CITY CENTER REDEVELOMENT PLAN

MULTIMODAL MOBILITY IMPACT ASSESSMENT

TASK 5.8: REVISED MEMO #8 | JULY 2025

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CONTENTS

FIGURES

TABLES

1 INTRODUCTION

This memorandum reviews the impacts of the preferred one-way couplet alternative of US 101 and 9th Street. It includes an assessment of future conditions for all modes using the planned transportation system in the year 2040, including transportation investments included in Draft Memorandum #6. Draft Memorandum #8 relies on the future conditions forecast conducted for the 2022 Newport TSP as a baseline for assessment of future conditions with modifications to reflect transportation investments included in Draft Memorandum #6.

2 METHODOLOGY AND ASSUMPTIONS

Prior to beginning analysis, the methodology and assumptions for completing the analysis were reviewed and approved by ODOT's Transportation Planning Analysis Unit and ODOT Region 2 Traffic. Included below is an outline of methods and assumptions for assessing future conditions for all modes using the planned transportation system in the year 2040, including transportation investments proposed by the NCCRP.

2.1 STUDY AREA

The study area for the NCCRP is shown in Figure 1 and includes the *2022 Newport TSP* study intersections, which provide the locations where turning movement data is available for use by the NCCRP. No additional traffic counts were collected as part of this project.

The SOW requires an assessment of the following intersections:

- US 101 at US 20
- US 101 at Angle Street
- US 101 at Hurbert Street
- US 101 at Abbey Street[a,b]
  a. *This appears to be a typo in the SOW and should be SW 9th Street at Abbey Street as there is no data in the TSP for US 101 at Abbey Street.*
  b. *A meeting with ODOT on 4/11/2025 determined this intersection* ***does not need to be analyzed*** *as part of Technical Memorandum #8; does not provide significant value.*

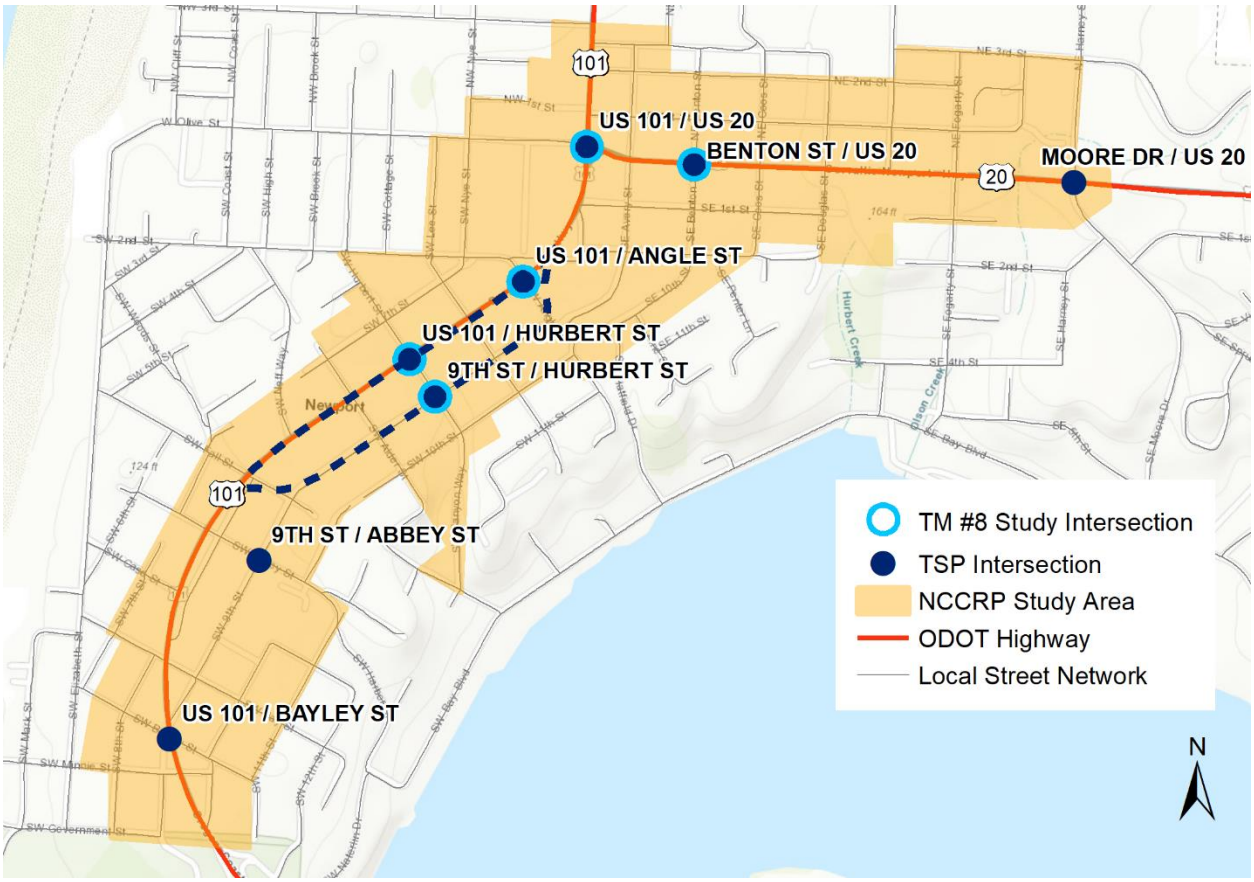
The following intersections will be also be assessed in this memorandum:

- Benton Street at US 20
- 9th Street at Hurbert Street

The multimodal analysis will include a review of the intersections listed above and the road segments that were analyzed as part of the *2022 Newport TSP*:

- US 101 within the study area
- US 20 within the study area
- 9th Street between Abbey Street and Angle Street

Figure 1. Study Area



2.2 FUTURE TRANSPORTATION NETWORK – PREFERRED ALTERNATIVE

The analysis of the preferred alternative must assess future conditions using the planned transportation system in the year 2040, including transportation investments included in Memoranda #4 and #6.

2.3 VOLUME DEVELOPMENT

There are no regionally significant transportation improvements included in the 2040 travel demand model in the Newport area. The year 2018 and year 2040 model and assignments were prepared and provided by ODOT. For the 2040 No Build scenario, the outputs and volumes developed for the *2022 Newport TSP* were used as a baseline for assessment of future conditions.

To assess the future conditions under the preferred alternative, network refinements were applied during the forecasting process to account for the proposed changes to the street network. Modifications include:

- Convert US 101 to a couplet between SW 2nd Street/SW Angle Street and SW Fall Street
- US 101 for southbound traffic (two travel lanes)
- SW 9th St for northbound traffic (two travel lanes) and change functional classification to match US 101

PM peak hour model volumes were extracted from the model for both the base year (2018) and forecast year (2040) scenarios for a summer peak and average weekday condition. A "post processing" technique following NCHRP 765 Methodology will be utilized to refine model travel forecasts to turning movement volume forecasts under the preferred alternative for year 2040 average weekday and summer peak (design hour) volumes. Post processing is the application of manual adjustments to existing count data and model projections to minimize potential model error and bias.

2.4 TRAFFIC ANALYSIS

This section summarizes the traffic analysis methodology including applicable intersection operational targets and analysis parameters and assumptions.

2.4.1 Operational Targets

The traffic analysis will evaluate peak hour traffic operations of the study intersections with the Preferred Alternative transportation network. The results will be compared to the No Build traffic operations from the *2022 Newport TSP*. Table 1 summarizes the v/c ratios that will be used to identify the potential future operational issues.

Table 1. Existing and Recommended Alternative Mobility Targets

Study Intersection	Mobility Target [A,B]		Recommended Alternative Mobility Targets from 2022 Newport TSP [A,B,C]	
	Major Street	Minor Street	Major Street	Minor Street
US 101 at US 20	0.85		0.99, PHF = 1.0	
US 101 at Angle Street	0.90	0.95	0.99, PHF = 1.0	
US 101 at Hurbert Street	0.90		0.99, PHF = 1.0	
Benton Street at US 20	0.85	0.95	0.99, PHF = 1.0	
9th Street at Hurbert Street	0.95	0.95	N/A	N/A

[A] For signalized intersections, the mobility target is listed for overall operations.

[B] For unsignalized intersections the mobility target is for the worst approach (major or minor).

[C] The recommended alternative mobility targets have not been adopted by the Oregon Transportation Commission (OTC) but are included because the City still recommends their adoption.

2.4.2 Parameters

Table 2 summarizes the Synchro software input assumptions for the traffic analysis. Analysis will follow APM Appendix 12/13A for software settings.

Table 2. Existing and Recommended Mobility Targets

Parameter	Source
Peak Hour Factor	Calculated from 2019 counts collected for *2022 Newport TSP*
Conflicting Bikes/Pedestrians per Hour	Calculated from 2019 counts collected for *2022 Newport TSP*
Saturation Flow Rate (All Movements)	1,750 pcplph
Percent Heavy Vehicles	Calculated from 2019 counts collected for *2022 Newport TSP*
Intersection/Roadway Geometry	*2022 Newport TSP*, TransGIS, aerial images, GIS, ODOT Digital Video Log, Preferred Alternative cross-section
Traffic Operations	• Calculated using HCM 7 (Synchro 12 or Sidra v8)) • Signals calculated with HCM 2000 to match methodology from *2022 Newport TSP*
Queuing	Synchro 12 or Sidra v8
Signal Timing	*2022 Newport TSP*, signal timing sheets provided by ODOT, and new signals will refer to APM guidance
Operational Data	Posted Speeds, no change to defaults unless identified in the signal timing plans.

2.5 MULTIMODAL ANALYSIS

As indicated in the SOW, assessment of operational conditions must include assessment of conditions for all modes using applicable City and State targets and conditions related to Plan Goals and Objectives in Revised Memorandum #1. Assessment of conditions for pedestrians and cyclists consider the impact of the preferred alternative on Pedestrian and Bicycle Level of Traffic Stress relative to the assessment of those measures in the 2022 Newport TSP (including intersection analysis at applicable study intersections).

Assessment of transit conditions considers a qualitative assessment rating, which assigns a context-based and subjective “Excellent/Good/Fair/Poor” rating. This will consider the following factors for assigning ratings to the current transit services and facilities:

1. Frequency and on-time reliability
2. Schedule speed/travel times
3. Transit stop amenities
4. Connecting pedestrian/bike network

4 PREFERRED ALTERNATIVE

This section provides on overview of the key changes to the land use and transportation network associated with the preferred alternative.

4.1 LAND USE AND ZONING

The proposed land use changes in the City Center are not expected to have significant impact to transportation:

- The restriction on ground floor residential (which applies in C-1 and C-3) will be removed. The CCARP FBC will permit residential uses on the ground floor in the C-1 zone (along Hwy 101 and 9th) and the C-3 zone (along Hwy 20), meaning that standalone residential uses are permitted, such as an apartment building.
- Standalone residential uses will also be permitted on P-1-zoned lots.

4.2 TRANSPORTATION NETWORK

This Alternative envisions the 'short couplet' described in the TSP along US 101 and 9th Street. A conceptual drawing is shown in Figure 2.

US 101 Downtown Corridor (SW 9th Street to SW Angle Street)

- Reconfigure Highway 101 to become southbound one-way on its current alignment.
- Reconfigure parallel route SW 9th Street to become northbound one-way on an alignment that is modified near Fall Street (on the south end) and Angle Street (on the north end),
- Split bicycle facilities between Highway 101 (southbound) and SE 9th Street (northbound).
- Upgrade the existing roadways to meet current ODOT design standards.

US 20 Downtown Corridor (Harney Street-Moore Drive to US 101)

- Retain and upgrade two-way Highway 20 along its present alignment.
- Provide quality bicycle facilities on parallel route NE 1st Street to reduce impacts to properties adjacent to the highway.

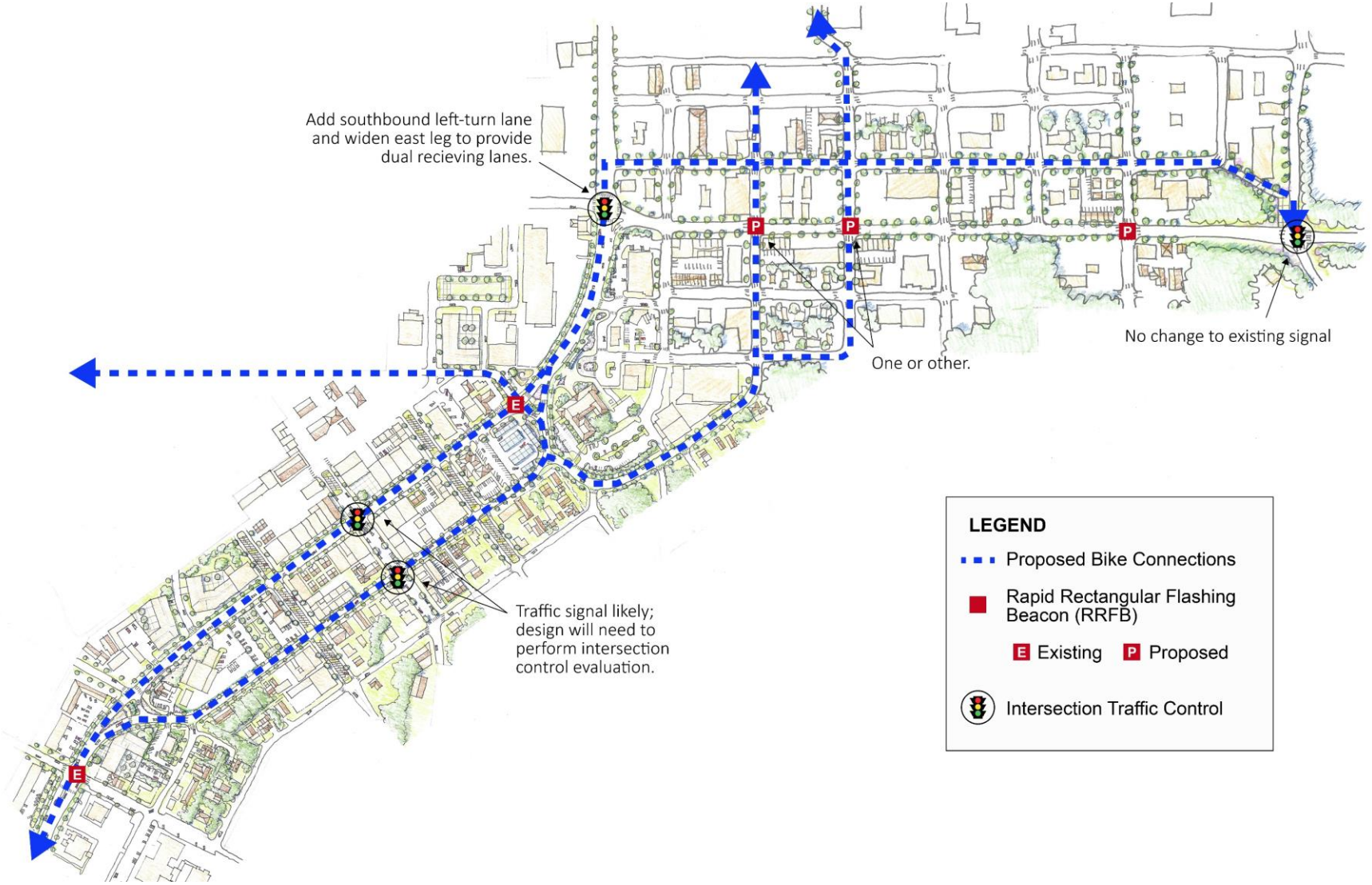
US 20 / US 101 Intersection

- Add another southbound left-turn lane from US 101 onto eastbound US 20
  - *Requires widening east leg of intersection (US 20) to provide for second receiving lane.*

US 20 / Benton Intersection

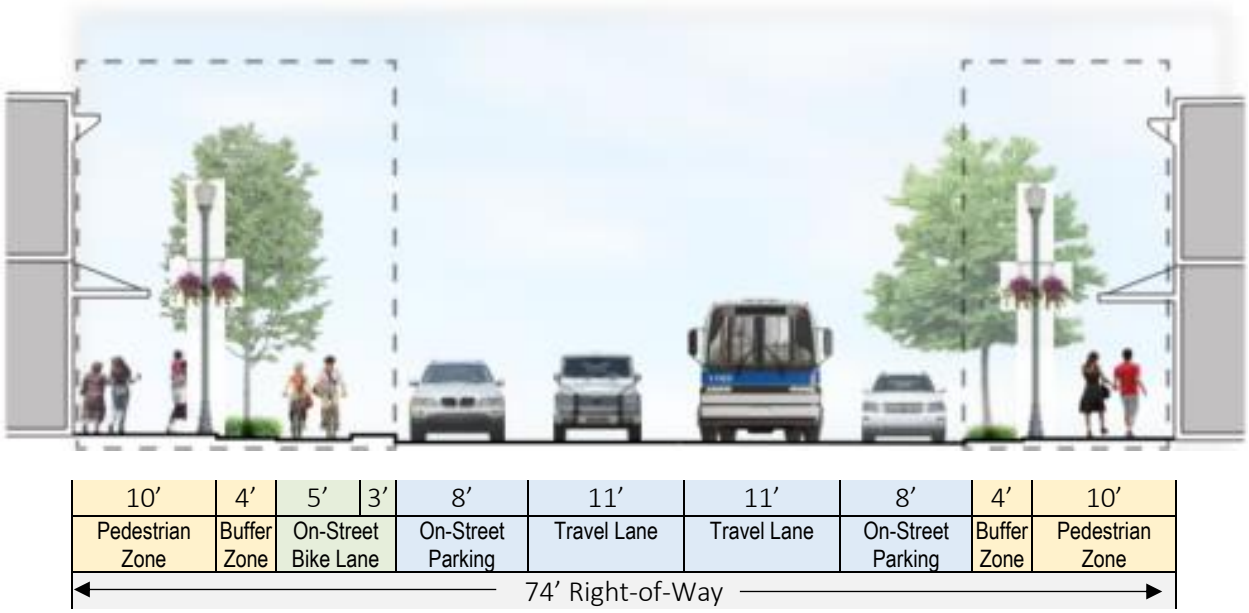
- Add dedicated northbound right -turn lane from Benton onto eastbound US 20
- Install Rapid Rectangular Flashing Beacon (RRFB) and median pedestrian refuge on US 20 (alternatively, could consider this pedestrian treatment at the intersection to the east (Coos Street) instead).

Figure 2. Preferred Alternative Conceptual Drawing

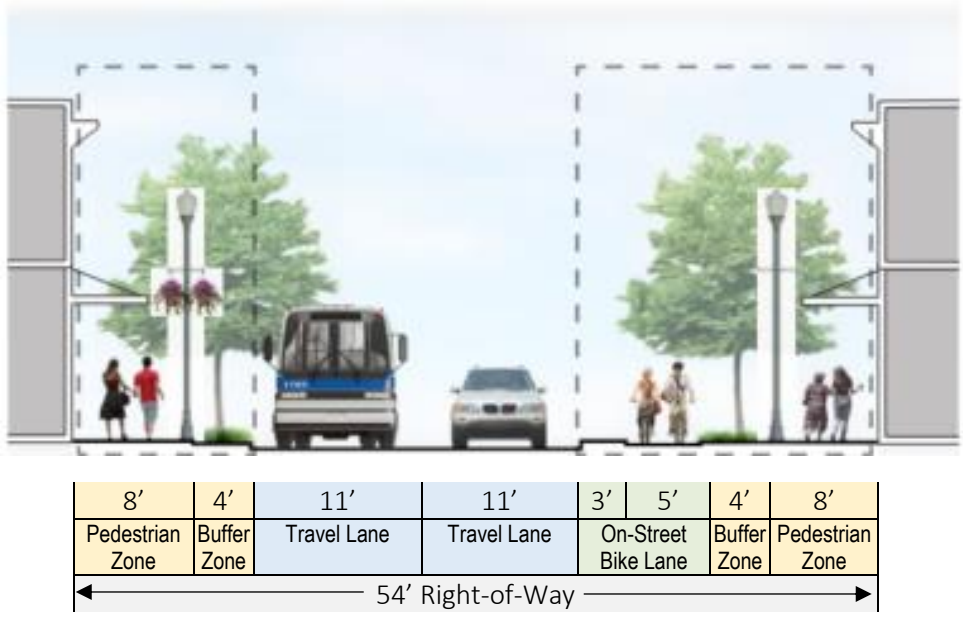


With this alternative, US 101 and SW 9th Street are enhanced by a landscaped buffer zone and streetscape treatments, as well as increased pedestrian zones. On-street parking would remain on US 101 but be removed from SW 9th Street. US 20 is enhanced by a landscaped buffer zone and streetscape treatments, as well as increased pedestrian zones. A conceptual cross-section of US 101 and 9th Street are shown in Figure 3 while a sample cross-section of US 20 is shown in Figure 4.

Figure 3. US 101 / 9th Street Couplet – Cross-section

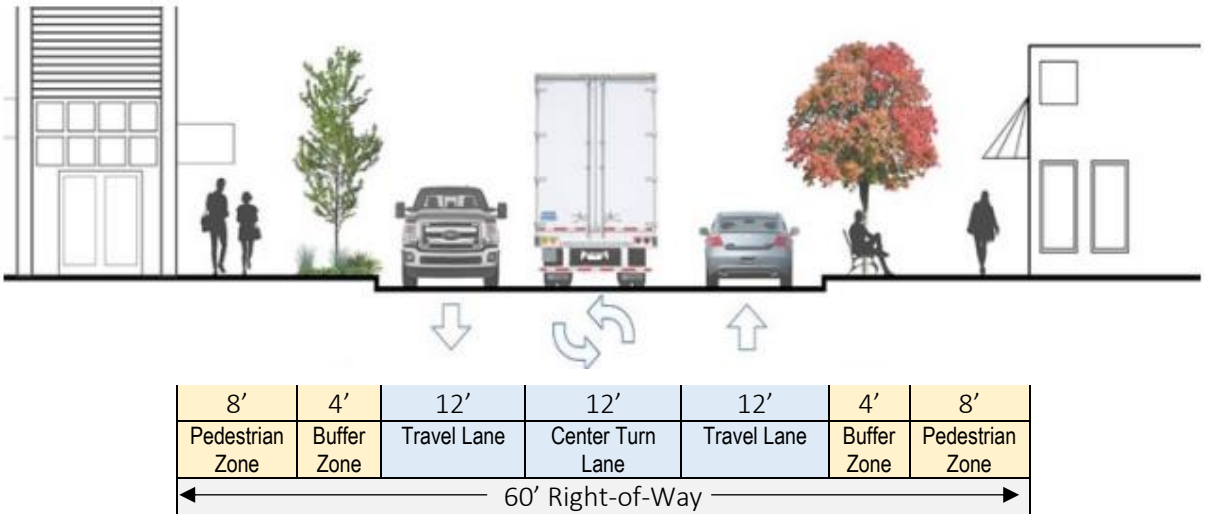


SECTION A – 101 SOUTH



SECTION B – SW 9TH STREET NORTH

Figure 4. Preferred Alternative - US 20 Cross-Section



Source: Newport TSP (2022)

5 TRAFFIC IMPACTS

5.1 FUTURE TRAFFIC VOLUMES

5.1.1 Newport Travel Demand Model

The Oregon Department of Transportation (ODOT) maintains a travel demand model that estimates daily and p.m. peak hour demand for the existing year (2018) and future year (2040) transportation system. The future conditions analysis relies on two scenarios:

2040 No-Build: Utilizes the findings of the *2022 Newport TSP,* which states that there are no regionally significant transportation improvements included in the 2040 travel demand model in the Newport area. The volumes represent the conditions and needs of the future system without including any unfunded improvements.

2040 Preferred Alternative: Convert US 101 to a couplet between SW 2nd St/SW Angle St and SW Fall St in Newport, OR: Assume posted speed remains 25 mph and SW 9th St becomes part of the state highway system with the same functional classification as US 101 through the study area.

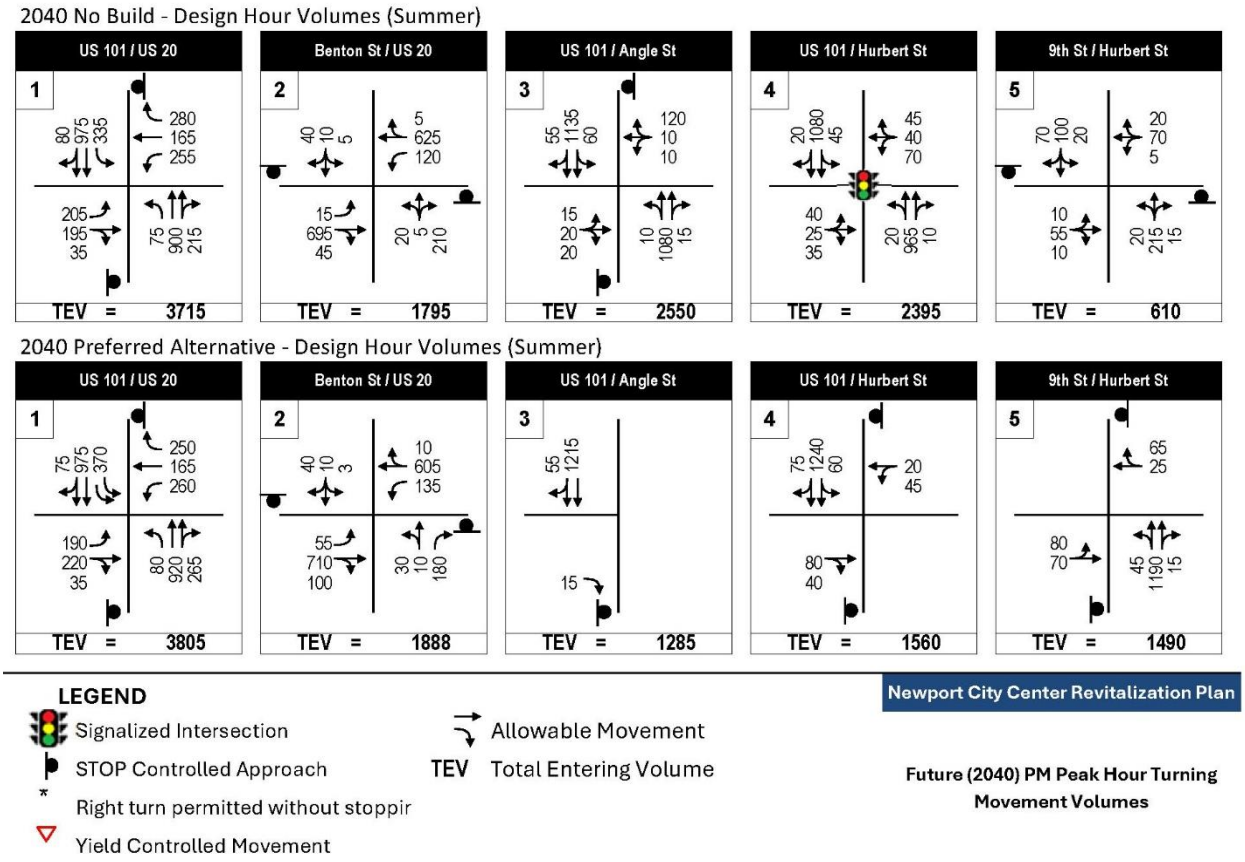
5.1.2 2040 PM Peak Hour Volumes

2040 No Build PM Peak Hour volumes from the *2022 Newport TSP* are summarized in the Figure 5

For the preferred alternative, PM peak hour model volumes were extracted from the model for both the base year (2018) and forecast year (2040) scenarios. A “post processing” technique following NCHRP 765

Methodology was utilized to refine model travel forecasts to the volume forecasts. Post processing is the application of manual adjustments to existing count data and model projections to minimize potential model error and bias.

Figure 5. Future (2040) PM Peak Design Hour Volumes



As shown in Figure 6, average daily traffic (ADT) of the US 101 portion of the couplet is projected to be 12,000 vehicles per day and ADT of the SW 9th St portion is projected to be 14,000 vehicles per day. A two-lane, one-way roadway has a daily capacity of approximately 16,000 to 20,000 vehicles per day. Therefore, the short couplet alternative is projected to accommodate the ADT projected for 2040, with capacity to absorb additional trips beyond what is projected.

Figure 6. US 101 Short Couplet Projected Average Daily Traffic Estimates (Source: Newport TSP 2022)

5.2 FUTURE TRAFFIC OPERATIONS

Table 3 summarizes the future (2040) traffic operations for all of the scenarios. Under the preferred alternative, the two intersections on US 20 are expected to exceed applicable adopted mobility targets, as well ass the stopped approach at 9th Street at Hurbert Street. Signalization needs are discussed in the following section.

Table 3. Future (2040) Traffic Operations - PM Peak Hour

Intersection	2040 No Build		2040 Preferred Alternative		Mobility Target
	Traffic Control	DHV V/C: major/minor	Traffic Control	DHV V/C: major/minor	
1. US 101/US 20	Signal	0.99	Signal	0.91	0.85
2. Benton St/US 20	TWSC	0.46/1.05	TWSC	0.18/1.14	0.85/0.95
3. US 101/Angle St	TWSC	0.49/2.63	TWSC	-- /0.05	0.90/0.95
4. US 101/Hurbert St	Signal	**0.90**	TWSC	--/0.72	0.90
5. 9th St/Hurbert St	TWSC	0.06/0.44	TWSC	--/0.99	0.95/0.95

AWD: Average Weekday Traffic; DHV = Design Hour Volumes; V/C = volume-to-capacity ratio; LOS = Level of Service; TWSC = Two-Way Stop-Control; -- = free movement; Highlighted values indicate movement exceeds applicable mobility target; **Bold** values indicate movement is at the applicable mobility target.

5.3 SIGNALIZATION NEEDS

In general, one-way traffic flow decreases the need for signalization when compared with two-way traffic flow. This is because in a one-way system, there tend to be fewer conflict points and more predictable traffic flow. Where signals do exist, one-way traffic can be beneficial to a coordinated signal system to allow traffic to flow through a series of intersections with fewer stops. However, signalization may be needed where major street volumes are so high the side street traffic experiences long delays due to a shortage of gaps in traffic (particularly at the US couple intersections with Hurbert Street and Canyon Way).

A review of signalization needs is presented below for the study area intersections.

5.3.1 US 101 at US 20

This intersection is currently signalized and is projected to exceed ODOT mobility standards in year 2040, per the City of Newport's 2022 TSP.

As presented in the TSP, several mitigation options may be implemented at this intersection including:

- Establishing an alternate mobility target
- Constructing a second southbound left-turn lane
- Constructing a two-lane roundabout
- Constructing a signal at Angle Street and US 101 (not needed with the couplet).
- While the v/c ratio at this intersection is projected to improve with the build alternatives, ODOT's v/c standard of 0.85 is not projected to be met with any of the alternatives listed. The TSP recommended establishing an alternate mobility target, but at the time this memorandum was written, the OTC had not adopted them. The ODOT planning group is actively working toward adoption.

5.3.2 US 20 at Benton Street

The intersection of US 20 at Benton Street is currently a two-way stop controlled intersection. Under the preferred alternative, signalization at this intersection is not warranted based on future volume forecasts. The intersection should be monitored and if turning-related collisions become a concern, consider right-out only for vehicles on the stop controlled approaches.

The preliminary and final design process will evaluate intersection control to determine appropriate traffic control.

5.3.3 US 101 at Angle Street

The intersection of US 101 at Angle Street is currently a two-way stop controlled intersection. Under the preferred alternative, this intersection is expected to be realigned and it operates acceptably as a two-way stop control and for the movement in the northeast junction of the couplet.

The preliminary and final design process will evaluate intersection control to determine appropriate traffic control.

5.3.4 US 101 at Hurbert Street / Canyon Way

This intersection is currently signalized along the existing US 101 alignment. With the couplet alternative, signalization is not warranted based on future year 2040 traffic volumes, however it could remain signalized to provide adequate gaps for traffic traveling across the couplet between the city center, Bay Front and west of US 101. The design process may want to consider signalizing the northbound traffic as well at the intersection of 9th Street at Hurbert Street / Canyon Way.

The preliminary and final design process will evaluate intersection control to determine appropriate traffic control.

5.3.5 9th Street at Hurbert Street / Canyon Way

This intersection is currently a two-way stop control for the northbound and southbound approaches as the major movement. Under the preferred alternative this intersection becomes part of the couplet and the major movement shifts to the northbound approaches. With the couplet alternative, signalization is not warranted based on future year 2040 traffic volumes, however it could become signalized and coordinated with a signal at US 101 at Hurbert Street/Canyon Way to provide adequate gaps for traffic traveling across the couplet between the city center, Bay Front and west of US 101.

The preliminary and final design process will evaluate intersection control to determine appropriate traffic control.

6 MULTIMODAL IMPACTS

6.1 PEDESTRIAN SYSTEM

Figure 7 shows pedestrian level of traffic stress (PLTS) ratings for the study area, as presented in the City's TSP. Under current conditions, PLTS along segments in the study area ranges from moderate to extreme. PLTS at intersections in the study area ranges from low to extreme.

Key factors that degrade the PLTS at study intersections include:

- Lack of ADA compliant curb ramps
- Complex elements at signals like permissive or channelized right turns, offset intersection legs, and crosswalk closures
- Lack of pedestrian refuges and other enhancements (e.g. rectangular rapid flashing beacons or (RRFBs))

Figure 7. Study Area PLTS (Existing Conditions) (Source: City of Newport TSP 2022)

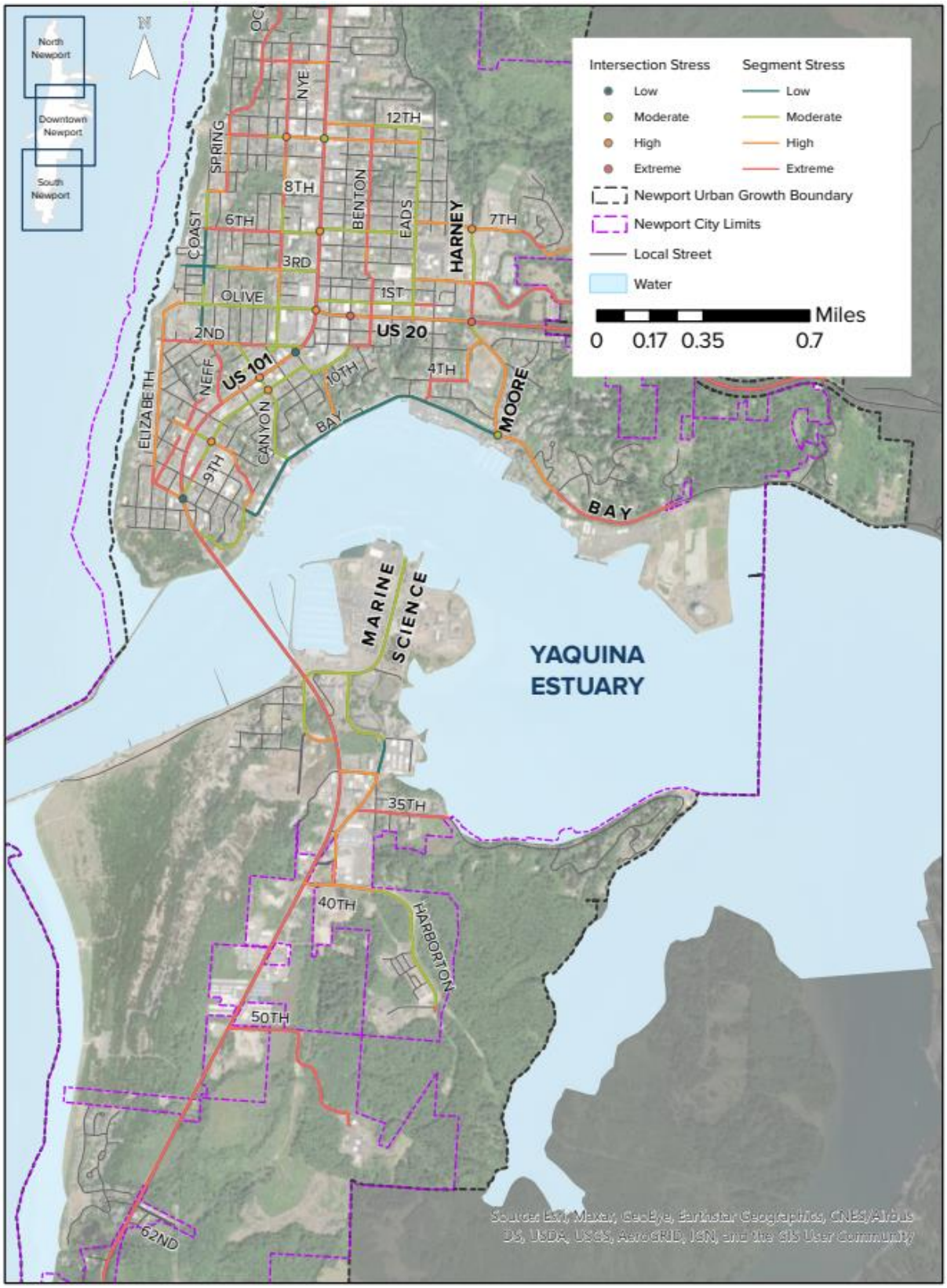


Table 4 summarizes the PLTS for No-Build vs. Preferred Alternative. The current preferred alternative cross sections for both the US 101 couplet and the US 20 redesign are likely to improve PLTS ratings along segments within the study area.

Table 4. No-Build vs. Preferred Alternative PLTS

Intersection *Segment*	No Build PLTS	Future PLTS with Preferred Alternative
US 101 at US 20 / Olive St	High	High
Olive St	*Moderate*	*Moderate*
US 20	*High*	*High*
US 101 (North Leg)	*Extreme*	*Extreme*
US 101 (South Leg)	*Extreme*	*Extreme*
Benton St / US 20	Extreme	High (RRFB) or Extreme (No RRFB)
US 20 (West Leg)	*High*	*High*
US 20 (East Leg)	*High*	*High*
Benton St (North Leg)	N/A	*Moderate*
Benton St (South Leg)	*N/A*	*Moderate*
US 101 / Angle St	Moderate	Moderate
2nd St (West Leg)	*Moderate*	*Not Applicable*
Angle St (East Leg)	*N/A*	*Moderate*
US 101 (North Leg)	*Extreme*	*Moderate*
US 101 (South Leg)	*Extreme*	*Moderate*
US 101 / Hurbert St	High	Low (Signalized) or Moderate (RRFB)
Hurbert St (West Leg)	*Moderate*	*Moderate*
Hurbert St (East Leg)	*Moderate*	*Moderate*
US 101 (North Leg)	*High*	*Low*
US 101 (South Leg)	*High*	*Low*
9th St / Hurbert St	High	Low (Signalized) or Moderate (RRFB)
Hurbert St (West Leg)	*Moderate*	*Moderate*
Hurbert St (East Leg)	*Moderate*	*Moderate*
9th St (North Leg)	*Moderate*	*Moderate*
9th St (South Leg)	*Moderate*	*Moderate*

It is estimated that the design changes proposed for the study area, especially the increased buffering of pedestrians from vehicular traffic, will improve PLTS ratings along these segments from extreme and high to moderate.

Although the cross sections for the proposed alternatives do not provide specifics on intersection design, it is possible to infer some potential impacts to PLTS at intersections converting from two-way streets to a couplet. All else being equal, converting to one-way traffic tends to increase PLTS ratings (in other words, make conditions more stressful for pedestrians).

Converting to one-way traffic increases PLTS levels at intersections for a few reasons. First, one-way streets generally carry higher traffic volumes than two-way streets with the same number of lanes and can therefore create higher stress levels for crossing pedestrians. Another reason is that one-way streets can reduce drivers' ability to see pedestrians in the crosswalk. One-way streets also tend to increase

vehicle miles traveled (VMT) because drivers may have to drive past their destination before being able to approach from the correct direction. Higher VMT could mean a higher probability of conflicts between vehicles and pedestrians. One-way streets also encourage higher vehicle speeds due to the lack of perceived friction from opposing traffic, and intersections including one-way streets can be confusing to roadway users. Finally, vehicle drivers turning left might be less cautious when turning from one-way streets, which could result in higher probability of collisions with pedestrians.

In Newport's case, however, all else is not equal. As it exists today, US 101 is four travel lanes-wide in the study area. This configuration requires pedestrians to cross approximately 60 feet of active street. In the couplet design, however, travel lanes on US 101 are reduced from four (4) to two (2). This lane reduction decreases the distance of active travel lanes a pedestrian must travel while crossing to about 22 feet and reduces the PLTS ratings of intersections that are currently extreme to high. The width that pedestrians will have to cross on US 20, however, will stay roughly the same as it is today (about 40 feet), meaning that the intersection PLTS ratings on US 20 are likely to remain at high levels without further intervention or extreme for intersection crossings.

It is possible to mitigate extreme and high intersection PLTS ratings with specific intersection design considerations, including:

- Installing ADA compliant curb extensions
- Minimizing permissive turns
- Designating no-right-turn-on-red at signalized intersections
- Minimizing channelized right turns
- Minimizing offset intersection legs
- Minimizing crosswalk closures
- Installing pedestrian refuges at unsignalized intersections along US 101 and US 20 within the study area
- Considering traffic enforcement measures like red light cameras to increase driver compliance (Red light running cameras or automated enforcement on the state highway system requires approval from the State Traffic Engineer.)

6.2 BICYCLE SYSTEM

Figure 8 shows Bicycle Level of Traffic stress (BLTS) ratings for the study area. Under current conditions, BLTS along segments in the study area ranges from low to extreme. BLTS at intersections in the study area ranges from low to high.

The span of US 101, US 20, and SW 9th St all lack bicycle lanes within the study area.

In general, signalized intersections are the most comfortable locations for cyclists to cross US 101 or US 20. Most signalized intersections along these corridors receive BLTS ratings of low or moderate. Some factors that make signalized intersections with high or extreme BLTS ratings more difficult to navigate include a three-lane approach (US 101 / US 20) or sight distance limitations (US 20 / SE Moore Drive).

Figure 8. BLTS (Existing Conditions) (Source: City of Newport TSP 2022)

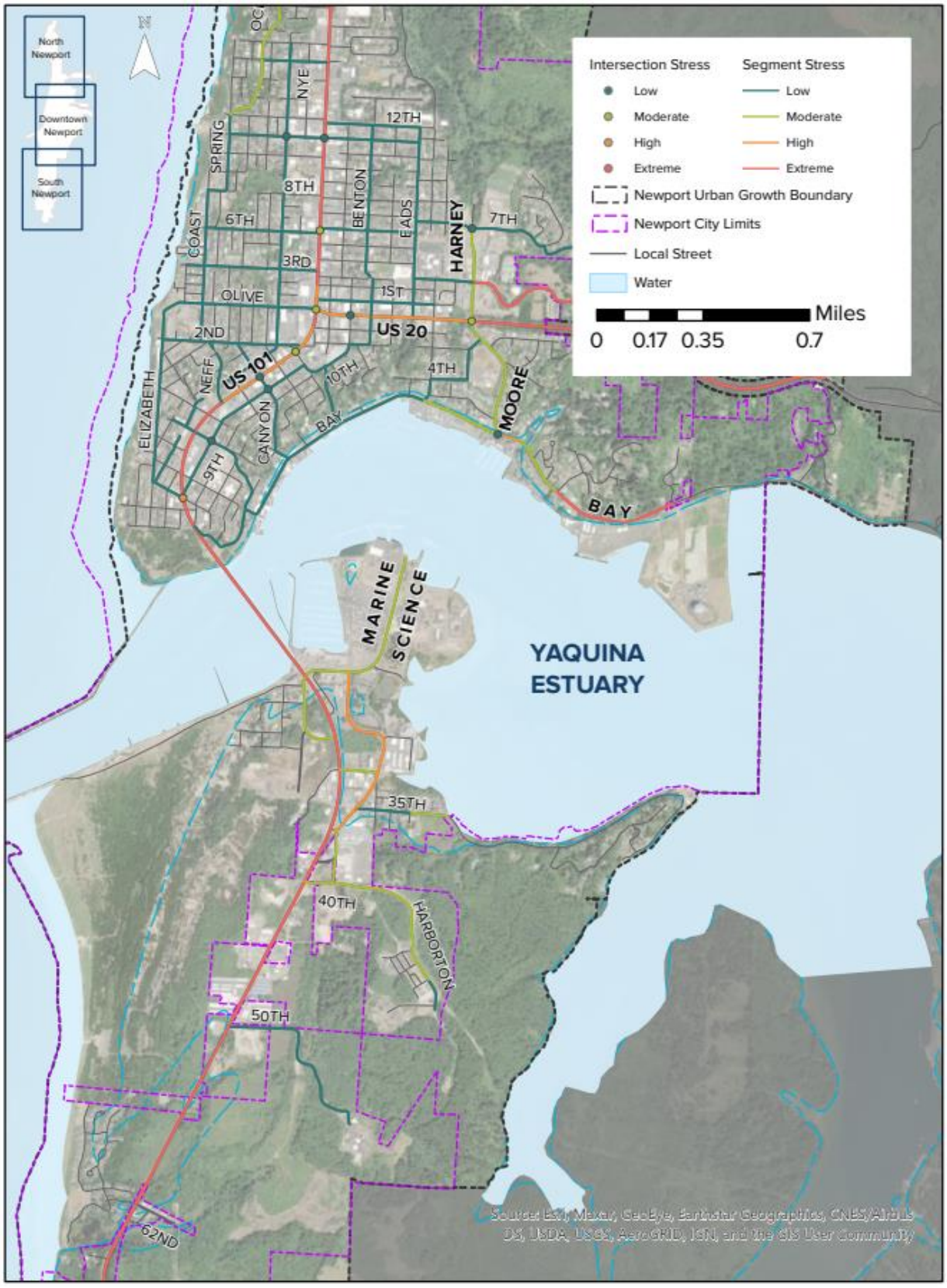


Table 5 summarizes the BLTS for No-Build vs. Preferred Alternative. The current preferred alternative cross sections for both the US 101 couplet and the US 20 redesign are likely to improve BLTS ratings along segments within the study area.

Table 5. No-Build vs. Preferred Alternative BLTS

Intersection *Segment*	No Build BLTS	Future BLTS with Preferred Alternative
US 101 at US 20 / Olive St	Moderate	Moderate
Olive St	*Low*	*Low*
US 20	*High*	*High*
US 101 (North Leg)	*High*	*High*
US 101 (South Leg)	*Extreme*	*Extreme*
Benton St / US 20	Moderate[1]	Moderate (RRFB) or High (No RRFB)
US 20 (West Leg)	*High*	*High*
US 20 (East Leg)	*High*	*High*
Benton St (North Leg)	*Low*	*Low*
Benton St (South Leg)	*Low*	*Low*
US 101 / Angle St	Extreme[1]	Moderate
2nd St (West Leg)	*Low*	*Low*
Angle St (East Leg)	*Low*	*Low*
US 101 (North Leg)	*High*	*Moderate*
US 101 (South Leg)	*High*	*Moderate*
US 101 / Hurbert St	Low	Low (Signalized for RRFB)
Hurbert St (West Leg)	*Low*	*Low*
Hurbert St (East Leg)	*Low*	*Moderate*
US 101 (North Leg)	*High*	*Moderate*
US 101 (South Leg)	*High*	*Moderate*
9th St / Hurbert St	Low	Low (Signalized for RRFB)
Hurbert St (West Leg)	*Low*	*Moderate*
Hurbert St (East Leg)	*Low*	*Moderate*
9th St (North Leg)	*Low*	*Low*
9th St (South Leg)	*Low*	*Low*

1. Value from TSP update to reflect more accurate scoring.

The cross section for the southbound segment of the US 101 couplet (US 101) dictates five-foot bike lanes on the west side of road, with a three-foot buffer and an eight-foot parking lane between it and two lanes of southbound traffic traveling at a design speed of 35 mph.

The cross section for the northbound segment of the US 101 couplet (SW 9th St) dictates five-foot bike lanes on the west side of the road, with a three-foot buffer between it and two lanes of northbound traffic traveling at a design speed of 30 mph.

The cross section for the preferred US 20 redesign does not dictate any form of bicycle infrastructure. As shown in the map in Section 5, however, the alternative accounts for this lack by providing a parallel bicycle route along NE 1st Street. Consequently, although BLTS levels will remain high along US 20, the planned bicycle lanes one block to the north provide bicyclists with a BLTS rating of low.

It is estimated that the proposed new buffered bicycle facilities along the US 101 couplet (US 101 and SW 9th St), will improve BLTS ratings along these segments from extreme and high to moderate.

Most unsignalized study intersections along US 101 had a high or extreme BLTS rating. These ratings are driven by the relatively high speeds and traffic volumes and wide cross section of US 101.

It is possible to mitigate some of these challenges with specific intersection design considerations, including:

- Implementing designs to improve driver yielding behavior at intersections. This includes bike boxes, signing, curb extensions, and dedicated signal phases.
- Other enforcement or education measures such as camera enforcement.
- Aligning bike routes with intersections with traffic signals, as these intersections generally represent the best opportunities for bicyclists to cross US 101.

6.3 TRANSIT IMPACTS

Lincoln County Transit provides transit services to Newport. Services include a city loop and several inter-city routes to Lincoln City, Siletz, Yachats, Corvallis, and Albany.

Shifting from two-way streets to a one-way couplet has been known to disrupt transit services in some locations. Splitting routes could mean longer travel times for passengers, either because the bus must take a longer route to reach the same destination or because passengers must transfer or walk farther after disembarking to reach their destination. It can also reduce access to some destinations because of the distance between the two legs of the route. Finally, split routes can make it more difficult to determine which street a stop is on, especially to infrequent riders.

These complications are unlikely to significantly impact Newport's transit service because of its existing layout of routes and stops. The routes will likely be impacted as follows:

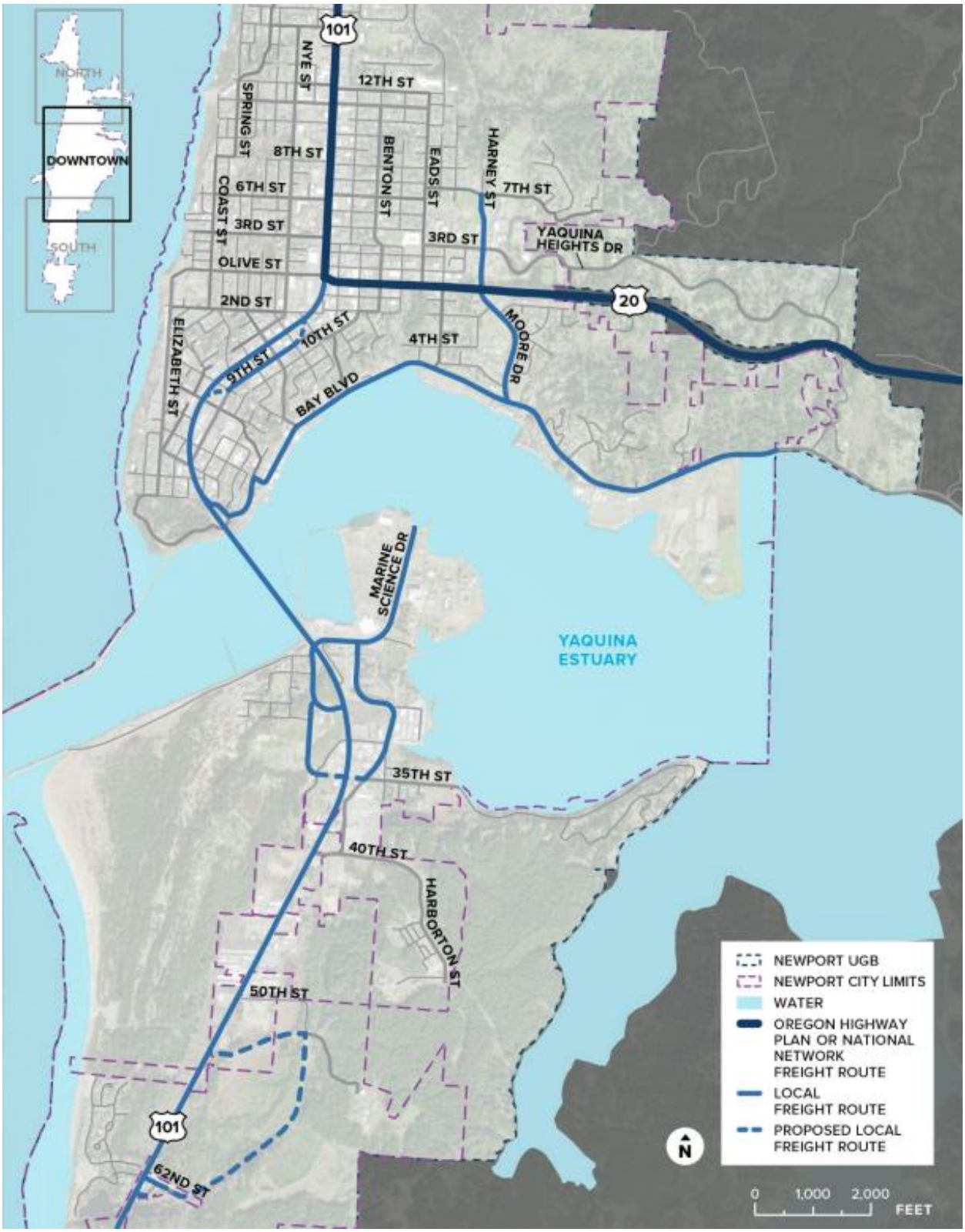
- Blueline – Negligible impact. This route is already split between US 101 and SW 9th St and does not have any stops along the area where the couplet will be.
- Coast to Valley Express – Negligible impact. This route runs in both directions along US101 but does not have any stops along the area where the couplet will be.
- East County – Negligible impact. This route is already split between US 101 and SW 9th St and does not have any stops along the area where couplet will be.
- Newport City Loop – Negligible impact. This route is already split between US 101 and SW 9th St and has only one stop at SW 9th St and SW Alder St.
- North County – Some impact. This route splits between US 101 and W Olive St / SW Nye St / SW 7th St and has stops at Newport City Hall and at W Olive St / SW Nye St. It may be necessary to shift the portion of the route that travels northbound on US 101 to SW 9th St.
- South County – Negligible impact. This route is already split between US 101 and SW 9th St and has no stops along the area where the couplet will be.

6.4 FREIGHT IMPACTS

Within Newport, freight traffic is common on US 101 and US 20. US 101, north of US 20, is a federal truck route and US 20, east of US 101, is an Oregon freight route. US 101, south of US 20, and SW 9th St are local freight routes. Figure 9 shows these designations.

To facilitate the high level of freight traffic along US 101, US 20, and local freight routes, roadway designs in the study area will ideally consider and balance the unique needs of freight vehicles with the needs and safety of other roadway users. Local truck routes connecting industrial areas with state highways can also protect residential neighborhoods from freight traffic because the designated routes are more desirable for freight travel. Overall, designating and thoughtfully designing freight routes enables the city to effectively coordinate freight and non-freight transportation system users.

Figure 9. Freight Routes in Downtown Newport (Source: City of Newport TSP 2022)



6.4.1 Designing for Freight

Roadway and intersection design along freight routes should consider freight vehicles' requirements for larger turning radii, wider lanes, greater sight distance, longer turn pockets, and more durable pavement types (e.g. concrete instead of asphalt).

Turning Radii

Guidance in the AASHTO Green Book presents minimum turning radii for vehicles of various sizes. While passenger cars require a turning radius of about 24 feet, the trucks shown require minimum design turning radii ranging from 40 to 60 feet.

Lane Width

The National Network designates highways as freight routes based on geometric specifications specifically for use by large trucks. Its specifications include the requirement for 12-foot travel lanes. The City's local truck routes require a minimum of 11-foot travel lanes to facilitate the movement of truck freight between local industrial and commercial uses and state highways. Wider lanes (over 12 feet) are possible but should only be used for short distances at intersections, where needed.

The current preferred alternative cross sections for both the US 101 couplet and the US 20 redesign meet the lane width needs for local freight routes. The US 101 couplet dictates two 11-foot travel lanes on both the US 101 southbound and SW 9th St northbound segments. The US 20 redesign dictates 12-foot travel lanes for three lanes (one eastbound lane, one center turn lane, and one westbound lane).

These lane widths will help freight vehicles to negotiate the corridors more safely.

6.4.2 Considering Other Road Users in Freight Route Design

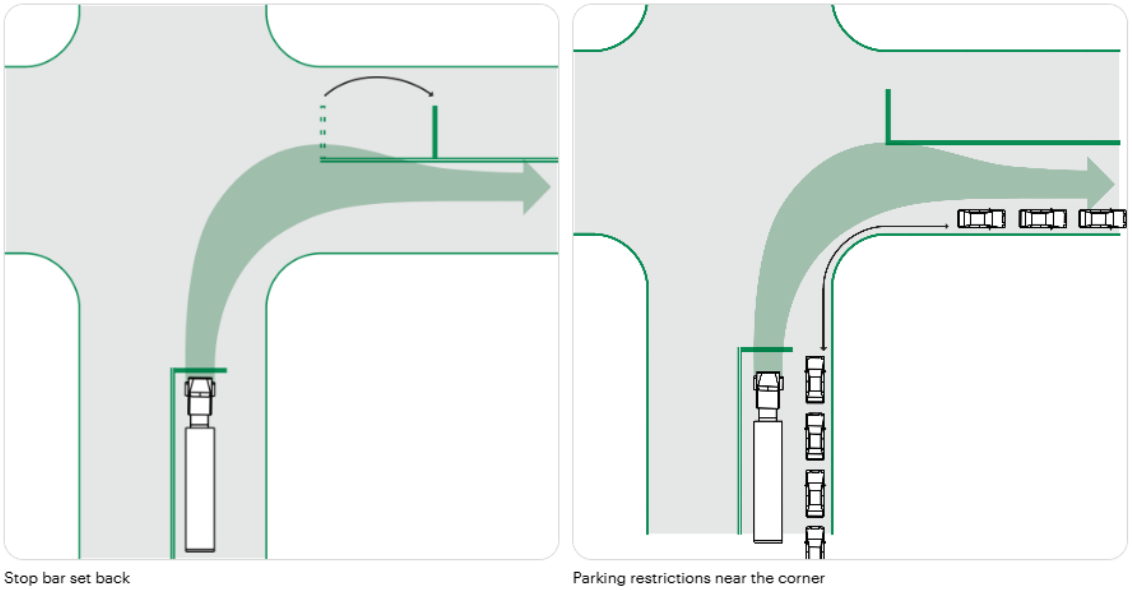
While larger turning radii benefit freight operators, they can make conditions less safe and comfortable for pedestrians and bicyclists.

Larger turning radii enable vehicles to navigate turns at higher speeds and increase the distances that pedestrians and bicyclists must cross. Both these effects negatively impact pedestrian and bicyclist safety at an intersection. Minimizing turning radii plays an important role in creating compact intersections with safe turning speeds.

According to NACTO, it is possible to accommodate freight vehicles' increased need for space when turning without making turning radii overly large. Options for balancing freight traffic needs with those of active transportation users include:

- Limiting turning speeds to 15 mph or less
- Selecting the smallest possible design vehicle
- Restricting right-turns-on-red so there is no expectation of turning into the nearest receiving lane
- Implementing stop bar setbacks (see Figure 10)
- Implementing parking restrictions near corners (see Figure 10)

Figure 10. Options for reducing turning radii (Source: NACTO)



Bicycle and pedestrian improvements, like enhanced pedestrian crossings and separate and/or protected bike facilities, also allow a freight route to more safely support both freight and active transportation needs.

6.4.3 Intersection Capacity Constraints and Freight

As traffic volumes grow over time, two intersections along the designated freight routes within the study area will fail to meet their currently adopted mobility target during the 2040 design hour conditions. These intersections are:

- US 101/US 20 (signal)
- US 20/ SE Benton St (stop controlled on side street)

High vehicle delays at the signalized intersections of US 101 / US 20 will increase delays for freight along US 101 and US 20. High side-street delay at the intersection of US 20 / SE Benton St is unlikely to significantly impact freight because most freight vehicles travel along US 101 and US 20.

7 KEY FINDINGS

Below are key findings presented in this memo relating to the multimodal impacts of the preferred one-way couplet alternative alignment along US 101 and SW 9th St in Newport, Oregon:

- The short couplet alternative is projected to accommodate the ADT projected for 2040, even with the increase in trips for the changes in zoning that would remove ground-floor commercial from multifamily uses.

- To facilitate the high level of freight traffic along US 101, US 20, and local freight routes, roadway designs in the study area will ideally consider and balance the unique needs of freight vehicles with the needs and safety of other roadway users by considering:
    - Turning radii
    - Lane widths
    - Limiting turning speeds to 15 mph or less
    - Selecting the smallest possible design vehicle (on US 20 and US 101, the design vehicle would be a WB-67)
    - Restricting right-turns-on-red
    - Implementing stop bar setbacks
    - Implementing parking restrictions near corners
- Key intersections along US 101 are not projected to meet signal warrants. However, signalization at strategic locations may facilitate gaps in traffic along the couplet for side street traffic.
- The conceptual cross-sections for both US 101 and SW 9th Street are expected to improve level of traffic stress for both pedestrians and bicyclists. The conceptual cross-section for US 20 is not expected to result in any improvement for BLTS due to a lack of bike lanes, but a parallel route will be provided for bicyclists on NE 1st St .
- Some impacts on transit are expected with the preferred couplet alternative, with the split route adding additional commute time to pedestrians along US 101 and SW 9th St.