



TECH MEMO #3B: EXISTING CONDITIONS ANALYSIS

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Project: Waldport Transportation System Plan Update

Subject: Tech Memo 3B: Existing Conditions Analysis

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INTRODUCTION

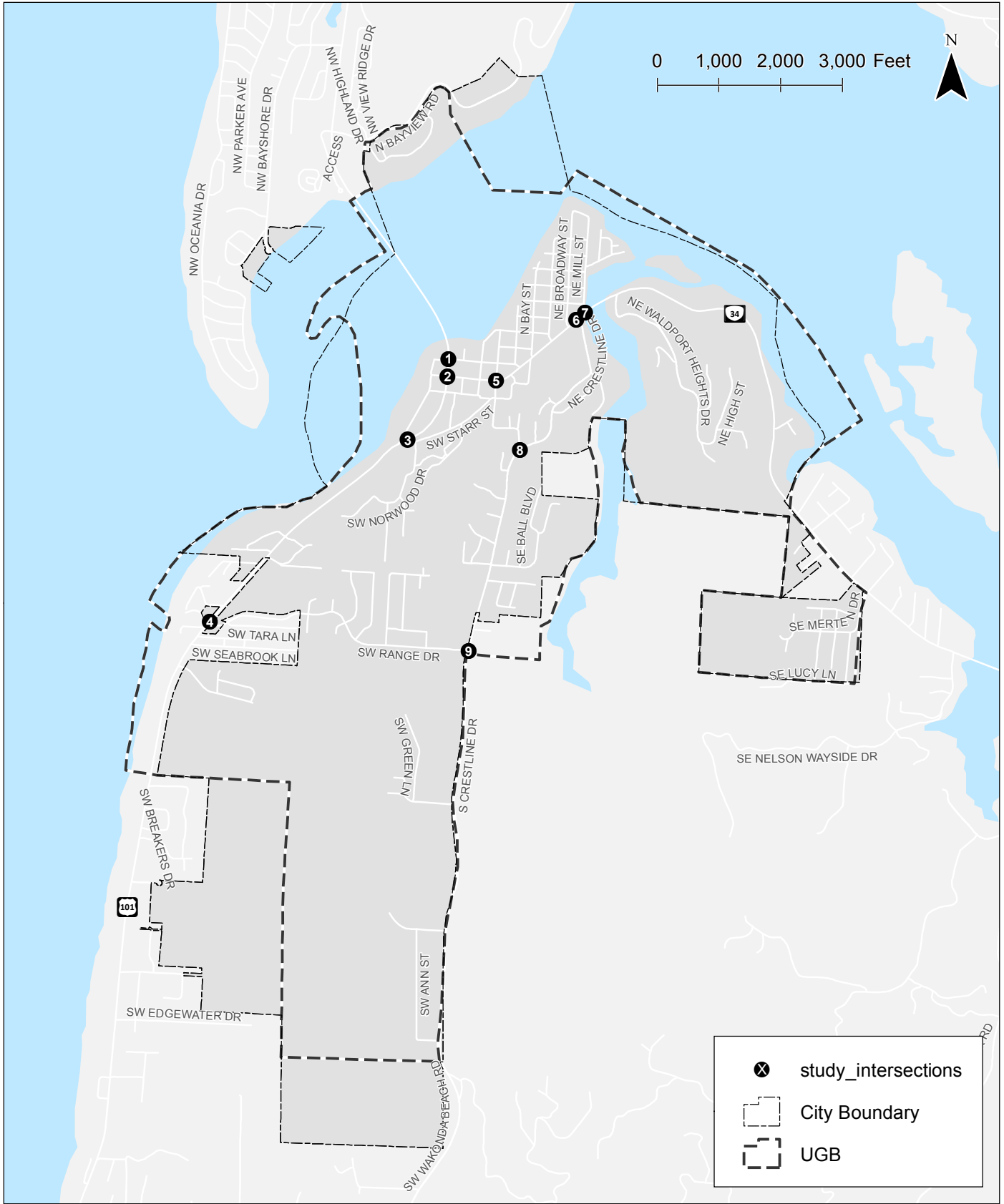
This memorandum summarizes existing transportation system conditions in Waldport for the Waldport Transportation System Plan (TSP) update. This memorandum includes information on traffic counts conducted at the study intersections and the results of the intersection operations analysis, non-automobile transportation analysis, crash analysis, access management analysis, and environmental justice (EJ) analysis. The information provided in this memorandum will serve as the basis for developing transportation system improvement projects for the TSP update.

TRAFFIC COUNTS

The study intersections for the Waldport TSP update were determined by the City of Waldport (City) and the Oregon Department of Transportation (ODOT) prior to the development of the scope of work. There are nine study intersections located along City and ODOT facilities, including one signalized and eight unsignalized intersections. Figure 1 illustrates the location of the study intersections. Figure 2 illustrates the existing lane configurations and traffic control devices. The nine study intersections include:

STATE FACILITIES

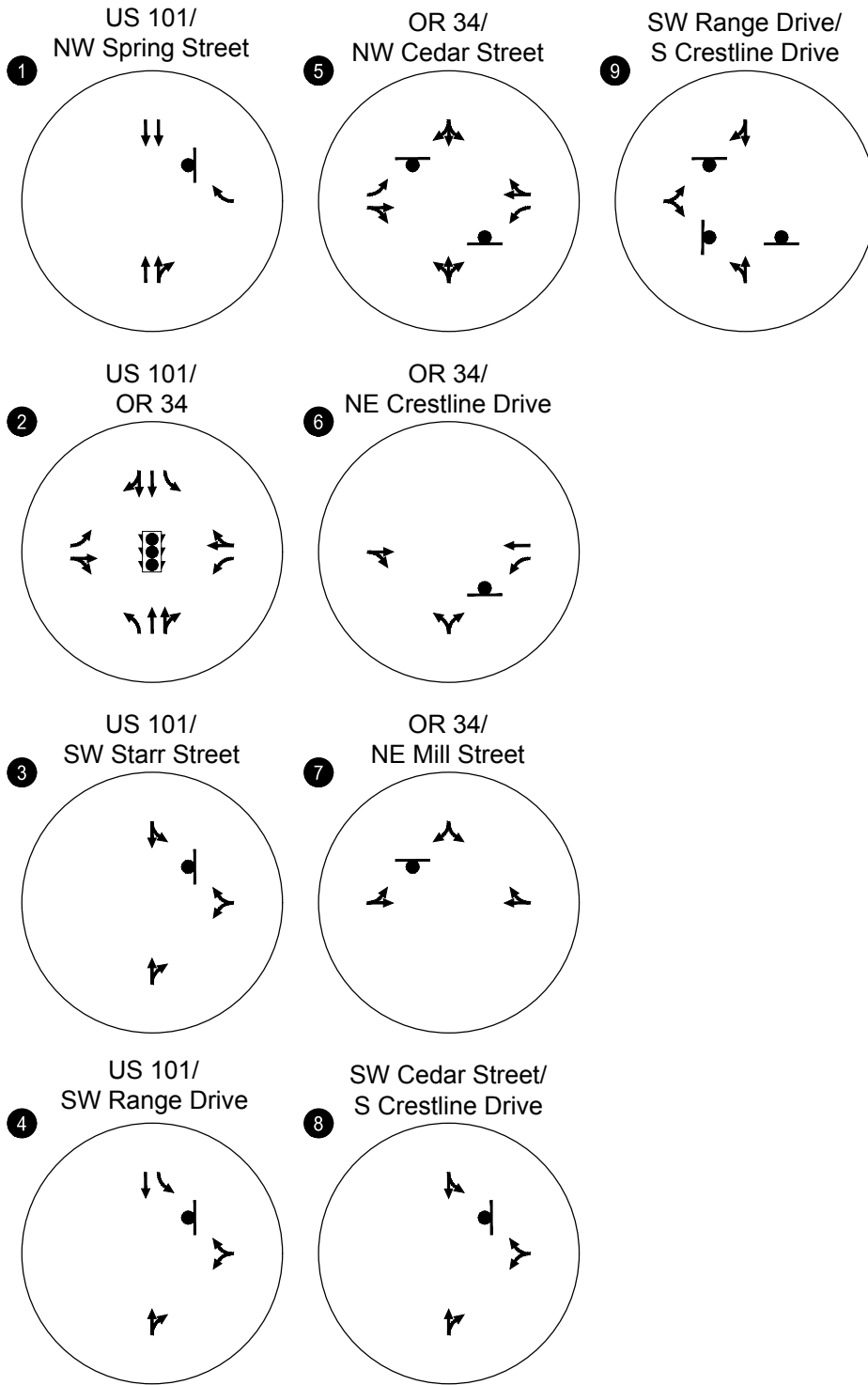
1. Oregon Coast Highway (US 101)/NE Spring Street
2. US 101/Asea Highway (OR 34)
3. US 101/SW Starr Street
4. US 101 SW Range Drive
5. OR 34/NW Cedar Street
6. OR 34/NE Crestline Drive
7. OR 34/NE Mill Street





Study Intersections
Waldport, Oregon

Figure
1

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-  - STOP SIGN
-  - TRAFFIC SIGNAL

**Existing Lane Configurations and Traffic Control Devices
Waldport, Oregon**

Figure
2

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CITY FACILITIES

8. SW Cedar Street/S. Crestline Drive
9. SW Range Drive/S. Crestline Drive

Manual turning movement counts were conducted at the study intersections in September and October 2018 while school was in session. All the counts were conducted on a typical mid-week day over a four-hour period (2:00 to 6:00 p.m.), with the exception of the US 101/OR 34 counts which were conducted over a 16-hour period (6:00 a.m. to 10:00 p.m.). All the counts include the total number of pedestrians, bicyclists, and motor vehicles that entered the study intersections in 15-minute intervals.

The *Analysis Methodology and Assumptions Memo* identifies how the traffic counts were post processed for the intersection operations analysis, including the peak hour development, seasonal adjustment factors, and historical factors. As indicated in the memo, the study intersection were evaluated using a system-wide peak hour of 4:15 to 5:15 p.m.; the traffic volumes along US 101 and OR 34 were seasonally adjusted by a factor of 1.1358 to reflect 30th Hour Volumes (30 HV), and; all traffic counts were conducted in 2018; therefore, no historical factors were needed to adjust traffic volumes. Figure 3 summarizes the traffic volumes used in the intersection operations analysis.

INTERSECTION OPERATIONS ANALYSIS

The *Analysis Methodology and Assumptions Memo* also identifies the intersection operational standards for City and ODOT facilities, the analysis model parameters, and the traffic analysis software and input assumptions. The intersection operations analysis was conducted in accordance with the memo.

Figure 3 and Table 1 summarize the results of the intersection operations analysis. As shown, all study intersections currently operate acceptably during the weekday PM peak hour. *Attachment A includes the intersection operations analysis worksheets.*

Table 1: Intersection Operations Analysis Results – Weekday PM Peak Hour

Map ID	Intersection	Level of Service (LOS)	Delay (Sec)	Volume/Capacity (V/C)	Measure of Effectiveness		MOE Met?
					Agency	Maximum (major/ minor)	
1	US 101/NE Spring Street	B	11.1	0.09	ODOT	v/c 0.90/0.95	Yes
2	US 101/OR 34	C	21.5	0.58 ¹	ODOT	v/c 0.95/0.95	Yes
3	US 101/SW Starr Street	C	18.1	0.13	ODOT	v/c 0.95/1.0	Yes
4	US 101 SW Range Drive	B	13.4	0.10	ODOT	v/c 0.80/0.90	Yes
5	OR 34/NW Cedar Street	C	15.2	0.24	ODOT	v/c 1.0/1.0	Yes
6	OR 34/NE Crestline Drive	B	12.0	0.08	ODOT	v/c 0.95/0.95	Yes
7	OR 34/NE Mill Street	B	10.7	0.09	ODOT	v/c 0.95/0.95	Yes
8	SW Cedar St/S Crestline Dr	B	10.0	0.05	City	LOS E	Yes
9	SW Range Dr/S Crestline Dr	A	9.7	- ²	City	LOS E	Yes

1. Synchro does not provide v/c ratio for this intersection with HCM 6th Edition. V/c ratio shown is HCM 2000 result.

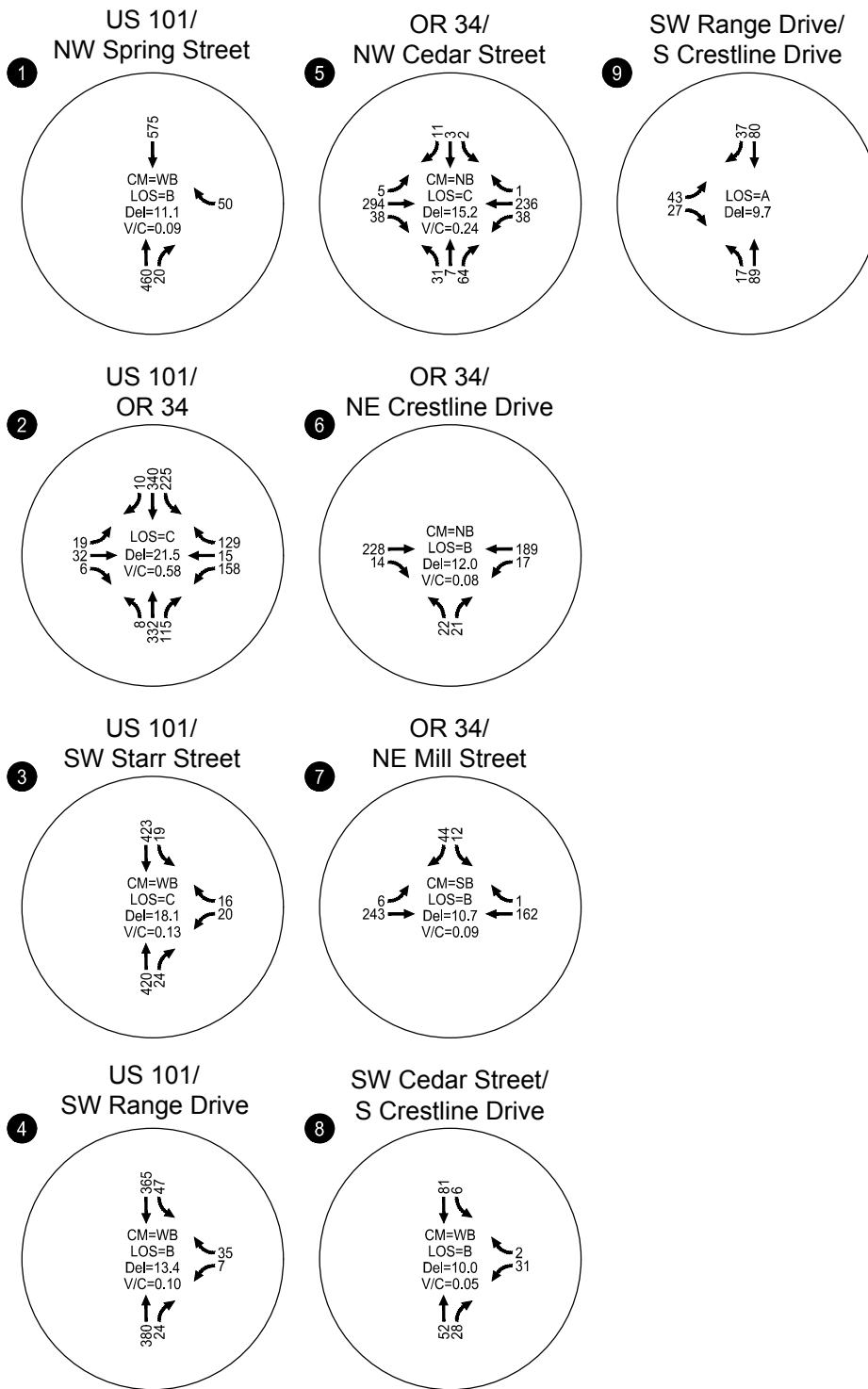
2. HCM methodologies do not produce a v/c ratio for all-way stop-controlled intersections.

Notes: LOS = Intersection Level of Service (Signal, AWSC), critical movement Level of Service (TWSC).

Delay = Intersection Average vehicle delay (Signal, AWSC), critical movement vehicle delay (TWSC).

V/C = Intersection V/C (Signal) critical movement V/C (TWSC).

MOE = Measure of Effectiveness



CM = CRITICAL MOVEMENT (UNSIGNALIZED)
 LOS = LEVEL OF SERVICE: INTERSECTION AVERAGE LOS (SIGNALIZED)/
 CRITICAL MOVEMENT LOS (UNSIGNALIZED)
 Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED)/
 CRITICAL MOVEMENT CONTROL DELAY (UNSIGNALIZED)
 V/C = CRITICAL VOLUME-TO-CAPACITY

**2018 Existing Weekday PM Peak Hour Operations
 Waldport, Oregon**

**Figure
 3**

QUEUEING

A queuing analysis was conducted at the signalized study intersection using Synchro 10. Table 2 summarizes the 95th percentile queues during the weekday PM peak hour under year 2018 traffic conditions. The vehicle queue and storage lengths were rounded to the nearest 25-feet. The storage lengths reflect the striped storage for each movement at the intersections. As shown in Table 2, the striped storage for the study intersection movements are currently adequate for the 95th percentile queues with the exception of the westbound left-turn at US 101/OR 34. The westbound left-turn lane is restricted by the adjacent intersection of OR 34/NW Verbena Street and additional storage is available to the east of NW Verbena Street.

Table 2: Weekday PM Peak Hour Queuing

Map ID	Intersection	Movement	95 th Percentile Queue (feet)	Storage Length (feet)	Adequate?
1	US 101/NE Spring Street	WBR	25	-	Yes
2	US 101/OR 34	EBL	50	125	Yes
		WBL	200	125	No
		NBL	25	75	Yes
		SBL	175	200	Yes
		WB	25	-	Yes
3	US 101/SW Starr Street	WB	25	-	Yes
4	US 101 SW Range Drive	SBL	25	350	Yes
		WB	25	-	Yes
5	OR 34/NW Cedar Street	EBL	0	200	Yes
		WBL	25	250	Yes
		NB	25	-	Yes
		SB	25	-	Yes
6	OR 34/NE Crestline Drive	WBL	25	100	Yes
		NB	25	-	Yes
7	OR 34/NE Mill Street	SB	25	-	Yes
8	SW Cedar Street/S Crestline Drive	WB	25	-	Yes
9	SW Range Drive/S Crestline Drive	EB	25	-	Yes
		NB	25	-	Yes
		SB	25	-	Yes

Where WB = Westbound, SB = Southbound, EB = Eastbound, NB = Northbound, L = Left, R = Right
 #: 95th percentile volume exceeds capacity, queue may be longer.
 m: Volume for 95th percentile queue is metered by upstream signal.

NON-AUTOMOBILE TRANSPORTATION ANALYSIS

This section summarizes the results of a non-automobile transportation analysis, including bicycle level of traffic stress, pedestrian level of traffic stress, and a qualitative multimodal assessment of transit.

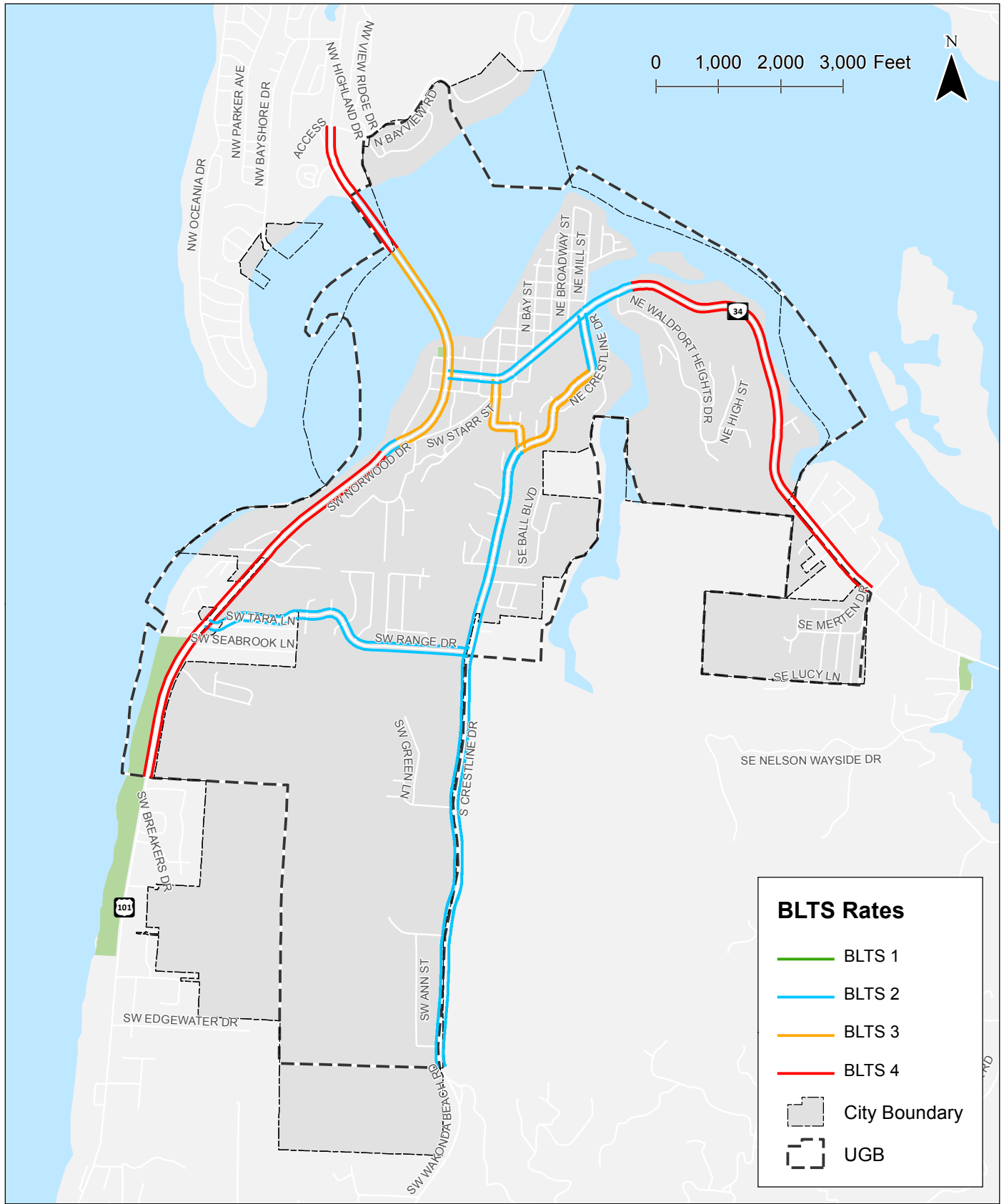
BICYCLE LEVEL OF TRAFFIC STRESS ANALYSIS

The arterial and collector streets in Waldport were evaluated to identify potential issues in bicycle connectivity that could be addressed as part of the Waldport TSP Update. The ODOT Analysis Procedures Manual (APM) provides a methodology for evaluating the adequacy of streets to accommodate bicyclists within urban and rural environments called Bicycle Level of Traffic Stress (BLTS). As applied by ODOT, this methodology classifies four levels of traffic stress that a bicyclist can experience on the street, ranging from BLTS 1 (little traffic stress) to BLTS 4 (high traffic stress). A street or street segment that is rated BLTS 1 generally has low traffic volumes and travel speeds and is suitable for all cyclists, including children. A street or street segment that is rated BLTS 4 generally has high traffic volumes and travel speeds and is perceived as unsafe by most adults. Per the APM, BLTS 2 is considered a reasonable target for streets due to its acceptability with the majority of people.

The BLTS score is determined based on the speed of the street, the number of travel lanes per direction, the presence and width of an on-street bicycle lane and/or adjacent parking lane, and several other factors. Figure 4 illustrates the results of the BLTS analysis for the arterial and collector streets in Waldport. It is important to note that while some segments are shown as BLTS 3 or 4, they may have shorter segments with lower BLTS scores. Table 3 summarizes the detailed results of the BLTS analysis. As shown, there are three segments rated BLTS 3 and six segments rated BLTS 4.

As shown in Table 3, all the streets evaluated as part of the BLTS analysis are designated as mixed traffic. This is due, in part, to the general lack of bicycle facilities in Waldport. The segments of US 101 that are rated BLTS 3 lack bicycle facilities and have two lanes in both directions; the segments of US 101 that are rated BLTS 4 lack bicycle facilities and have posted speeds of 35 miles per hour (mph) and above. In order for US 101 to be rated BLTS 2 or lower, six-foot bike lanes would need to be provided along both sides of the roadway. For segments where the posted speed limit is 35 mph and above, enhanced facilities, such as buffered bike lanes, separated bike facilities, or shared-use paths, may be needed. The segments of OR 34 that are rated BLTS 4 lack bicycle facilities and have posted speeds of 45 mph. For OR 34 to be rated BLTS 2 or lower, buffered bike lanes, separated bike facilities, or shared-use paths would need to be provided and/or the posted speed limit would need to be reduced to as low as 25 mph.

It should also be noted that many of the other street segments rated BLTS 2 or lower could include signing (i.e. Bikes on Road) and striping (i.e. Sharrows) to remind motorists to share the road. The signing and striping can also provide important wayfinding for cyclists to inform them of the preferred bicycle routes.



**Bicycle Level of Traffic Stress (BLTS) Analysis Results
Waldport, Oregon**

**Figure
4**

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Table 3: BLTS Analysis Results

Street	From	To	Side	Facility Type	LTS Criteria					BLTS
					Speed (mph)	Lanes per Direction	Bike Lane Width (feet)	Parking	Frequent Blockage	
US 101	Bayview Road	0.20 miles south of North Bridge Head	Both	Mixed Traffic	55	2	(6' Shoulder)	No	N/A	4
	0.20 miles south of North Bridge Head	0.50 miles south of North Bridge Head	Both	Mixed Traffic	40	2	(6' Shoulder)	No	N/A	4
	0.50 miles south of North Bridge Head	Spring Street	Both	Mixed Traffic	25	2	(6' Shoulder)	No	N/A	3
	Spring Street	OR 34	East	Mixed Traffic	25	2	N/A	No	N/A	3
	Spring Street	OR 34	West	Mixed Traffic	25	2	(5' Shoulder)	Partial ¹	N/A	3
	OR 34	SW Starr Street	Both	Mixed Traffic	25	2	N/A	Yes	N/A	3
	SW Starr Street	North Bridge Head	West	Mixed Traffic	25	1	(8' Shoulder)	No	N/A	2
	SW Starr Street	North Bridge Head	East	Mixed Traffic	25	1	(6' Shoulder)	No	N/A	2
	North Bridge Head	South Bridge Head	Both	Mixed Traffic	35	1	(2' Shoulder)	Partial ²	N/A	4
	South Bridge Head	SW Forestry Lane	East	Mixed Traffic	45	1	(4' Shoulder)	No	N/A	4
	South Bridge Head	SW Forestry Lane	West	Mixed Traffic	45	1	(4' Shoulder)	Partial ³	N/A	4
	SW Forestry Lane	SW Range Drive	Both	Mixed Traffic	45	1	(4' Shoulder)	No	N/A	4
	SW Range Drive	South City Limits	Both	Mixed Traffic	45-55	1	(4' Shoulder)	No	N/A	4
OR 34	US 101	Alder Street	Both	Mixed Traffic	25	1	N/A	Yes	N/A	2
	Alder Street	Bay Street	Both	Mixed Traffic	25	1	N/A	No	N/A	2
	Bay Street	Crestline Drive	North	Mixed Traffic	25	1	N/A	Partial ⁴	N/A	2
	Bay Street	Crestline Drive	South	Mixed Traffic	25	1	(8' Shoulder)	No	N/A	2
	Crestline Drive	525' east of West Bridge Head	Both	Mixed Traffic	25	1	(2' Shoulder)	No	N/A	2

	525' east of West Bridge Head	East City Limits	Both	Mixed Traffic	45	1	(2' Shoulder)	No	N/A	4
Crestline Drive	Crestline Drive	Lint Slough Road	West	Mixed Traffic	25	1	(3' Shoulder)	No	N/A	2
	Crestline Drive	Lint Slough Road	East	Mixed Traffic	25	1	N/A	No	N/A	2
	Lint Slough Road	Cedar Street	Both	Mixed Traffic	25	1	N/A	No	N/A	3⁵
	Cedar Street	SE Salmon Street	West	Mixed Traffic	25	1	(2' Shoulder)	No	N/A	2
	Cedar Street	SE Salmon Street	East	Mixed Traffic	25	1	(1' Shoulder)	No	N/A	2
	SE Salmon Street	SW Range Drive	West	Mixed Traffic	25	1	(4' Shoulder)	Yes	N/A	2
	SE Salmon Street	SW Range Drive	East	Mixed Traffic	25	1	(4' Shoulder)	No	N/A	2
	SW Range Drive	South City Limit	Both	Mixed Traffic	25	1	(4' Shoulder)	No	N/A	2
Range Drive	US 101	Crestline Drive	Both	Mixed Traffic	25	1	(2' Shoulder)	No	N/A	2
Cedar Street	OR 34	Crestline Drive	Both	Mixed Traffic	25	1	N/A	No	N/A	3⁵

Dark shaded cells denote roadway segments that do not satisfy the LTS 2 target.

1. Two on-street stalls are located along the west side of US 101 north of OR 34.
2. Shoulder parking is provided along the east side of US 101 south of the North Bridge Head.
3. A viewpoint pull-out and parking near commercial areas north of SW Wazyata Avenue are available.
4. On-street parking is provided along the north side of OR 34 from Bay Street to Commercial Street.
5. BLTS does not include important considerations such as steep climbs, narrow travel lanes, and absence of lighting. The LTS rating for Cedar Street was increased from LTS 2 to LTS 3 due to steep topography south of Willow Street.

Existing Gaps and Deficiencies

Streets with no bike lanes or intermittent bike lanes result in bicyclists sharing the travel lane with motor vehicles or using the shoulder if available. In many cases, this is not a desirable option for bicyclists due to narrow lane widths or uneven pavement conditions. Ideally, adequate bicycle facilities should be provided to allow for safe travel between residential neighborhoods and essential destinations. The following provides a summary of the existing gaps and deficiencies in the bicycle facilities within the study area. These gaps and deficiencies reflect information from *Tech Memo 3A: Existing Conditions Inventory* and the BLTS analysis described above. These gaps and deficiencies will be updated based on input from the project team, the advisory committee, and the public throughout the planning process:

- » There are two arterial streets that currently do not provide on-street bike lanes as recommended in the current TSP. The arterials include:
 - US 101 from the north city limits to the south city limits
 - OR 34 from US 101 to the east city limits
- » There are two collector streets that currently do not provide shoulder bikeways as recommended in the current TSP. The collectors include:
 - Crestline Drive from OR 34 to the south city limits
 - Range Drive from US 101 to Crestline Drive
- » There is one collector street that currently does not provide shared lane pavement markings and/or signs as recommended in the current TSP. The collector includes:
 - Cedar Street from OR 34 to Crestline Drive
- » There are several local streets that provide access to essential destinations in the City that currently do not provide shared lane pavement markings or signs. These streets include:
 - Maple Street from Hemlock Street to US 101
 - Spring Street/Alder Street from US 101 to OR 34
 - Willow Street/Alder Street from Maple Street to OR 34
 - Starr Street from US 101 to Willow Street
- » There are several key intersections where enhanced bicycle crossings could improve bicycle access and circulation. The intersections include:
 - US 101/OR 34
 - US 101/SW Maps Street
- » There are several local businesses that currently do not provide bicycle parking near the main entrance.

PEDESTRIAN LEVEL OF TRAFFIC STRESS ANALYSIS

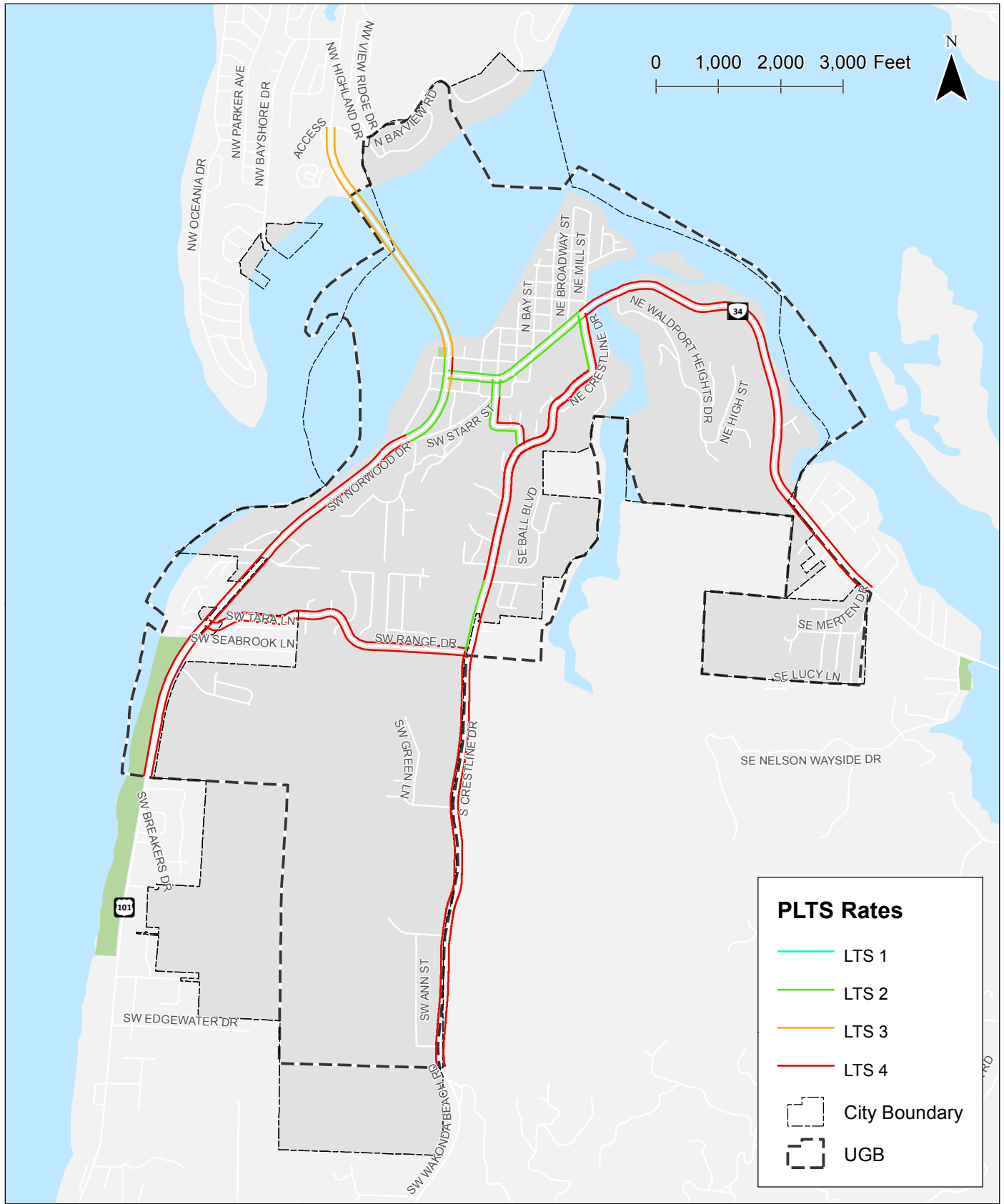
The arterial and collector streets in Waldport were evaluated to identify potential issues in pedestrian connectivity that could be addressed as part of the Waldport TSP Update. The ODOT APM provides a methodology for evaluating the adequacy of streets to accommodate pedestrians within urban and rural environments called Pedestrian Level of Traffic Stress (PLTS). As applied by ODOT, this methodology classifies four levels of traffic stress that a pedestrian can experience on the street, ranging from PLTS 1 (little traffic stress) to PLTS 4 (high traffic stress). A street or street segment that is rated PLTS 1 generally has low traffic volumes and travel speeds and has a sidewalk that is separated from vehicle traffic. These segments are generally suitable for all pedestrians, including children. A street or street segment that is rated PLTS 4 generally has high traffic volumes and travel speeds and is perceived as unsafe by most adults. Segments rated PLTS 4 also include those with no sidewalks or other pedestrian facilities. Per the APM, PLTS 2 is considered a reasonable target for streets due to its acceptability with the majority of people.

The PLTS score is determined based on four criteria, including sidewalk condition, physical buffer type, total buffering width, and general land use. All four criteria are scored from 1 to 4 and the highest score determines the overall score for the road segment. Figure 5 illustrates the results of the PLTS analysis. It is important to note that while some segments are shown as PLTS 3 or 4, they may have shorter segments with lower PLTS scores. Table 4 summarizes the detailed results of the PLTS analysis, which includes the scores for each criterion. As shown, there are four road segments rated PLTS 3 and 17 road segments rated PLTS 4.

The segments rated PLTS 4 have no sidewalks or other pedestrian facilities to accommodate pedestrians. For these segments to be rated PLTS 2, sidewalks with appropriate sidewalk and buffer widths would need to be installed along the full length of the roadway.

Other factors causing PLTS 3 or 4 rankings are often due to a lack of adequate buffer space between vehicles and pedestrians. For these segments to be rated LTS 2, sidewalks or shared-use paths would need to be constructed. Additionally, providing buffers and illumination along the length of the roadway would improve the PLTS ratings.

One segment along Crestline Drive at Woodland Park has an acceptable PLTS 2 rating. Elements that contributed to the favorable PLTS rating include good sidewalk conditions and a landscaped buffer between vehicles and pedestrians. *Attachment B contains detailed information on the PLTS analysis results.*



**Pedestrian Level of Traffic Stress (PLTS) Analysis Results
Waldport, Oregon**

**Figure
5**

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Table 4: PLTS Analysis Results

Street	From	To	Side	Pedestrian LTS Criteria Scores				PLTS
				Sidewalk Condition	Physical Buffer Type	Total Buffering Width	General Land Use Criteria	
US 101	Bayview Road	0.20 miles south of North Bridge Head	Both	2	1	3	1	3
	0.20 miles south of North Bridge Head	South Bridge Head	Both	2	1	3	1	3
	South Bridge Head	Spring Street	Both	2	2	3	1	3
	Spring Street	OR 34	East	2	2	4	1	4
	Spring Street	OR 34	West	1	1	2	1	2
	OR 34	Willow Street	East	1	1	3	1	3
	OR 34	Willow Street	West	1	1	2	1	2
	Willow Street	SW Starr Street	Both	1	1	2	1	2
	SW Starr Street	North Bridge Head	West	4	2	2	2	4
	SW Starr Street	North Bridge Head	East	4	2	2	2	4
	North Bridge Head	South Bridge Head	Both	4	3	2	2	4
	South Bridge Head	SW Forestry Lane	Both	4	4	2	2	4
	SW Forestry Lane	SW Range Drive	Both	4	4	2	2	4
	SW Range Drive	South City Limits	Both	4	4	2	2	4
OR 34	US 101	Alder Street	Both	2	2	1	1	2
	Alder Street	Bay Street	Both	2	2	2	1	2
	Bay Street	Crestline Drive	North	2	2	2	1	2
	Bay Street	Crestline Drive	South	2	2	2	1	2
	Crestline Drive	525' east of West Bridge Head	Both	4	2	2	2	4

Street	From	To	Side	Pedestrian LTS Criteria Scores				PLTS
				Sidewalk Condition	Physical Buffer Type	Total Buffering Width	General Land Use Criteria	
	525' North of Bridge Head	Merten Drive	Both	4	4	2	2	4
Crestline Dr	OR 34	N Lint Slough Road	West	1	2	2	2	2
	OR 34	N Lint Slough Road	East	4	2	2	2	4
	N Lint Slough Road	Cedar Street	Both	4	2	2	2	4
	Cedar Street	SE Salmon Street	East	4	2	2	2	4
	Cedar Street	SE Salmon Street	West	4	2	2	2	4
	SE Salmon Street	SW Range Drive	West	1	1	1	2	2
	SE Salmon Street	SW Range Drive	East	4	2	2	2	4
	SW Range Drive	South City Limit	Both	4	2	2	2	4
Range Dr	US 101	Crestline Drive	Both	4	2	2	2	4
Cedar Street	OR 34	Willow Street	Both	2	2	2	2	2
	Willow Street	Crestline Drive	East	4	2	2	2	4
	Willow Street	Crestline Drive	West	2	2	2	2	2

Dark shaded cells denote roadway segments that do not satisfy the BLTS 2 target

Existing Gaps and Deficiencies

Streets with no sidewalks or intermittent sidewalks generally result in pedestrians walking along the edge of the travel lane or using the shoulder if available. In many cases, this is not a desirable option for pedestrians due to narrow lane widths or uneven pavement conditions. Similarly, streets with no crosswalks or limited crosswalks may result in pedestrians making unsafe or illegal crossings. Ideally, adequate pedestrian facilities should be provided to allow for safe travel between residential neighborhoods and essential destinations. The following provides a summary of the existing gaps deficiencies in the pedestrian facilities. These gaps and deficiencies reflect information from *Tech Memo 3A: Existing Conditions Inventory* and the PLTS analysis described above. These gaps and deficiencies will be updated based on input from the project team, the advisory committee, and the public throughout the planning process:

- » There are two arterial streets that currently do not provide sidewalks as recommended in the current TSP. The arterials include:
 - US 101 from the SW Maple Street to the south city limits – there are gaps along both sides of the roadway
 - OR 34 from Crestline Drive to the east city limits – there are gaps along both sides of the roadway
- » There are two collector streets that currently do not provide sidewalks on one or two sides of the road as recommended in the current TSP. The collectors include:
 - Crestline Drive from OR 34 to the south city limits – there are gaps along both sides of the roadway
 - Range Drive from US 101 to Crestline Drive – there are gaps along both sides of the roadway
 - Cedar Street from OR 34 to Crestline Drive – there are gaps along the north/east side of the roadway
- » There are several local streets that provide access to essential destinations in the City that currently do not provide sidewalks on one or two sides of the road. These streets include:
 - Maple Street from Hemlock Street to US 101 – there are gaps along both sides of the roadway
 - Spring Street/Alder Street from US 101 to OR 34 – there is a gap along the south side of the roadway
 - Willow Street/Alder Street from Maple Street to OR 34 – there are gaps along both sides of the roadway
 - Starr Street from US 101 to Willow Street – there are gaps along the south side of the roadway
- » Except for US 101 and segments of OR 34, several sidewalks throughout the City do not provide sufficient width to accommodate pedestrian activity or are in need of condition improvement.
- » Several sidewalks and pedestrian ramps throughout the City are not compliant with current American's with Disabilities Act (ADA) design standards.
- » Several sidewalks do not provide sufficient buffering or illumination.

TRANSIT QUALITATIVE MULTIMODAL ASSESSMENT

Transit facilities and services in Waldport were evaluated to identify potential issues in transit connectivity that can be addressed as part of the Waldport TSP Update. The ODOT APM provides a methodology for evaluating transit facilities and services, referred to as the Transit Qualitative Multimodal Assessment (TQMMA). This method follows similar rankings to vehicular LOS, with LOS A (best score) to LOS F (worst score) rankings. A road segment that is rated LOS A has fast transit speeds, high transit frequency, and uncrowded buses. A road segment that is rated LOS F has slow transit speeds, low transit frequency, and crowded buses.

The transit LOS score is based on four criteria, including transit speed, transit frequency, passenger load factor, and pedestrian LOS score. As indicated in Tech Memo 3A, fixed-route transit service in Waldport is provided along US 101 and OR 34 via Lincoln County Transportation Service District's (LCTSD) South County Route. The route operates along US 101 between Newport and Yachats. OR 34 is served by a spur of the route, which turns around at the Lakeside Market stop east of Waldport. Service is provided hourly during the weekday AM and PM peak hours, resulting in a transit frequency of one vehicle per hour, or a headway factor of 0.95.

LCTSD operates the South County Route primarily with on-call or as-needed stops. As such, transit speed can be estimated with schedule speed, which uses two stops' scheduled stop time and the distance traveled. Using Waukeetum Street & US 101 to Seal Rock Carvers, which captures transit on US 101 and the OR 34 spur, schedule speed is calculated at 13.1 miles in 27 minutes. This results in an average schedule speed of 29 miles per hour, or a perceived travel time rate of 2.92 and a simplified travel time factor of 1.13.

Pedestrian LOS score is based on pedestrian space available (ft²/pedestrian) and pedestrian travel speed. Detailed sidewalk information or pedestrian travel time information is not readily available to precisely calculate pedestrian LOS. As such, the following estimates pedestrian LOS in Waldport. Where sidewalks are available, width is approximately 6'. Given several narrower sidewalks and/or presence of buildings adjacent to sidewalks, effective sidewalk width is taken at 5'. Given the elderly population of Waldport, pedestrian walking speed was estimated at 3.3 ft/second. Pedestrian flow rates range near 5-20 pedestrians per hour where transit is present, though the HCM methodology is not sensitive and results are unaltered at this level of activity. The worse-case cross-section occurs at the intersection of US 101/OR 34, with sidewalks unbuffered and adjacent to multiple lanes of traffic. With this cross-section, pedestrian LOS is calculated at 2.31. *Attachment C contains the detailed PLOS calculation.*

The final transit LOS score (I_t) is calculated using the headway factor and the travel time factor in addition to the pedestrian LOS score (I_p) for the segment, resulting in a transit LOS score of 4.72, correlating to LOS E. This result is primarily due to the low frequency of the South County Route. For example, increasing frequency to two buses per hour results in a 3.03 score and LOS C. Table 5 summarizes the results.

Table 5: TQMMA Analysis Results

Buses/ Hour	Schedule Speed	Headway Factor	Perceived Travel Time Rate (min/mi)	Perceived Travel Time Factor	Pedestrian LOS Score	Transit LOS Score	Transit LOS
1	29	0.95	2.92	1.13	2.31	4.72	LOS E

CRASH ANALYSIS

This section summarizes the crash analysis prepared for the Waldport TSP update. This section includes information from ODOT’s Safety Priority Index System (SPIS) as well as information on intersection crashes, segment crashes, and crashes that occurred throughout the City.

SAFETY PRIORITY INDEX SYSTEM

ODOT’s Safety Priority Index System (SPIS) identifies sites along state highways where safety issues warrant further investigation. The SPIS is a method developed by ODOT for identifying hazardous locations on state highways through consideration of crash frequency, crash rate, and crash severity. Sites identified within the top 5 percent are investigated by ODOT staff and reported to the Federal Highway Administration (FHWA). Per the most recent SPIS list, there are not sites within the top 5, 10, or 15 percent within Waldport. However, the site on US 101 between OR 34 and Willow Street was previously a top 15% site in the 2013 and 2014 SPIS reports.

INTERSECTION CRASHES

The crash history of the study intersections was reviewed in an effort to identify potential safety issues within the study area. ODOT provided crash records for the five-year period from January 1, 2012 through December 31, 2016 for the nine study intersections. The data provided by ODOT is summarized in Table 6.

Table 6: Intersection Crash Summary (January 1, 2012 to December 31, 2016)

Map ID	Intersection	Crash Severity			Crash Type					Total Crashes
		Fatal	Injury	PDO ¹	Rear -end	Turn	Angle	Ped/ Bike	Other ²	
1	US 101/NE Spring Street	0	0	0	0	0	0	0	0	0
2	US 101/OR 34	0	3	2	2	2	0	1	0	5
3	US 101/SW Starr Street	0	0	2	0	0	1	0	1	2
4	US 101 SW Range Drive	0	0	0	0	0	0	0	0	0
5	OR 34/NW Cedar Street	0	0	1	1	0	0	0	0	1
6	OR 34/NE Crestline Drive	0	0	0	0	0	0	0	0	0
7	OR 34/NE Mill Street	0	0	0	0	0	0	0	0	0
8	SW Cedar St/S Crestline Dr	0	0	0	0	0	0	0	0	0
9	SW Range Dr/S Crestline Dr	0	1	0	1	0	0	0	0	1

¹Property Damage Only. As of 2016, PDO crash reporting no longer included age, gender, license, error, and other elements.

²Other includes head-on, sideswipe, no collision, and fixed object.

³From ODOT Critical Crash Rate Calculator.

Critical crash rates were calculated for each of the study intersections following the analysis methodology presented in the APM. This provides average crash rates at a variety of intersection configurations in Oregon based on number of approaches and traffic control types. The average crash rate represents the approximate number of crashes that are “expected” at a study intersection. The intersection critical crash rate assessment for the study intersections is summarized in Table 7. Attachment D contains the crash data provided by ODOT and the critical crash rate calculations.

Table 7: Intersection Critical Crash Rate Assessment

Map ID	Intersection	Total Crashes	Critical Crash Rate by Intersection	Critical Crash Rate by Volume	Observed Crash Rate at Intersection	Observed Crash Rate > Critical Crash Rate?
1	US 101/NE Spring Street	0	0.288	0.134	0.000	No
2	US 101/OR 34	5	0.722	0.362	0.197	No
3	US 101/SW Starr Street	2	0.306	0.146	0.119	No
4	US 101 SW Range Drive	0	0.313	0.151	0.000	No
5	OR 34/NW Cedar Street	1	0.436	-	0.075	No
6	OR 34/NE Crestline Drive	0	0.386	0.201	0.000	No
7	OR 34/NE Mill Street	0	0.393	0.206	0.000	No
8	SW Cedar Street/S. Crestline Drive	0	0.583	0.345	0.000	No
9	SW Range Drive/S. Crestline Drive	1	0.639	0.270	0.187	No

As shown in Table 7, the observed crash rate at all study intersections are below the critical crash rates by intersection type and volume.

SEGMENT CRASHES

Segment crash rates were calculated for US 101, OR 34, and collector roadways following the analysis methodology presented in the APM. Critical crash rates could not be calculated due to the limited sites for reference populations. The segment crash rate assessment compares Waldport roadway crash rates to statewide crash rate averages, as shown in Table 8.

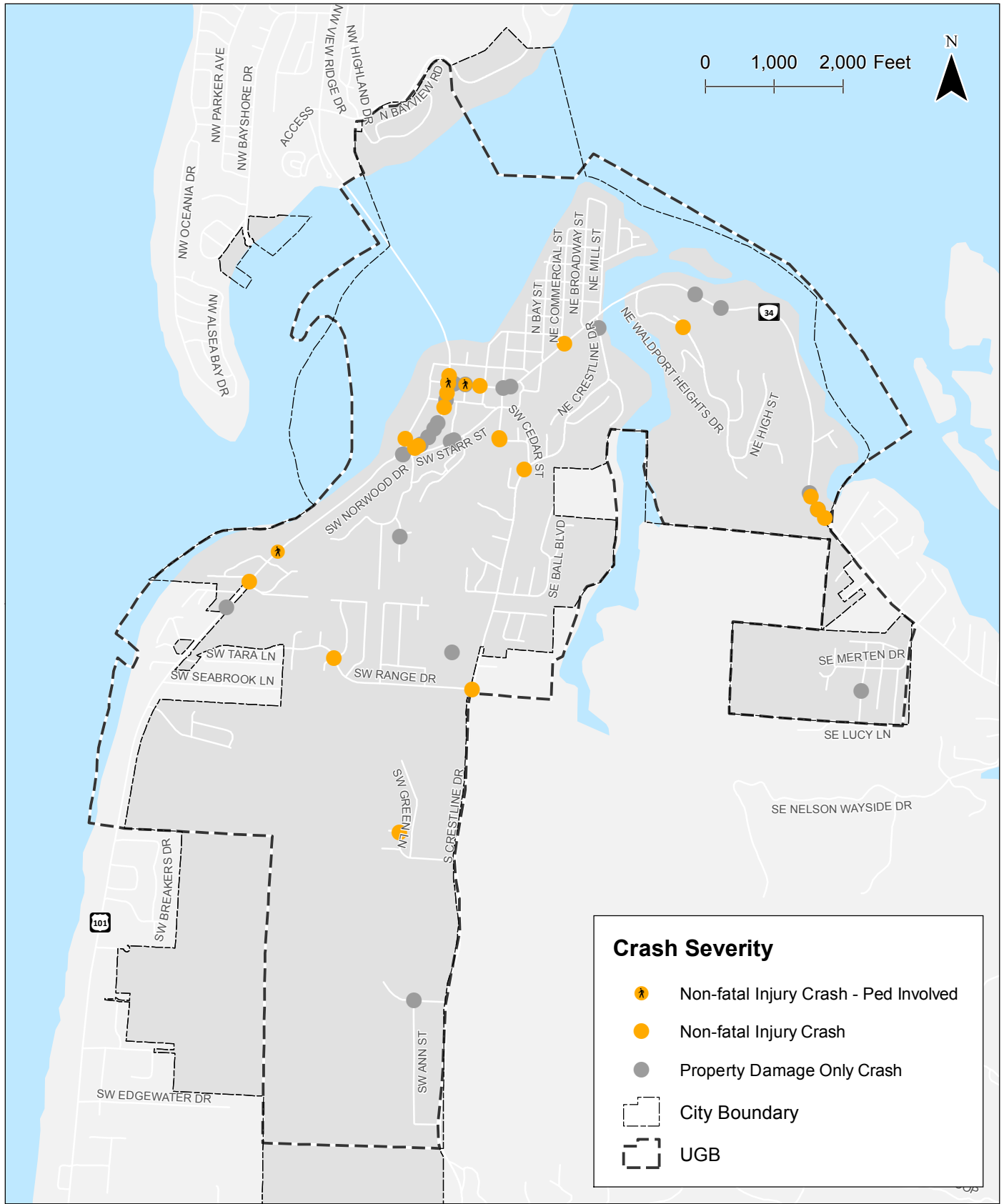
Table 8: Segment Crash Rate Assessment

Roadway	Total Crashes	Roadway Length (miles)	AADT	2016 Statewide Crash Rate	Observed Crash Rate on Segments	Observed Crash Rate > Statewide Crash Rate?
US 101	15	1.13	9,590	3.20	0.76	No
OR 34	14	1.62	6,740	2.86	0.70	No
Crestline Drive	2	1.06	2,490	2.23	0.42	No
Range Drive	1	0.85	1,240	2.23	0.52	No
Cedar Street	2	0.28	1,810	2.23	2.19	No

As shown in Table 8, the observed crash rates on study roadways are below the statewide crash rates.

CITYWIDE CRASHES

The crash history of the overall study area was obtained from ODOT and reviewed to identify potential safety issues. Figure 6 shows the mapped crash data for the City of Waldport, including locations of injuries and fatalities for the five-year period. As shown, no fatal crashes occur within the City limits. Three pedestrian crashes occurred due to careless driving (1), driver failure to yield to pedestrian (1), and pedestrian illegally entering the roadway (1). The map also shows crashes near the study intersections. Several crashes were determined to be unrelated to a nearby intersection and are therefore not included in the ODOT-provided crash data nor the intersection crash table.



**Crash Data Summary (January 1, 2012 - December 31, 2016)
Waldport, Oregon**

**Figure
6**

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ACCESS MANAGEMENT ANALYSIS

ODOT and the City of Waldport have adopted access spacing standards for the study area roadways. This analysis identifies ODOT's access spacing standards, as defined in Oregon Administrative Rule (OAR) 734 Division 51, and the City's access spacing standards as defined in the current TSP. This analysis also identifies the access points along ODOT and City arterial and collector streets that do not meet their applicable standards.

ODOT ACCESS SPACING STANDARDS

Access spacing standards for approaches to state highways are based on the classification of the highway and differ depending on posted speed and average annual daily traffic (AADT). Within Waldport, US 101 is classified as a Statewide Highway, it has posted speed limits that range from 25 to 55 mph, and it has AADT volumes that range from 9,100 toward the north end of the City to 6,400 toward the south. OR 34 is classified as a District Highway, it has posted speed limits that range from 25 to 45 mph, and it has AADT volumes that range from 5,200 near US 101 to 4,300 toward the east city limits. Table 9 summarizes ODOT's current access spacing standards for US 101 and OR 34 in Waldport.

Table 9: ODOT Access Spacing Standards

Posted Speed (MPH)	US 101 (Feet) ¹	OR 34 (Feet) ¹	
		>5,000 AADT	<5,000 AADT
≤ 25	350	250	150
30 and 35	500	350	250
40 and 45	800	500	360
50	1,100	550	425
≥ 55	1,320	700	650

¹These access spacing standards do not apply to approaches in existence prior to April 1, 2000 except as provided in OAR 734-051-0115(1)(c) and 734-051-0125(1)(c).

CITY ACCESS SPACING STANDARDS

The current TSP identifies access spacing standards for collector streets as 300 feet minimum and identifies key areas for access consolidation. These locations include US 101, OR 34, Crestline Drive, Range Drive, and Cedar Street.

The section of US 101 between Spring Street to Hemlock Street was identified for access consolidation with suggested attention toward the gas station in the northeast corner and the retail uses in the southeast corner of the US 101/OR 34 intersection. The section of OR 34 between US 101 and Verbena Street was also identified with particular attention to the three driveways to the gas station and adjacent auto parts store are suggested for consolidation when redevelopment occurs. Angled parking on the south side of OR 34 is also identified for removal and/or relocation with redevelopment.

Crestline Drive, Range Drive, and Cedar Street are highlighted as critical connections from upland areas to US 101 and OR 34. As development continues in the uplands, direct access should be limited to infill development where tax lots cannot be developed without direct access. Ideally, access would occur via local streets, which should be spaced at no less than 300 feet on collectors.

ACCESS SPACING ANALYSIS

Access spacing was analyzed on study roadways in Waldport. In general, ODOT and City access spacing standards are not met. Table 10 summarizes current spacing on US 101 and OR 34.

Table 10: Access Spacing Analysis

Section	West or North Side (Number of Accesses)	East or South Side (Number of Accesses)
US 101 – 6200 feet Section from Spruce to Range		
Spruce to OR 34	1	2
OR 34 to Starr	7	7
Starr to Forestry	7	4
Forestry to Range	5	5
Total Accesses	20	18
Average Spacing	310 feet	344 feet
OR 34 – 2,500' Section from US 101 to Mill		
US 101 to Cedar	6	6
Cedar to Mill	6	7
Total Accesses	12	13
Average Spacing	208 feet	192 feet

Bolded text indicates locations that exceed standards.

Crestline Drive, Range Drive, and Cedar Street are collectors with 300 feet access spacing standards. Substantial portions of these roadways include residential development with direct driveway access with spacing as low as 60 feet. As these areas redevelop, access should be consolidated to meet spacing standards.

ENVIRONMENTAL JUSTICE ANALYSIS

Environmental Justice (EJ) populations are a special focus in transportation planning and project development. Identifying EJ populations early on is intended to make participation in transportation planning and project development more inclusive of diverse communities. The analysis is also valuable in identifying the transportation needs that will provide the most benefits to EJ populations. Five population groups are considered for transportation impact susceptibility, representing those who may rely more heavily on public infrastructure or transit for access to day-to-day needs and jobs. They include minority groups, populations under 17 or over 64 years of age, low-income households, low-English proficiency households, and people with disabilities.

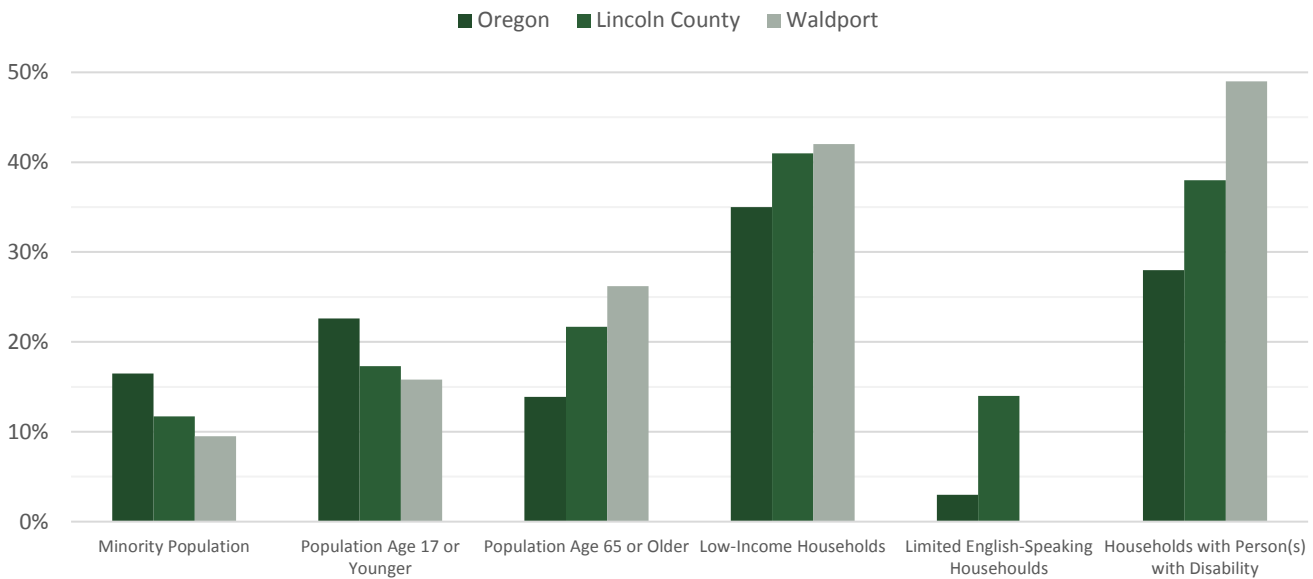
DEMOGRAPHIC SUMMARY¹

Waldport has approximately 2,282 people, according to Portland State University's Population Research Center. The highest concentration of people is located in Census Blocks close together near the downtown area, with the

¹ Information provided in the EJ analysis includes a combination of data gathered from the US census and American Community Survey. The US census is conducted once every 10 years to provide an official count of the entire U.S. population to Congress; the American Community Survey (ACS) is conducted every year to provide a sample of up-to-date information about the social and economic needs. Where US census data is not available for a population, American Community Survey data is used.

highest density being close to 15 people per acre (see Figure 8).² Most of population density outside of the central area is relatively low, ranging between 1-3 people per acre. Population and population density are important considerations when evaluating and comparing EJ populations. A Census Block may have high percentage of a specific population, but there are relatively few people in the area altogether. Conversely, a Census Block may have a large concentration of a specific population that may not be as prominently featured on the figures below due to the overall population in that area. The make-up of specific EJ populations in Waldport is summarized in Chart 1.

Chart 1: Environmental Justice Summary

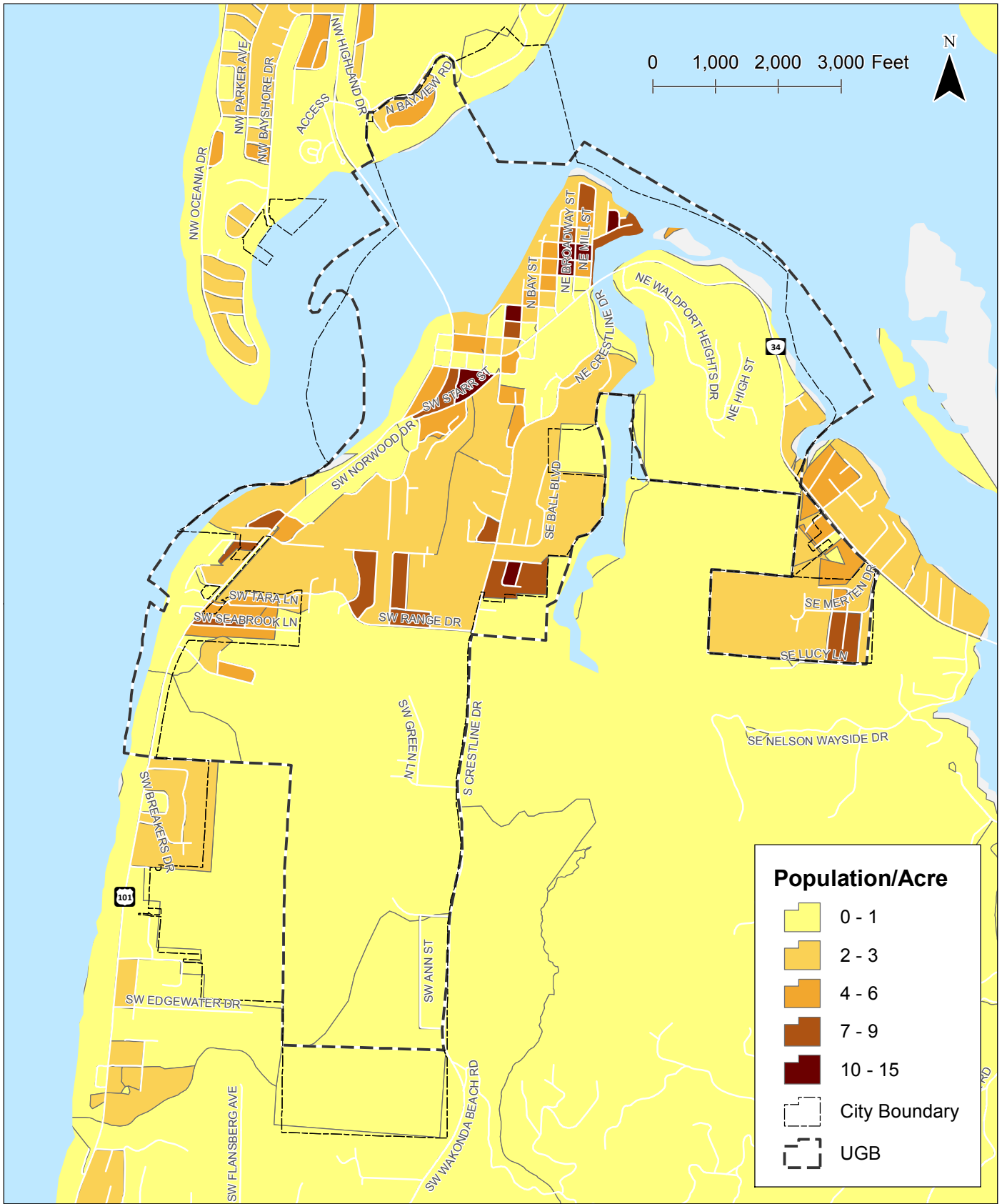


MINORITY GROUPS³

Information on minority groups reflects Hispanic or Latino origins as well as race. Origin can be viewed as the heritage, nationality group, lineage, or country of birth of the person or the person’s parents or ancestors before their arrival in the US. People who identify their origin as Hispanic or Latino may be of any race. Data on race is based on racial classifications issued by the Office of Management and Budget. Race categories include: white, black or African American, American Indian or Alaska Native, Asian, Native Hawaiian or other Pacific Islander, and some other race.

² Although Figure 8 shows densities close to 15 people per acre, it should also be noted that total population is fewer than 20 people within each individual Census Blocks in the downtown area.

³ Information for selected demographic groups is from the 2010 Decennial Census data. Decennial Census data provides a full count of US population and various demographic information. Starting in 2010, the Census stopped using the long form survey and reports information on population, households, age, sex, race and ethnicity, and housing characteristics only. Additional information for other demographic and socioeconomic data was gathered using the American Community Survey.



**Population Density (by Census Block)
Waldport, Oregon**

**Figure
7**

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Table 11 summarizes the minority groups for the State of Oregon, Lincoln County, and the City of Waldport. Compared to the state, Lincoln County and Waldport have an overall lower share of minority groups; approximately 16.5 percent of the overall state is of a minority race or ethnicity, compared to just over 11 percent for the County and just under 10 percent for Waldport.

Table 11: Hispanic or Latino, and Not Hispanic or Latino by Race (Table P004, 2010 Decennial Census)

RACE/ETHNICITY	OREGON		LINCOLN COUNTY		WALDPOR T	
Total:	3,421,399		44,479		2,050	
Hispanic or Latino	275,314	8.0%	2,119	4.8%	76	3.7%
Not Hispanic or Latino:	3,146,085	92.0%	42,360	95.2%	1,974	96.3%
Population of one race:	3,063,352	89.5%	41,178	92.6%	1,927	94.0%
White	2,857,616	83.5%	39,260	88.3%	1,856	90.5%
Black or African American	53,325	1.6%	113	0.3%	1	0.0%
American Indian and Alaska Native	40,130	1.2%	1,296	2.9%	39	1.9%
Asian	100,333	2.9%	412	0.9%	24	1.2%
Native Hawaiian and Other Pacific Islander	7,398	0.2%	66	0.1%	2	0.1%
Some other race alone	4,550	0.1%	31	0.1%	5	0.2%
Population of two or more races:	82,733	2.4%	1,182	2.7%	47	2.3%

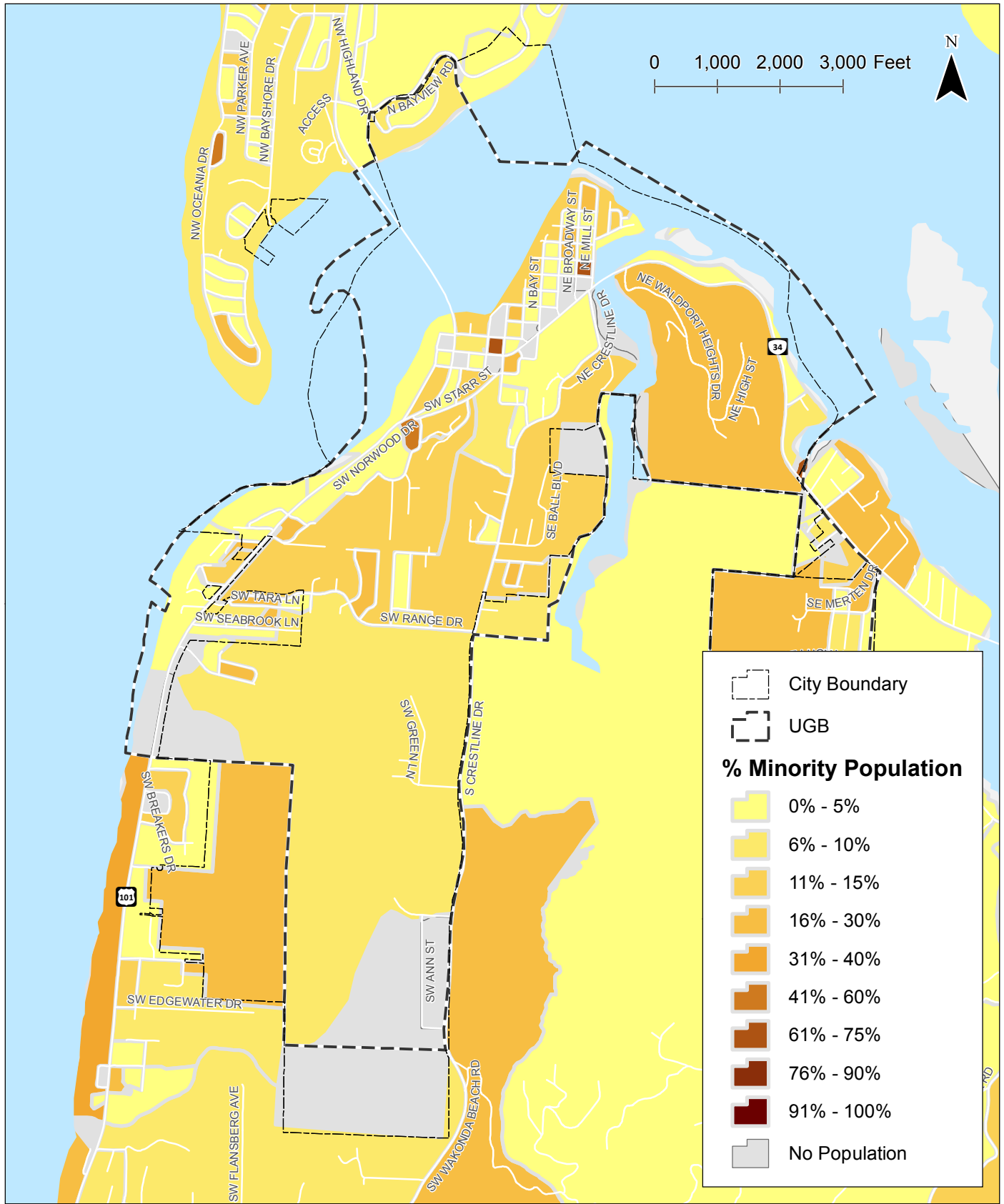
In Figure 8, minority groups are shown as a combination of the following individual classifications:

- Not Hispanic or Latino: Black or African American alone
- Not Hispanic or Latino: American Indian and Alaska Native alone
- Not Hispanic or Latino: Asian alone
- Not Hispanic or Latino: Native Hawaiian and Other Pacific Islander alone
- Not Hispanic or Latino: Some Other Race alone
- Not Hispanic or Latino: Two or More Races
- Hispanic or Latino

With a few notable exceptions, Figure 8 shows the minority population is relatively distributed throughout the City. The areas with the highest concentrations of minorities shown in the Figure 8 do not represent large numbers, rather they represent large percentages in an otherwise low population Census Block (i.e. total population less than 10). These concentrated areas are generally located in the City's downtown district and the nearby commercial area.

AGE

Data on age is derived from a two-part census question (age and date of birth). Both age and date of birth is used in combination to determine the most accurate age as of the census reference date. Age data are tabulated in age groupings, including populations 65 and older (Elderly) and populations 17 and younger (Youth).



**Minority Population (by Census Block)
Waldport, Oregon**

**Figure
8**

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As summarized in Table 12, youth populations (ages 17 and younger) comprise approximately 16 to 17 percent of the overall population in the City and County respectively. The youth population within the City and County is significantly lower compared to the State population at just over 22 percent. Conversely, the City has a relatively high portion of seniors (population ages 65 and older) at 26 percent. The portion of seniors in the City is higher than that of the County (just under 22 percent), and nearly double that of the overall Oregon population (just under 14 percent).

Table 12: Youth and Elderly Populations (P12: Sex by Age, 2010 Decennial Census)

AGE	OREGON		LINCOLN COUNTY		WALDPOR	
Total:	3,831,074		46,034		2,033	
Youth (Age 17 and Younger)	866,453	22.6%	7,953	17.3%	322	15.8%
Senior (Age 65 and Older)	533,533	13.9%	9,972	21.7%	533	26.2%

As shown in Figure 9, the youth population is distributed relatively evenly throughout residentially zoned areas in the City. The areas with the most youth population include a single-family residential area east of S Crestline Drive and a larger, lower density area north SW Edgewater.

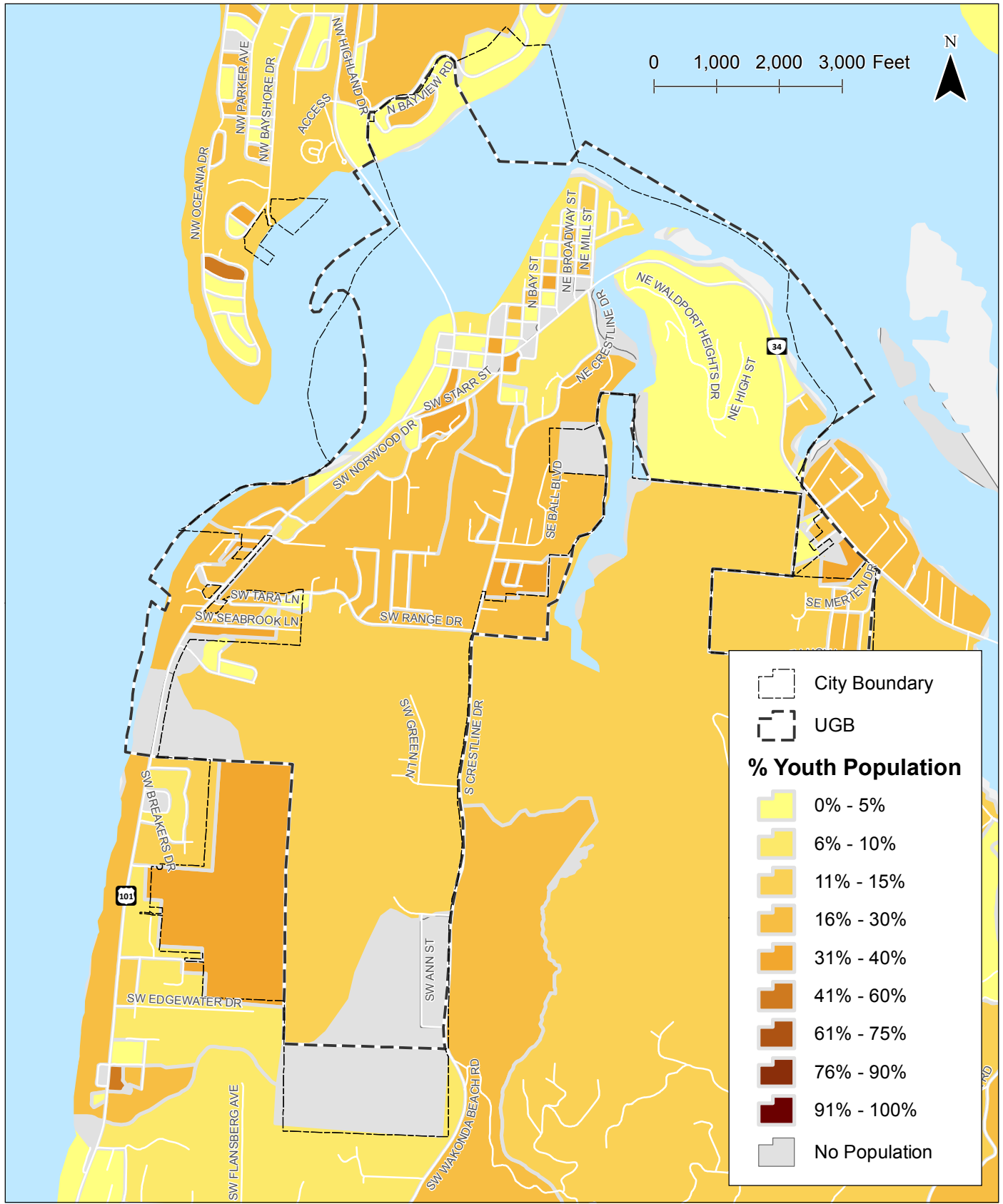
As shown in Figure 10, areas with high concentrations of seniors are located in several areas of the City. The areas with the highest concentrations of seniors shown in the Figure 10 likely do not represent large numbers, rather they represent large percentages in an otherwise low population Census Block (i.e. total population less than 10). These areas include one block in downtown Waldport and one block near US 101 along the western portion of city limits.

Areas with a high concentration and total population of seniors include the Bayview Mobile Home Park on Northeast Mill Street and the McKinley’s Marina and RV Park on OR 34. Both are located near the confluence of the Lint Slough Reservoir and the Alsea River. Other notable locations include Sa-Da-Munn apartments and an adjacent residential area located near SW Starr Street and close to the downtown area. As well, there is large share of seniors located inside the southern city boundary, between US 101 and S Crestline Drive; however, this share of the senior population is located in relatively large Census Block and may or may not be concentrated in a particular area.

LOW-INCOME POPULATION

Poverty statistics are shown in Table 13 and Figure 11.⁴ The data are based on the Federal Poverty Level (FPL) which uses a set of dollar value thresholds that vary by various family characteristic. A person’s poverty status is determined by comparing the person’s total family income in the last 12 months with the poverty threshold appropriate for that person’s family size and composition.

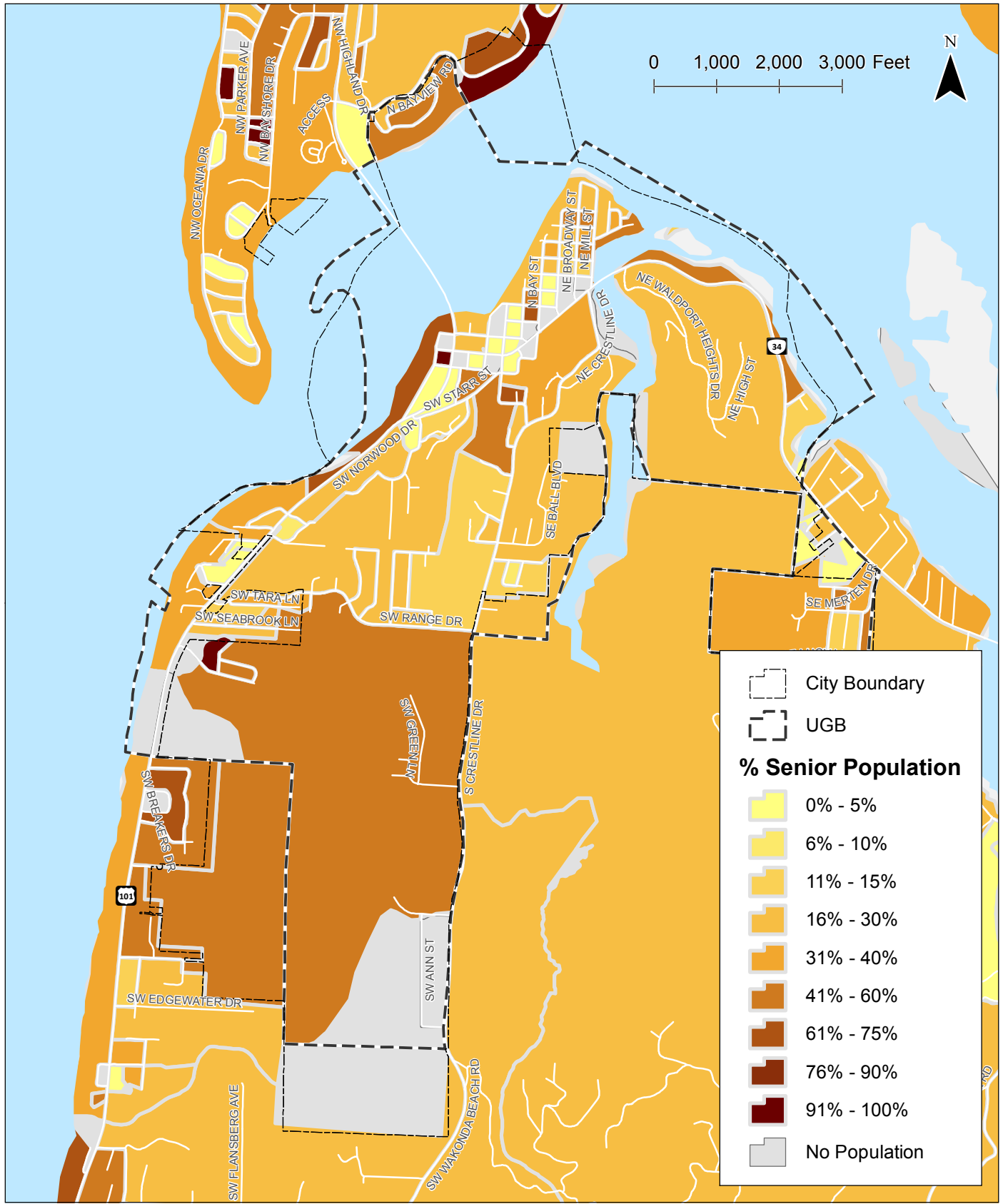
⁴ Information in Figure 12 is shown using Census Block Groups – as opposed to Census Block. Census Block Groups are the smallest geographic unit for which Low-Income population data is available.



**Youth Population - Age 17 and Under (by Census Block)
Waldport, Oregon**

**Figure
9**

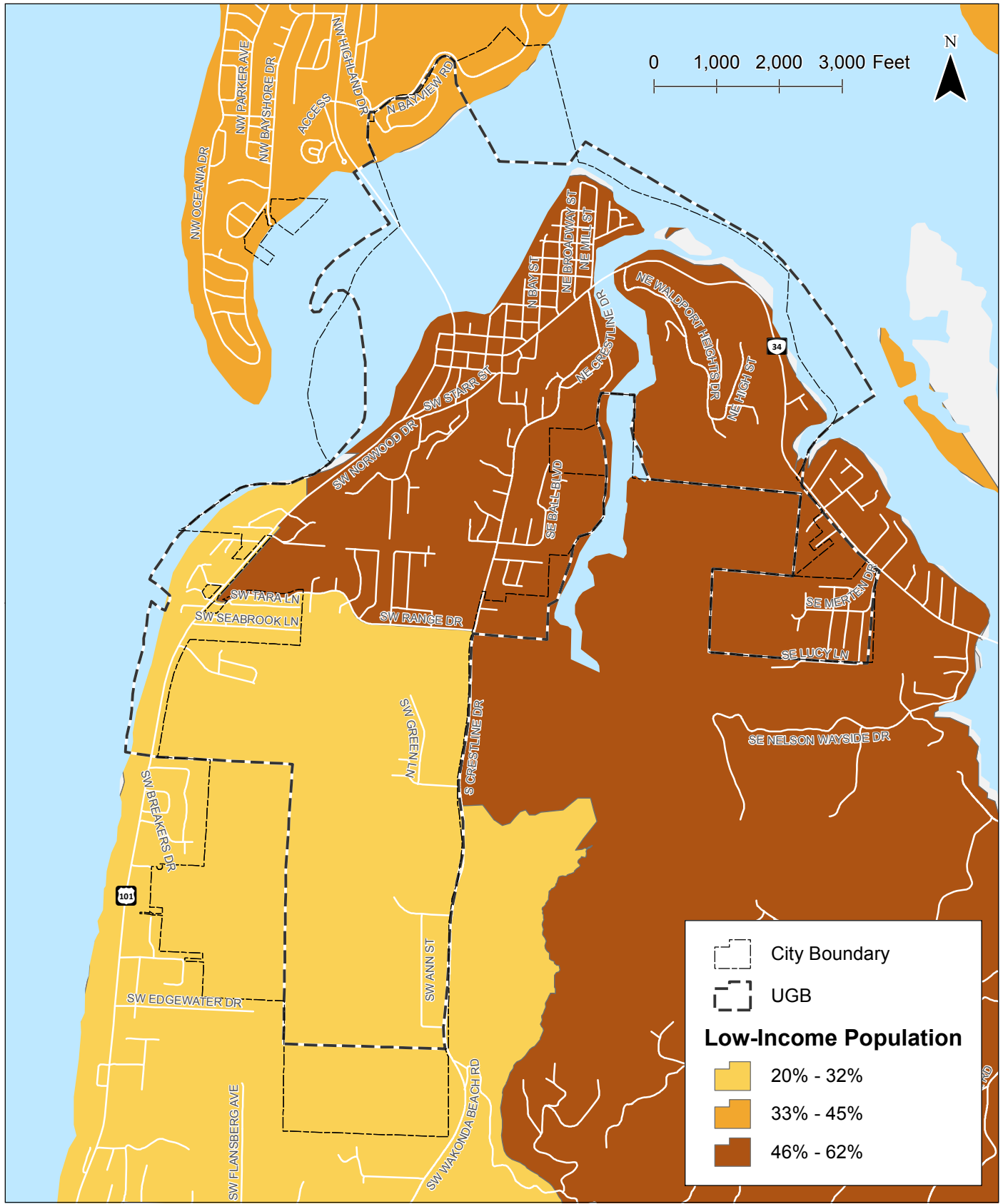
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Senior Population - Age 65 and Older (by Census Block)
Waldport, Oregon

Figure
10

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Low-Income Population (by Census Block Group)
Waldport, Oregon

Figure
11

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As shown in Table 13, compared to the overall State of Oregon, a higher portion of the overall population in Lincoln County and Waldport is in poverty with a ratio of income to poverty below 2.⁵ Approximately 41 to 42 percent of the population in Lincoln County and Waldport is in poverty, compared to approximately 35 percent of the overall State.

Table 13: Ratio of Income to Poverty (C17002: Ratio of Income to Poverty in the Past 12 Months, 2016 5-year American Community Survey)

INCOME TO POVERTY RATIO	OREGON		LINCOLN COUNTY		WALDPOR	
	Count	Percentage	Count	Percentage	Count	Percentage
Total:	3,905,386		46,070		2,145	
Under .50	272,939	7%	3,258	7%	138	6%
.50 to .99	341,284	9%	5,318	12%	159	7%
1.00 to 1.24	192,900	5%	3,032	7%	162	8%
1.25 to 1.49	186,458	5%	2,220	5%	78	4%
1.50 to 1.84	270,741	7%	3,643	8%	207	10%
1.85 to 1.99	110,868	3%	1,518	3%	165	8%
2.00 and over	2,530,196	65%	27,081	59%	1,236	58%

As shown in Figure 11, the portion of the Census Block Group located inside the City boundary near the downtown area and also located east of the Lint Slough Reservoir has the highest concentration of low-income households. This Census Block Group extends beyond the City boundary eastward along Alsea River. Because of its geographic area, and given the existing zoning and population density, it is likely that a small portion of the low-income population is located outside of City limits.

NON-ENGLISH-SPEAKING POPULATION⁶

Data on language spoken at home were derived from two answers to American Community Survey data. Respondents were instructed to mark “Yes” if they sometimes or always spoke a language other than English at home and “No” if a language was spoken only at school or if speaking was limited to a few expressions or slang. The second question asked respondents to list the name of the non-English language they spoke at home.

As shown in Table 14, only a small portion of households in Waldport speak another language other than English - approximately four percent. Of those, less than one percent of the population (an estimated four households) have limited English-speaking proficiency.

⁵ The Federal Poverty Level (FPL) is considered by many researchers to be too low to accurately represent income levels necessary for self-sufficiency; thus, using two-times the FPL may be a more accurate measure of income sufficiency.

⁶ Due to the low number of limited English proficient households and the limitations in displaying American Community Survey data, a figure would not be meaningful.

Table 14: Limited English Proficiency Households (C16002: Household Language by Household Limited English-Speaking Status, 2016 5-year American Community Survey)

	OREGON		LINCOLN COUNTY		WALDPOR	
Total:	1,545,745		20,434		964	
English Only	1,315,196	85%	18,944	93%	929	96%
Other Languages	230,549	15%	1,490	8%	35	4%
Limited English Proficiency	41,503	3%	215	14%	4	0%

POPULATION WITH DISABILITIES

Information on disabled population was gathered from American Community Survey data on Food Stamp benefits – also known as the Supplemental Nutrition Assistance Program (SNAP). Disability within American Community Survey data is limited to four basic areas of functioning – hearing, vision, cognition, and ambulation. It is further supplemented by Katz Activities of Daily Living (ADL) and Lawton Instrumental Activities of Daily Living (IADL) scales which relate to difficulty with bathing, dressing, and performing errands.

As shown in Table 15, nearly half of households in Waldport reported as having one or more persons with a disability. This is a much higher rate compared to households throughout the County (38 percent) and the State (28 percent).

Table 15: Households with One or More Persons with a Disability (B22010: Receipt of Food Stamps/Snap in the Past 12 Months by Disability Status for Households, 2016 5-year American Community Survey)

	OREGON		LINCOLN COUNTY		WALDPOR	
Total:	1,545,745		20,434		964	
Disability	437,344	28%	7,752	38%	471	49%

ATTACHMENTS

- A. Existing Traffic Conditions Worksheets
- B. Detailed PLTS Results
- C. PLOS Calculations
- D. Crash Data

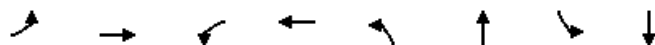
**ATTACHMENT A EXISTING TRAFFIC
CONDITIONS WORKSHEETS**

Intersection						
Int Delay, s/veh	0.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕↔			↕↕
Traffic Vol, veh/h	0	50	460	20	0	575
Future Vol, veh/h	0	50	460	20	0	575
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	0	30	26	25	0	21
Mvmt Flow	0	56	517	22	0	646

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	-	270	0	0	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	7.5	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	3.6	-	-	-
Pot Cap-1 Maneuver	0	650	-	-	0
Stage 1	0	-	-	-	0
Stage 2	0	-	-	-	0
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	-	650	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-






















Approach	WB	NB	SB
HCM Control Delay, s	11.1	0	0
HCM LOS	B		
























Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	-	650
HCM Lane V/C Ratio	-	-	0.086
HCM Control Delay (s)	-	-	11.1
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0.3



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	21	42	172	156	9	486	245	381
v/c Ratio	0.20	0.33	0.69	0.47	0.03	0.65	0.51	0.23
Control Delay	52.6	49.6	53.7	14.2	13.9	33.6	15.1	12.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.6	49.6	53.7	14.2	13.9	33.6	15.1	12.3
Queue Length 50th (ft)	12	20	94	8	2	121	66	51
Queue Length 95th (ft)	44	67	205	73	11	230	157	130
Internal Link Dist (ft)		512		727		1208		194
Turn Bay Length (ft)	125		125		75		200	
Base Capacity (vph)	217	258	486	510	501	1551	587	2102
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.16	0.35	0.31	0.02	0.31	0.42	0.18

Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	32	6	158	15	129	8	332	115	225	340	10
Future Volume (veh/h)	19	32	6	158	15	129	8	332	115	225	340	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.88	1.00		0.97	0.99		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1190	1600	1600	1395	1436	1436	1559	1422	1422	1381	1532	1532
Adj Flow Rate, veh/h	21	35	7	172	16	140	9	361	125	245	370	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	41	11	11	26	23	23	14	24	24	27	16	16
Cap, veh/h	87	96	19	272	25	221	375	613	209	401	1299	39
Arrive On Green	0.08	0.08	0.08	0.20	0.20	0.20	0.01	0.31	0.31	0.15	0.45	0.45
Sat Flow, veh/h	1134	1262	252	1329	124	1083	1485	1973	672	1316	2885	86
Grp Volume(v), veh/h	21	0	42	172	0	156	9	246	240	245	186	195
Grp Sat Flow(s),veh/h/ln	1134	0	1515	1329	0	1207	1485	1351	1294	1316	1455	1516
Q Serve(g_s), s	1.3	0.0	1.9	8.5	0.0	8.5	0.3	11.0	11.3	8.4	5.8	5.8
Cycle Q Clear(g_c), s	1.3	0.0	1.9	8.5	0.0	8.5	0.3	11.0	11.3	8.4	5.8	5.8
Prop In Lane	1.00		0.17	1.00		0.90	1.00		0.52	1.00		0.06
Lane Grp Cap(c), veh/h	87	0	116	272	0	247	375	420	402	401	655	682
V/C Ratio(X)	0.24	0.00	0.36	0.63	0.00	0.63	0.02	0.58	0.60	0.61	0.28	0.29
Avail Cap(c_a), veh/h	237	0	316	555	0	504	668	940	900	752	1012	1054
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.2	0.0	31.5	26.1	0.0	26.1	16.6	20.8	21.0	13.5	12.5	12.5
Incr Delay (d2), s/veh	1.1	0.0	1.4	1.8	0.0	2.0	0.0	4.6	5.1	1.1	0.9	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.7	2.7	0.0	2.5	0.1	3.8	3.8	2.3	1.9	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.3	0.0	32.9	27.9	0.0	28.1	16.6	25.5	26.0	14.6	13.3	13.3
LnGrp LOS	C	A	C	C	A	C	B	C	C	B	B	B
Approach Vol, veh/h		63			328			495			626	
Approach Delay, s/veh		32.7			28.0			25.6			13.8	
Approach LOS		C			C			C			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.3	37.4		19.2	15.3	27.3		10.0				
Change Period (Y+Rc), s	4.5	5.0		4.5	4.5	5.0		4.5				
Max Green Setting (Gmax), s	15.0	50.0		30.0	30.0	50.0		15.0				
Max Q Clear Time (g_c+I1), s	2.3	7.8		10.5	10.4	13.3		3.9				
Green Ext Time (p_c), s	0.0	6.5		1.1	0.5	8.6		0.1				
Intersection Summary												
HCM 6th Ctrl Delay				21.5								
HCM 6th LOS				C								
Notes												
User approved pedestrian interval to be less than phase max green.												

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations								 			 		
Traffic Volume (vph)	19	32	6	158	15	129	8	332	115	225	340	10	
Future Volume (vph)	19	32	6	158	15	129	8	332	115	225	340	10	
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	5.0		4.5	5.0		
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95		
Frbp, ped/bikes	1.00	0.99		1.00	0.99		1.00	0.99		1.00	1.00		
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00		
Frt	1.00	0.97		1.00	0.87		1.00	0.96		1.00	1.00		
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00		
Satd. Flow (prot)	1179	1380		1319	1147		1451	2518		1308	2862		
Flt Permitted	0.95	1.00		0.95	1.00		0.53	1.00		0.34	1.00		
Satd. Flow (perm)	1179	1380		1319	1147		803	2518		464	2862		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	21	35	7	172	16	140	9	361	125	245	370	11	
RTOR Reduction (vph)	0	6	0	0	114	0	0	25	0	0	1	0	
Lane Group Flow (vph)	21	36	0	172	42	0	9	461	0	245	380	0	
Confl. Peds. (#/hr)	5		18	18		5	6		4	4		6	
Heavy Vehicles (%)	41%	11%	80%	26%	23%	31%	14%	24%	32%	27%	16%	0%	
Turn Type	Split	NA		Split	NA		pm+pt	NA		pm+pt	NA		
Protected Phases	8	8		4	4		1	6		5	2		
Permitted Phases							6			2			
Actuated Green, G (s)	6.1	6.1		17.2	17.2		31.2	30.3		57.1	51.7		
Effective Green, g (s)	6.1	6.1		17.2	17.2		31.2	30.3		57.1	51.7		
Actuated g/C Ratio	0.06	0.06		0.18	0.18		0.33	0.32		0.60	0.55		
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	5.0		4.5	5.0		
Vehicle Extension (s)	2.5	2.5		2.5	2.5		2.5	6.0		2.5	6.0		
Lane Grp Cap (vph)	76	89		240	208		271	808		480	1567		
v/s Ratio Prot	0.02	c0.03		c0.13	0.04		0.00	c0.18		c0.12	0.13		
v/s Ratio Perm							0.01			0.19			
v/c Ratio	0.28	0.41		0.72	0.20		0.03	0.57		0.51	0.24		
Uniform Delay, d1	42.0	42.4		36.3	32.8		21.3	26.6		9.9	11.1		
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00		
Incremental Delay, d2	1.4	2.2		9.1	0.3		0.0	1.9		0.7	0.2		
Delay (s)	43.5	44.6		45.4	33.1		21.3	28.6		10.6	11.4		
Level of Service	D	D		D	C		C	C		B	B		
Approach Delay (s)		44.3			39.6			28.4			11.1		
Approach LOS		D			D			C			B		
Intersection Summary													
HCM 2000 Control Delay			24.3									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.58										
Actuated Cycle Length (s)			94.4									Sum of lost time (s)	18.5
Intersection Capacity Utilization			59.0%									ICU Level of Service	B
Analysis Period (min)			15										

c Critical Lane Group

Intersection						
Int Delay, s/veh	0.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔			↔
Traffic Vol, veh/h	20	16	420	24	19	423
Future Vol, veh/h	20	16	420	24	19	423
Conflicting Peds, #/hr	1	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	30	25	27	12	21	18
Mvmt Flow	22	18	467	27	21	470

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	994	481	0	0	494
Stage 1	481	-	-	-	-
Stage 2	513	-	-	-	-
Critical Hdwy	6.7	6.45	-	-	4.31
Critical Hdwy Stg 1	5.7	-	-	-	-
Critical Hdwy Stg 2	5.7	-	-	-	-
Follow-up Hdwy	3.77	3.525	-	-	2.389
Pot Cap-1 Maneuver	242	541	-	-	978
Stage 1	568	-	-	-	-
Stage 2	548	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	235	541	-	-	978
Mov Cap-2 Maneuver	235	-	-	-	-
Stage 1	568	-	-	-	-
Stage 2	532	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18.1	0	0.4
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	314	978
HCM Lane V/C Ratio	-	-	0.127	0.022
HCM Control Delay (s)	-	-	18.1	8.8
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.4	0.1

Intersection						
Int Delay, s/veh	1.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔		↔	↔
Traffic Vol, veh/h	7	35	380	24	47	365
Future Vol, veh/h	7	35	380	24	47	365
Conflicting Peds, #/hr	2	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	350	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	29	29	28	29	19	17
Mvmt Flow	8	38	413	26	51	397

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	927	426	0	0	439
Stage 1	426	-	-	-	-
Stage 2	501	-	-	-	-
Critical Hdwy	6.69	6.49	-	-	4.29
Critical Hdwy Stg 1	5.69	-	-	-	-
Critical Hdwy Stg 2	5.69	-	-	-	-
Follow-up Hdwy	3.761	3.561	-	-	2.371
Pot Cap-1 Maneuver	267	575	-	-	1036
Stage 1	605	-	-	-	-
Stage 2	557	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	253	575	-	-	1036
Mov Cap-2 Maneuver	253	-	-	-	-
Stage 1	605	-	-	-	-
Stage 2	529	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.4	0	1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	474	1036
HCM Lane V/C Ratio	-	-	0.096	0.049
HCM Control Delay (s)	-	-	13.4	8.7
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.3	0.2

Intersection												
Int Delay, s/veh	2.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↕			↕	
Traffic Vol, veh/h	5	294	38	38	236	1	31	7	64	2	3	11
Future Vol, veh/h	5	294	38	38	236	1	31	7	64	2	3	11
Conflicting Peds, #/hr	17	0	8	8	0	17	14	0	0	0	0	14
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	250	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	60	28	26	16	34	100	10	14	19	0	0	18
Mvmt Flow	5	320	41	41	257	1	34	8	70	2	3	12

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	275	0	0	369	0	0	720	716	349	747	736	289
Stage 1	-	-	-	-	-	-	359	359	-	357	357	-
Stage 2	-	-	-	-	-	-	361	357	-	390	379	-
Critical Hdwy	4.7	-	-	4.26	-	-	7.2	6.64	6.39	7.1	6.5	6.38
Critical Hdwy Stg 1	-	-	-	-	-	-	6.2	5.64	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.2	5.64	-	6.1	5.5	-
Follow-up Hdwy	2.74	-	-	2.344	-	-	3.59	4.126	3.471	3.5	4	3.462
Pot Cap-1 Maneuver	1017	-	-	1116	-	-	333	341	657	332	349	714
Stage 1	-	-	-	-	-	-	643	606	-	665	632	-
Stage 2	-	-	-	-	-	-	641	608	-	638	618	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1001	-	-	1107	-	-	308	319	652	277	326	693
Mov Cap-2 Maneuver	-	-	-	-	-	-	308	319	-	277	326	-
Stage 1	-	-	-	-	-	-	635	598	-	651	599	-
Stage 2	-	-	-	-	-	-	595	576	-	560	610	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			1.2			15.2			12.5		
HCM LOS							C			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	462	1001	-	-	1107	-	-	495
HCM Lane V/C Ratio	0.24	0.005	-	-	0.037	-	-	0.035
HCM Control Delay (s)	15.2	8.6	-	-	8.4	-	-	12.5
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.9	0	-	-	0.1	-	-	0.1

Intersection						
Int Delay, s/veh	1.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔	↔	↔	↔
Traffic Vol, veh/h	228	14	17	189	22	21
Future Vol, veh/h	228	14	17	189	22	21
Conflicting Peds, #/hr	0	2	2	0	0	2
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	27	21	35	33	27	33
Mvmt Flow	251	15	19	208	24	23

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	268	0	507 263
Stage 1	-	-	-	-	261 -
Stage 2	-	-	-	-	246 -
Critical Hdwy	-	-	4.45	-	6.67 6.53
Critical Hdwy Stg 1	-	-	-	-	5.67 -
Critical Hdwy Stg 2	-	-	-	-	5.67 -
Follow-up Hdwy	-	-	2.515	-	3.743 3.597
Pot Cap-1 Maneuver	-	-	1127	-	484 706
Stage 1	-	-	-	-	728 -
Stage 2	-	-	-	-	740 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1125	-	475 703
Mov Cap-2 Maneuver	-	-	-	-	475 -
Stage 1	-	-	-	-	727 -
Stage 2	-	-	-	-	727 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	12
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	564	-	-	1125	-
HCM Lane V/C Ratio	0.084	-	-	0.017	-
HCM Control Delay (s)	12	-	-	8.3	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-

Intersection						
Int Delay, s/veh	1.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Traffic Vol, veh/h	6	243	162	1	12	44
Future Vol, veh/h	6	243	162	1	12	44
Conflicting Peds, #/hr	1	0	0	1	2	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	17	30	34	0	42	36
Mvmt Flow	7	267	178	1	13	48

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	180	0	-	0	463 180
Stage 1	-	-	-	-	180 -
Stage 2	-	-	-	-	283 -
Critical Hdwy	4.27	-	-	-	6.82 6.56
Critical Hdwy Stg 1	-	-	-	-	5.82 -
Critical Hdwy Stg 2	-	-	-	-	5.82 -
Follow-up Hdwy	2.353	-	-	-	3.878 3.624
Pot Cap-1 Maneuver	1310	-	-	-	490 782
Stage 1	-	-	-	-	763 -
Stage 2	-	-	-	-	682 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1309	-	-	-	486 781
Mov Cap-2 Maneuver	-	-	-	-	486 -
Stage 1	-	-	-	-	758 -
Stage 2	-	-	-	-	681 -

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	10.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1309	-	-	-	691
HCM Lane V/C Ratio	0.005	-	-	-	0.089
HCM Control Delay (s)	7.8	0	-	-	10.7
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.3

Intersection						
Int Delay, s/veh	1.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↔			↔
Traffic Vol, veh/h	31	2	52	28	6	81
Future Vol, veh/h	31	2	52	28	6	81
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	29	0	12	29	50	22
Mvmt Flow	36	2	60	32	7	93

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	183	76	0	0	92
Stage 1	76	-	-	-	-
Stage 2	107	-	-	-	-
Critical Hdwy	6.69	6.2	-	-	4.6
Critical Hdwy Stg 1	5.69	-	-	-	-
Critical Hdwy Stg 2	5.69	-	-	-	-
Follow-up Hdwy	3.761	3.3	-	-	2.65
Pot Cap-1 Maneuver	748	991	-	-	1249
Stage 1	883	-	-	-	-
Stage 2	854	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	744	991	-	-	1249
Mov Cap-2 Maneuver	744	-	-	-	-
Stage 1	883	-	-	-	-
Stage 2	849	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10	0	0.5
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	755	1249
HCM Lane V/C Ratio	-	-	0.05	0.006
HCM Control Delay (s)	-	-	10	7.9
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.2	0

Intersection	
Intersection Delay, s/veh	9.7
Intersection LOS	A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	43	27	17	89	80	37
Future Vol, veh/h	43	27	17	89	80	37
Peak Hour Factor	0.73	0.73	0.73	0.73	0.73	0.73
Heavy Vehicles, %	58	59	59	55	54	59
Mvmt Flow	59	37	23	122	110	51
Number of Lanes	1	0	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	9.6	9.9	9.6
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	16%	61%	0%
Vol Thru, %	84%	0%	68%
Vol Right, %	0%	39%	32%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	106	70	117
LT Vol	17	43	0
Through Vol	89	0	80
RT Vol	0	27	37
Lane Flow Rate	145	96	160
Geometry Grp	1	1	1
Degree of Util (X)	0.218	0.149	0.227
Departure Headway (Hd)	5.414	5.592	5.098
Convergence, Y/N	Yes	Yes	Yes
Cap	664	642	705
Service Time	3.437	3.619	3.121
HCM Lane V/C Ratio	0.218	0.15	0.227
HCM Control Delay	9.9	9.6	9.6
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.8	0.5	0.9

ATTACHMENT B DETAILED PLTS RESULTS

Table B1: Detailed PLTS Analysis Results

Street	From	To	Side	Pedestrian LTS Criteria										PLTS
				Speed (mph)	Total Number of Lanes	Bike Lane Width (feet)	Parking Width (feet)	Sidewalk Condition	Sidewalk Width (feet)	Buffer	Illumination	Land Use		
Major Arterial														
US 101	Bayview Road	0.20 miles south of North Bridge Head	Both	55	4	6' Shldr	0	Good	5	Vertical/Solid Surface	Yes	CBD	3	
	0.20 miles south of North Bridge Head	South Bridge Head	Both	25	4	6' Shldr	0	Good	5	Vertical/Solid Surface	Yes	CBD	3	
	South Bridge Head	Spring Street	Both	25	4	6' Shldr	0	Good	5	Solid Surface	Yes	CBD	3	
	Spring Street	OR 34	East	25	4	N/A	0	Good	5	No Buffer	Yes	CBD	4	
	Spring Street	OR 34	West	25	4	5' Shldr	8'	Good	10	Solid Surface	Yes	CBD	2	
	OR 34	Willow Street	East	25	4	N/A	0	Good	10	Solid Surface	Yes	CBD	3	
	OR 34	Willow Street	West	25	4	N/A	8	Good	10	Solid Surface	Yes	CBD	2	
	Willow Street	SW Starr Street	Both	25	4	N/A	8	Good	10	Solid Surface	Yes	CBD	2	
	SW Starr Street	North Bridge Head	West	25	2	8' Shldr	0	N/A	N/A	No Buffer	No	Low density development	4	

Street	From	To	Side	Pedestrian LTS Criteria										PLTS
				Speed (mph)	Total Number of Lanes	Bike Lane Width (feet)	Parking Width (feet)	Sidewalk Condition	Sidewalk Width (feet)	Buffer	Illumination	Land Use		
	SW Starr Street	North Bridge Head	East	25	2	6' Shldr	0	N/A	N/A	No Buffer	No	Low density development	4	
	North Bridge Head	South Bridge Head	Both	35	2	2' Shldr	0	N/A	N/A	No Buffer	No	Low density development	4	
	South Bridge Head	SW Forestry Lane	Both	45	2	4' Shldr	0	N/A	N/A	No Buffer	No	Low density development	4	
	SW Forestry Lane	SW Range Drive	Both	45	2	4' Shldr	0	N/A	N/A	No Buffer	No	Low density development	4	
	SW Range Drive	South City Limits	Both	45-55	2	4' Shldr	0	N/A	N/A	No Buffer	No	Low density development	4	
Minor Arterial														
OR 34	US 101	Alder Street	Both	25	2	N/A	8	Fair	7-10	Solid Surface	No	CBD	2	
	Alder Street	Bay Street	Both	25	2	N/A	N/A	Fair	7-10	Solid Surface	No	CBD	2	
	Bay Street	Crestline Drive	North	25	2	N/A	N/A	Fair	6-8	Solid Surface	No	CBD	2	
	Bay Street	Crestline Drive	South	25	2	8' Shldr	N/A	Fair	6-8	Solid Surface	No	CBD	2	

Street	From	To	Side	Pedestrian LTS Criteria										PLTS
				Speed (mph)	Total Number of Lanes	Bike Lane Width (feet)	Parking Width (feet)	Sidewalk Condition	Sidewalk Width (feet)	Buffer	Illumination	Land Use		
	Crestline Drive	525' east of West Bridge Head	Both	25	2	2' Shldr	N/A	N/A	N/A	No Buffer	No	Low density development	4	
	525' east of West Bridge Head	East City Limits	Both	45	2	2' Shldr	N/A	N/A	N/A	No Buffer	No	Low density development	4	
Collector														
Crestline Drive	OR 34	N Lint Slough Road	West	25	2	3' Shldr	0	Fair	6	Solid Surface	No	Low density development	2	
	OR 34	N Lint Slough Road	East	25	2	N/A	0	N/A	N/A	No Buffer	No	Low density development	4	
	N Lint Slough Road	Cedar Street	Both	25	2	N/A	0	N/A	N/A	No Buffer	No	Low density development	4	
	Cedar Street	SE Salmon Street	West	25	2	2' Shldr	0	N/A	N/A	No Buffer	No	Low density development	4	
	Cedar Street	SE Salmon Street	East	25	2	1' Shldr	0	N/A	N/A	No Buffer	No	Low density development	4	
	SE Salmon Street	SW Range Drive	West	25	2	4' Shldr	7'	Good	6	Landscaped	Yes	Low density development	2	
	SE Salmon Street	SW Range Drive	East	25	2	4' Shldr	0	N/A	N/A	No Buffer	No	Low density development	4	

Street	From	To	Side	Pedestrian LTS Criteria										PLTS
				Speed (mph)	Total Number of Lanes	Bike Lane Width (feet)	Parking Width (feet)	Sidewalk Condition	Sidewalk Width (feet)	Buffer	Illumination	Land Use		
	SW Range Drive	South City Limit	Both	25	2	N/A	0	N/A	N/A	No Buffer	No	Low density development	4	
Range Drive	US 101	Crestline Drive	Both	25	2	N/A	0	N/A	N/A	No Buffer	No	Low density development	4	
Cedar Street	OR 34	Willow Street	Both	25	2	N/A	8'	Fair	5	Solid Surface	Yes	Low density development	2	
	Willow Street	Crestline Drive	West	25	2	N/A	0	Fair	6	No Buffer	Yes	Low density development	4	
	Willow Street	Crestline Drive	East	25	2	N/A	0	N/A	N/A	No Buffer	No	Low density development	2	

Dark shaded cells denote roadway segments that do not satisfy the LTS 2 target.

1. PLTS does not include important considerations such as steep climbs, narrow travel lanes, and absence of lighting. The LTS rating for Cedar Street was increase from an LTS 2 to an LTS 3 due to steep topography.

ATTACHMENT C PLOS CALCULATIONS



**LOS+ Multimodal Level of Service for Urban Streets
Results Summary**

Street South County Route

Direction #N/A

Date 12/14/2018

Limits Study Area

Analyst KZP

Segment	From	To	Auto Mode			Pedestrian Mode			Bicycle Mode		Transit Mode	
			V/C Ratio	LOS Score	LOS	Ped Space ¹	LOS Score	LOS	LOS Score	LOS	LOS Score	LOS
1	Study Area	Study Area				2969.99	2.31	B				
2												
3												
4												
5												

Note:
 1. Pedestrian space is reported in square feet per pedestrian (ft²/ped)
 Source: NCHRP Project 3-70 Multimodal Level of Service For Urban Streets and Highway Capacity Manual 2010, Chapter 17

ATTACHMENT D CRASH DATA

General & Site Information	
Analyst:	KZP
Agency/Company:	Kittelson & Associates, Inc.
Date:	1/3/2019
Project Name:	Waldport TSP Update

Reference Population Type Crash Rates					
Segment Reference Population Type	Population Type Number	No. of Segs in Reference Population	Sum of Crashes	Sum of MVMT	Avg Crash Rate for Ref Pop.
US 101	1	1	15	19.8	0.76
OR 34	2	1	14	19.9	0.70
Collector	3	3	5	7.6	0.65
	4				
	5				
	6				

Critical Rate Calculation													
Segment	Ref. Pop. Type	Begin Milepoint	End Milepoint	5 Year Crash Total	AADT	Segment Length	Pop. Type Number	MVMT	Segment Crash Rate	Ref. Pop. Crash Rate	Critical Rate	Over Critical	
1	US 101	0.00	1.13	15	9590	1.13	1	19.78	0.76	0.76	1.11	Under	US 101
2	OR 34	0.00	1.62	14	6740	1.62	2	19.93	0.70	0.70	1.04	Under	OR 34
3	Collector	0.00	1.06	2	2490	1.06	3	4.82	0.42	0.65	1.36	Under	Crestline Driv
4	Collector	0.00	0.85	1	1240	0.85	3	1.91	0.52	0.65	1.88	Under	Range Drive
5	Collector	0.00	0.28	2	1810	0.28	3	0.91	2.19	0.65	2.60	Under	Cedar Street

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
 CRASH SUMMARIES BY YEAR BY COLLISION TYPE

US 101 & NW Spring St
 January 1, 2012 through December 31, 2016

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR:														
TOTAL														
FINAL TOTAL														

Disclaimers: Effective 2016, collection of “Property Damage Only” (PDO) crash data elements was reduced for vehicles and participants. Age, Gender, License, Error and other elements are no longer available for PDO crash reporting. Please keep this in mind when comparing 2016 PDO crash data to prior years.

A higher number of crashes may be reported as of 2011 compared to prior years. This does not necessarily reflect an increase in annual crashes. The higher numbers may result from a change to an internal departmental process that allows the Crash Analysis and Reporting Unit to add previously unavailable , non-fatal crash reports to the annual data file. Please be aware of this change when comparing pre- 2011 crash statistics. For all disclaimers, see https://www.oregon.gov/ODOT/Data/documents/Crash_Data_Disclaimers.pdf.

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 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
 CRASH SUMMARIES BY YEAR BY COLLISION TYPE

US 101 & OR 34 (aka NW Hemlock St)
 January 1, 2012 through December 31, 2016

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2016														
REAR-END	0	1	0	1	0	3	0	1	0	1	0	1	0	0
TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	1	0	1	0	0
2016 TOTAL	0	1	1	2	0	3	0	2	0	2	0	2	0	0
YEAR: 2014														
PEDESTRIAN	0	1	0	1	0	1	0	1	0	1	0	1	0	0
2014 TOTAL	0	1	0	1	0	1	0	1	0	1	0	1	0	0
YEAR: 2013														
REAR-END	0	0	1	1	0	0	0	0	0	1	0	1	0	0
2013 TOTAL	0	0	1	1	0	0	0	0	0	1	0	1	0	0
YEAR: 2012														
TURNING MOVEMENTS	0	1	0	1	0	1	0	1	0	1	0	1	0	0
2012 TOTAL	0	1	0	1	0	1	0	1	0	1	0	1	0	0
FINAL TOTAL	0	3	2	5	0	5	0	4	0	5	0	5	0	0

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 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
 CRASH SUMMARIES BY YEAR BY COLLISION TYPE

US 101 & SW Starr St / SW Norwood Dr
 January 1, 2012 through December 31, 2016

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2014														
ANGLE	0	0	1	1	0	0	0	1	0	1	0	1	0	0
2014 TOTAL	0	0	1	1	0	0	0	1	0	1	0	1	0	0
YEAR: 2012														
FIXED / OTHER OBJECT	0	0	1	1	0	0	0	1	0	0	1	1	0	1
2012 TOTAL	0	0	1	1	0	0	0	1	0	0	1	1	0	1
FINAL TOTAL	0	0	2	2	0	0	0	2	0	1	1	2	0	1

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TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE

US 101 & SW Range Dr
January 1, 2012 through December 31, 2016

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
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YEAR:

TOTAL

FINAL TOTAL

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 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
 CRASH SUMMARIES BY YEAR BY COLLISION TYPE

OR 34 (aka NW Hemlock St) & NW Cedar St
 January 1, 2012 through December 31, 2016

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2013														
REAR-END	0	0	1	1	0	0	0	1	0	1	0	1	0	0
2013 TOTAL	0	0	1	1	0	0	0	1	0	1	0	1	0	0
FINAL TOTAL	0	0	1	1	0	0	0	1	0	1	0	1	0	0

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OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
 CRASH SUMMARIES BY YEAR BY COLLISION TYPE

OR 34 & NW Crestline Dr
 January 1, 2012 through December 31, 2016

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR:														
TOTAL														
FINAL TOTAL														

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 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
 CRASH SUMMARIES BY YEAR BY COLLISION TYPE

OR 34 & NE Mill St
 January 1, 2012 through December 31, 2016

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR:														
TOTAL														
FINAL TOTAL														

Disclaimers: Effective 2016, collection of "Property Damage Only" (PDO) crash data elements was reduced for vehicles and participants. Age, Gender, License, Error and other elements are no longer available for PDO crash reporting. Please keep this in mind when comparing 2016 PDO crash data to prior years.

A higher number of crashes may be reported as of 2011 compared to prior years. This does not necessarily reflect an increase in annual crashes. The higher numbers may result from a change to an internal departmental process that allows the Crash Analysis and Reporting Unit to add previously unavailable, non-fatal crash reports to the annual data file. Please be aware of this change when comparing pre-2011 crash statistics. For all disclaimers, see https://www.oregon.gov/ODOT/Data/documents/Crash_Data_Disclaimers.pdf.

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
 TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
 CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Range Dr & Crestline Dr
 January 1, 2012 through December 31, 2016

COLLISION TYPE	FATAL CRASHES	NON- FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER- SECTION	INTER- SECTION RELATED	OFF- ROAD
YEAR: 2015														
REAR-END	0	1	0	1	0	2	0	1	0	0	1	1	0	0
2015 TOTAL	0	1	0	1	0	2	0	1	0	0	1	1	0	0
FINAL TOTAL	0	1	0	1	0	2	0	1	0	0	1	1	0	0

Disclaimers: Effective 2016, collection of “Property Damage Only” (PDO) crash data elements was reduced for vehicles and participants. Age, Gender, License, Error and other elements are no longer available for PDO crash reporting. Please keep this in mind when comparing 2016 PDO crash data to prior years.

A higher number of crashes may be reported as of 2011 compared to prior years. This does not necessarily reflect an increase in annual crashes. The higher numbers may result from a change to an internal departmental process that allows the Crash Analysis and Reporting Unit to add previously unavailable , non-fatal crash reports to the annual data file. Please be aware of this change when comparing pre- 2011 crash statistics. For all disclaimers, see https://www.oregon.gov/ODOT/Data/documents/Crash_Data_Disclaimers.pdf.

ACTION CODE TRANSLATION LIST

ACTION CODE	SHORT DESCRIPTION	LONG DESCRIPTION
000	NONE	NO ACTION OR NON-WARRANTED
001	SKIDDED	SKIDDED
002	ON/OFF V	GETTING ON OR OFF STOPPED OR PARKED VEHICLE
003	LOAD OVR	OVERHANGING LOAD STRUCK ANOTHER VEHICLE, ETC.
006	SLOW DN	SLOWED DOWN
007	AVOIDING	AVOIDING MANEUVER
008	PAR PARK	PARALLEL PARKING
009	ANG PARK	ANGLE PARKING
010	INTERFERE	PASSENGER INTERFERING WITH DRIVER
011	STOPPED	STOPPED IN TRAFFIC NOT WAITING TO MAKE A LEFT TURN
012	STP/L TRN	STOPPED BECAUSE OF LEFT TURN SIGNAL OR WAITING, ETC.
013	STP TURN	STOPPED WHILE EXECUTING A TURN
014	EMR V PKD	EMERGENCY VEHICLE LEGALLY PARKED IN THE ROADWAY
015	GO A/STOP	PROCEED AFTER STOPPING FOR A STOP SIGN/FLASHING RED.
016	TRN A/RED	TURNED ON RED AFTER STOPPING
017	LOSTCTRL	LOST CONTROL OF VEHICLE
018	EXIT DWY	ENTERING STREET OR HIGHWAY FROM ALLEY OR DRIVEWAY
019	ENTR DWY	ENTERING ALLEY OR DRIVEWAY FROM STREET OR HIGHWAY
020	STR ENTR	BEFORE ENTERING ROADWAY, STRUCK PEDESTRIAN, ETC. ON SIDEWALK OR SHOULDER
021	NO DRVR	CAR RAN AWAY - NO DRIVER
022	PREV COL	STRUCK, OR WAS STRUCK BY, VEHICLE OR PEDESTRIAN IN PRIOR COLLISION BEFORE ACC. STABILIZED
023	STALLED	VEHICLE STALLED OR DISABLED
024	DRVR DEAD	DEAD BY UNASSOCIATED CAUSE
025	FATIGUE	FATIGUED, SLEEPY, ASLEEP
026	SUN	DRIVER BLINDED BY SUN
027	HDLGHTS	DRIVER BLINDED BY HEADLIGHTS
028	ILLNESS	PHYSICALLY ILL
029	THRU MED	VEHICLE CROSSED, PLUNGED OVER, OR THROUGH MEDIAN BARRIER
030	PURSUIT	PURSUING OR ATTEMPTING TO STOP A VEHICLE
031	PASSING	PASSING SITUATION
032	PRKOFFRD	VEHICLE PARKED BEYOND CURB OR SHOULDER
033	CROS MED	VEHICLE CROSSED EARTH OR GRASS MEDIAN
034	X N/SGNL	CROSSING AT INTERSECTION - NO TRAFFIC SIGNAL PRESENT
035	X W/ SGNL	CROSSING AT INTERSECTION - TRAFFIC SIGNAL PRESENT
036	DIAGONAL	CROSSING AT INTERSECTION - DIAGONALLY
037	BTWN INT	CROSSING BETWEEN INTERSECTIONS
038	DISTRACT	DRIVER'S ATTENTION DISTRACTED
039	W/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER WITH TRAFFIC
040	A/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER FACING TRAFFIC
041	W/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT WITH TRAFFIC
042	A/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT FACING TRAFFIC
043	PLAYINRD	PLAYING IN STREET OR ROAD
044	PUSH MV	PUSHING OR WORKING ON VEHICLE IN ROAD OR ON SHOULDER
045	WORK ON	WORKING IN ROADWAY OR ALONG SHOULDER
046	W/ TRAFIC	NON-MOTORIST WALKING, RUNNING, RIDING, ETC. WITH TRAFFIC
047	A/ TRAFIC	NON-MOTORIST WALKING, RUNNING, RIDING, ETC. FACING TRAFFIC
050	LAY ON RD	STANDING OR LYING IN ROADWAY
051	ENT OFFRD	ENTERING / STARTING IN TRAFFIC LANE FROM OFF ROAD
052	MERGING	MERGING

ACTION CODE TRANSLATION LIST

ACTION CODE	SHORT DESCRIPTION	LONG DESCRIPTION
055	SPRAY	BLINDED BY WATER SPRAY
088	OTHER	OTHER ACTION
099	UNK	UNKNOWN ACTION

CAUSE CODE TRANSLATION LIST

CAUSE CODE	SHORT DESCRIPTION	LONG DESCRIPTION
00	NO CODE	NO CAUSE ASSOCIATED AT THIS LEVEL
01	TOO-FAST	TOO FAST FOR CONDITIONS (NOT EXCEED POSTED SPEED
02	NO-YIELD	DID NOT YIELD RIGHT-OF-WAY
03	PAS-STOP	PASSED STOP SIGN OR RED FLASHER
04	DIS SIG	DISREGARDED TRAFFIC SIGNAL
05	LEFT-CTR	DROVE LEFT OF CENTER ON TWO-WAY ROAD; STRADDLING
06	IMP-OVER	IMPROPER OVERTAKING
07	TOO-CLOS	FOLLOWED TOO CLOSELY
08	IMP-TURN	MADE IMPROPER TURN
09	DRINKING	ALCOHOL OR DRUG INVOLVED
10	OTHR-IMP	OTHER IMPROPER DRIVING
11	MECH-DEF	MECHANICAL DEFECT
12	OTHER	OTHER (NOT IMPROPER DRIVING)
13	IMP LN C	IMPROPER CHANGE OF TRAFFIC LANES
14	DIS TCD	DISREGARDED OTHER TRAFFIC CONTROL DEVICE
15	WRNG WAY	WRONG WAY ON ONE-WAY ROAD; WRONG SIDE DIVIDED RO
16	FATIGUE	DRIVER DROWSY/FATIGUED/SLEEPY
17	ILLNESS	PHYSICAL ILLNESS
18	IN RDWY	NON-MOTORIST ILLEGALLY IN ROADWAY
19	NT VISBL	NON-MOTORIST NOT VISIBLE; NON-REFLECTIVE CLOTHIN
20	IMP PKNG	VEHICLE IMPROPERLY PARKED
21	DEF STER	DEFECTIVE STEERING MECHANISM
22	DEF BRKE	INADEQUATE OR NO BRAKES
24	LOADSHFT	VEHICLE LOST LOAD OR LOAD SHIFTED
25	TIREFAIL	TIRE FAILURE
26	PHANTOM	PHANTOM / NON-CONTACT VEHICLE
27	INATTENT	INATTENTION
28	NM INATT	NON-MOTORIST INATTENTION
29	F AVOID	FAILED TO AVOID VEHICLE AHEAD
30	SPEED	DRIVING IN EXCESS OF POSTED SPEED
31	RACING	SPEED RACING (PER PAR)
32	CARELESS	CARELESS DRIVING (PER PAR)
33	RECKLESS	RECKLESS DRIVING (PER PAR)
34	AGGRESV	AGGRESSIVE DRIVING (PER PAR)
35	RD RAGE	ROAD RAGE (PER PAR)
40	VIEW OBS	VIEW OBSCURED
50	USED MDN	IMPROPER USE OF MEDIAN OR SHOULDER
51	FAIL LN	FAILED TO MAINTAIN LANE
52	OFF RD	RAN OFF ROAD

COLLISION TYPE CODE TRANSLATION LIST

COLL CODE	SHORT DESCRIPTION	LONG DESCRIPTION
&	OTH	MISCELLANEOUS
-	BACK	BACKING
0	PED	PEDESTRIAN
1	ANGL	ANGLE
2	HEAD	HEAD-ON
3	REAR	REAR-END
4	SS-M	SIDESWIPE - MEETING
5	SS-O	SIDESWIPE - OVERTAKING
6	TURN	TURNING MOVEMENT
7	PARK	PARKING MANEUVER
8	NCOL	NON-COLLISION
9	FIX	FIXED OBJECT OR OTHER OBJECT

CRASH TYPE CODE TRANSLATION LIST

CRASH TYPE	SHORT DESCRIPTION	LONG DESCRIPTION
&	OVERTURN	OVERTURNED
0	NON-COLL	OTHER NON-COLLISION
1	OTH RDWY	MOTOR VEHICLE ON OTHER ROADWAY
2	PRKD MV	PARKED MOTOR VEHICLE
3	PED	PEDESTRIAN
4	TRAIN	RAILWAY TRAIN
6	BIKE	PEDALCYCLIST
7	ANIMAL	ANIMAL
8	FIX OBJ	FIXED OBJECT
9	OTH OBJ	OTHER OBJECT
A	ANGL-STP	ENTERING AT ANGLE - ONE VEHICLE STOPPED
B	ANGL-OTH	ENTERING AT ANGLE - ALL OTHERS
C	S-STRGHT	FROM SAME DIRECTION - BOTH GOING STRAIGHT
D	S-1TURN	FROM SAME DIRECTION - ONE TURN, ONE STRAIGHT
E	S-1STOP	FROM SAME DIRECTION - ONE STOPPED
F	S-OTHER	FROM SAME DIRECTION-ALL OTHERS, INCLUDING PARKING
G	O-STRGHT	FROM OPPOSITE DIRECTION - BOTH GOING STRAIGHT
H	O-1 L-TURN	FROM OPPOSITE DIRECTION-ONE LEFT TURN, ONE STRAIGHT
I	O-1STOP	FROM OPPOSITE DIRECTION - ONE STOPPED
J	O-OTHER	FROM OPPOSITE DIRECTION-ALL OTHERS INCL. PARKING

DRIVER LICENSE CODE TRANSLATION LIST

LIC CODE	SHORT DESC	LONG DESCRIPTION
0	NONE	NOT LICENSED (HAD NEVER BEEN LICENSED)
1	OR-Y	VALID OREGON LICENSE
2	OTH-Y	VALID LICENSE, OTHER STATE OR COUNTRY
3	SUSP	SUSPENDED/REVOKED
4	EXP	EXPIRED
8	N-VAL	OTHER NON-VALID LICENSE
9	UNK	UNKNOWN IF DRIVER WAS LICENSED AT TIME OF CRASH

DRIVER RESIDENCE CODE TRANSLATION LIST

RES CODE	SHORT DESC	LONG DESCRIPTION
1	OR<25	OREGON RESIDENT WITHIN 25 MILE OF HOME
2	OR>25	OREGON RESIDENT 25 OR MORE MILES FROM HOME
3	OR-?	OREGON RESIDENT - UNKNOWN DISTANCE FROM HOME
4	N-RES	NON-RESIDENT
9	UNK	UNKNOWN IF OREGON RESIDENT

ERROR CODE TRANSLATION LIST

ERROR CODE	SHORT DESCRIPTION	FULL DESCRIPTION
000	NONE	NO ERROR
001	WIDE TRN	WIDE TURN
002	CUT CORN	CUT CORNER ON TURN
003	FAIL TRN	FAILED TO OBEY MANDATORY TRAFFIC TURN SIGNAL, SIGN OR LANE MARKINGS
004	L IN TRF	LEFT TURN IN FRONT OF ONCOMING TRAFFIC
005	L PROHIB	LEFT TURN WHERE PROHIBITED
006	FRM WRNG	TURNED FROM WRONG LANE
007	TO WRONG	TURNED INTO WRONG LANE
008	ILLEG U	U-TURNED ILLEGALLY
009	IMP STOP	IMPROPERLY STOPPED IN TRAFFIC LANE
010	IMP SIG	IMPROPER SIGNAL OR FAILURE TO SIGNAL
011	IMP BACK	BACKING IMPROPERLY (NOT PARKING)
012	IMP PARK	IMPROPERLY PARKED
013	UNPARK	IMPROPER START LEAVING PARKED POSITION
014	IMP STRT	IMPROPER START FROM STOPPED POSITION
015	IMP LGHT	IMPROPER OR NO LIGHTS (VEHICLE IN TRAFFIC)
016	INATTENT	INATTENTION (FAILURE TO DIM LIGHTS PRIOR TO 4/1/97)
017	UNSF VEH	DRIVING UNSAFE VEHICLE (NO OTHER ERROR APPARENT)
018	OTH PARK	ENTERING/EXITING PARKED POSITION W/ INSUFFICIENT CLEARANCE; OTHER IMPROPER PARKING MANEUVER
019	DIS DRIV	DISREGARDED OTHER DRIVER'S SIGNAL
020	DIS SGNL	DISREGARDED TRAFFIC SIGNAL
021	RAN STOP	DISREGARDED STOP SIGN OR FLASHING RED
022	DIS SIGN	DISREGARDED WARNING SIGN, FLARES OR FLASHING AMBER
023	DIS OFCR	DISREGARDED POLICE OFFICER OR FLAGMAN
024	DIS EMER	DISREGARDED SIREN OR WARNING OF EMERGENCY VEHICLE
025	DIS RR	DISREGARDED RR SIGNAL, RR SIGN, OR RR FLAGMAN
026	REAR-END	FAILED TO AVOID STOPPED OR PARKED VEHICLE AHEAD OTHER THAN SCHOOL BUS
027	BIKE ROW	DID NOT HAVE RIGHT-OF-WAY OVER PEDALCYCLIST
028	NO ROW	DID NOT HAVE RIGHT-OF-WAY
029	PED ROW	FAILED TO YIELD RIGHT-OF-WAY TO PEDESTRIAN
030	PAS CURV	PASSING ON A CURVE
031	PAS WRNG	PASSING ON THE WRONG SIDE
032	PAS TANG	PASSING ON STRAIGHT ROAD UNDER UNSAFE CONDITIONS
033	PAS X-WK	PASSED VEHICLE STOPPED AT CROSSWALK FOR PEDESTRIAN
034	PAS INTR	PASSING AT INTERSECTION
035	PAS HILL	PASSING ON CREST OF HILL
036	N/PAS ZN	PASSING IN "NO PASSING" ZONE
037	PAS TRAF	PASSING IN FRONT OF ONCOMING TRAFFIC
038	CUT-IN	CUTTING IN (TWO LANES - TWO WAY ONLY)
039	WRNGSIDE	DRIVING ON WRONG SIDE OF THE ROAD (2-WAY UNDIVIDED ROADWAYS)

ERROR CODE TRANSLATION LIST

ERROR CODE	SHORT DESCRIPTION	FULL DESCRIPTION
040	THRU MED	DRIVING THROUGH SAFETY ZONE OR OVER ISLAND
041	F/ST BUS	FAILED TO STOP FOR SCHOOL BUS
042	F/SLO MV	FAILED TO DECREASE SPEED FOR SLOWER MOVING VEHICLE
043	TOO CLOSE	FOLLOWING TOO CLOSELY (MUST BE ON OFFICER'S REPORT)
044	STRDL LN	STRADDLING OR DRIVING ON WRONG LANES
045	IMP CHG	IMPROPER CHANGE OF TRAFFIC LANES
046	WRNG WAY	WRONG WAY ON ONE-WAY ROADWAY; WRONG SIDE DIVIDED ROAD
047	BASCRULE	DRIVING TOO FAST FOR CONDITIONS (NOT EXCEEDING POSTED SPEED)
048	OPN DOOR	OPENED DOOR INTO ADJACENT TRAFFIC LANE
049	IMPEDING	IMPEDING TRAFFIC
050	SPEED	DRIVING IN EXCESS OF POSTED SPEED
051	RECKLESS	RECKLESS DRIVING (PER PAR)
052	CARELESS	CARELESS DRIVING (PER PAR)
053	RACING	SPEED RACING (PER PAR)
054	X N/SGNL	CROSSING AT INTERSECTION, NO TRAFFIC SIGNAL PRESENT
055	X W/SGNL	CROSSING AT INTERSECTION, TRAFFIC SIGNAL PRESENT
056	DIAGONAL	CROSSING AT INTERSECTION - DIAGONALLY
057	BTWN INT	CROSSING BETWEEN INTERSECTIONS
059	W/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER WITH TRAFFIC
060	A/TRAF-S	WALKING, RUNNING, RIDING, ETC., ON SHOULDER FACING TRAFFIC
061	W/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT WITH TRAFFIC
062	A/TRAF-P	WALKING, RUNNING, RIDING, ETC., ON PAVEMENT FACING TRAFFIC
063	PLAYINRD	PLAYING IN STREET OR ROAD
064	PUSH MV	PUSHING OR WORKING ON VEHICLE IN ROAD OR ON SHOULDER
065	WORK IN RD	WORKING IN ROADWAY OR ALONG SHOULDER
070	LAY ON RD	STANDING OR LYING IN ROADWAY
071	NM IMP USE	IMPROPER USE OF TRAFFIC LANE BY NON-MOTORIST
073	ELUDING	ELUDING / ATTEMPT TO ELUDE
079	F NEG CURV	FAILED TO NEGOTIATE A CURVE
080	FAIL LN	FAILED TO MAINTAIN LANE
081	OFF RD	RAN OFF ROAD
082	NO CLEAR	DRIVER MISJUDGED CLEARANCE
083	OVRSTEER	OVER-CORRECTING
084	NOT USED	CODE NOT IN USE
085	OVRLOAD	OVERLOADING OR IMPROPER LOADING OF VEHICLE WITH CARGO OR PASSENGERS
097	UNA DIS TC	UNABLE TO DETERMINE WHICH DRIVER DISREGARDED TRAFFIC CONTROL DEVICE

EVENT CODE TRANSLATION LIST

EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
001	FEL/JUMP	OCCUPANT FELL, JUMPED OR WAS EJECTED FROM MOVING VEHICLE
002	INTERFER	PASSENGER INTERFERED WITH DRIVER
003	BUG INTF	ANIMAL OR INSECT IN VEHICLE INTERFERED WITH DRIVER
004	INDRCT PED	PEDESTRIAN INDIRECTLY INVOLVED (NOT STRUCK)
005	SUB-PED	"SUB-PED": PEDESTRIAN INJURED SUBSEQUENT TO COLLISION, ETC.
006	INDRCT BIK	PEDALCYCLIST INDIRECTLY INVOLVED (NOT STRUCK)
007	HITCHIKR	HITCHHIKER (SOLICITING A RIDE)
008	PSNGR TOW	PASSENGER OR NON-MOTORIST BEING TOWED OR PUSHED ON CONVEYANCE
009	ON/OFF V	GETTING ON/OFF STOPPED/PARKED VEHICLE (OCCUPANTS ONLY; MUST HAVE PHYSICAL CONTACT W/ VEHICLE)
010	SUB OTRN	OVERTURNED AFTER FIRST HARMFUL EVENT
011	MV PUSHD	VEHICLE BEING PUSHED
012	MV TOWED	VEHICLE TOWED OR HAD BEEN TOWING ANOTHER VEHICLE
013	FORCED	VEHICLE FORCED BY IMPACT INTO ANOTHER VEHICLE, PEDALCYCLIST OR PEDESTRIAN
014	SET MOTN	VEHICLE SET IN MOTION BY NON-DRIVER (CHILD RELEASED BRAKES, ETC.)
015	RR ROW	AT OR ON RAILROAD RIGHT-OF-WAY (NOT LIGHT RAIL)
016	LT RL ROW	AT OR ON LIGHT-RAIL RIGHT-OF-WAY
017	RR HIT V	TRAIN STRUCK VEHICLE
018	V HIT RR	VEHICLE STRUCK TRAIN
019	HIT RR CAR	VEHICLE STRUCK RAILROAD CAR ON ROADWAY
020	JACKKNIFE	JACKKNIFE; TRAILER OR TOWED VEHICLE STRUCK TOWING VEHICLE
021	TRL OTRN	TRAILER OR TOWED VEHICLE OVERTURNED
022	CN BROKE	TRAILER CONNECTION BROKE
023	DETACH TRL	DETACHED TRAILING OBJECT STRUCK OTHER VEHICLE, NON-MOTORIST, OR OBJECT
024	V DOOR OPN	VEHICLE DOOR OPENED INTO ADJACENT TRAFFIC LANE
025	WHEELOFF	WHEEL CAME OFF
026	HOOD UP	HOOD FLEW UP
028	LOAD SHIFT	LOST LOAD, LOAD MOVED OR SHIFTED
029	TIREFAIL	TIRE FAILURE
030	PET	PET: CAT, DOG AND SIMILAR
031	LVSTOCK	STOCK: COW, CALF, BULL, STEER, SHEEP, ETC.
032	HORSE	HORSE, MULE, OR DONKEY
033	HRSE&RID	HORSE AND RIDER
034	GAME	WILD ANIMAL, GAME (INCLUDES BIRDS; NOT DEER OR ELK)
035	DEER ELK	DEER OR ELK, WAPITI
036	ANML VEH	ANIMAL-DRAWN VEHICLE
037	CULVERT	CULVERT, OPEN LOW OR HIGH MANHOLE
038	ATENUATN	IMPACT ATTENUATOR
039	PK METER	PARKING METER
040	CURB	CURB (ALSO NARROW SIDEWALKS ON BRIDGES)
041	JIGGLE	JIGGLE BAR OR TRAFFIC SNAKE FOR CHANNELIZATION
042	GDRL END	LEADING EDGE OF GUARDRAIL
043	GARDRAIL	GUARD RAIL (NOT METAL MEDIAN BARRIER)
044	BARRIER	MEDIAN BARRIER (RAISED OR METAL)
045	WALL	RETAINING WALL OR TUNNEL WALL
046	BR RAIL	BRIDGE RAILING OR PARAPET (ON BRIDGE OR APPROACH)
047	BR ABUTMNT	BRIDGE ABUTMENT (INCLUDED "APPROACH END" THRU 2013)
048	BR COLMN	BRIDGE PILLAR OR COLUMN
049	BR GIRDR	BRIDGE GIRDER (HORIZONTAL BRIDGE STRUCTURE OVERHEAD)
050	ISLAND	TRAFFIC RAISED ISLAND
051	GORE	GORE
052	POLE UNK	POLE - TYPE UNKNOWN
053	POLE UTL	POLE - POWER OR TELEPHONE
054	ST LIGHT	POLE - STREET LIGHT ONLY
055	TRF SGNL	POLE - TRAFFIC SIGNAL AND PED SIGNAL ONLY
056	SGN BRDG	POLE - SIGN BRIDGE
057	STOPSIGN	STOP OR YIELD SIGN

EVENT CODE TRANSLATION LIST

EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
058	OTH SIGN	OTHER SIGN, INCLUDING STREET SIGNS
059	HYDRANT	HYDRANT
060	MARKER	DELINEATOR OR MARKER (REFLECTOR POSTS)
061	MAILBOX	MAILBOX
062	TREE	TREE, STUMP OR SHRUBS
063	VEG OHED	TREE BRANCH OR OTHER VEGETATION OVERHEAD, ETC.
064	WIRE/CBL	WIRE OR CABLE ACROSS OR OVER THE ROAD
065	TEMP SGN	TEMPORARY SIGN OR BARRICADE IN ROAD, ETC.
066	PERM SGN	PERMANENT SIGN OR BARRICADE IN/OFF ROAD
067	SLIDE	SLIDES, FALLEN OR FALLING ROCKS
068	FRGN OBJ	FOREIGN OBSTRUCTION/DEBRIS IN ROAD (NOT GRAVEL)
069	EQP WORK	EQUIPMENT WORKING IN/OFF ROAD
070	OTH EQP	OTHER EQUIPMENT IN OR OFF ROAD (INCLUDES PARKED TRAILER, BOAT)
071	MAIN EQP	WRECKER, STREET SWEEPER, SNOW PLOW OR SANDING EQUIPMENT
072	OTHER WALL	ROCK, BRICK OR OTHER SOLID WALL
073	IRRGL PVMT	OTHER BUMP (NOT SPEED BUMP), POTHOLE OR PAVEMENT IRREGULARITY (PER PAR)
074	OVERHD OBJ	OTHER OVERHEAD OBJECT (HIGHWAY SIGN, SIGNAL HEAD, ETC.); NOT BRIDGE
075	CAVE IN	BRIDGE OR ROAD CAVE IN
076	HI WATER	HIGH WATER
077	SNO BANK	SNOW BANK
078	LO-HI EDGE	LOW OR HIGH SHOULDER AT PAVEMENT EDGE
079	DITCH	CUT SLOPE OR DITCH EMBANKMENT
080	OBJ FRM MV	STRUCK BY ROCK OR OTHER OBJECT SET IN MOTION BY OTHER VEHICLE (INCL. LOST LOADS)
081	FLY-OBJ	STRUCK BY ROCK OR OTHER MOVING OR FLYING OBJECT (NOT SET IN MOTION BY VEHICLE)
082	VEH HID	VEHICLE OBSCURED VIEW
083	VEG HID	VEGETATION OBSCURED VIEW
084	BLDG HID	VIEW OBSCURED BY FENCE, SIGN, PHONE BOOTH, ETC.
085	WIND GUST	WIND GUST
086	IMMERSED	VEHICLE IMMERSED IN BODY OF WATER
087	FIRE/EXP	FIRE OR EXPLOSION
088	FENC/BLD	FENCE OR BUILDING, ETC.
089	OTHR CRASH	CRASH RELATED TO ANOTHER SEPARATE CRASH
090	TO 1 SIDE	TWO-WAY TRAFFIC ON DIVIDED ROADWAY ALL ROUTED TO ONE SIDE
091	BUILDING	BUILDING OR OTHER STRUCTURE
092	PHANTOM	OTHER (PHANTOM) NON-CONTACT VEHICLE
093	CELL PHONE	CELL PHONE (ON PAR OR DRIVER IN USE)
094	VIOL GDL	TEENAGE DRIVER IN VIOLATION OF GRADUATED LICENSE PGM
095	GUY WIRE	GUY WIRE
096	BERM	BERM (EARTHEN OR GRAVEL MOUND)
097	GRAVEL	GRAVEL IN ROADWAY
098	ABR EDGE	ABRUPT EDGE
099	CELL WTNSD	CELL PHONE USE WITNESSED BY OTHER PARTICIPANT
100	UNK FIXD	FIXED OBJECT, UNKNOWN TYPE.
101	OTHER OBJ	NON-FIXED OBJECT, OTHER OR UNKNOWN TYPE
102	TEXTING	TEXTING
103	WZ WORKER	WORK ZONE WORKER
104	ON VEHICLE	PASSENGER RIDING ON VEHICLE EXTERIOR
105	PEDAL PSGR	PASSENGER RIDING ON PEDALCYCLE
106	MAN WHLCHR	PEDESTRIAN IN NON-MOTORIZED WHEELCHAIR
107	MTR WHLCHR	PEDESTRIAN IN MOTORIZED WHEELCHAIR
108	OFFICER	LAW ENFORCEMENT / POLICE OFFICER
109	SUB-BIKE	"SUB-BIKE": PEDALCYCLIST INJURED SUBSEQUENT TO COLLISION, ETC.
110	N-MTR	NON-MOTORIST STRUCK VEHICLE
111	S CAR VS V	STREET CAR/TROLLEY (ON RAILS OR OVERHEAD WIRE SYSTEM) STRUCK VEHICLE
112	V VS S CAR	VEHICLE STRUCK STREET CAR/TROLLEY (ON RAILS OR OVERHEAD WIRE SYSTEM)
113	S CAR ROW	AT OR ON STREET CAR OR TROLLEY RIGHT-OF-WAY

EVENT CODE TRANSLATION LIST

EVENT CODE	SHORT DESCRIPTION	LONG DESCRIPTION
114	RR EQUIP	VEHICLE STRUCK RAILROAD EQUIPMENT (NOT TRAIN) ON TRACKS
115	DSTRCT GPS	DISTRACTED BY NAVIGATION SYSTEM OR GPS DEVICE
116	DSTRCT OTH	DISTRACTED BY OTHER ELECTRONIC DEVICE
117	RR GATE	RAIL CROSSING DROP-ARM GATE
118	EXPNSN JNT	EXPANSION JOINT
119	JERSEY BAR	JERSEY BARRIER
120	WIRE BAR	WIRE OR CABLE MEDIAN BARRIER
121	FENCE	FENCE
123	OBJ IN VEH	LOOSE OBJECT IN VEHICLE STRUCK OCCUPANT
124	SLIPPERY	SLIDING OR SWERVING DUE TO WET, ICY, SLIPPERY OR LOOSE SURFACE (NOT GRAVEL)
125	SHLDR	SHOULDER GAVE WAY
126	BOULDER	ROCK(S), BOULDER (NOT GRAVEL; NOT ROCK SLIDE)
127	LAND SLIDE	ROCK SLIDE OR LAND SLIDE
128	CURVE INV	CURVE PRESENT AT CRASH LOCATION
129	HILL INV	VERTICAL GRADE / HILL PRESENT AT CRASH LOCATION
130	CURVE HID	VIEW OBSCURED BY CURVE
131	HILL HID	VIEW OBSCURED BY VERTICAL GRADE / HILL
132	WINDOW HID	VIEW OBSCURED BY VEHICLE WINDOW CONDITIONS
133	SPRAY HID	VIEW OBSCURED BY WATER SPRAY
134	TORRENTIAL	TORRENTIAL RAIN (EXCEPTIONALLY HEAVY RAIN)

FUNCTIONAL CLASSIFICATION TRANSLATION LIST

FUNC CLASS	DESCRIPTION
01	RURAL PRINCIPAL ARTERIAL - INTERSTATE
02	RURAL PRINCIPAL ARTERIAL - OTHER
06	RURAL MINOR ARTERIAL
07	RURAL MAJOR COLLECTOR
08	RURAL MINOR COLLECTOR
09	RURAL LOCAL
11	URBAN PRINCIPAL ARTERIAL - INTERSTATE
12	URBAN PRINCIPAL ARTERIAL - OTHER FREEWAYS AND EXP
14	URBAN PRINCIPAL ARTERIAL - OTHER
16	URBAN MINOR ARTERIAL
17	URBAN MAJOR COLLECTOR
18	URBAN MINOR COLLECTOR
19	URBAN LOCAL
78	UNKNOWN RURAL SYSTEM
79	UNKNOWN RURAL NON-SYSTEM
98	UNKNOWN URBAN SYSTEM
99	UNKNOWN URBAN NON-SYSTEM

HIGHWAY COMPONENT TRANSLATION LIST

CODE	DESCRIPTION
0	MAINLINE STATE HIGHWAY
1	COUPLET
3	FRONTAGE ROAD
6	CONNECTION
8	HIGHWAY - OTHER

INJURY SEVERITY CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
1	KILL	FATAL INJURY
2	INJA	INCAPACITATING INJURY - BLEEDING, BROKEN BONES
3	INJB	NON-INCAPACITATING INJURY
4	INJC	POSSIBLE INJURY - COMPLAINT OF PAIN
5	PRI	DIED PRIOR TO CRASH
7	NO<5	NO INJURY - 0 TO 4 YEARS OF AGE
9	NONE	PARTICIPANT UNINJURED, OVER THE AGE OF 4

LIGHT CONDITION CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	DAY	DAYLIGHT
2	DLIT	DARKNESS - WITH STREET LIGHTS
3	DARK	DARKNESS - NO STREET LIGHTS
4	DAWN	DAWN (TWILIGHT)
5	DUSK	DUSK (TWILIGHT)

MEDIAN TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	NONE	NO MEDIAN
1	RSDMD	SOLID MEDIAN BARRIER
2	DIVMD	EARTH, GRASS OR PAVED MEDIAN

MILEAGE TYPE CODE TRANSLATION LIST

CODE	LONG DESCRIPTION
0	REGULAR MILEAGE
T	TEMPORARY
Y	SPUR
Z	OVERLAPPING

MOVEMENT TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	STRGHT	STRAIGHT AHEAD
2	TURN-R	TURNING RIGHT
3	TURN-L	TURNING LEFT
4	U-TURN	MAKING A U-TURN
5	BACK	BACKING
6	STOP	STOPPED IN TRAFFIC
7	PRKD-P	PARKED - PROPERLY
8	PRKD-I	PARKED - IMPROPERLY
9	PARKNG	PARKING MANEUVER

NON-MOTORIST LOCATION CODE TRANSLATION LIST

CODE	LONG DESCRIPTION
00	AT INTERSECTION - NOT IN ROADWAY
01	AT INTERSECTION - INSIDE CROSSWALK
02	AT INTERSECTION - IN ROADWAY, OUTSIDE CROSSWALK
03	AT INTERSECTION - IN ROADWAY, XWALK AVAIL UNKNWN
04	NOT AT INTERSECTION - IN ROADWAY
05	NOT AT INTERSECTION - ON SHOULDER
06	NOT AT INTERSECTION - ON MEDIAN
07	NOT AT INTERSECTION - WITHIN TRAFFIC RIGHT-OF-WAY
08	NOT AT INTERSECTION - IN BIKE PATH OR PARKING LANE
09	NOT-AT INTERSECTION - ON SIDEWALK
10	OUTSIDE TRAFFICWAY BOUNDARIES
13	AT INTERSECTION - IN BIKE LANE
14	NOT AT INTERSECTION - IN BIKE LANE
15	NOT AT INTERSECTION - INSIDE MID-BLOCK CROSSWALK
16	NOT AT INTERSECTION - IN PARKING LANE
18	OTHER, NOT IN ROADWAY
99	UNKNOWN LOCATION

ROAD CHARACTER CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	INTER	INTERSECTION
2	ALLEY	DRIVEWAY OR ALLEY
3	STRGHT	STRAIGHT ROADWAY
4	TRANS	TRANSITION
5	CURVE	CURVE (HORIZONTAL CURVE)
6	OPENAC	OPEN ACCESS OR TURNOUT
7	GRADE	GRADE (VERTICAL CURVE)
8	BRIDGE	BRIDGE STRUCTURE
9	TUNNEL	TUNNEL

PARTICIPANT TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	OCC	UNKNOWN OCCUPANT TYPE
1	DRVR	DRIVER
2	PSNG	PASSENGER
3	PED	PEDESTRIAN
4	CONV	PEDESTRIAN USING A PEDESTRIAN CONVEYANCE
5	PTOW	PEDESTRIAN TOWING OR TRAILERING AN OBJECT
6	BIKE	PEDALCYCLIST
7	BTOW	PEDALCYCLIST TOWING OR TRAILERING AN OBJECT
8	PRKD	OCCUPANT OF A PARKED MOTOR VEHICLE
9	UNK	UNKNOWN TYPE OF NON-MOTORIST

TRAFFIC CONTROL DEVICE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
000	NONE	NO CONTROL
001	TRF SIGNAL	TRAFFIC SIGNALS
002	FLASHBCN-R	FLASHING BEACON - RED (STOP)
003	FLASHBCN-A	FLASHING BEACON - AMBER (SLOW)
004	STOP SIGN	STOP SIGN
005	SLOW SIGN	SLOW SIGN
006	REG-SIGN	REGULATORY SIGN
007	YIELD	YIELD SIGN
008	WARNING	WARNING SIGN
009	CURVE	CURVE SIGN
010	SCHL X-ING	SCHOOL CROSSING SIGN OR SPECIAL SIGNAL
011	OFCCR/FLAG	POLICE OFFICER, FLAGMAN - SCHOOL PATROL
012	BRDG-GATE	BRIDGE GATE - BARRIER
013	TEMP-BARR	TEMPORARY BARRIER
014	NO-PASS-ZN	NO PASSING ZONE
015	ONE-WAY	ONE-WAY STREET
016	CHANNEL	CHANNELIZATION
017	MEDIAN BAR	MEDIAN BARRIER
018	PILOT CAR	PILOT CAR
019	SP PED SIG	SPECIAL PEDESTRIAN SIGNAL
020	X-BUCK	CROSSBUCK
021	THR-GN-SIG	THROUGH GREEN ARROW OR SIGNAL
022	L-GRN-SIG	LEFT TURN GREEN ARROW, LANE MARKINGS, OR SIGNAL
023	R-GRN-SIG	RIGHT TURN GREEN ARROW, LANE MARKINGS, OR SIGNAL
024	WIGWAG	WIGWAG OR FLASHING LIGHTS W/O DROP-ARM GATE
025	X-BUCK WRN	CROSSBUCK AND ADVANCE WARNING
026	WW W/ GATE	FLASHING LIGHTS WITH DROP-ARM GATES
027	OVRHD SGNL	SUPPLEMENTAL OVERHEAD SIGNAL (RR XING ONLY)
028	SP RR STOP	SPECIAL RR STOP SIGN
029	ILUM GRD X	ILLUMINATED GRADE CROSSING
037	RAMP METER	METERED RAMP
038	RUMBLE STR	RUMBLE STRIP
090	L-TURN REF	LEFT TURN REFUGE (WHEN REFUGE IS INVOLVED)
091	R-TURN ALL	RIGHT TURN AT ALL TIMES SIGN, ETC.
092	EMR SGN/FL	EMERGENCY SIGNS OR FLARES
093	ACCEL LANE	ACCELERATION OR DECELERATION LANES
094	R-TURN PRO	RIGHT TURN PROHIBITED ON RED AFTER STOPPING
095	BUS STPSGN	BUS STOP SIGN AND RED LIGHTS

VEHICLE TYPE CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
00	PDO	NOT COLLECTED FOR PDO CRASHES
01	PSNGR CAR	PASSENGER CAR, PICKUP, LIGHT DELIVERY, ETC.
02	BOBTAIL	TRUCK TRACTOR WITH NO TRAILERS (BOBTAIL)
03	FARM TRCTR	FARM TRACTOR OR SELF-PROPELLED FARM EQUIPMENT
04	SEMI TOW	TRUCK TRACTOR WITH TRAILER/MOBILE HOME IN TOW
05	TRUCK	TRUCK WITH NON-DETACHABLE BED, PANEL, ETC.
06	MOPED	MOPED, MINIBIKE, SEATED MOTOR SCOOTER, MOTOR BIKE
07	SCHL BUS	SCHOOL BUS (INCLUDES VAN)
08	OTH BUS	OTHER BUS
09	MTRCYCLE	MOTORCYCLE, DIRT BIKE
10	OTHER	OTHER: FORKLIFT, BACKHOE, ETC.
11	MOTRHOME	MOTORHOME
12	TROLLEY	MOTORIZED STREET CAR/TROLLEY (NO RAILS/WIRES)
13	ATV	ATV
14	MTRSCTR	MOTORIZED SCOOTER (STANDING)
15	SNOWMOBILE	SNOWMOBILE
99	UNKNOWN	UNKNOWN VEHICLE TYPE

WEATHER CONDITION CODE TRANSLATION LIST

CODE	SHORT DESC	LONG DESCRIPTION
0	UNK	UNKNOWN
1	CLR	CLEAR
2	CLD	CLOUDY
3	RAIN	RAIN
4	SLT	SLEET
5	FOG	FOG
6	SNOW	SNOW
7	DUST	DUST
8	SMOK	SMOKE
9	ASH	ASH