2010 TRANSPORTATION SYSTEM PLAN AMENDMENTS
(CPA 20-01/TA 20-03)
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MEMORANDUM

DATE: October 30, 2020

MEETING DATE: November 9, 2020

TO: Planning Commission

FROM: Ryan Potter, AICP, Senior Planner

SUBJECT: Transportation System Plan Update – Walnut Street Extension

CITY FILE: CPA 20-01/TA 20-02

Introduction – Transportation System Plan Amendment

This is a legislative and quasi-judicial amendment to adopt an amendment to the City's 2010 Transportation System Plan (TSP). Attached to this memorandum is a report prepared by the City's traffic consultant, DKS Associates. The amendment was initiated by City Staff to reflect changes in the planned alignment of a new roadway connecting the City's Pioneer Industrial Park with State Highway 99E. Because of environmental and development constraints, the previously adopted alignment that extended Otto Road to the highway is now planned as an extension of S Walnut Street (previously Walnut Road).

Background

The City's thriving Pioneer Industrial Park has seen years of steady growth, with numerous businesses both large and small either relocating to Canby or expanding their existing local operations. The City's adopted TSP identifies a vision for a roadway network that both provides efficient circulation within the industrial park, but also provides access between the park and Highway 99E. This second goal is one that has become more urgent with the arrival—or in some cases, pending arrival—of several large-scale light industrial developments. In particular, warehouse and manufacturing-oriented development generates truck traffic that is best served by a direct road connection to Highway 99E.

The 2010 TSP anticipated the need for an industrial connector road and conceptually identified an alignment that would connect with Otto Road, an existing dead-end road gravel road providing access to several properties from Highway 99E. However, this conceptual alignment has become obsolete due to environmental, engineering, and other technical considerations. The City seeks to amend the alignment shown in the TSP in order to both better facilitate its construction, and to allow the City to spend System Development Charge (SDC) fees specifically earmarked for transportation projects identified in the TSP.

Note that both the new and previous alignments traverse land that is outside the City but within the City's urban growth boundary (UGB).

The TSP Amendment prepared by DKS achieves these goals and provides additional background information on the selection process for the road alignment currently under consideration. Upon approval of the attached TSP Amendment memorandum, it would be affixed to the 2010 Amendment as an attachment. Planning Staff notes that, although the materials prepared by DKS are from November 2019, they are still relevant to the proposed amendment under consideration. Staff also notes that one of the recommended transportation improvements, installation of a traffic signal at SE Hazel Dell Way and Sequoia Parkway, has already been constructed.

Applicable Regulations

- 16.88.170, Amendments to Text of Title
- 16.88.180, Comprehensive Plan Amendments (Legislative)

Under Section 16.88.170 of the Canby Municipal Code, standards and criteria for amendments to the Comprehensive Plan are as follows:

> In judging whether or not this title should be amended or changed, the Planning Commission and City Council shall consider:
>
> 1. The Comprehensive Plan of the city, and the plans and policies of the county, state, and local districts, in order to preserve functions and local aspects of land conservation and development;
> 2. A public need for the change;
> 3. Whether the proposed change will serve the public need better than any other change which might be expected to be made;
> 4. Whether the change will preserve and protect the health, safety and general welfare of the residents in the community;
> 5. Statewide planning goals.

Analysis and Findings

The proposed TSP Amendment would connect employment-generating land uses in Canby to the regional transportation network via Highway 99E. By reducing the incentives for truck traffic to drive through residential areas of Canby, it would allow better separation between modes of surface transportation (normal intra-city circulation and truck traffic) and would reduce safety issues related to conflicts between these travel modes. The proposed amendment is consistent with Clackamas County's TSP goals, which include planning a transportation system "to create a prosperous and adaptable economy" and the City's TSP goals which include creating "economic vitality" (by better serving employment-generating land uses) and "efficient and innovative funding" (by making the Walnut Street extension project eligible for transportation SDCs).

Finding 1: For the above reasons, Planning Staff finds the TSP Amendment is consistent with applicable provisions of the Canby Municipal Code and other applicable plans and policies.

Recommendation

Planning Staff recommend that the Planning Commission advance a recommendation of **approval** to the City Council regarding CPA 20-01, an amendment to the 2010 Transportation System Plan.

MEMORANDUM

DATE: November 7, 2019

TO: Bryan Brown, City of Canby
Matilda Deas, City of Canby

FROM: Kevin Chewuk, DKS Associates
Dock Rosenthal, DKS Associates

SUBJECT: Canby S Walnut Road Extension TSP Amendment P19113-000

This memorandum summarizes a traffic study for the proposed S Walnut Road extension between SE 1st Avenue and Pacific Highway (OR 99E) in Canby, Oregon. The objective of this traffic study is to update the 2010 TSP with recommended improvements needed with the S Walnut Road extension.

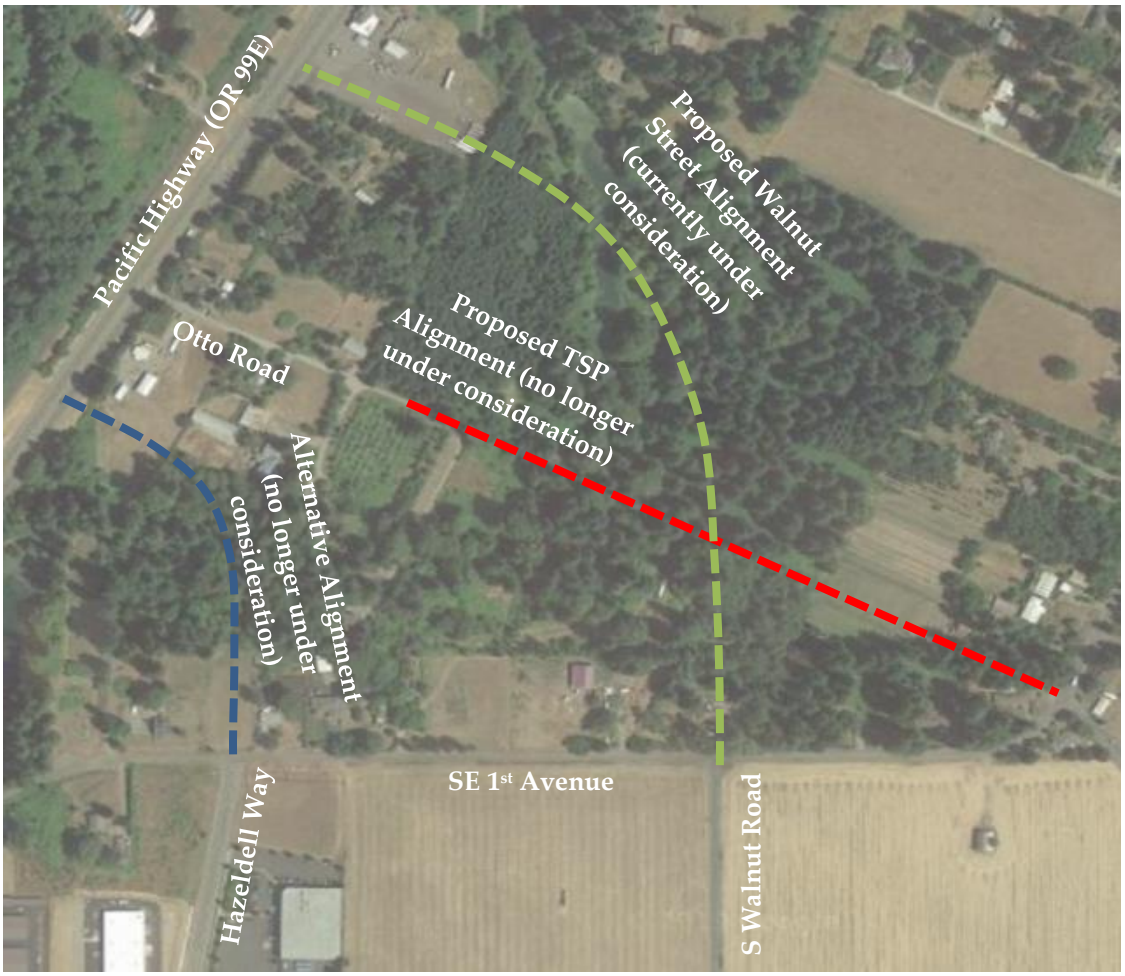
Alternative Alignments

The Canby Transportation System Plan (TSP) included an alignment for extending Otto Road from its current terminus, east to the intersection of SE 1st Avenue/S Mulino Road (see Figure 1). An alternative alignment was also previously analyzed that would have extended Hazeldell Way north to OR 99E, as shown in Figure 1. These alignments are no longer under consideration due to environmental and other development constraints. Previous memos[1,2] were completed that contained preliminary analysis results of these alternatives. A new alignment has been proposed that would extend S Walnut Road from SE 1st Avenue to OR 99E, roughly between the Otto Road and Territorial Road intersections (see Figure 1).

[1] Canby Otto Road Alternative Preliminary Transportation Analysis Memorandum, DKS Associates, April 27, 2018.

[2] Canby Otto Road Alignment Alternative, DKS Associates, November 27, 2018.

Figure 1: Alignment Alternatives



Study Area

The study area is roughly bounded by S. Mulino Road to the east, Sequoia Parkway to the west, SE 1st Avenue to the south and OR 99E to the north. The following list provides the study intersections with existing control:

1. OR 99E / Sequoia Parkway (existing signalized intersection)
2. OR 99E / S Walnut Road extension (proposed intersection)
3. OR 99E / Territorial Road (existing signalized intersection)
4. SE Hazel Dell Way / Sequoia Parkway (existing unsignalized intersection; planned future signal)
5. SE 1st Avenue / S Walnut Road (existing unsignalized intersection)

6. SE 1st Avenue / S Mulino Road (existing unsignalized intersection; planned future roundabout)

OR 99E Access Rights Research

Access rights and access control information along OR 99E in the project area was provided by the Oregon Department of Transportation (ODOT)[3]. This information shows locations where the S Walnut Road extension could potentially connect to OR 99E.

ODOT owns access control rights along portions of OR 99E through the project area, generally south of Territorial Road to Sequoia Parkway. In areas with access control, no right of access between the property and the highway remains unless a reservation of access is present. Reservations of access represent specific locations where access rights remain. Where no reservation of access is present, an application for an approach permit cannot be accepted.

Only the properties along the highway from which the access rights were acquired have a right to use the access reservations that were established along their frontage. A reservation of access affords the property owner the right to apply for an approach permit but does not guarantee ODOT approval for a driveway at that location for the proposed use of the property. Applications for approach permits are reviewed under current ODOT access management regulations (OAR 734-051). Existing reservations of access can be relocated or slightly modified upon approval from ODOT through a process called indenture of access.

For traffic from other parcels or the local street system to use an access to the highway, a grant of access would be required. This is a much more complex process than applying for an indenture of access. When it comes to the grant of access, the City will need to demonstrate why an additional public access will benefit the highway. In the grant of access application, ODOT has identified some situations where a new highway approach could potentially benefit the highway, such as:

- Where existing rights of access can be relocated, controlled, and/or combined; or
- Where operations could be improved through off-system connectivity, traffic diversions, or other traffic engineering techniques.

Figure 2 shows the locations along the highway where reservations of access remain. Yellow lines with solid blue circles identify the locations of access reservations with existing driveways, while

[3] Email from Seth Brumley, August 20, 2018.

yellow lines with open circles show the access reservation locations without an existing driveway. The proposed S Walnut Road extension could potentially connect to OR 99E just south of mile point 19.61, at the Double Aught property. This tax lot has three existing driveways with access reservations.

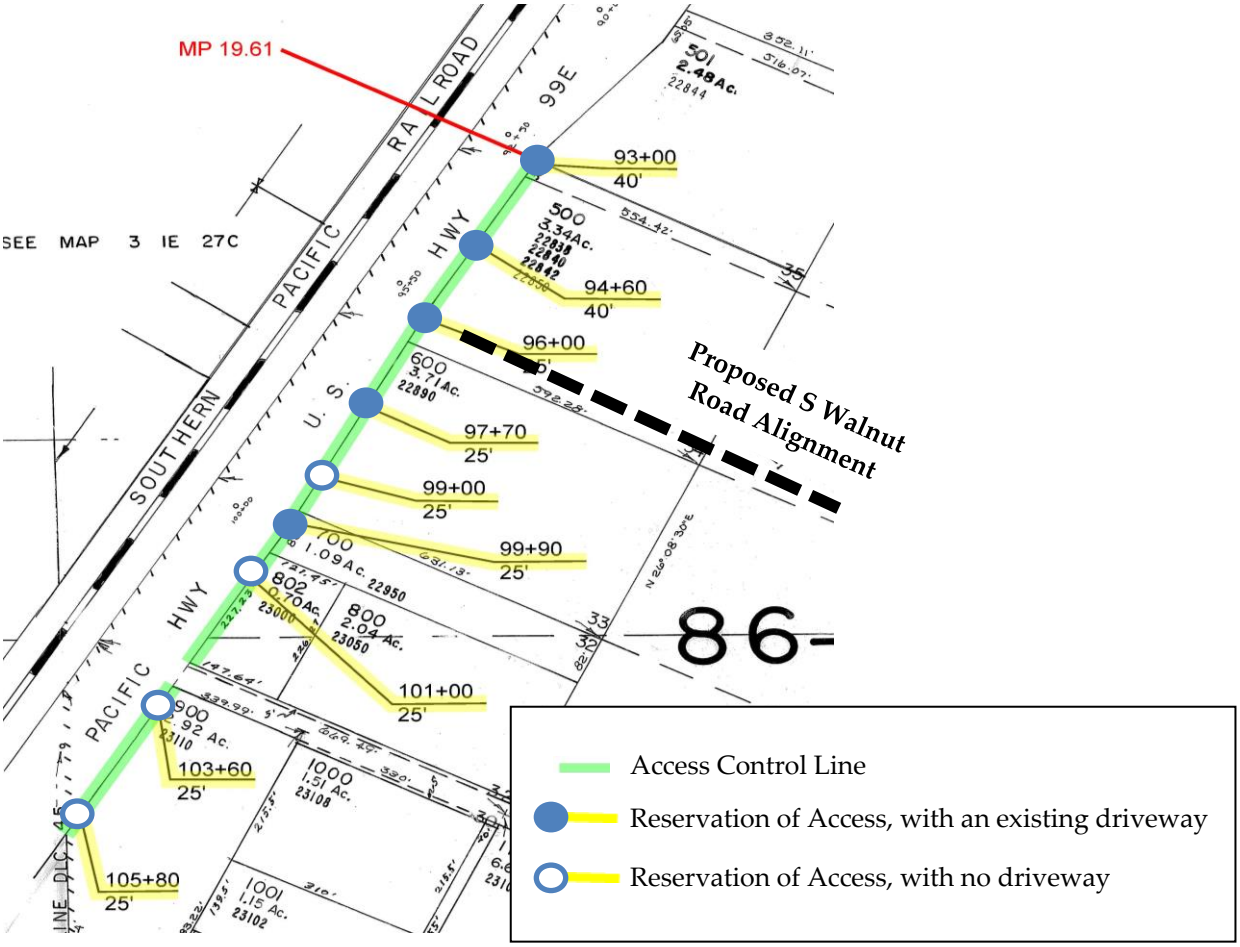


Figure 2: Access Rights on OR 99E

Traffic Forecasting

Future p.m. peak hour traffic forecasts were prepared for two scenarios, with the proposed Otto Road extension from the TSP and with the proposed S Walnut Road extension to provide a baseline for identifying new transportation improvement needs beyond those included in the TSP; these scenarios include:

- **TSP Baseline (with the Otto Road Extension) –** This scenario assumes the Otto Road extension from the TSP (TSP Project L1). These projects would extend Otto Road from the current terminus, east to SE 1st Avenue near the S Mulino Road and S Bremer Road intersections (see Figure 1). It includes the improvement projects listed in the "Baseline Transportation System Improvements" section. S Walnut Road would not be extended under this scenario.
- **S Walnut Road Extension –** This scenario assumes S Walnut Road will be extended from SE 1st Avenue to OR 99E, roughly between the Otto Road and Territorial Road intersections (see Figure 1). It includes the improvement projects listed in the "Baseline Transportation System Improvements" section. Otto Road would not be extended under this scenario.

Baseline Transportation System Improvements

The starting point for the future operations analysis relied on a list of street system improvement projects contained in the Canby TSP and subsequent analysis work. These projects represent only those that are expected to be reasonably funded, and therefore can be included in the Baseline scenario. The improvements assumed include:

- Install a traffic signal at the **Otto Road and S Walnut Road connections to OR 99E** (TSP Project L2)
- Install a roundabout at **SE 1st Avenue / S Haines Avenue / Bremer Road / S Mulino Road** intersection (TSP Project O1)
- Install a traffic signal at the **SE Hazel Dell Way / Sequoia Parkway** intersection (on-going improvement project resulting from subsequent analysis work)

Estimating Driving Trips

Determining future street network needs requires the ability to forecast traffic volumes resulting from estimates of future population and employment. The objective of the transportation planning process is to provide the information necessary for making decisions about how and where improvements should be made to create a safe and efficient transportation system that provides travel options.

Future traffic volumes were forecasted using the Canby Small Community Model developed for the Canby TSP. The modeling and volume forecasting performed for the TSP was based on the year 2009 (existing) and year 2030 (horizon). Model forecasts are refined by comparing outputs with observed counts and behaviors on the local system. This refinement step is completed before any evaluation of system performance is made. The growth was then linearly increased to the future forecast year 2035. Once the traffic forecasting process is complete, the 2035 volumes are used to determine the areas of the street network that are expected to be congested and that may need future investments to accommodate growth.

Future Motor Vehicle Operations

Motor vehicle conditions were evaluated for each future scenario during the p.m. peak hour at the study intersections (see Table 1) using 2000 Highway Capacity Manual methodology for signalized and 2010 Highway Capacity Manual methodology unsignalized intersections for consistency with the TSP. The future conditions include the improvements summarized in the "Baseline Transportation System Improvements" section.

During the evening peak hour, only the SE 1st Avenue / S Walnut Road intersection is expected to exceed standard under the S Walnut Road extension scenario. This intersection is assumed to be unsignalized in the future and the side street approach is over capacity given the limited gaps to turn in the future with the S Walnut Road extension. An improvement for this intersection is identified later in this report. The OR 99E / S Walnut Road extension, SE Hazel Dell Way / Sequoia Parkway and Bremer Road / S Haines Avenue / S Mulino Road intersections will be expected to meet standards with the assumed future baseline intersection improvements.

Table 1: Future Intersections Operations (PM Peak Hour)

Intersection (traffic control)	Mobility Standard (jurisdiction)	2030 TSP Baseline (with the Otto Road Extension)		2035 S Walnut Road Extension	
		v/c	LOS	v/c	LOS
OR 99E / Sequoia Parkway (signalized intersection)	0.85 v/c (ODOT)	0.81	D	0.84	D
OR 99E / Otto Road extension (proposed intersection with signal)	0.85 v/c (ODOT)	0.75	D	-	-
OR 99E / S Walnut Road extension (proposed intersection with signal)	0.85 v/c (ODOT)	-	-	0.78	C
OR 99E / Territorial Road (signalized intersection)	0.85 v/c (ODOT)	0.67	B	0.85	C
SE Hazel Dell Way / Sequoia Parkway (planned signal)	LOS D, v/c ≤0.85 (Canby)	**0.94**	**A/F**	0.80	D
SE 1st Avenue / S Walnut Road (unsignalized intersection)	LOS E, v/c ≤ 0.90 (Canby)	0.60	B	**0.98**	**F**
SE 1st Avenue / S Mulino Road (planned roundabout)	v/c ≤ 0.95 (Clackamas County)	0.55	B	0.89	D

Bolded red values indicate intersection exceeds the mobility target

The recommended improvement for the SE 1st Avenue / S Walnut Road intersection that is expected to exceed the mobility standard in the 2035 S Walnut Road Extension scenario can be seen in Table 2. The traffic control was first analyzed as an all-way stop, however, with this improvement the intersection would still not meet the City's mobility standard in 2035. Therefore, the intersection was analyzed as a single-lane roundabout. With the roundabout, the intersection will be expected to meet standard. A single-lane roundabout at this location will increase safety and reduce delay but should be designed to accommodate the significant amount of heavy truck traffic that would travel through the intersection.

Table 2: Operations with S Walnut Road Extension and Recommended Improvement (2035 PM Peak Hour)

Intersection	Mobility Standard	S Walnut Road Extension with Recommended Improvement		Recommended Improvement
		v/c	LOS	
SE 1st Avenue / S Walnut Road	LOS D, v/c ≤0.85	B	0.63	Install a roundabout

Roadway Network Evaluation

The proposed street system modifies some of the classifications of the Canby TSP. Given the City's standards, the estimation of traffic volumes on area streets and overall circulation needs, recommended classifications/reclassifications and cross-sections are as follows:

- **S Walnut Road between SE 1st Avenue and OR 99E** is a newly identified street that was not in the TSP and is recommended as a collector and a truck route. Provide three-lane cross-section, to include two 12-foot travel lanes and a 14-foot center turn lane, bike lanes (50-foot paved width), and sidewalks (consistent with SE Hazeldell Way).
- **S Walnut Road between SE 1st Avenue and Sequoia Parkway** is recommended as a collector, modified from a local street in the TSP. It is also recommended as a truck route. Provide three-lane cross-section, to include two 12-foot travel lanes and a 6-foot striped median (30-foot paved width), sharrows for bike travel, and sidewalks (consistent with S Walnut Road south of the project site).
- **SE 1st Avenue between Hazel Dell Way and S Mulino Road** is recommended as a collector, modified from a local street in the TSP. A truck route is also recommended. Provide three-lane

cross-section, to include two 12-foot travel lanes and a 14-foot center turn lane, bike lanes (50-foot paved width), and sidewalks (consistent with SE Hazeldell Way).

- **Otto Road between OR 99E and the eastern terminus** is recommended as a local street, modified from an arterial in the TSP. The truck route designation is recommended to be removed. Maintain existing street section.

Recommended Improvements

Transportation improvements were carried forward from Table 2 and from the "Roadway Network Evaluation" section. In addition, the intersection control improvements at the OR 99E / S Walnut Road extension and SE Hazel Dell Way / Sequoia Parkway intersections are included since they would be new projects in the TSP.

The City's TSP currently identifies future sidewalks and bike lanes along the Otto Road extension. Since this alignment is no longer proposed, it is recommended that sidewalks and bike lanes be constructed as part of the S Walnut Road extension. In addition, sidewalks and bike lanes are recommended along S Walnut Road between SE 1st Avenue and Sequoia Parkway and SE 1st Avenue between Hazel Dell Way and S Mulino Road.

Planning level cost estimates were developed for each of the improvements as shown in Table 3.

Table 3: Recommended Transportation Improvements

Project Location	Project Summary	Planning Level Cost Estimate
S Walnut Road between SE 1st Avenue and OR 99E	Construct a 3-lane collector roadway to include two 12-foot travel lanes and a 14-foot center turn lane, bike lanes (50-foot paved width), and sidewalks	$7,100,000
S Walnut Road between SE 1st Avenue and Sequoia Parkway	Upgrade to a 3-lane collector roadway to include two 12-foot travel lanes and a 6-foot striped median (30-foot paved width), sharrows for bike travel, and sidewalks	$3,300,000
SE 1st Avenue between Hazel Dell Way and S Mulino Road	Upgrade to a 3-lane collector roadway to include two 12-foot travel lanes and a 14-foot center turn lane, bike lanes (50-foot paved width), and sidewalks	$3,100,000
OR 99E / S Walnut Road extension intersection	Install a traffic signal	$1,100,000
SE Hazel Dell Way / Sequoia	Install a traffic signal	$700,000

Parkway		
SE 1st Avenue / S Walnut Road	Install a roundabout	$1,800,000
	Total Transportation Improvement Costs	**$17,100,000**

S Walnut Road Extension

The proposed S Walnut Road extension would connect to OR 99E just south of mile point 19.61, at the Double Aught property. The following sections evaluate a signal warrant and spacing analysis for the proposed intersection with OR 99E.

Signal Warrant Analysis

The control at the OR 99E / S Walnut Road extension intersection was assumed to be a traffic signal in the future, consistent with the recommended control at the OR 99E / Otto Road extension intersection in the TSP (TSP Project L2). A signal warrant analysis was performed for this intersection to determine if side-street volumes are high enough to justify (i.e. warrant) the construction of a traffic signal. Hourly volumes were estimated using the automatic traffic recorder (ATR) data for station #36-004 in Newberg, Oregon. The station's hourly ratios were assumed to be similar to the hourly ratios on OR 99E in Canby, Oregon using the ODOT ATR Characteristic Table.

Using the hourly volume data from station #36-004 and future 2035 peak hour volumes, the MUTCD[4] Signal Warrant #1 (8-Hour Volume), Warrant #2 (4-Hour Volume) and Warrant #3 (Peak Hour) were assessed. Based on the analysis, the intersection would meet all three warrants by 2035.

Signal Spacing Analysis

According to Oregon Highway Plan (OHP) Policy 3A (Action 3A.3), the location and spacing of traffic signals on state highways should be managed "to ensure the safe and efficient movement of people and goods. Safe and efficient traffic signal timing depends on optimal intersection spacing. It is difficult to predetermine where such locations should exist, although half-mile intersection spacing for Statewide and Regional Highways is desirable."

The proposed traffic signal at the S Walnut Road extension intersection with OR 99E would be located approximately 2,900 feet (0.55 miles) from the existing traffic signal at Sequoia Parkway and 1,700 feet

[4] Manual on Uniform Traffic Control Devices 2003 Ed., Federal Highway Administration, November 2004.

(0.32 miles) from the Territorial Road traffic signal. The Otto Road traffic signal, under the TSP project, would have been located approximately 2,100 feet (0.40 miles) from the Sequoia Parkway traffic signal and 2,400 feet (0.40 miles) from the Territorial Road traffic signal, while the traffic signal at the proposed Hazel Dell Way alignment would have been located approximately 1,750 feet (0.30 miles) from the traffic signal at Sequoia Parkway and 2,750 feet (0.50 miles) from the Territorial Road traffic signal. Each of these alternatives would have traffic signals that would be located less than 0.50 miles from either the Sequoia Parkway or Territorial Road intersections.

The traffic signals at Sequoia Parkway and Territorial Road are not currently on a coordinated system, therefore, no traffic signal progression analysis is required.

Access Spacing Analysis

According to the OHP, OR 99E is classified as a regional highway with a posted speed of 45 mph in an urban area. Per the OHP[5], the access management spacing standards for a roadway of this type is 500 feet. The proposed S Walnut Road extension could potentially connect to OR 99E just south of mile point 19.61, at the Double Aught property. This tax lot has three existing driveways with access reservations spaced within 225 feet of each other. These driveways are proposed to be closed to this property, with access to be taken off the proposed S Walnut Road extension signalized intersection to OR 99E.

With the S Walnut Road extension, three driveways to the highway are proposed to be closed, improving the existing substandard spacing of driveways. There will be no existing driveways north of this proposed street to Territorial Road (1,700 feet). South of this proposed street, an existing driveway will be located within 235 feet. In the future, this property to the south could take access off the S Walnut Road extension should it redevelop since it will be adjacent to the potential alignment. This could allow for the driveway to OR 99E to be closed.

TSP Amendments

The following provides a summary of the recommended amendments to the Canby TSP resulting from the S Walnut Road extension.

- The City should adopt the modified or new transportation system improvements, shown in Table 3 earlier in this document, to replace the projects in the TSP for the study area.

[5] Table 15, Appendix C, Oregon Highway Plan, Oregon Department of Transportation, Amended May 2015.

- These recommended street functional classifications for the study area should update the classifications in the TSP:
    - Classify S Walnut Road between SE 1st Avenue and OR 99E as a collector
    - Classify S Walnut Road between SE 1st Avenue and Sequoia Parkway as a collector
    - Reclassify SE 1st Avenue between Hazel Dell Way and S Mulino Road as a collector
    - Reclassify Otto Road between OR 99E and the eastern terminus as a local street
- These recommended truck routes for the study area should update the designations in the TSP:
    - Classify S Walnut Road between SE 1st Avenue and OR 99E as a truck route
    - Reclassify S Walnut Road between SE 1st Avenue and Sequoia Parkway as a truck route
    - Reclassify SE 1st Avenue between Hazel Dell Way and S Mulino Road as a truck route
    - Remove truck route along Otto Road between OR 99E and the eastern terminus

Summary

The proposed S Walnut Road extension would connect to OR 99E just south of mile point 19.61, at the Double Aught property. This tax lot has three existing driveways with access reservations. These driveways are proposed to be closed to this property, with access to be taken off the proposed S Walnut Road extension signalized intersection to OR 99E.

Only the SE 1st Avenue / S Walnut Road intersection is expected to exceed standard under the S Walnut Road extension scenario. With the recommended roundabout, the intersection will be expected to meet standard. The OR 99E / S Walnut Road extension, SE Hazel Dell Way / Sequoia Parkway and Bremer Road / S Haines Avenue / S Mulino Road intersections will be expected to meet standards with the assumed future baseline intersection improvements.

Sidewalks and bike lanes are recommended as part of the S Walnut Road extension. In addition, sidewalks and bike lanes are recommended along S Walnut Road between SE 1st Avenue and Sequoia Parkway and SE 1st Avenue between Hazel Dell Way and S Mulino Road.