglas Transportation Council, 2018.

Completing the Apple Capital Loop (INFRA Grant Application), City of Wenatchee, 2019.

N Wenatchee Avenue (SR 285) Preliminary Engineering Design Report, City of Wenatchee, prepared by KPG P.S., 2019.

Intersection Improvements: N Wenatchee Ave & McKittrick St, Preliminary Plans, City of Wenatchee, prepared by RH2, 2019.

Apple Capital Recreation Loop Trail Map, Chelan Public Utilities District, undated. (https://www.chelanpud.org/docs/default-source/default-document-library/apple_cap_rec_loop.pdf)