Oregon
Kate Brown, Governor

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DATE: February 13, 2020

TO: Oregon Transportation Commission

FROM: Ken Shonkwiler
Senior Region Planner

SUBJECT: Alternative Mobility Targets for US 101 in Warrenton

This is the staff memo and summary for Alternative Mobility Targets for US 101 in Warrenton, Oregon.

Background:
The City of Warrenton adopted an updated Transportation System Plan (TSP) in January 2019. The segment of US 101 under consideration is shown in Figure 1 in *Warrenton Transportation System Plan Update Alternative Mobility Targets Technical Memorandum,* Attachment C of this report. The traffic analysis forecasted that bi-directional evening peak hour motor vehicle trips will likely increase by over 350 to 700 trips during the peak summer season, leading to significant increases in congestion. The Warrenton TSP recognizes that constructing additional highway capacity on US 101 to reduce expected congestion is not currently financially feasible or practical, given the potential impact to existing natural resources which are important to the economic vitality of the region (wetlands, open space, recreation) and the limited capacity of the Youngs Bay bridge. Given the constraints making widening US 101 through Warrenton impractical, the TSP recommends that OTC adopt alternative mobility targets for US 101 signalized intersections in Warrenton that reflect traffic performance based on no significant capacity improvements over the 20-year planning horizon.

The Alternative Mobility Targets Technical Memorandum summarized multiple factors that contribute to mobility issues within Newberg, including demands on the system from statewide, regional and local traffic and funding limitations. The analysis suggests that congestion on the highway exceeds mobility targets under existing summer conditions and would continue to fail to meet mobility targets by 2040. The TSP traffic analysis identifies the signalized intersections along US 101 that are expected to exceed current mobility targets by 2040, including:

- US 101 at Harbor Drive
- US 101 at SE Neptune Drive
- US 101 at Marlin Drive
- US 101 at SE Ensign Lane

The traffic analysis provides the justification for evaluating motor vehicle conditions during peak average weekday conditions and setting new mobility targets for the signalized intersections along US 101. Adjusting the methodology and mobility targets will allow all

four of the signalized intersections to meet mobility targets by 2040 with minor capacity improvements (such as signal timing improvements or adding a turn lane). The memorandum recommends an alternative OHP Mobility Target v/c ratio of 0.85 for the signalized intersections along US 101 in Warrenton, in addition to modifying the methodology to analyze the average weekday conditions.

ODOT requests that the OTC adopt both an alternative analysis methodology as the basis for defining facility performance and new maximum v/c ratio thresholds that reflect ODOT and Warrenton US 101 highway performance expectations. These expectations are based on forecasted growth associated with implementation of the City's existing adopted land use plan, regional US 101 traffic growth, and state and local transportation facility and service improvements that have been identified and are reasonably likely to be implemented during the 20- ear planning horizon within identified funding constraints. The recommended action includes:

- Replacing the 30th highest annual hour of traffic analysis time period with the average annual weekday peak hour.
- Raising the v/c ratio threshold to 0.85 for the signalized intersections along US 101 through Warrenton

Attachments

A *Findings of Consistency with OAR 731-0015-0055, OAR 660-0012, and OHP Policy 1F3*

B *Warrenton Transportation System Plan: Volume 1* *https://www.dropbox.com/sh/b8daiw9r329vvvm/AACD5GGlFsBUVsChlc8mdgtUa?dl=0&preview=Warrenton_TSP_Vol1.pdf*

C *Warrenton Transportation System Plan, Volume 2, Section N, Public Involvement* *https://www.dropbox.com/sh/b8daiw9r329vvvm/AACD5GGlFsBUVsChlc8mdgtUa?dl=0&preview=Warrenton_TSP_Vol2.pdf*

D *Warrenton Transportation System Plan Update Alternative Mobility Targets Technical Memorandum, August 1, 2018*

Attachment A

Warrenton Alternative Mobility Targets Compliance Findings

Alternative Oregon Highway Plan Mobility Targets for US 101 in Warrenton: Compliance Findings

ODOT's State Agency Coordination Agreement requires that the Oregon Transportation Commission (OTC) adopt findings of fact when making minor amendments to ODOT Modal Plans (OAR 731-015-055). Pursuant to these requirements ODOT provides the following findings to support the OTC adoption of Alternative Mobility Targets for US 101 in the City of Warrenton as a minor amendment to the Oregon Highway Plan (OHP).

Findings of Compliance with OAR 731-015-0055

Coordination Procedures for Adopting Final Modal Systems Plans

(1) Except in the case of minor amendments, the Department shall involve DLCD and metropolitan planning organizations, cities, counties, state and federal agencies, special districts and other parties in the development or amendment of a modal plan. This involvement may take the form of mailings, meetings or other means that the Department determines are appropriate for the circumstances. The Department shall hold at least one public meeting on the plan prior to adoption.

FINDING: The 2019 Warrenton Transportation System Plan (TSP) project was funded by the Transportation and Growth Management (TGM) Program, a joint program of the Oregon Department of Transportation and the Oregon Department of Land Conservation and Development. The Department actively participated in the project, along with staff from the City of Warrenton, DLCD, and other affected agencies. The recognition that Alternative Mobility Targets for US 101 should be developed to reflect its expected performance over the planning horizon were established as part of the TSP development process. A comprehensive public involvement program was conducted as part of the TSP process and is documented in Technical Memorandum #13: Summary of the Warrenton TSP Findings, included here as Attachment D. The public meeting requirement is met by the numerous meetings held during the development of the TSP and by the meeting where the Alternative Mobility Targets will be presented to the OTC for adoption.

(2) The Department shall evaluate and write draft findings of compliance with all applicable statewide goals.

FINDING: Statewide Planning Goal 1 and 12 are applicable to the OTC Action to adopt the alternative mobility targets.

Statewide Planning Goal 1, Citizen Involvement, establishes the requirement for state and local governments taking land use actions "to develop a citizen involvement program that insures the opportunity for citizens to be involved in all phases of the planning process." As noted in the previous finding, the need to for Alternative Mobility Targets for US 101 in Warrenton was established as part of the process to develop the City's 2019 TSP. The comprehensive public involvement program that was conducted as part of that process, as documented in the Technical Memorandum #13: Summary of the Warrenton TSP Findings (included as part of this staff report as Attachment D), constitutes compliance with Goal 1.

Statewide Planning Goal 12, Transportation, directs state and local jurisdictions "to provide and encourage a safe, convenient and economic transportation system." It establishes that a transportation plan shall consider all modes of transportation; be based upon an inventory of local, regional and state transportation needs; consider the differences in social consequences that would result from utilizing differing combinations of transportation modes; avoid principal reliance upon any one mode of transportation; minimize adverse social, economic and environmental impacts and costs; conserve energy; meet the needs of the transportation disadvantaged by improving transportation services; facilitate the flow of goods and services so as to strengthen the local and regional economy; and conform with local and regional comprehensive land use plans.

The Warrenton TSP was adopted by the City Commission of the City of Warrenton on January 9, 2019. While the TSP provides the analysis and findings supporting the need for an alternate traffic analysis time period and alternate mobility target for the signalized intersections of US 101 through Warrenton, the City of Gearhart does not have the authority to adopt mobility targets for US 101. With specific regard to the OTC adoption of a minor amendment to the OHP to establish an alternate traffic analysis time period for US 101 intersections in Warrenton, Goal 12 (660-0012-0020) requires standards of facility performance be established that are acceptable to the affected transportation agency. OTC adoption of the recommended alternate mobility targets for US 101 in Warrenton will satisfy this requirement, consistent with the transportation system performance expectations established in the 2019 Warrenton TSP.

(3) If the draft plan identifies new facilities which would affect identifiable geographic areas, the Department shall meet with the planning representatives of affected cities, counties, and metropolitan planning organization to identify compatibility issues and the means of resolving them. These may include:

(a) Changing the draft facility plan to eliminate the conflicts;

(b) Working with the local governments to amend the local comprehensive plans to eliminate the conflicts; or

(c) Identifying the new facilities as proposals which are contingent on the resolution of the conflicts prior to the completion of the transportation planning program for the proposed new facilities.

FINDING: New facilities are not proposed and are not the subject of this minor amendment.

(4) The Department shall present to the Transportation Commission the draft plan, findings of compatibility for new facilities affecting identifiable geographic areas, and findings of compliance with all applicable statewide planning goals.

FINDING: Technical memoranda supporting the need for an alternative mobility targets, in particular Technical Memorandum #7: Future Transportation Conditions and Needs and Technical Memorandum #11: Alternative Mobility Targets (included in this staff report as Attachment C), were developed as part of the 2019 Warrenton TSP (TSP Volume 2, Sections 7 and 11). The alternative mobility targets memorandum supports the adoption of the alternative analysis methodology that assesses the average annual weekday traffic condition and an alternate mobility target of 0.85, for all of the US 101 signalized intersections in Warrenton. Information demonstrating compliance with OHP Policy 1F3 and findings of compliance with Statewide Goals 1 and 12 are provided in this staff report.

(5) The Transportation Commission, when it adopts a final modal systems plan, shall adopt findings of compatibility for new facilities affecting identifiable geographic areas and findings of compliance with all applicable statewide goals.

FINDING: The recommended action is a minor amendment to the OHP, not a final modal systems plan, and no new facilities are proposed as a result of this action.

(6) The Department shall provide copies of the final modal systems plan and findings to DLCD, the metropolitan planning organizations, and others who request to receive a copy.

FINDING: ODOT will provide copies of the OTC action adopting the minor amendment and all supporting materials to DLCD, the City of Warrenton, Clatsop County, and others who request a copy.

Findings of Compliance with OAR 660-0012

The Transportation Planning Rule (TPR), Oregon Administrative Rule 660, Division 12, defines how to implement Statewide Planning Goal 12 and outlines the necessary elements of a local Transportation System Plan (TSP). The overall purpose of the TPR is to provide and encourage a safe, convenient, and economic transportation system. The TPR directs TSPs to integrate comprehensive land use planning with transportation needs and to promote multi-modal systems that make it more convenient for people to walk, bicycle, use transit and drive less.

Section 660-0012-0020, Elements of Transportation System Plans, requires that each of the modal elements of a TSP be inventoried and that there is an assessment of existing and committed transportation facilities and services by function, type, capacity and condition. For state (and regional) facilities, the transportation capacity analysis must be consistent with standards of facility performance considered acceptable by the affected transportation agency.

FINDING: The 2019 Warrenton Transportation System Plan was prepared in accordance with the requirements of the TPR. OTC adoption of the recommended alternative analysis methodology to determine compliance with adopted mobility targets for US 101 in Warrenton will satisfy the requirement that the capacity analysis for the highway is consistent with facility performance targets acceptable to the State and consistent with the transportation system performance expectations established in the Warrenton TSP.

Findings of Compliance with OHP Policy 1F

The OHP contains policies for highway mobility targets, which are outlined in Policy 1F. Policy 1F acknowledges that there are multiple approaches to determining transportation needs necessary to maintain acceptable and reliable levels of mobility on the state highway system and it offers flexibility to consider and develop methodologies to measure mobility that are, among other things, reflective of state and local transportation and economic conditions.

Policy 1F identifies that acceptable modifications to OHP mobility targets could include changing the hour measured from the 30th highest hour, using multiple hour measures, or considering weekday or seasonal adjustments.

The policy establishes that the affected local jurisdiction must agree to the alternative mobility target for the state highway facility as part of a local transportation system plan and that the plan includes findings demonstrating why the particular mobility target is necessary, including the finding that it is infeasible or impractical to meet the mobility targets in the OHP. In addition, local plans should support the establishment of an alternative mobility targets by including feasible actions for:

- Providing a network of local streets, collectors and arterials to relieve traffic demand on state highways and to provide convenient pedestrian and bicycle ways;
- Managing access and traffic operations to minimize traffic accidents, avoid traffic backups on ramps, accommodate freight vehicles and make the most efficient use of existing and planned highway capacity;
- Managing traffic demand and incorporating transportation system management tools and information, where feasible, to manage peak hour traffic loads on state highways;
- Providing and enhancing multiple modes of transportation; and
- Managing land use to limit vehicular demand on state highways consistent

with Policy 1B (Land Use and Transportation Policy).

In addition, the local plan must include a financially feasible implementation program and must demonstrate that the proposed mobility target(s) are consistent with and support locally adopted land use, economic development, and multimodal transportation policy and objectives. Adopted plan policy and implementation strategies must demonstrate a strong local commitment to carry out the identified improvements and other actions.

FINDING: The 2019 Warrenton TSP documents that the City accepts that the current mobility targets for US 101 within city limits are infeasible, given the limitations to highway widening. Technical memoranda supporting the TSP demonstrate how motor vehicle conditions at all four signalized study intersections on US 101 will not meet mobility targets by 2040 if evaluated using the 30th highest annual hour volume (peak summer) conditions.

Technical Memorandum #11: Alternative Mobility Targets (TSP Volume 2, Section 11) finds that average weekday peak hours (non-summer, representing about eight months of the year) are forecasted be far less congested and recommends using an analysis period for mobility targets based on based on average weekday. This memorandum supports the adoption of alternative mobility targets for all of the US 101 signalized intersections in Warrenton, included in this staff report as Attachment C. Using ODOT Region 2 methodology for determining alternative mobility targets, the analysis assessed each study intersection along US 101 and the conclusion is that the new recommended OHP target value of 0.85 can be met using an alternative traffic analysis time period for those intersections.

The specific local actions called for in the TSP to help relieve congestion are discussed in Technical Memorandum #8: Solutions Evaluation, including expanding the local street system; enhancing transit; and filling gaps in the pedestrian and bicycle network. (TSP Volume 2, Section 8)

The TSP's transportation system improvements are in alignment with expected growth and the implementation of the City's existing adopted land use plan; the TSP demonstrates that the proposed alternative mobility targets support locally adopted land use, economic development, and multimodal transportation policy and objectives. The TSP further documents the understanding between the City and ODOT about how transportation improvements will be funded (see The Investments *chapter in the adopted TSP).*

Attachment B

Warrenton Transportation System Plan

Copies of the 2019 Warrenton Transportation System Plan can be obtained by downloading the document at:
https://www.dropbox.com/sh/b8daiw9r329vvvm/AACD5GGlFsBUVsChlc8mdgtUa?dl=0&preview=Warrenton_TSP_Vol1.pdf

Or by contacting:

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Attachment C

Warrenton Transportation System Plan, Volume 2, Section N, Public Involvement

Section N – Public Involvement can be found in Volume 2 of the Warrenton Transportation System Plan at the following link:
https://www.dropbox.com/sh/b8daiw9r329vvvm/AACD5GGlFsBUVsChlc8mdgtUa?dl=0&preview=Warrenton_TSP_Vol2.pdf

Or by contacting:

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Attachment D

Technical Memorandum Summary of Warrenton Transportation System Plan Findings

SECTION 11

TECH MEMO ELEVEN

ALTERNATIVE MOBILITY TARGETS

MEMORANDUM #11

DATE: August 1, 2018

TO: Warrenton TSP Project Management Team

FROM: Angela Rogge, PE, David Evans and Associates, Inc.
Shelly Alexander, PE, David Evans and Associates, Inc.

SUBJECT: **Warrenton Transportation System Plan Update**
Alternative Mobility Targets P14180-008

Introduction

The Oregon Highway Plan (OHP) provides guidance for how transportation analysis and plans should be prepared, but ultimately leaves the responsibility for developing improvements and mobility standards to the plans themselves. In addition to the established mobility targets in the OHP, if it is found that adopted mobility targets cannot be achieved even with improvements that are reasonably likely to be in place by year the planning horizon year, alternative mobility targets can be developed as part of a transportation system plan. The alternative mobility targets are then considered the highway system performance standards in compliance with the Transportation Planning Rule (TPR) (OAR 660-012), including applicability for actions that fall under Section -0060 of the TPR.

As part of the Warrenton TSP Update process, findings from technical memoranda suggest the need for alternate mobility targets at select intersections along US 101. This memorandum will outline how US 101 serves the City of Warrenton, as well as its existing and forecasted traffic operations. Further discussion will highlight how the TSP can reasonably attempt to mitigate the capacity constraints, where alternate mobility targets are recommended, and what the mobility targets should be.

Background

Warrenton Travel Patterns

Warrenton has its own unique transportation identity. Being a close neighbor to Astoria, many people live in one community and work in the other. As summarized in *Technical Memorandum* #5, the majority of Warrenton residents actually work outside of the city. Conversely, approximately 80 percent of the people working in Warrenton commute from outside of the city limits. Most of these commuters travel US 101 for this purpose.

Warrenton is home to tourist destinations such as Fort Stevens State Park and the Peter Iredale site, as well as access to Oregon's coastline. Most of the visitors to Warrenton will travel through intersections along US 101, either to travel to and from town, or to popular commercial sites.

US 101 through Warrenton carries a high volume of freight traffic as it is a Federal Truck Route and the only freight route through the City. US 101 crosses over Youngs Bay and handles freight traffic to and from Astoria and the Port of Astoria, as well as other southern destinations.

Existing Roadway Network and Land Uses

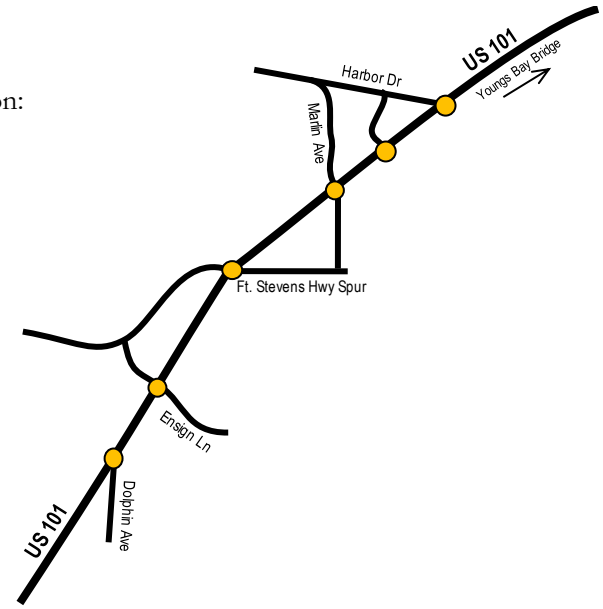
Warrenton is surrounded by and includes significant areas of open space and natural resources. These resources are important to the economic vitality of the region and many areas are of historical significance due to their association with the Lewis and Clark Expedition. The current transportation network has limited opportunities to expand without impacts to the existing natural resources (wetlands, open space, recreation).

Commercial development is primarily concentrated in the downtown core along Fort Stevens Highway (OR 104) and US 101, including several regional or national chains such as Costco, Home Depot and Fred Meyer.

Traffic Analysis

The TSP analyzed six intersections along US 101 in Warrenton:

- E Harbor Drive at US 101
- US 101 at SE Neptune Drive
- US 101 at Marlin Drive
- OR 104S/Ft Stevens Hwy Spur at US 101
- SE Ensign Lane at US 101
- US 101 at SE Dolphin Avenue



Existing Mobility Targets

The City does not currently have a mobility target for its local streets; the project team anticipates reviewing mobility targets as part of the work involving updates to the City code. The traffic analysis relied on Clatsop County and ODOT mobility targets for evaluation of intersection operations.

For State facilities, the Oregon Highway Plan (OHP) and the Highway Design Manual (HDM) guide the assessment of intersection operations. Both documents base their mobility performance on the calculation of volume-to-capacity (v/c) ratios; however, the standards in the HDM are based on higher performance levels than those in the OHP. The mobility targets from the OHP are applicable to the existing and future baseline (no build) analysis.

Table 1. US 101 Mobility Targets

Segment	Speed Limit	OHP Classification	Signalized Intersection	Unsignalized Intersection	
				US 101	Side Street
US 101: Youngs Bay Bridge to South of Ensign Ave	45 mph	Statewide Highway; Non-OHP Freight Route; Non-MPO; Inside UGB	0.80 v/c	0.80 v/c	0.90 v/c
US 101: South of Ensign Ave to South City Limits	55 mph		0.80 v/c	0.80 v/c	0.90 v/c

Source: Oregon Highway Plan (OHP), Policy 1F, Table 6

Existing and Future Conditions

The traffic analysis evaluated two sets of volumes (30th Highest Hour/Summer and Average Weekday) in anticipation of the need for alternate mobility targets. Typical ODOT traffic methodology uses the 30th highest hour volumes for analysis. Table 2 summarizes the results of the operational analysis.

Table 2. Existing (Year 2015) and Future (Year 2040) PM Peak Hour Traffic Operations Analysis Results

Year	Intersection	Average Weekday				30th Highest Hour (Summer)			
		Major		Minor		Major		Minor	
		V/C [1,2]	LOS [2]	V/C [1,2]	LOS [2]	V/C [1,2]	LOS [2]	V/C [1,2]	LOS [2]
Existing (2015)	**Unsignalized Intersections**								
	OR 104S/Ft Stevens Hwy Spur at US 101	0.01	A	0.01	B	0.03	B	0.02	C
	US 101 at SE Dolphin Ave	0.03	A	0.14	B	0.05	A	0.26	C
	Signalized Intersections								
	E Harbor Dr at US 101	Overall		**0.80**	C	Overall		**1.05**	D
	US 101 at SE Neptune Dr	Overall		0.67	C	Overall		**0.85**	C
	US 101 at Marlin Dr	Overall		0.64	C	Overall		**0.99**	D
	SE Ensign Ln at US 101	Overall		0.77	D	Overall		**0.95**	F
Future (2040)	**Unsignalized Intersections**								
	OR 104S/Ft Stevens Hwy Spur at US 101	0.02	B	0.04	C	0.03	B	0.09	D
	US 101 at SE Dolphin Ave	0.09	A	0.43	C	0.16	B	0.86	F
	Signalized Intersections								
	E Harbor Dr at US 101	Overall		**0.89**	C	Overall		**1.23**	E
	US 101 at SE Neptune Dr	Overall		0.76	C	Overall		**1.08**	E
	US 101 at Marlin Dr	Overall		**0.88**	C	Overall		**1.23**	F
	SE Ensign Ln at US 101	Overall		**0.90**	F	Overall		**1.16**	F

Acronyms: EB = eastbound; WB = westbound; NB = northbound; and SB = southbound. L = left; T = through; and R = right.

SHADED cells indicate the movement fails to meet applicable mobility target

1. At intersections the results are reported for the worst operating movements on major and minor approaches that must stop or yield the right of travel to other traffic flows.
2. The v/c ratios and LOS are based on the results of the macrosimulation analysis using Synchro, which cannot account for the influence of adjacent intersection operations.
3. Mobility target is reported for the critical movement; Unsignalized intersections may have two different mobility targets for the major and minor approaches (Action 1F.1, Oregon Highway Plan, 1999)

Source: David Evans and Associates, Inc.

The analysis concluded the following for intersections along US 101:

- In 2015:
  - Average weekday: One intersection is at the mobility target threshold (at E Harbor Dr)
  - 30th Highest Hour (Summer): All four signalized intersections along US 101 in Warrenton are expected to exceed applicable mobility targets.
- In 2040:
  - Average weekday: Three signalized intersections are expected to exceed the mobility target (at E Harbor Drive, Marlin Drive and Ensign Lane)
  - 30th Highest Hour (Summer): All signalized intersections along US 101 in Warrenton are expected to exceed applicable mobility targets.

Mitigation

As part of the TSP Update, projects were developed to address mobility concerns under 30th highest hour (summer) conditions (see *Technical Memorandum #8*).

The first step was to evaluate the intersections exceeding a v/c of 1.0 under the 30th highest hour (summer) no build conditions using a PHF of 1.0. The result of adjusting the PHF was that the intersections were still expected to operate above a v/c of 1.0 (see Table 3).

The consultant team determined the level of improvement that would be required to meet OHP mobility targets. A summary of projects specific to US 101 and their resulting operations are summarized below in Table 3.

Table 3. Improvements to Meet OHP Mobility Target - 30th Highest Hour (Summer)

Intersection	Improvement	No Build v/c [1]	Mitigated v/c
E Harbor Dr at US 101	• Add 2nd NBT lane • Convert dedicated SBR to a SBTR • Add 2nd EBL turn lane (eliminate WBL to private business)	1.20	0.76
US 101 at SE Neptune Dr	• Add 2nd NBT lane • Convert dedicated SBR to a SBTR	1.01	0.67
US 101 at Marlin Dr	• Add 2nd NBT lane • Add 2nd SBT lane	1.16	0.74
SE Ensign Ln at US 101	• Add 2nd EBL turn lane • Add 2nd EBT lane (shared EBTR) • Add 2nd SBL turn lane • Add dedicated SBR turn lane	1.11	0.78

Note: No Build operational analysis results reflect a PHF of 1.0

Significant capital investment would have to occur to fix a capacity problem that is most noticeable during the summer tourist season. The extent of the improvements listed in Table 3 are not necessary under average weekday conditions.

To meet mobility targets for the 30th highest hour, US 101 would have to be widened to a five-lane cross-section from the Youngs Bay Bridge south through Marlin Drive. This type of improvement would likely result in impacts to natural resources (wetland) and require a level of funding that is not anticipated within the forecasting horizon (2040). Also of note, unless the Youngs Bay bridge is widened to four lanes, the capacity improvements through Warrenton would likely result in congestion at the transition to the bridge structure.

The intersection of Ensign Lane at US 101 is expected to continue to exceed mobility targets for the summer peak conditions unless improvements are constructed that would require the widening of Ensign on both sides of US 101. This widening would likely result in impacts to existing businesses and require the reconstruction of an intersection that has recently been improved.

In summary, there are financial and environmental barriers to mitigating to the OHP mobility target:

- Mitigation would require widening of US 101 to a five-lane cross-section from the Youngs Bay Bridge south through Marlin Drive, which has potential wetland impacts and modifying three signalized intersections.
- Regional bottleneck would remain with a two-lane Youngs Bay Bridge between Warrenton and Astoria
- Capacity improvements to SE Ensign Lane would reconstruct an intersection that has recently been improved.
- Widening of side streets could require right-of-way acquisitions.
- The improvements necessary to mitigate to the current OHP mobility target would result in the average weekday traffic utilizing only 50-65% of the available intersection capacity.

Alternative Mobility Targets

Per OHP Policy 1F.3, local jurisdictions may explore alternative mobility targets if it "is infeasible or not practical to meet the existing performance targets through the development of transportation system plans". The OHP specifically identifies facilities with high seasonal traffic as an example of where state mobility targets may not match the local expectations for a specific facility. As previously mentioned, traffic volumes on US 101 through Warrenton suffer from summer seasonal peaking.

Alternative Mobility Target Process

As discussed in the previous sections, the project team followed the process outlined in Figure 1 to determine the appropriate alternative mobility targets. The results of each step of the process are summarized below.

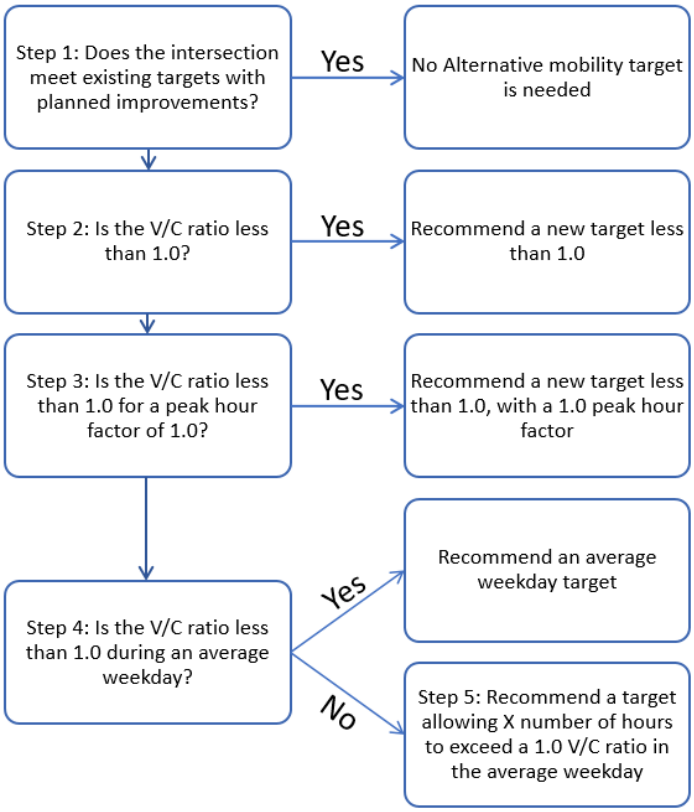
Step 1: None of the four signalized study intersections along US 101 would be expected to meet existing OHP mobility targets during the summer of 2040, after recommended improvements described earlier. To be compliant, Warrenton would need alternative mobility targets for all of the four signalized study intersections along US 101.

Step 2: None of the four signalized intersections would be expected to operate below a v/c ratio of 1.0 during the summer of 2040.

Step 3: None of the four signalized intersections would be expected to operate below a v/c ratio of 1.0 during the summer of 2040 after assuming a peak hour factor of 1.0.

Step 4: All of the four signalized intersections would be expected to operate below a v/c of 1.0 during the average weekday peak hour in 2040. Thus, an average weekday target is recommended.

Figure 1. Alternative Mobility Target Process



Proposed Alternative Mobility Target

Adopting an alternative analysis methodology for US 101 through Warrenton and an alternative mobility target value accomplishes two objectives:

1. Sets a financially and operationally realistic expectation for highway improvements and related traffic conditions within this corridor segment which acknowledge that ODOT will not be able to construct enough capacity on US 101 to avoid or alleviate congestion during summer months.
2. Simplifies future analysis efforts if a land use or zoning change proposal is made that impacts US 101.

The analysis process determined that under 30th highest hour (summer) conditions and a PHF of 1.0, the v/c ratios for all signalized intersections on US 101 are expected to exceed 1.0 by 2040. This is why we suggest an average weekday analysis. The project team then evaluated potential v/c targets of 0.80, 0.85 and 0.90. A v/c target of 0.85 was selected because 0.90 would not trigger any improvements and 0.80 would require capacity improvements with little benefit for the cost.

Using the alternative methodology allows the alternative mobility target value to reference a v/c ratio target of less than or equal to 0.85. This adjustment eliminates the need to analyze the extent to which at-capacity (v/c ratio > 1.0) operations would last longer than one peak hour (as done in the Portland Metro area).

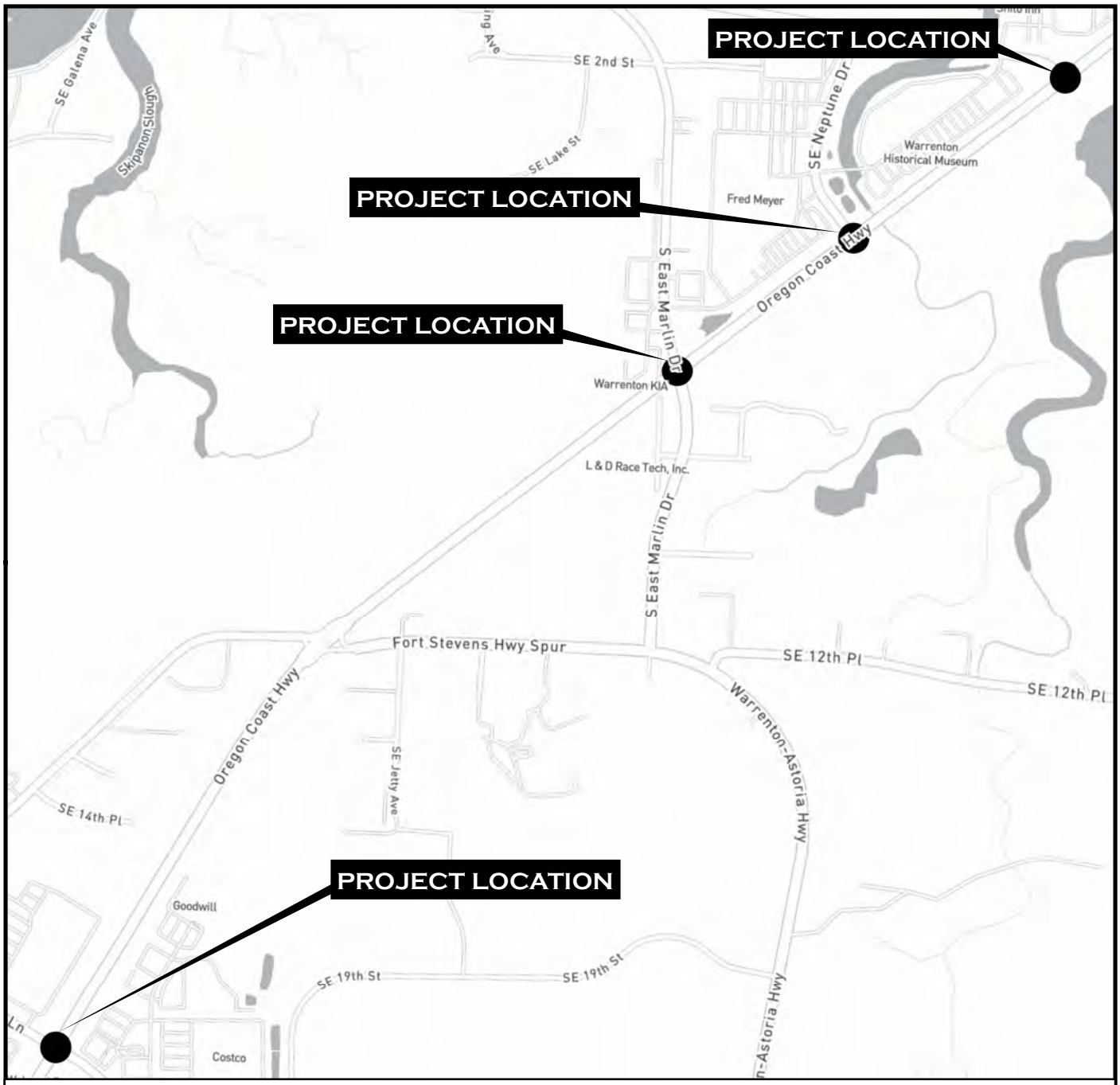
Based on the findings of the traffic analysis, the project team suggests a request of the OTC for the following:

- An alternative mobility target analysis methodology for the segment of US 101 through Warrenton, specifying that future traffic analysis will be based on annual average weekday volumes rather than the ODOT standard analysis methodology that uses 30th highest hour volumes;
- An alternative mobility target of 0.85, based on the annual average weekday analysis methodology, as the alternative mobility target for signalized intersections with US 101 through Warrenton.

Table 4. Improvements to Meet Proposed Alternative Mobility Target – Average Weekday

Intersection	Improvement	No Build v/c	Mitigated v/c
E Harbor Dr at US 101	• Add 2nd EBL turn lane (eliminate WBL to private business)	0.89	0.75
US 101 at SE Neptune Dr	• None	0.76	N/A
US 101 at Marlin Dr	• Install flashing yellow NBL and SBL	0.88	0.84
SE Ensign Ln at US 101	• Increase cycle length from 100 sec to 120 sec	0.90	0.82

PROJECT LOCATION
ODOT REGION 2



ACT: Northwest Oregon ACT ***COUNTY:*** Clatsop ***CITY:*** Warrenton

WARRENTON ALTERNATIVE MOBILITY TARGET

STATE HIGHWAY CLASSIFICATION
- INTERSTATE
- STATEWIDE
- LOCAL ROADS
- PROJECT LOCATION

BOUNDARIES
- ODOT REGION
- COUNTY
- ACT BOUNDARY
- HYDROLOGIC FEATURES

0 0.2
Miles

PRODUCED BY ODOT - GIS UNIT
ODOTMaps@odot.state.or.us
GIS NO. 23-52
DATE: 2/19/2020

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PROJECT VICINITY

ODOT REGION 2

WARRENTON ALTERNATIVE MOBILITY TARGET

STATE HIGHWAY CLASSIFICATION

- INTERSTATE
- STATEWIDE
- LOCAL ROADS
- PROJECT LOCATION

BOUNDARIES

- ODOT REGION
- COUNTY
- ACT BOUNDARY
- HYDROLOGIC FEATURES

N

0 40

Miles

PRODUCED BY ODOT - GIS UNIT
ODOTMaps@odot.state.or.us
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