From: Caleb Cox
To: Jennifer Siciliano
Cc: Susan Wright; Max Heller
Subject: Re: Request for Comments on Annexation 20.5 acres off Golf Lane - LU # 5-02/24
Date: Thursday, November 13, 2025 12:11:23 PM
Attachments: image001.png

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Senior Engineer

Kittelson & Associates, Inc.
Transportation Engineering & Planning
503.228.5230
503.535.7453 (direct)

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Cc: Susan Bender <sbender@staytonoregon.gov>
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I have attached our usual request for comments form.

Please send responses by **October 20, 2025**.

Thank you for your assistance.

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Community and Economic Development Director

311 N. 3rd Ave

Stayton, OR 97383

Phone 503-769-2998

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Date: Thursday, December 4, 2025 8:39:55 PM
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Date: Thursday, December 4, 2025 9:30:00 PM
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TM3 - Existing and Future Conditions.pdf
Appendix E - Population and Employment Forecast.pdf

Jennifer,

Here is the tech memo and relevant appendix that Susie mentioned. The section describing the future growth assumptions begins on page 34.

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Hello All,

We spoke about this application on October 23, 2025. Would you be able to write up a short summary comments to be shared at a

Planning Commission meeting? Doesn't have to be a full memo; it can just be an email. The Public Hearing is being heard on November 24, 2025.

I have attached an AI summary and transcript if that will assist you.

Thank you,

Jennifer

From: Caleb Cox <ccox@kittelson.com>
Sent: Monday, October 20, 2025 7:24 PM
To: Jennifer Siciliano <jsiciliano@staytonoregon.gov>
Cc: Susan Wright <swright@kittelson.com>; Max Heller <mheller@kittelson.com>
Subject: Re: Request for Comments on Annexation 20.5 acres off Golf Lane - LU # 5-02/24

Hi Jennifer,

We've reviewed the TIA for the KSD Annexation on Golf Lane and our draft comments are listed below. **Before sending to the applicant, there are a couple items we'd like to discuss with you noted in red text.** Are you available this week to talk?

1. We understand the application was revised to include only 74 homes rather than the originally proposed 94. It appears the TIA assumed the original 94. We'd like to request an updated analysis for the 74-home proposal. While the reduction in impact is likely small, it's important in this case to account for the trips as accurately as possible because of the restrictions placed on the Cascade Hwy/Golf Lane intersection. We want to make sure the City can reference this TIA when considering options for future development on Golf Lane.

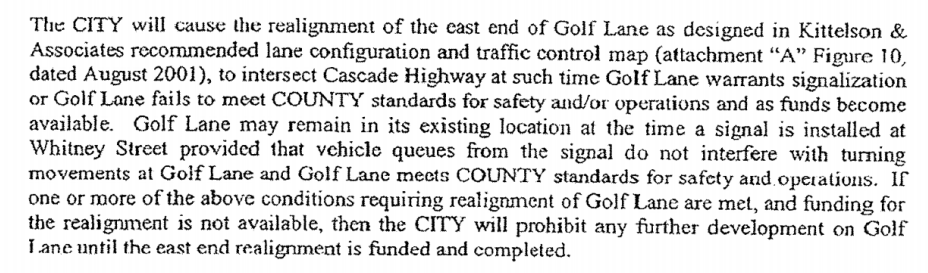
2. We do not see an updated site plan for the 74-home proposal. If the site access will be changing, we would like to see an updated site plan to verify appropriate access and sight distance.

3. The MOU between the City and County (see screen clip below) states, "Golf Lane may remain in its existing location at the time a signal is installed at Whitney Street provided that vehicle queues from the signal do not interfere with turning movements at Golf Lane and Golf Lane meets County standards for safety and operations." The queuing analysis shows the PM peak 95th percentile SBT queue is 600 feet. This extends well past the Golf lane intersection, presumably "interfering with turning movements" at Golf Lane. **Jennifer, This is a potential issue for the applicant, and something the City and County may need to weigh in on. Depending on how the MOU is interpreted, this could trigger the need for the Golf Lane realignment and therefore pause all development in the area until the realignment is complete.**

4. On Page 15, the TIA notes that the Cascade Hwy/Shaff Rd/Fern Ridge Rd intersection does not meet v/c standards but no mitigation is recommended because the intersection is under County jurisdiction and the development is being approved through the city's land use process. **Jennifer, can you please confirm whether this is correct? Does Marion County have authority to weigh in when a development potentially impacts**

one of their intersections?

Screen clip from the MOU:



The CITY will cause the realignment of the east end of Golf Lane as designed in Kittelson & Associates recommended lane configuration and traffic control map (attachment "A" Figure 10, dated August 2001), to intersect Cascade Highway at such time Golf Lane warrants signalization or Golf Lane fails to meet COUNTY standards for safety and/or operations and as funds become available. Golf Lane may remain in its existing location at the time a signal is installed at Whitney Street provided that vehicle queues from the signal do not interfere with turning movements at Golf Lane and Golf Lane meets COUNTY standards for safety and operations. If one or more of the above conditions requiring realignment of Golf Lane are met, and funding for the realignment is not available, then the CITY will prohibit any further development on Golf Lane until the east end realignment is funded and completed.

Caleb Cox, PE
Senior Engineer

Kittelson & Associates, Inc.
Transportation Engineering & Planning

503.228.5230
503.535.7453 (direct)

From: Jennifer Siciliano <jsiciliano@staytonoregon.gov>
Sent: Monday, September 29, 2025 4:18 PM
To: Paul Hartmann <phartmann@santiamhospital.org>; Adam Kohler <Adam.Kohler@PacifiCorp.com>; breich@co.marion.or.us <breich@co.marion.or.us>; Brent Stevenson <BrentS@santiamwater.gov>; brian.kelley@nwnatural.com <brian.kelley@nwnatural.com>; Caleb Cox <ccox@kittelson.com>; Christopher Clark <Christopher.clark@pacificorp.com>; dfreitag@santiamhospital.org <dfreitag@santiamhospital.org>; Doug Kintz <doug.kintz@staytonfire.org>; Erik Hoefer <erik@sctcweb.com>; Gwen Johns <gjohns@staytonoregon.gov>; Janelle Shanahan <jshanahan@co.marion.or.us>; Jay Alley <jay.alley@staytonfire.org>; John Eckis <johneckis@sctcweb.com>; John Rasmussen <jrasmussen@co.marion.or.us>; Kendall Smith <ksmith@staytonoregon.gov>; kinman@co.marion.or.us <kinman@co.marion.or.us>; Lee Loving <lee.loving@nsantiam.k12.or.us>; Max Heller <mheller@kittelson.com>; Max Hepburn <mhepburn@co.marion.or.us>; MCPW Engineering <mcldep@co.marion.or.us>; Michael Schmidt <mschmidt@staytonoregon.gov>; Nicole Willis <nicole.willis@pacificorp.com>; oregonconstruction@wavebroadband.com <oregonconstruction@wavebroadband.com>; planning@co.marion.or.us <planning@co.marion.or.us>; Richard Walker (richardw@aks-eng.com) <richardw@aks-eng.com>; rlee@waveboardband.com <rlee@waveboardband.com>; Salem Development Services <developmentservices@cityofsalem.net>; Susan Wright <swright@kittelson.com>; Troy Wheeler <twheeler@co.marion.or.us>; Wayne.clevenger@pacificorp.com <Wayne.clevenger@pacificorp.com>
Cc: Susan Bender <sbender@staytonoregon.gov>
Subject: Request for Comments on Annexation 20.5 acres off Golf Lane - LU # 5-02/24

[External Sender]

The City of Stayton has received an application for a proposal to annex a parcel approximately 20.5 acres, located on the west side of Golf Lane (Tax Lot 091W03B001500), to be incorporated into the city as Medium Density (MD) Residential zoning.

The application and narrative package can be accessed at:

https://www.staytonoregon.gov/upload/page/0080/KSD%20Stayton%20Annexation%20Narrative%20Package.pdf A revised narrative package is available at: https://www.staytonoregon.gov/upload/page/0080/BRAND%20Response%20to%20Incomplete%20Letter_.pdf The original application proposed annexation as High Density (HD) Residential with the potential for 92 single-family units. Because single-family units are not permitted in the HD Residential zone, the applicant was advised to revise their proposal. The updated application now requests Medium Density (MD) Residential zoning, with the potential for 74 single-family units.

I have attached our usual request for comments form.

Please send responses by **October 20, 2025**.

Thank you for your assistance.

Jennifer Siciliano, AICP

Community and Economic Development Director

311 N. 3rd Ave

Stayton, OR 97383

Phone 503-769-2998

TECHNICAL MEMORANDUM #3

Date: October 9, 2018 Project #: 22352

To: Lance Ludwick and Dan Fleishman (City of Stayton)

From: Susan Wright, PE (Kittelson & Associates, Inc.)
Darci Rudzinski (Angelo Planning Group)

Subject: Existing and Future Conditions Memo

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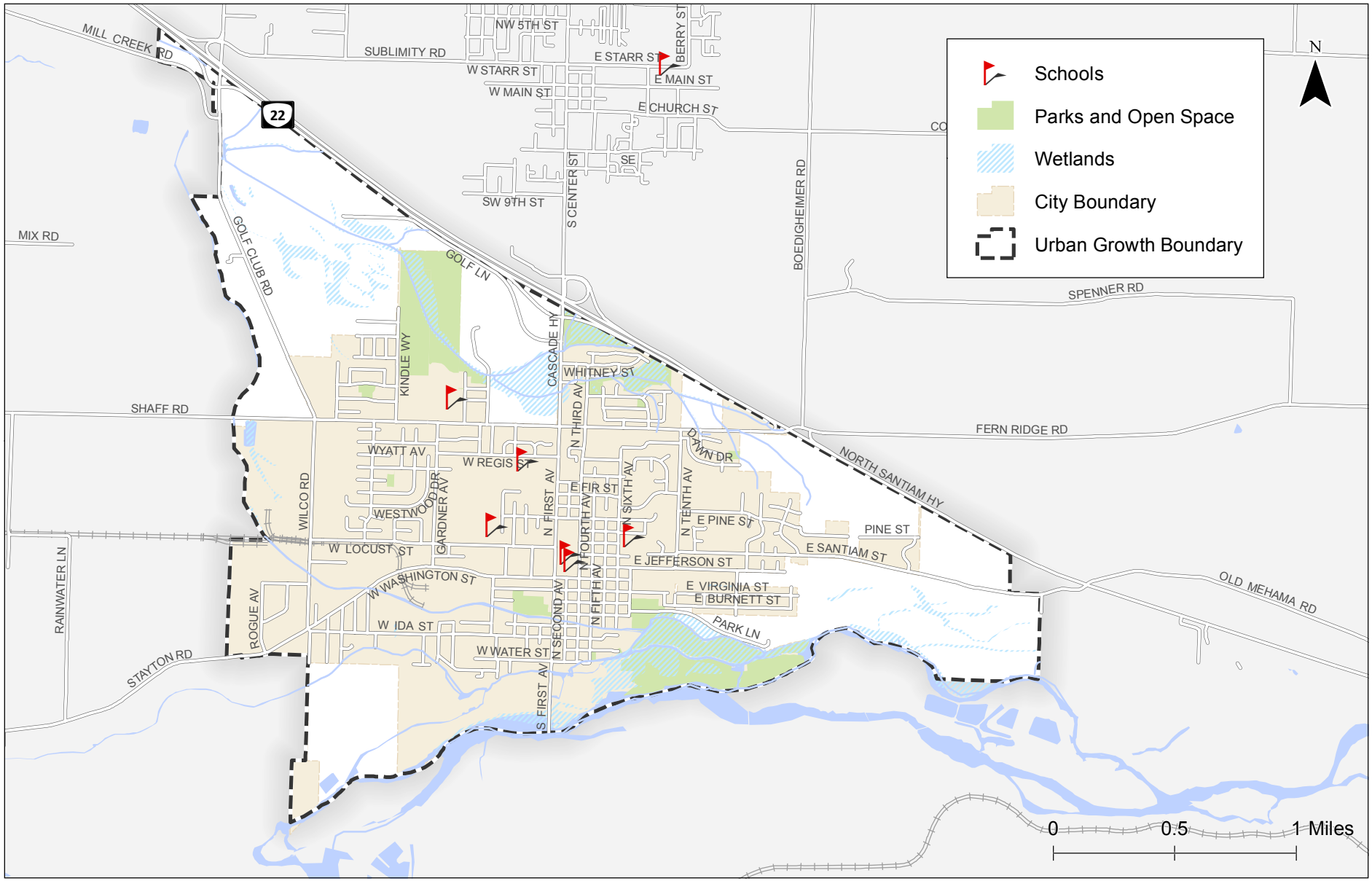
PURPOSE AND INTRODUCTION

This memorandum assesses existing and future conditions and planned improvements for all transportation systems and services within the City of Stayton. Figure 1 illustrates the study area, including the city boundary and urban growth boundary (UGB). The information presented in this memorandum will serve as a baseline for evaluating transportation system needs and identifying

IN THIS MEMO

- Existing Operations and Safety
- Future Growth and Operations
- Funding Overview



Study Area
Stayton, Oregon

Figure
1

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KITTELSON & ASSOCIATES

Coordinate System: NAD 1983 HARN StatePlane Oregon North FIPS 3601 Feet Intl

potential solutions for the Transportation System Plan (TSP) update. The information is based on an inventory of existing transportation facilities and services and discussions with City staff. The information has also been updated based on input from the project advisory committee (PAC) and technical advisory committee (TAC), and will be updated based on input received from a public workshop.

This memorandum includes information on the existing motor vehicle, pedestrian, bicycle, and public transit modes within the city. This memorandum also includes information on existing operations and safety conditions within the city and an environmental justice analysis of city demographics. Lastly, it includes an operations analysis of the future forecast and a funding sources review.

EXISTING TRANSPORTATION SYSTEM

The transportation system of Stayton includes motor vehicle, pedestrian, bicycle, public transportation, and other transportation systems. Together, these systems allow for Stayton residents to travel the city and reach other cities and towns in the surrounding area. Different parts of the City of Stayton's transportation system are owned, operated, and maintained by various entities, including the Oregon Department of Transportation (ODOT), Marion County, and the City of Stayton.

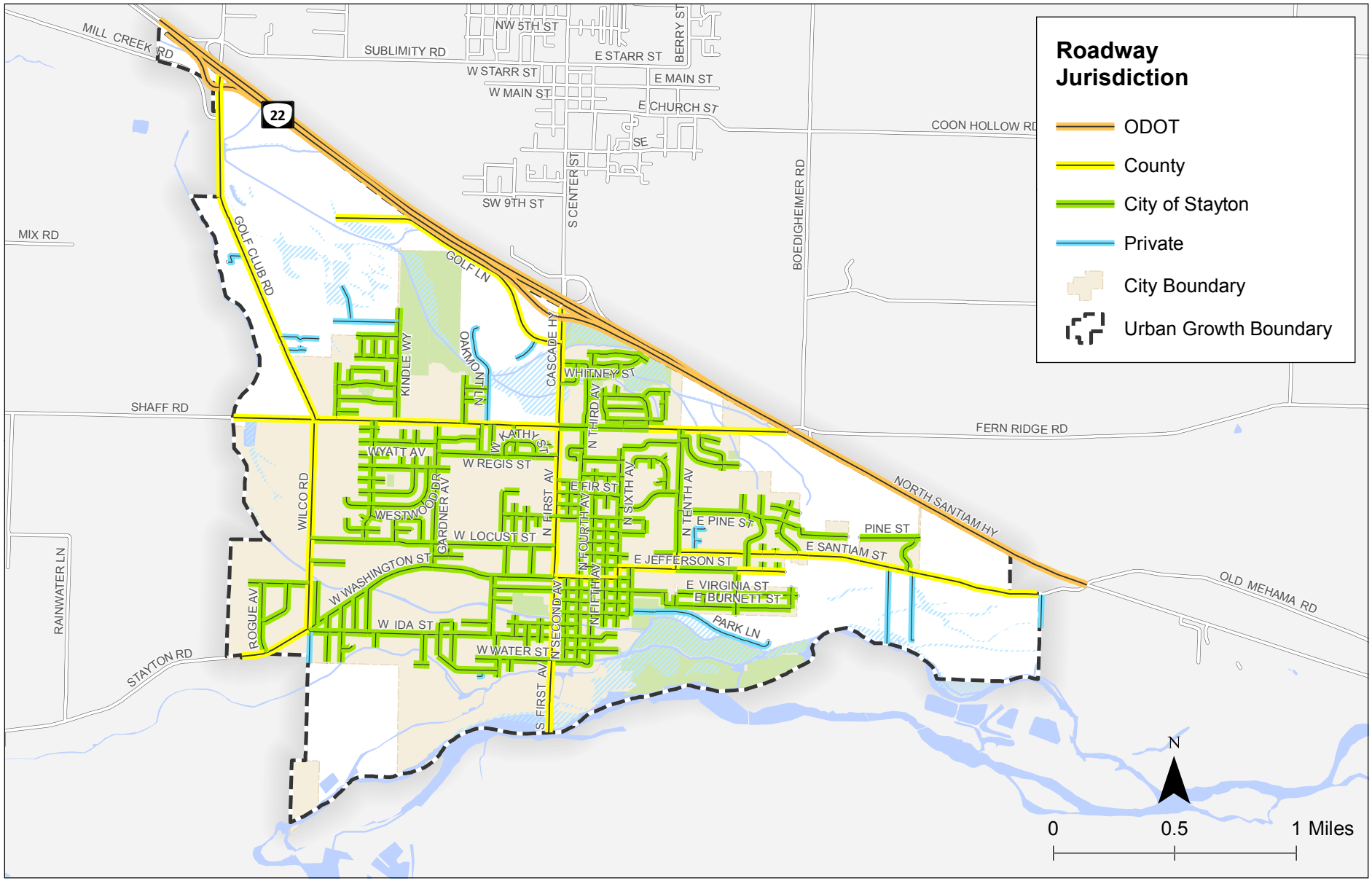
MOTOR VEHICLE SYSTEM

The motor vehicle system within Stayton includes private streets, city streets, county roads, and state highways. These facilities provide residents with the ability to access retail, commercial, recreational, and other land uses within Stayton and neighboring cities by vehicle. This section describes how the system has been developed to date and provides a review of how it is used and operated.

JURISDICTION

The streets within Stayton are owned and operated by the City of Stayton, Marion County, and the Oregon Department of Transportation (ODOT). Each jurisdiction is responsible for determining the functional classification of the streets, defining major design and multimodal features, and approving construction and access permits. Coordination is required among the jurisdictions to ensure that the streets are planned, operated, maintained, and improved to safely meet public needs. Figure 2 illustrates the jurisdiction (ownership and maintenance responsibilities) of streets within Stayton.

ODOT owns OR 22, the highest-volume roadway in Stayton. Marion County owns many of the major roads within the city, including Golf Club Road, N First Avenue, Wilco Road, and Shaff Road. The City of Stayton owns the remaining public roadways within the urban area. Some of the roadways in the city are classified as private.



Roadway Jurisdiction
Stayton, Oregon

Figure **2**

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KITTELSON & ASSOCIATES

Coordinate System: NAD 1983 HARN StatePlane Oregon North FIPS 3601 Feet Intl

FUNCTIONAL CLASSIFICATION

A street's functional classification defines its role in the overall transportation system and defines the operational and design characteristics of the roadway, such as right-of-way requirements, pavement widths, pedestrian and bicycle features, and driveway spacing standards. The functional classifications of the streets within Stayton are shown in Figure 3. Descriptions of each type of functional classification can be found below.

Note that these classifications represent an update from the five classifications shown in the 2004 TSP: Principal arterial, minor arterial, major collector, minor collector, and local. The classifications shown below represent a way to further classify local streets and better prioritize maintenance of city-maintained streets.

Arterials

Arterials are roadways that are designed to facilitate traffic entering and leaving the urban area. The main function of arterials is to efficiently move traffic, although they may provide access to adjacent land uses. Arterials typically focus on longer distance trips than other roadways, with the goal of moving high volumes of traffic through as efficiently as possible. Principal Arterials typically have limited access and higher traffic speeds than other facilities except when traveling through a downtown area. Principal Arterials are usually served by other Arterials.

Collectors

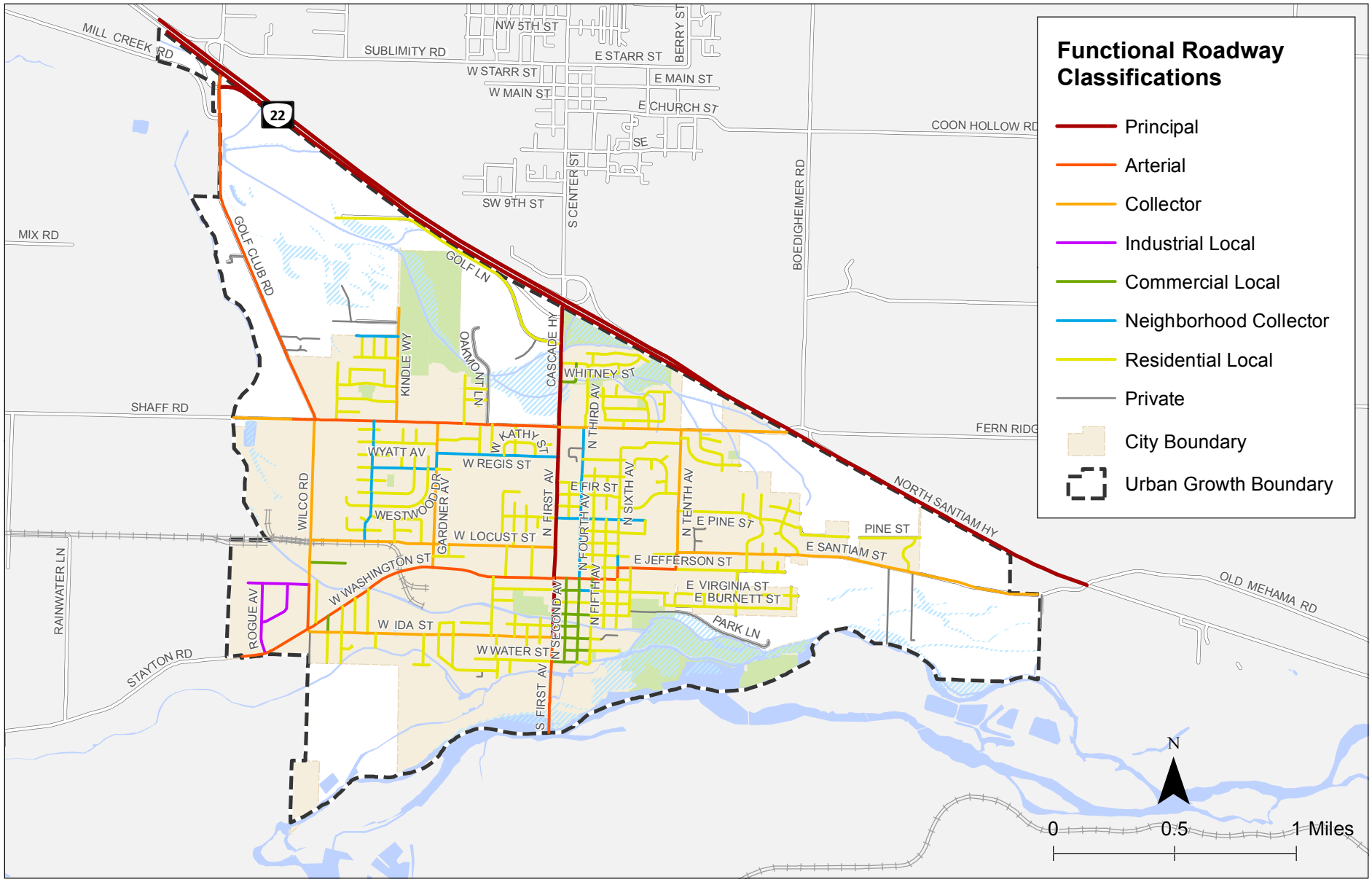
Collector roadways facilitate the movement of city traffic within the urban area. Collectors provide some degree of access to adjacent properties, while maintaining circulation and mobility for all users. Collectors can be two or three-lane facilities and are used to connect the various roadways of an urban area, although they are designed to carry lower traffic volumes at lower speeds than arterials.

Neighborhood Collectors

The function of Neighborhood Collectors is to connect neighborhoods with collectors and arterials, facilitate the movement of local traffic and provide access to abutting land uses. Speed on these facilities should remain low to ensure community livability and safety for pedestrians and bicyclists of all ages. On-street parking is more prevalent and pedestrian amenities are typically provided. Striped bike lanes are unnecessary for most neighborhood streets because the traffic volumes and speeds should allow cyclists to share the road with the motorists.

Local Streets

The goal of Local Streets is to provide access to adjacent land uses. These streets offer the lowest level of mobility and consequently tend to be short, low-speed facilities. As such, local streets should primarily serve passenger cars, pedestrians, and bicyclists; heavy truck traffic should be discouraged. On-street parking is common and sidewalks are typically present. The Local Streets within Stayton can be split into three categories: Industrial, Commercial, and Residential Local roadways, with all three categories providing access to their respective land uses. Table 1 summarizes the functional



Functional Roadway Classification
Stayton, Oregon

Figure **3**

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KITTELSON & ASSOCIATES

Coordinate System: NAD 1983 HARN StatePlane Oregon North FIPS 3601 Feet Intl

classification of the principal arterial, arterial, and collector streets within Stayton and the overlapping jurisdictional relationships that exist.

Table 1. Functional Classification of Collector and Higher Streets by Jurisdiction

Roadway	Roadway Extents	Jurisdiction	Functional Classification
OR 22	Western UGB limits to eastern UGB limits	ODOT	Principal Arterial OHP Statewide Highway NHS State Highway
Golf Club Road	OR 22 to Shaff Road	County	Arterial
Wilco Road	Shaff Road to Deschutes Drive	County	Collector
	Deschutes Drive to W Washington Street	County	Arterial
Cascade Highway	OR 22 to Shaff Road	County	Principal Arterial
N First Avenue	Shaff Road to W Ida Street	County	Principal Arterial
	W Ida Street to W Water Street	County	Arterial
S First Avenue	W Water Street to southern UGB limits	County	Arterial
N Sixth Avenue	E Jefferson Street to E Washington Street	County	Arterial
N Tenth Avenue	E Santiam Street to E Jefferson Street	County	Arterial
Shaff Road	Western UGB limits to Golf Club Road	County	Collector
	Golf Club Road to Cascade Highway	County	Arterial
Fern Ridge Road	N Tenth Avenue to OR 22	County	Collector
E Washington Street	N First Avenue to N Sixth Avenue	County	Arterial
E Jefferson Street	N Sixth Avenue to N Tenth Avenue	County	Arterial
E Santiam Street	N Scenic View Drive to OR 22	County	Collector
Stayton Road	Western UGB limits to Rogue Avenue	County	Arterial
E Santiam Street	N Tenth Avenue to N Scenic View Drive	County	Collector
Kindle Way	Northern terminus to Shaff Road	City	Collector
Gardner Avenue	Shaff Road to W Washington Street	City	Collector
N Tenth Avenue	Fern Ridge Road to E Santiam Street	City	Collector
Eagle Street	Quail Run Avenue to Kindle Way	City	Collector
Fern Ridge Road	Cascade Highway to N Tenth Avenue	City	Collector
W Locust Street	Wilco Road to N First Avenue	City	Collector
W Ida Street	Wilco Road to N First Avenue	City	Collector

ROADWAY CHARACTERISTICS

The characteristics of Principal Arterial, Arterial, and Collector Streets are summarized in Table 2. The data includes posted speed limits, street widths, number of lanes, lane widths, on-street bike lanes, and on-street parking. These characteristics define roadway capacity and operating speeds through the street system, which affects travel path choices for drivers in Stayton.

Table 2: Roadway Characteristics by Functional Classification

Corridor	Posted Speed (mph)	Number of Lanes	Lane Width (ft)	On-Street Bike Lanes	On-Street Parking
OR 22	55	2-4	12	No	No
Cascade Highway	45	2-3	11	Yes	No
First Avenue	30	2-3	12	No	No
Golf Club Road	45	2	12	No	No
Wilco Road	45	2	11	No	No
N First Avenue	30	2	13	No	No
S First Avenue	30	2	12	No	No
N Sixth Avenue	25	2	12	No	No
N Tenth Avenue	25	2	10	No	No
Shaff Road	35[1]	2	11	No	No
E Washington Street	25[1]	2	11	No	No
E Jefferson Street	25	2	10	No	No
Stayton Road	45	2	12	No	No
Wilco Road	45	2	12	No	No
Shaff Road	35	2	10	No	No

Corridor	Posted Speed (mph)	Number of Lanes	Lane Width (ft)	On-Street Bike Lanes	On-Street Parking
Fern Ridge Road	35	2	13	Yes	No
E Santiam Street	55	2	10	No	No
E Santiam Street	40	2	11	No	No
Kindle Way	25	2	10	No	No
Gardner Avenue	25[1]	2	13	Yes	No
N Tenth Avenue	25	2	10	Yes	No
W Locust Street	25[1]	2	10	No	Yes
W Ida Street	30	1	13	No	Yes

[1] A 20 mph school zone exists on part of this roadway

PEDESTRIAN SYSTEM

The pedestrian system of Stayton consists of sidewalks, enhanced sidewalks, off-street trails, and pedestrian crossings, which are both marked and unmarked; signalized and unsignalized. These facilities provide residents with the ability to access local retail/commercial centers, recreational areas, schools, and other land uses by foot. A safe, convenient, and continuous network of pedestrian facilities is essential to establishing a vibrant and healthy community while supporting the local economy within Stayton. The existing pedestrian facilities are shown in Figure 4.

Sidewalks

Sidewalks are provided along at least one side of most of the roadways categorized as collector or higher within the city of Stayton. However, there a few notable "sidewalk gaps", or segments along roadways where there is no sidewalk. These sidewalk gaps are also shown in Figure 4. Notable sidewalk gaps occur on segments of W Washington Street, Shaff Road, N Third Avenue, N Tenth Avenue, Kindle Way, and Locust Street.

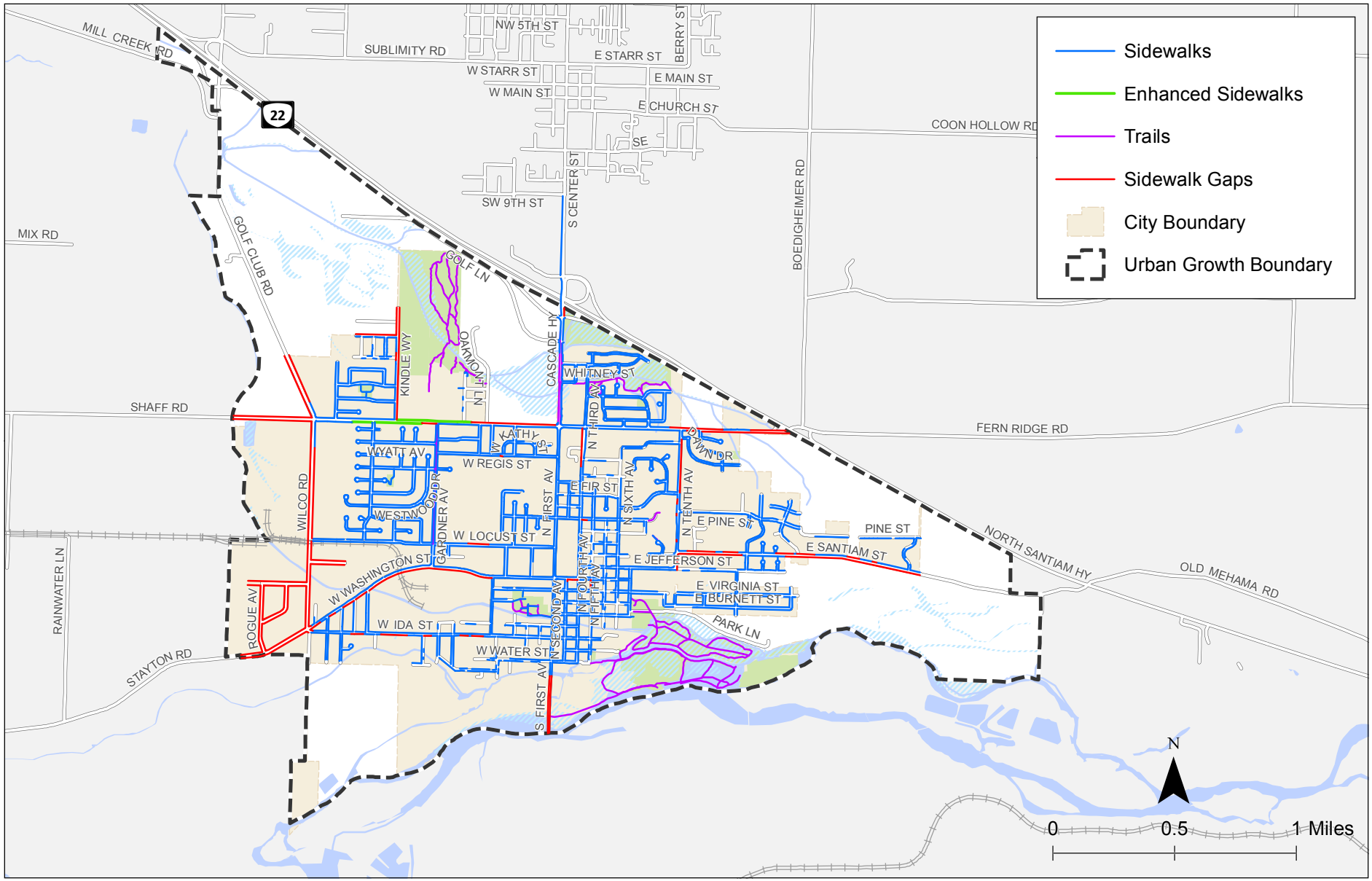
Off-Road Trails

Off-road trails are also present in Stayton. These trails range from multi-use paved paths to gravel trails. The following off-road trails exist within Stayton:

- The trails throughout Wilderness Park, which are a mix between paved and gravel.
- The trails on the Stayton Middle School Campus, which are mostly gravel.
- The path in and around Santiam Park, which is paved.
- The paths within Community Center Park, which are paved.
- The path near the Santiam Memorial Hospital, which is paved.

PEDESTRIAN QUALITATIVE LEVEL OF SERVICE (QLOS)

A Pedestrian Qualitative Level of Service (QLOS) analysis examines and scores the characteristics of sidewalk segments. The possible scores for a sidewalk segment are Good, Fair, and Poor. The QLOS judges a sidewalk segment on the presence of a sidewalk/path, lighting, and buffers, as well as the widths of the sidewalk and of the outside travel lane. The QLOS analysis for sidewalk segments along roadways of classification collector or higher within Stayton is shown in Table 3.



Existing Pedestrian Facilities
Stayton, Oregon

Figure
4

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Table 3: Qualitative LOS for Sidewalks Along Roadways of Classification Collector or Higher

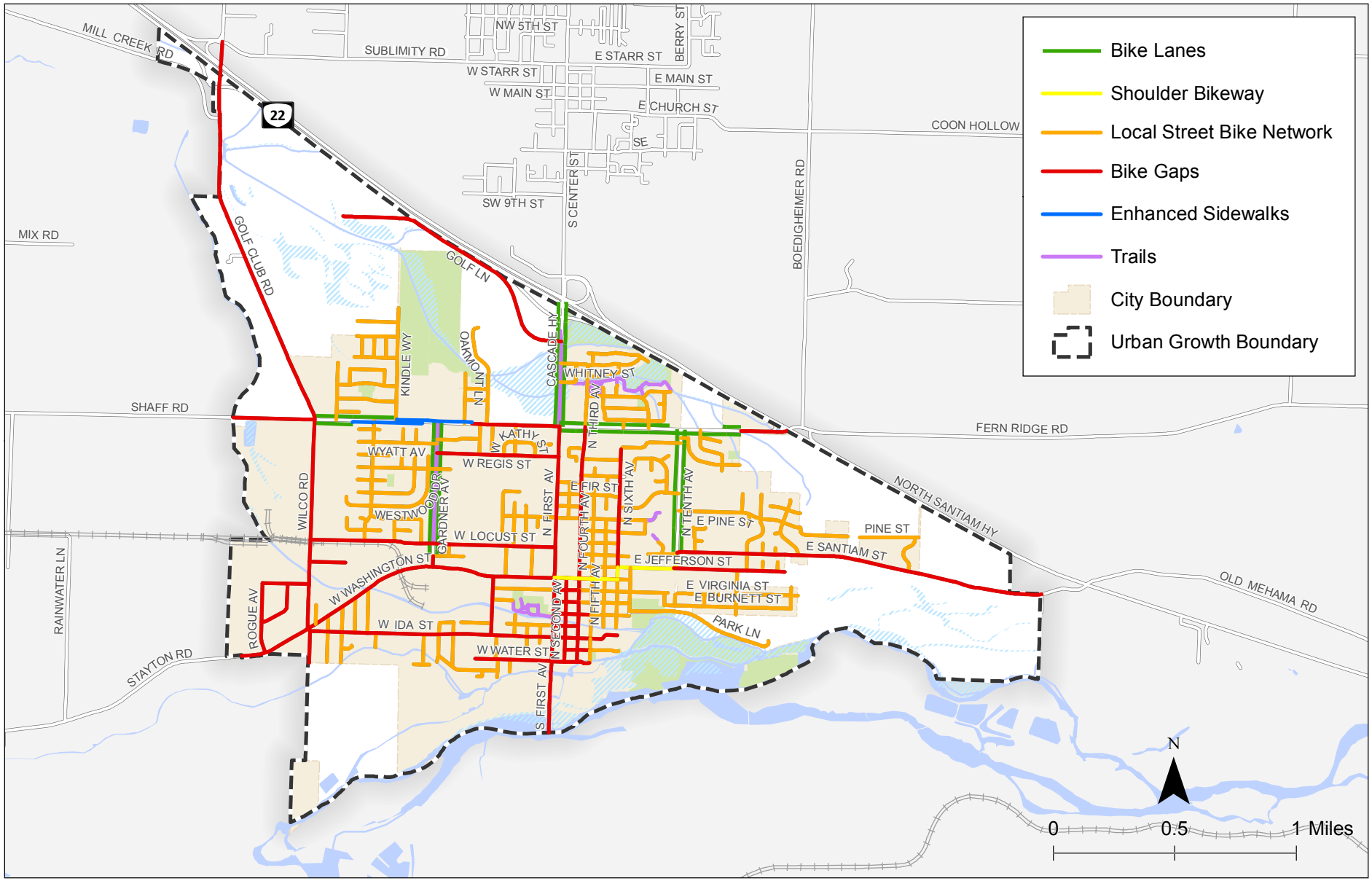
Roadway	Roadway Extents	Qualitative Level of Service
Golf Club Road	OR 22 to Shaff Road	Poor
Wilco Road	Shaff Road to W Washington Street	Poor
Cascade Highway	OR 22 to Shaff Road	Good
N First Avenue	Shaff Road to W Ida Street	Fair
S First Avenue	W Ida Street to southern UGB limits	Poor
N Sixth Avenue	E Jefferson Street to E Washington Street	Good
N Tenth Avenue	E Santiam Street to E Jefferson Street	Good
Shaff Road	Golf Club Road to Cascade Highway	Fair
Fern Ridge Road	Cascade Highway to N Tenth Avenue	Fair
	N Tenth Avenue to OR 22	Poor
E Washington Street	N First Avenue to N Sixth Avenue	Fair
E Jefferson Street	N Sixth Avenue to N Tenth Avenue	Fair
E Santiam Street	N Scenic View Drive to OR 22	Poor
Stayton Road	Western UGB limits to Rogue Avenue	Poor
E Santiam Street	N Tenth Avenue to N Scenic View Drive	Poor-Fair
Kindle Way	northern terminus to Shaff Road	Fair
Gardner Avenue	Shaff Road to W Washington Street	Fair
W Locust Street	Wilco Road to N First Avenue	Fair
W Ida Street	Wilco Road to N First Avenue	Fair

BICYCLE SYSTEM

The bicycle system within Stayton consists of on-street bike lanes, off street trails, enhanced sidewalks, other off-street bicycle facilities, and bicycle parking. These facilities provide residents with the ability to access local retail/commercial centers, recreational areas, and other land uses within Stayton by bicycle. A safe, convenient, and continuous network of bicycle facilities is essential to establishing a vibrant and healthy community while supporting the local economy within the City. Stayton currently does not have any bikeways listed on the Oregon State Parks Scenic Bikeways list, the Mid-Valley Bike Transportation map, or the Willamette Valley Scenic Bikeway list.

BICYCLE FACILITIES

To assess the adequacy of bicycle facilities in Stayton, GIS data of existing bicycle facilities was obtained from the City. Figure 5 shows the existing bicycle facilities within Stayton. The following provides a summary of the facilities, including existing gaps and deficiencies.



Existing Bicycle Facilities
Stayton, Oregon

Figure **5**

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Bicycle Lanes

On-street bike lanes are provided along five roadway segments in Stayton. Bike lanes are present along Gardner Avenue from Shaff Road to W Darby Street, Cascade Highway from OR 22 to Shaff Road, N Tenth Avenue from Fern Ridge Road to E Santiam Street, Shaff Road from Golf Club Road to Kindle Way, and Fern Ridge Road from Cascade Highway to the eastern city limits.

Enhanced Sidewalks

Enhanced sidewalks are wide, separated facilities that can be used for walking or bicycling. Enhanced sidewalks are present along both sides of Shaff Road intermittently between Wilco Road and Oakmont Lane.

Shared Roadways

Some of the roadways within Stayton have shoulders, which, when wide enough, can act as a bicycle lane. The shoulders allow bicyclist to ride in a lane separated from traffic, which allows motor vehicles to pass safely. Shoulder bikeways aren't always ideal, however, as there are sometimes motor vehicles parked in the shoulder and there is oftentimes debris within the shoulder.

Off-Street Trails

Many of the trails available for pedestrians are also available to cyclists. Exceptions include Pioneer Park, Wilderness Park, Riverfront Park, and trails near the Mill Creek River. Trails available to cyclists are typically multi-use paved paths.

BICYCLE QUALITATIVE LEVEL OF SERVICE (QLOS)

A Bicycle Qualitative Level of Service (QLOS) analysis examines the characteristics of bicycle facilities and gives them a score. The possible scores for a bicycle facility are Good, Fair, or Poor. The QLOS judges a bicycle facility on the presence of a bicycle lane or "sharrow" markings, width of the bicycle lane (if applicable), volume of roadway, and obstructions present. The QLOS analysis for bicycle facilities along roadways of classification collector or higher within Stayton is shown in Table 4.

Table 4: Qualitative LOS for Bicycle Facilities Along Roadways of Classification Collector or Higher

Roadway	Roadway Extents	Type of Facility	Qualitative Level of Service
Golf Club Road	OR 22 to Shaff Road	No Facility	Poor
Wilco Road	Shaff Road to W Washington Street	No Facility	Poor
Cascade Highway	OR 22 to Shaff Road	Bicycle Lane	Good
N First Avenue	Shaff Road to W Ida Street	No Facility	Poor
S First Avenue	Shaff Road to southern city limits	Shoulder Bikeway	Poor
N Sixth Avenue	E Jefferson Road to E Washington Street	Shoulder Bikeway	Fair
N Tenth Avenue	E Santiam Street to E Jefferson Street	Bicycle Lane	Good
Shaff Road	Golf Club Road to Oakmont Lane	Bicycle Lane/ Enhanced Sidewalk	
Shaff Road	Oakmont Lane to Cascade Highway	No Facility	Poor
Fern Ridge Road	Cascade Highway to OR 22	Bicycle Lane	Good

Roadway	Roadway Extents	Type of Facility	Qualitative Level of Service
E Washington Street	N First Avenue to N Sixth Avenue	Shoulder Bikeway	Fair[1]
E Jefferson Street	N Sixth Avenue to N Tenth Avenue	Shoulder Bikeway	Fair[1]
E Santiam Street	N Scenic View Drive to OR 22	No Facility	Poor
Stayton Road	Western UGB limits to Rogue Avenue	No Facility	Poor
E Santiam Street	N Tenth Avenue to N Scenic View Drive	No Facility	Poor
Kindle Way	Northern terminus to Shaff Road	Low-Stress Facility	Fair
Gardner Avenue	Shaff Road to W Washington Street	Bicycle Lane	Good
W Locust Street	Wilco Road to N First Avenue	No Facility	Poor-Fair
W Ida Street	Wilco Road to N First Avenue	No Facility	Poor-Fair

[1]The public advisory committee noted that on-street parking makes bicycling more difficult on the shoulder bikeways on these roads

PUBLIC TRANSPORTATION SYSTEM

Public transportation service in Stayton is provided by Cherriots and the North Santiam School District. Transit provides residents the ability to access grocery, retail, and social opportunities within Stayton as well as to access Sublimity, Salem, and other surrounding towns. It also provides schoolchildren access to school.

TRANSIT SERVICES

Transit services within Stayton consist of fixed-route and school bus services.

Fixed Route Service

Cherriots Route 30X is a fixed route bus service that runs from Salem to Gates. The bus makes three stops within the city boundary of Stayton and two stops just north of the urban area. Cherriots Route 30X services each of these bus stops four times per day in both directions. The bus does not operate on weekends or holidays. The bus route and stop locations are shown in Figure 6.

School Bus Services

The North Santiam School District 29J, which includes Stayton Elementary, Middle, and High Schools, is serviced by the Mid-Columbia Bus Company (MIDCO). MIDCO has an office within Stayton and offers 19 different bus routes for the school district.

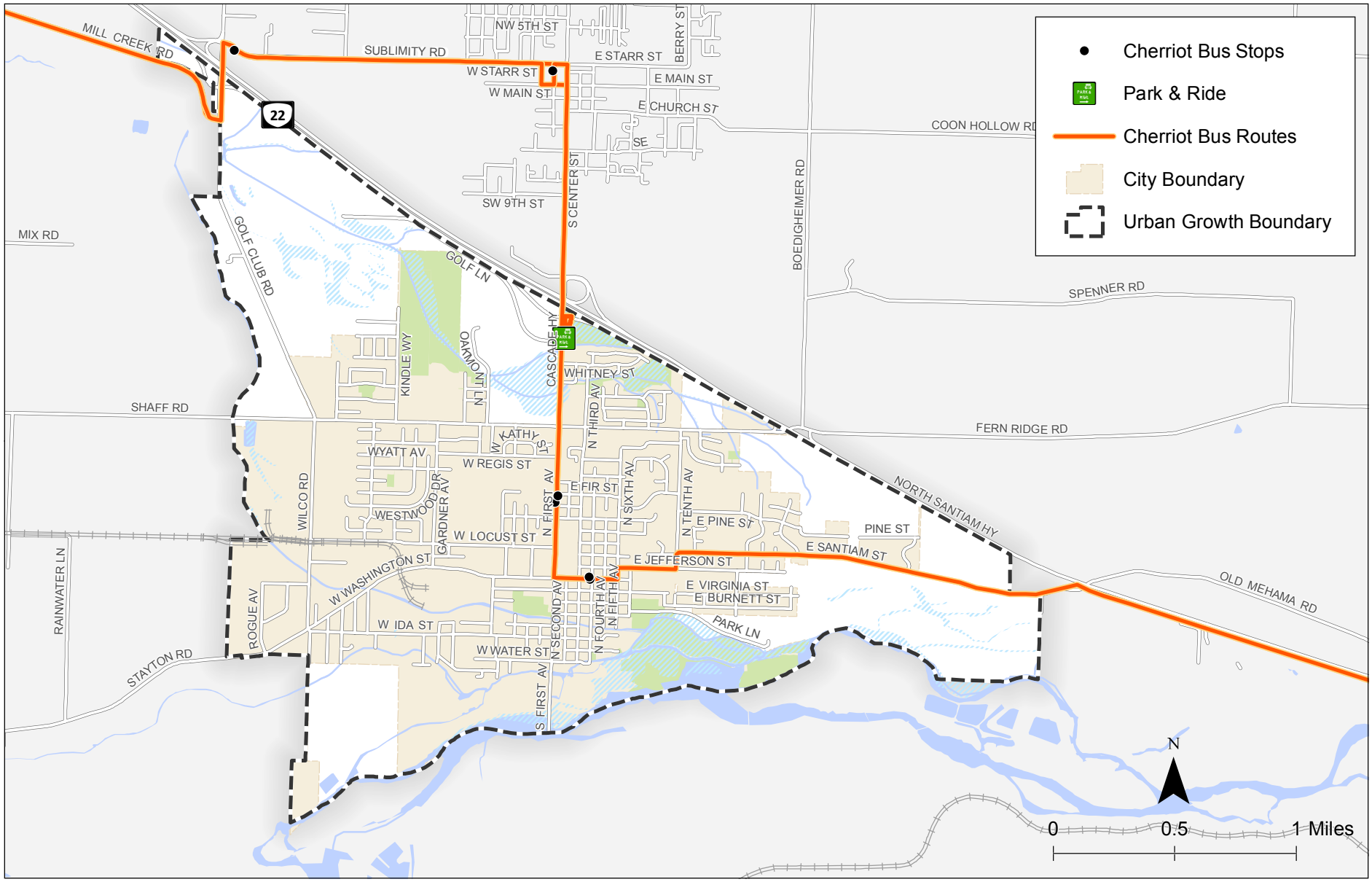
TRANSIT INFRASTRUCTURE

Park-and-Ride

There is one park-and-ride location within Stayton, located on Cascade Highway at the intersection of Golf Lane, shown in Figure 6. This park-and-ride is serviced by Cherriots Route 30X and has vehicle parking capacity for 94 vehicles and covered bicycle parking capacity for 5 bicycles.

Transit Stops

There are three transit stops within the Stayton city boundary and two stops just north of the urban area. Stop locations are:



Cherriots Route 30X from Salem to Gates runs four times per weekday in both directions on the route shown. Buses do not operate on holidays or weekends.

Existing Transit Facilities
Stayton, Oregon

Figure **6**

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Coordinate System: NAD 1983 HARN StatePlane Oregon North FIPS 3601 Feet Intl

- E Washington Street/N Fourth Avenue in downtown Stayton
- Stayton Safeway near the intersection of N First Avenue/E Fir Street
- Stayton park-and-ride near the intersection of Cascade Highway SE/Golf Lane.
- NW Starr Street/NW Johnson Street in Sublimity
- Stayton DMV near the intersection of Sublimity Road SE/Golf Club Road SE.

Each of these transit stops are serviced by Cherriots Route 30X and are shown in Figure 6.

Transit Ridership

Daily average ridership for Cherriots Route 30X for April and the first three weeks of May of 2018 is shown in Table 5. This data shows bidirectional boardings and alightings and was collected by Cherriots transit drivers.

Table 5: Cherriots Route 30X Average Daily Ridership

Transit Stop	Boardings	Alightings	Total
Washington Street and Fourth Avenue	6	11	17
Stayton Safeway	25	26	51
Stayton Park-and-Ride	2	4	6
Johnson Street and Starr Road	1	2	3
Stayton DMV	0	0	0

EXISTING GAPS AND DEFICIENCIES

Stayton's current public transportation system does not offer specialized services for seniors or people with disabilities. The discontinued dial-a-ride service provided by CARTS offered a simple transit service for people who found it difficult to use the fixed Cherriots Route 30X. This curb-to-curb service deviated up to 0.75 miles from the fixed route for anyone who made a request with the call center at least 24 hours in advance. While Cherriots currently offers an origin-to-destination transportation service for people whose disabilities prevent them from using the Cherriots buses, this service only operates within the Salem-Keizer urban area. With a senior living center and hospital located in Stayton, this service would supplement the existing transit system for seniors and people with disabilities.

Currently, Cherriots Route 30X only services each transit stop four times per day. Increasing the frequency of buses along this route would encourage more transit ridership, as riders would have more options for the timing of their trips.

While transit schedule information is available online, schedules are not provided at stops and real-time arrival and departure information is not available online or at transit stops in Stayton. Providing real-time data online via a phone app or using digital screens or announcements would help inform riders about bus arrivals and service delays and improve customer satisfaction. Since the Cherriots Route 30X only services each stop four times a day, missing a bus currently delays a rider's trip substantially. Thus, knowing real-time information about bus arrival times would assist riders in

planning their trips. Additionally, posting schedules at stops would make bus arrival time knowledge more readily available for those without access to smartphones.

FREIGHT SYSTEM

OR 22 is designated as a statewide National Highway System freight route by the 1999 Oregon Highway Plan (OHP).

OTHER TRANSPORTATION MODES

The following describes the other modes of transportation within Stayton including air, water, and natural gas pipeline facilities.

PRIVATE TRANSPORTATION PROVIDERS

Uber and Lyft both operate in the City of Stayton. They provide on-demand taxi services through a mobile phone application.

AIR TRANSPORTATION

The City of Stayton does not have an airport. The nearest commercial airport is the Portland International Airport, located 75 miles to the north of Stayton. There are several other small airstrips within 20 miles of Stayton. There is also a helistop located at the Santiam Memorial Hospital.

RAIL TRANSPORTATION

An unused rail spur runs from the west side of the city along W Locust Street to the NORPAC facility. The last rail activity on this line was over five years ago, and NORPAC has not used the line in over twenty years.

WATER TRANSPORTATION

Although the City of Stayton is situated along the North Santiam River, the river has not been used as a method of transportation, mainly due to the shallowness of the river. There are several boat ramps along the river; however, these are mostly used for small watercraft. The river is mainly used for recreation but is also a source of drinking water.

PIPELINE FACILITIES

The primary pipeline facilities in Stayton are associated with the city storm sewer, sanitary sewer, and water lines. Potable water is transported from the North Santiam River to Salem via two transmission mains that run through Stayton. There are no natural gas lines that are large enough to be classified as pipelines in the Stayton area.

EXISTING CONDITIONS ANALYSIS

TRAFFIC OPERATIONS

Traffic operations were evaluated at 22 study intersections in accordance with the Analysis Methodology and Assumptions Memorandum (Reference 1). Figure 7 shows the study intersections and summarizes the existing lane configurations and traffic control devices.

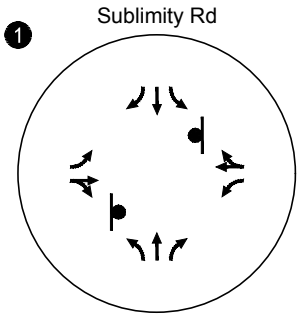
TRAFFIC VOLUMES

Manual turning movement counts were conducted at the study intersections in April 2018. The counts were conducted on a typical midweek day during the evening (4:00 to 6:00 pm) peak period while Stayton schools were in session. The system-wide peak hour for the study intersections was identified as 4:40 to 5:40 pm. Appendix A contains the turning movement counts.

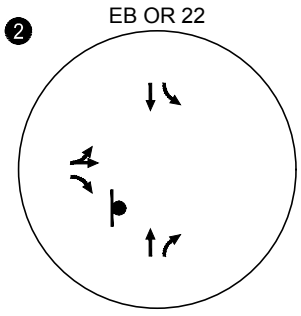
PEAK HOUR OPERATIONS

Figure 8 summarizes the PM peak hour turning movement counts and operations at the study intersections under existing traffic conditions. The through movements of the turning movement counts along OR 22 were seasonally adjusted to 30th highest hour volumes (30HV) in accordance with the Seasonal Trend Table methodology identified in the Analysis Methodology and Assumptions Memorandum. Table 6 summarizes the results of the traffic operations analysis at the study intersection under existing traffic conditions. Appendix B contains the year 2018 existing traffic conditions worksheets.

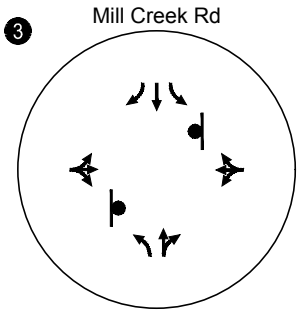
1 Golf Club Rd/ Sublimity Rd



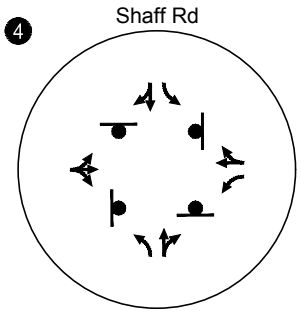
2 Golf Club Rd/ EB OR 22



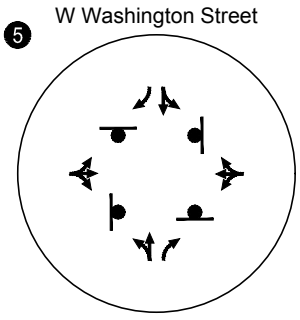
3 Golf Club Rd/ Mill Creek Rd



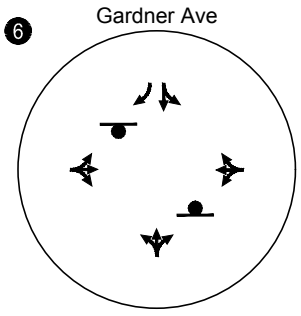
4 Golf Club Rd/ Shaff Rd



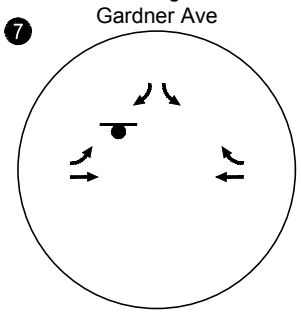
5 Wilco Rd/ W Washington Street



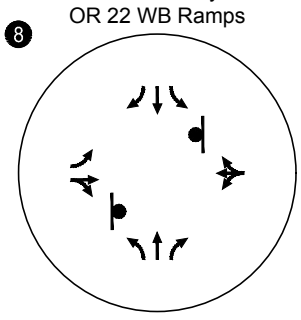
6 Shaff Rd/ Gardner Ave



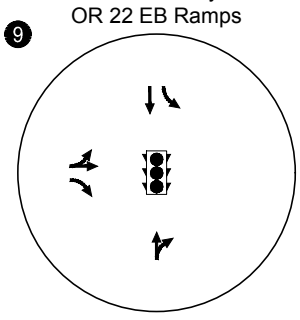
7 W Washington St/ Gardner Ave



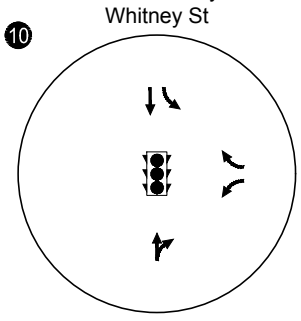
8 Cascade Hwy/ OR 22 WB Ramps



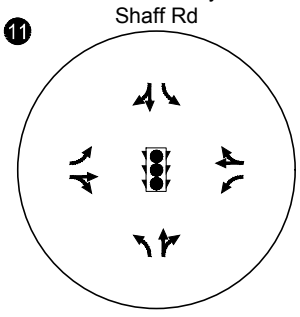
9 Cascade Hwy/ OR 22 EB Ramps



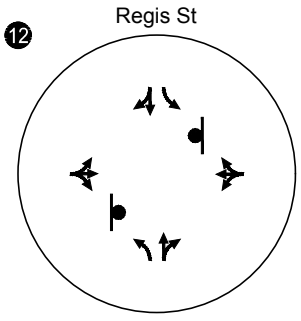
10 Cascade Hwy/ Whitney St



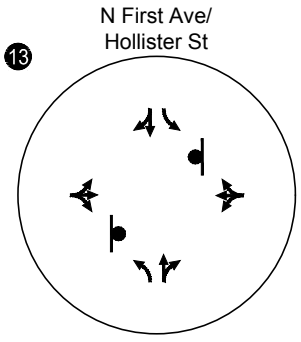
11 Cascade Hwy/ Shaff Rd



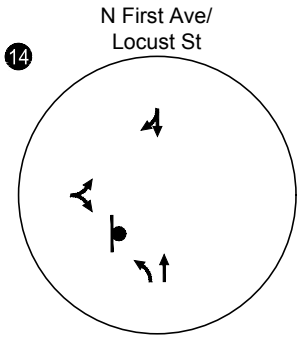
12 N First Ave/ Regis St



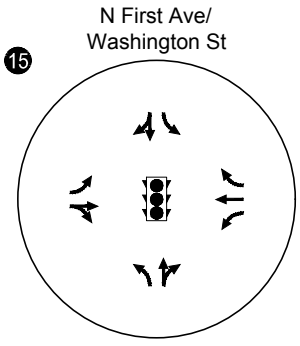
13 N First Ave/ Hollister St



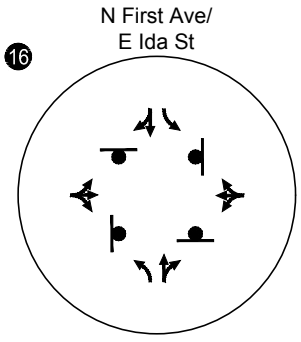
14 N First Ave/ Locust St



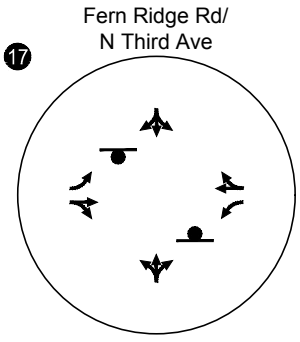
15 N First Ave/ Washington St



16 N First Ave/ E Ida St



17 Fern Ridge Rd/ N Third Ave



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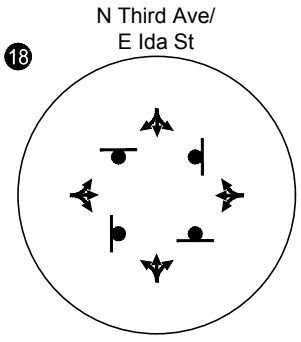
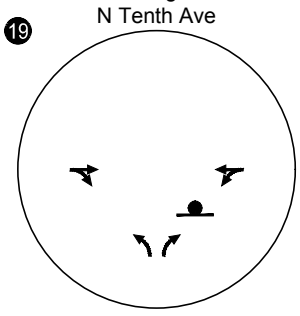


19 Fern Ridge Rd/ N Tenth Ave



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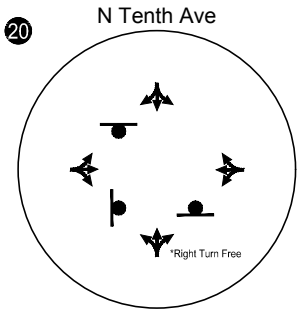

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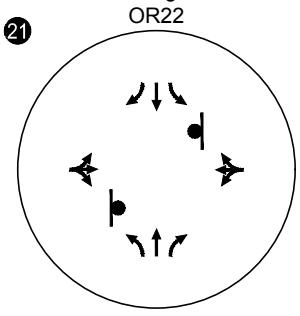

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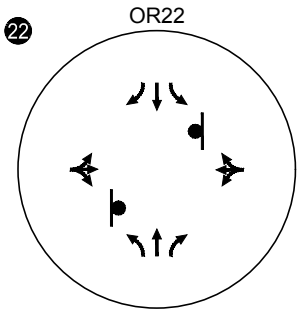

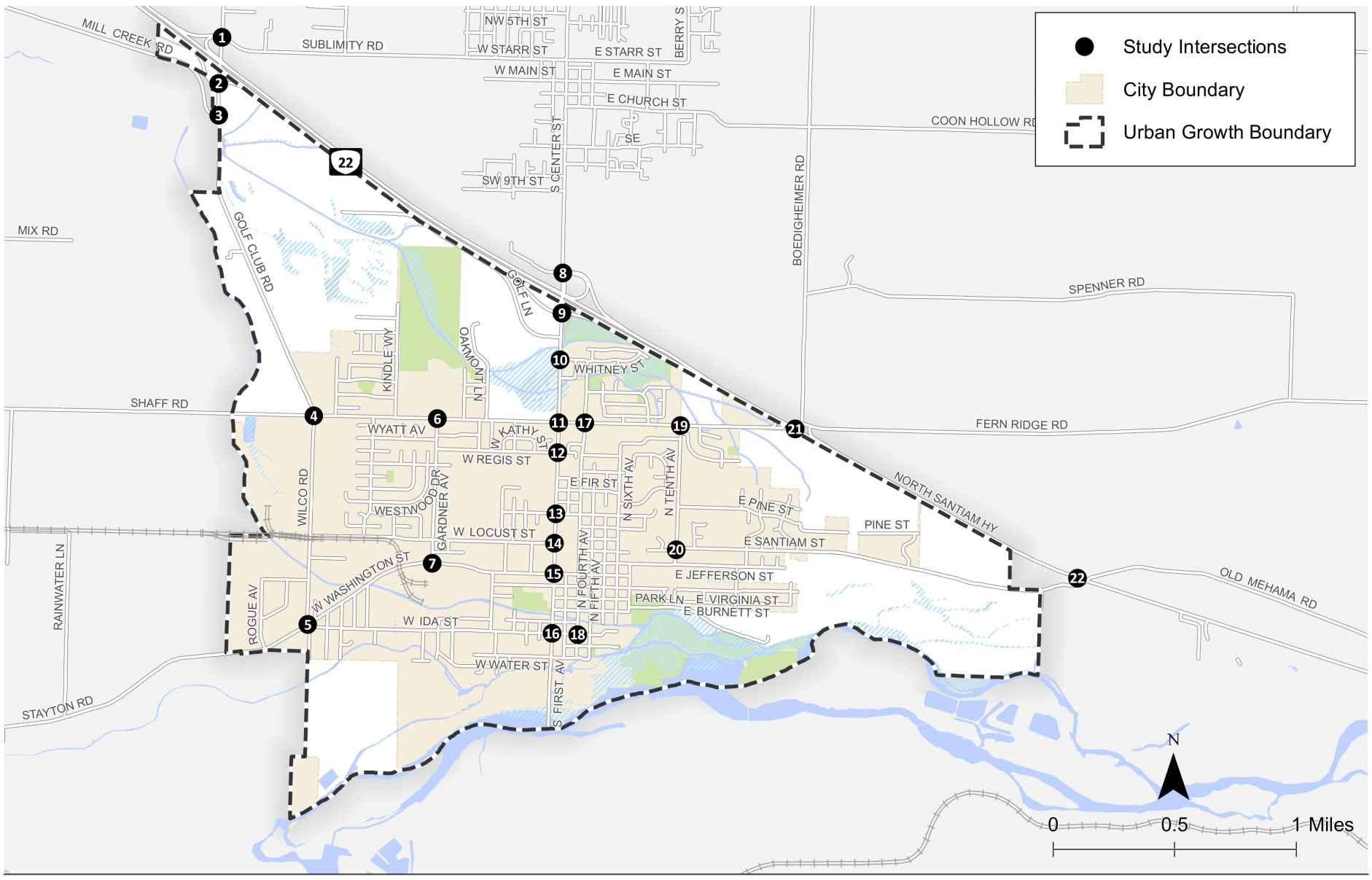

- STOP SIGN
- TRAFFIC SIGNAL

Existing Lane Configuration and Traffic Control Devices
Stayton, Oregon

Figure 7

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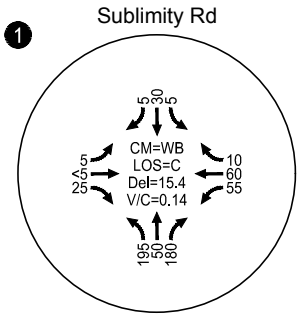
1 Golf Club Rd/ Sublimity Rd


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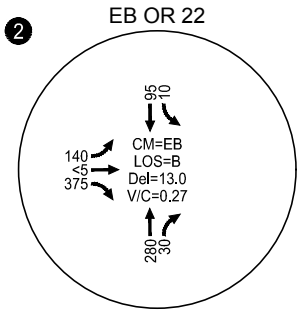
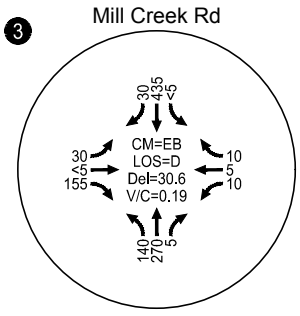
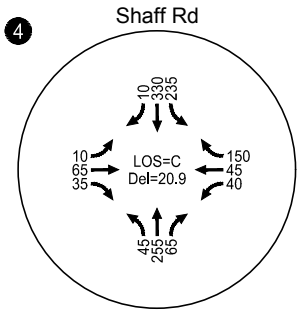
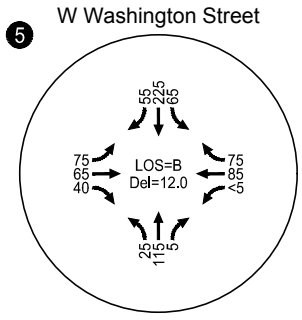
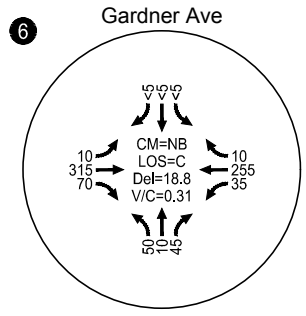


3 Golf Club Rd/ Mill Creek Rd


4 Golf Club Rd/ Shaff Rd


5 Wilco Rd/ W Washington Street


6 Shaff Rd/ Gardner Ave


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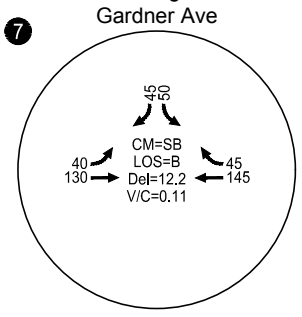
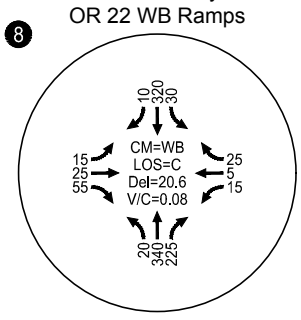


8 Cascade Hwy/ OR 22 WB Ramps


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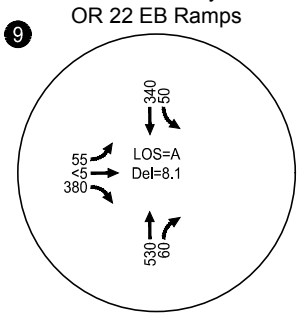

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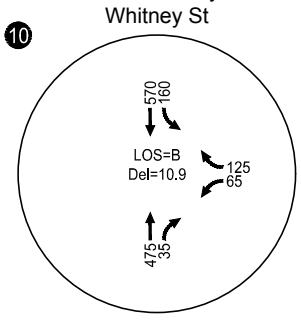

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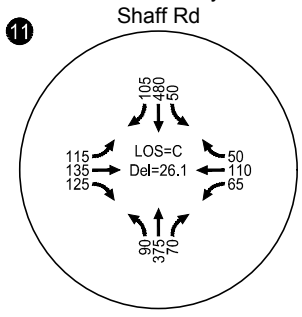

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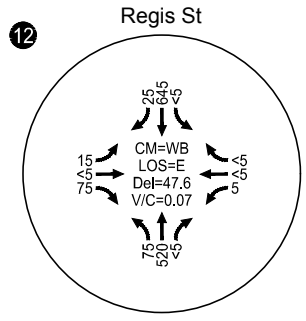

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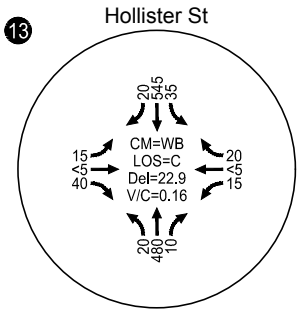

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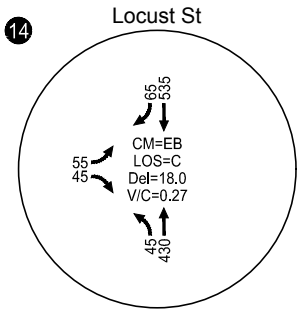

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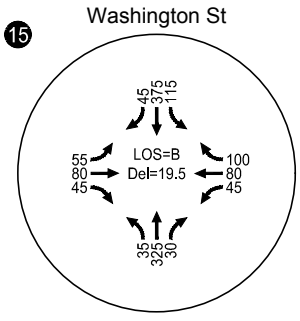

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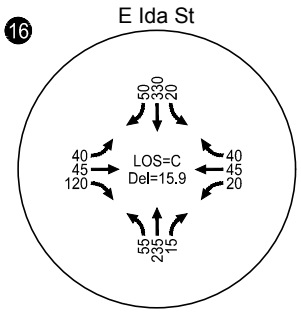

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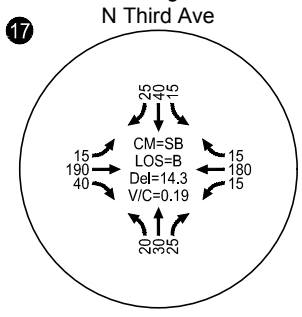

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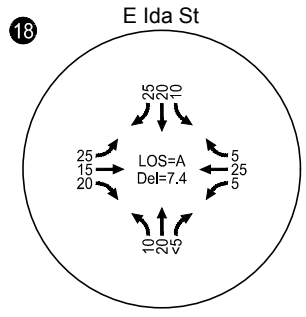
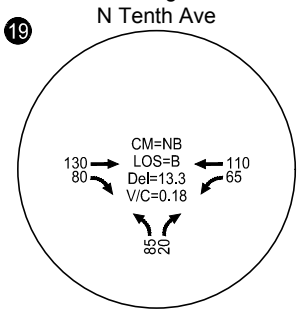
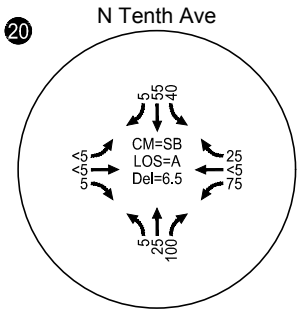
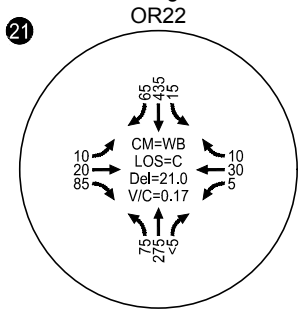


19 Fern Ridge Rd/ N Tenth Ave


20 E Santiam St/ N Tenth Ave


21 Fern Ridge Rd/ OR22


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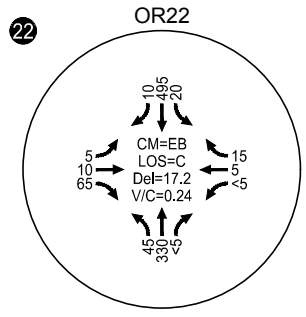
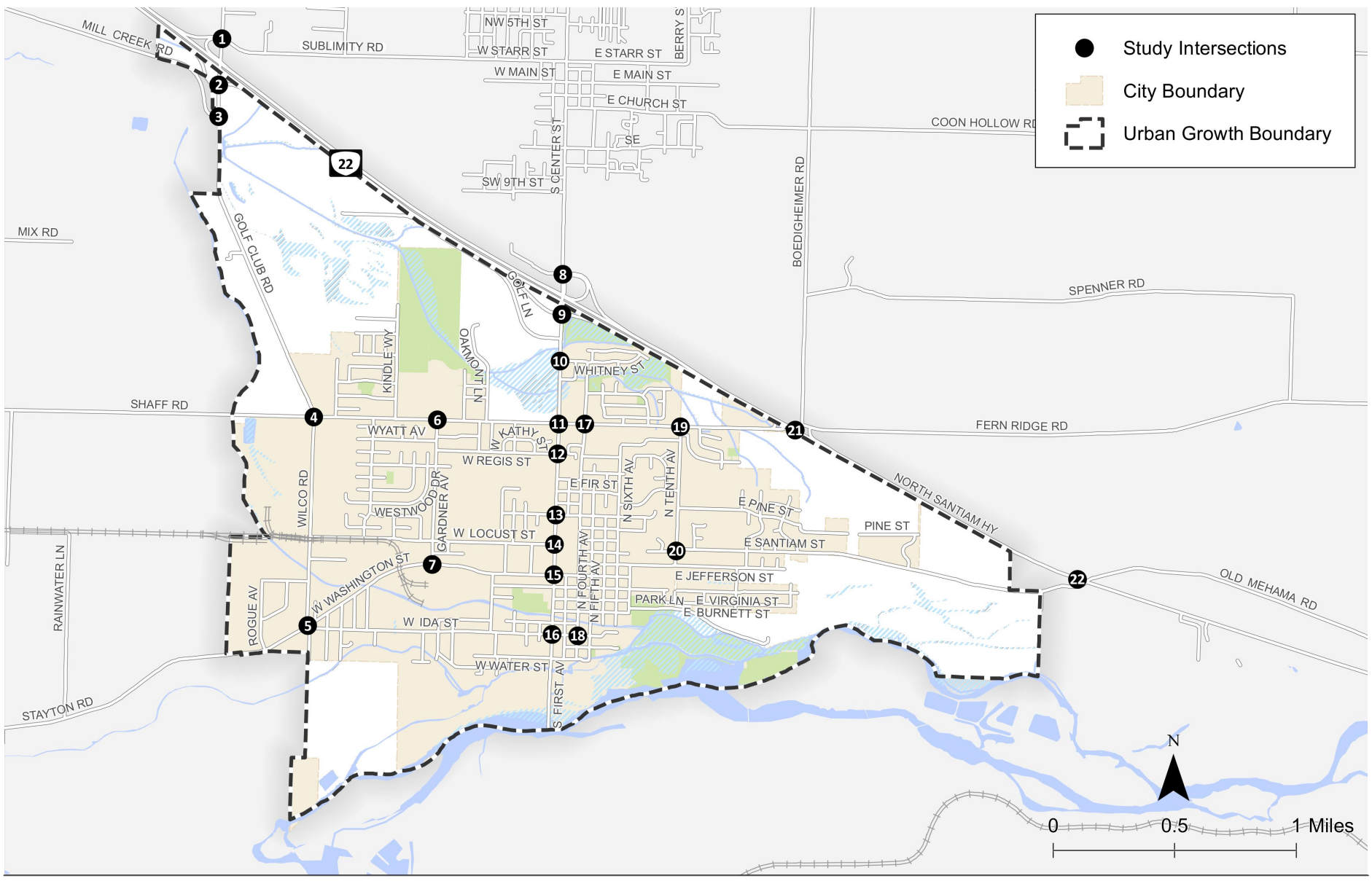




CM = CRITICAL MOVEMENT (TWSC)
LOS = INTERSECTION LEVEL OF SERVICE (SIGNALIZED/AWSC) / CRITICAL MOVEMENT LEVEL OF SERVICE (TWSC)
Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED/AWSC) / CRITICAL MOVEMENT CONTROL DELAY (TWSC)
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO
TWSC = TWO-WAY STOP CONTROL
AWSC = ALL-WAY STOP CONTROL

Existing Traffic Conditions
Weekday PM Peak Hour
Stayton, Oregon

Figure 8

KITTELSON & ASSOCIATES

H:\22\22352 - Stayton Transportation System Plan\dwg\22352_Fig01.dwg Sep 14, 2018 - 3:57pm - bgraveline Layout Tab: Ex PM

Table 6. Existing Weekday PM Peak Hour Intersection Operations

#	Intersection	Level of Service (LOS)	Delay (Sec)	Volume/Capacity (v/c)	Measure of Effectiveness (MOE)		MOE Met?
					Agency	Maximum	
1	Golf Club Road at Sublimity Road/WB OR 22	C	15.4	0.14	ODOT	V/C 0.70[1]	Yes
2	Golf Club Road at EB OR 22	B	13.0	0.27	ODOT	V/C 0.80[1]	Yes
3	Golf Club Road at Mill Creek Road	D	30.6	0.19	County	LOS E[2]	Yes
4	Golf Club Road/Wilco Road at Shaff Road	D	20.9	-	County	LOS E[2]	Yes
5	Wilco Road at W Washington Street/Ida Street	B	12.0	-	County	LOS E[2]	Yes
6	Shaff Road at Gardner Road/Stayton Middle School	C	18.8	0.31	County	LOS E[2]	Yes
7	W Washington Street at Gardner Road	B	12.2	0.11	City	LOS E[3]	Yes
8	Cascade Highway at Sublimity Boulevard/WB OR 22	C	20.6	0.08	ODOT	V/C 0.70[1]	Yes
9	Cascade Highway at EB OR 22	A	8.1	-	ODOT	V/C 0.80[1]	Yes
10	Cascade Highway at Whitney Street	B	10.9	-	County	LOS E[2]	Yes
11	Cascade Highway/N First Avenue at Shaff Road/Fern Ridge Road	C	26.1	-	County	LOS E[2]	Yes
12	N First Avenue at Regis Street	E	47.6	0.07	City	LOS E[3]	Yes
13	N First Avenue at Hollister Street	C	22.9	0.16	City	LOS E[3]	Yes
14	N First Avenue at Locust Street	C	18.0	0.27	City	LOS E[3]	Yes
15	N First Avenue at Washington Street	B	19.5	-	County	LOS E[2]	Yes
16	N First Avenue at Ida Street	C	15.9	-	City	LOS E[3]	Yes
17	Fern Ridge Road at N Third Avenue	B	14.3	0.19	County	LOS E[2]	Yes
18	N Third Avenue at E Ida Street	A	7.4	-	City	LOS E[3]	Yes
19	Fern Ridge Road at N Tenth Avenue	B	13.3	0.18	County	LOS E[2]	Yes
20	N Tenth Avenue at E Santiam Street	A	6.5	-	County	LOS E[2]	Yes
21	Fern Ridge Road at OR 22	C	21.0	0.17	ODOT	V/C 0.80	Yes
22	E Santiam Street at OR 22	C	17.2	0.24	ODOT	V/C 0.70	Yes

[1] *This v/c ratio may be increased to 0.90 if it can be determined that vehicles queues will not extend onto the mainline or into the portion of the ramp needed to safely accommodate deceleration; and if an adopted Interchange Area Management Plan (IAMP) is present or can be developed.*
[2] *LOS F may be allowed depending on volume*
[3] *or LOS F with a v/c ratio of 0.95 or better*

Target measures of effectiveness for each agency are described in the Analysis Methodology and Assumptions Memorandum (Reference 1) and summarized in Table 6. As shown, all study intersections operate acceptably within their respective measures of effectiveness in the PM peak hour.

QUEUEING

A queueing analysis was conducted at the signalized study intersections. Table 7 summarizes the 95th percentile queues during the weekday PM peak hours under year 2018 existing traffic conditions. The storage lengths reflect the striped storage for each movement at the intersections. Appendix C contains the queueing reports for these study intersections.

Table 7. Existing Weekday PM Peak Hour Queueing

Intersection	Movement	95th Percentile Queue (feet)	Storage Length (feet)	Adequate?
Cascade Highway SE/ OR 22 EB Ramps	SBL	25	150	Yes
	EBR	75	575	Yes
Cascade Highway SE/Whitney Street	SBL	50	100	Yes
	WBL	100	150	Yes
Shaff Road/N First Avenue	NBL	125	175	Yes
	SBL	75	100	Yes
	EBL	100	125	Yes
	WBL	75	100	Yes
N First Avenue/E Washington Street	NBL	50	100	Yes
	SBL	100	150	Yes
	EBL	50	75	Yes
	WBL	50	75	Yes
	WBR	25	50	Yes

As shown in Table 7, 95th percentile queues do not exceed the striped storage for any turning movement at any study intersection.

PUBLIC OPERATIONS COMMENTS

At their August meeting, the Stayton TSP Public Advisory Committee described locations throughout Stayton that may be experiencing congestion not described in the analysis above. The committee noted the following:

- The intersection of OR 22 and Fern Ridge Road seems to be operating worse than described
- Though the intersection of N Tenth Avenue and E Santiam is operating acceptably now, its operations will degrade with growth.
- The intersection of Cascade Highway/Shaff Road experiences congestion in the AM peak hour
- The intersection of N First avenue/Washington Street operated better with a protected left turn.

TRAFFIC SAFETY

The crash histories of the study intersections and selected segments were reviewed in an effort to identify potential safety issues within the study area. Additionally, all fatal crashes and all pedestrian and bicycle crashes were reviewed to identify safety trends and the ODOT Statewide Priority Index System was reviewed to identify high crash locations within the study area.

INTERSECTION CRASH RATES

ODOT provided crash records for the five-year period from January 1, 2011 through December 31, 2015 for the 22 study intersections. Table 8 summarizes the data provided by ODOT for the study intersection by crash type and severity. Figure 9 illustrates city-wide data obtained from ODOT by crash type and severity. Appendix D contains the crash data provided by ODOT.

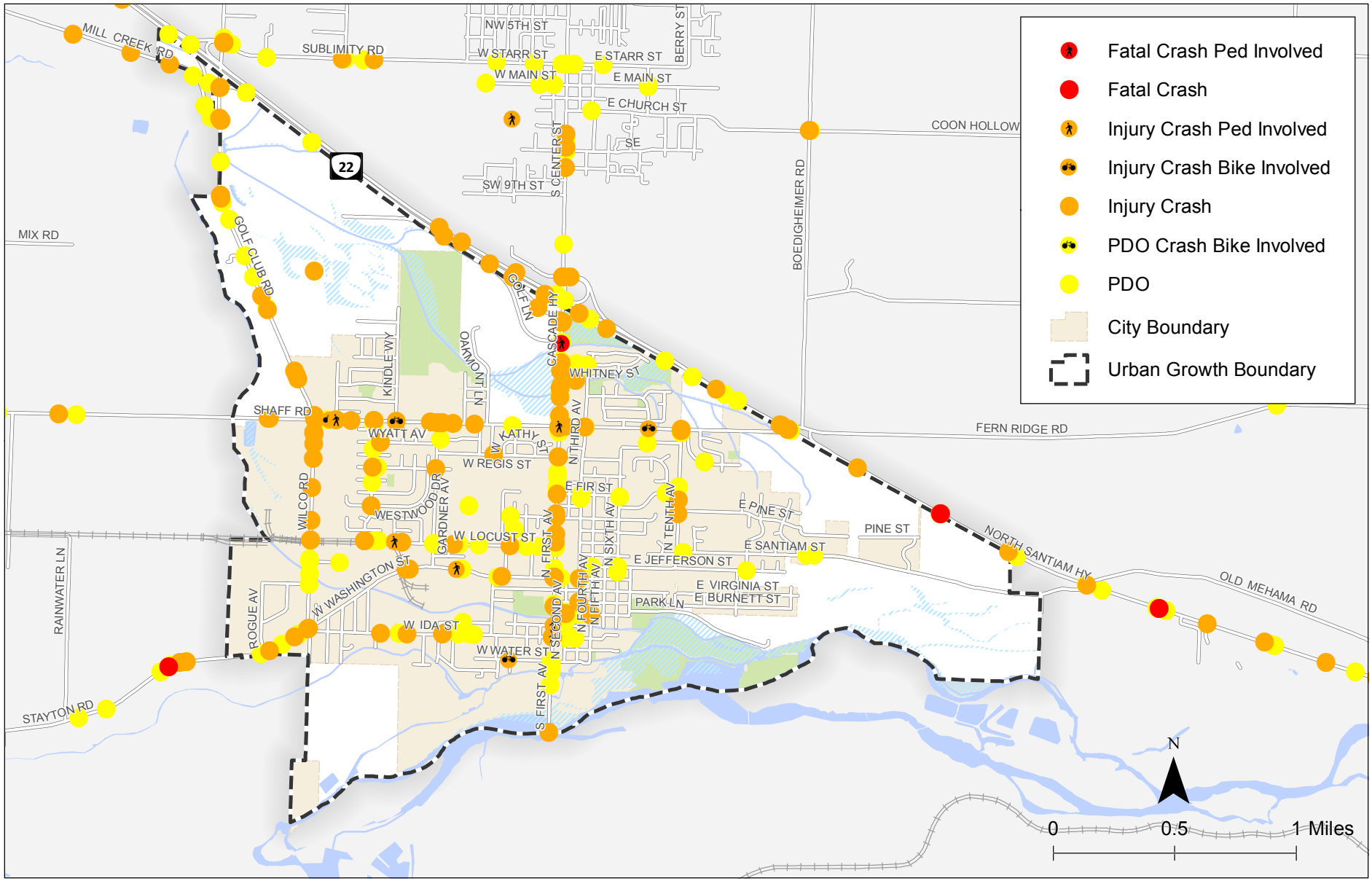
The crash rates shown in Table 8 were compared to the 90th percentile rates for similar facilities shown in Table 4-1 of the ODOT Analysis Procedures Manual (APM, Reference

Table 8. Intersection Crash Summary (January 1, 2011 to December 31, 2015)

#	Location	Crash Type							Severity			Total	PM Peak Hour Total Entering Vehicles	Intersection Class[2]	Critical Crash Rate	Crash Rate
		Rear End	Turning	Angle	Head On	Sideswipe	Pedestrian	Fixed Object	PDO[1]	Injury	Fatal					
1	Golf Club Road SE/Sublimity Rd SE	0	2	6	1	1	0	0	6	4	0	10	612	4 ST	0.41	**0.90**
2	Golf Club Road SE/OR 22 EB Ramps	1	0	0	0	0	0	1	0	2	0	2	933	4 ST	0.41	0.12
3	Golf Club Road SE/Mill Creek Rd SE	2	2	0	0	0	0	0	2	2	0	4	1094	4 ST	0.41	0.20
4	Wilco Rd/Shaff Rd SE	1	0	0	0	0	0	0	0	1	0	1	1292	4 ST	0.41	0.04
5	W Ida St&Jetters Way-Wilco Road/Stayton Rd SE-W Washington St	0	0	3	0	0	0	0	1	2	0	3	831	4 ST	0.41	0.20
6	N Gardner Ave/Shaff Rd SE	3	1	0	0	0	0	1	3	2	0	5	801	4 ST	0.41	0.34
7	N Gardner Ave/W Washington St	0	0	0	0	0	0	0	0	0	0	0	455	3 ST	0.29	0.00
8	Cascade Hwy SE/OR 22 WB Ramps	0	6	3	0	0	0	0	5	4	0	9	1085	4 ST	0.41	**0.45**
9	Cascade Hwy SE/OR 22 EB Ramps	23	1	0	0	0	0	0	15	9	0	24	1413	4 SG	0.86	**0.93**
10	Cascade Hwy SE/Whitney St	0	2	0	0	0	0	0	1	1	0	2	1432	3 SG	0.51	0.08
11	N First Ave/Shaff Rd SE	5	1	7	0	0	1	0	7	7	0	14	1769	4 SG	0.86	0.43
12	N First Ave/W Regis St	2	0	0	0	0	0	0	0	2	0	2	1361	4 ST	0.41	0.08
13	N First Ave/E Hollister St	0	0	1	0	0	0	0	0	1	0	1	1206	4 ST	0.41	0.05
14	N First Ave/W Locust St	2	2	0	0	0	0	0	4	0	0	4	1172	3 ST	0.29	0.19
15	N First Ave/E Washington St	1	8	1	0	0	0	0	4	6	0	10	1328	4 SG	0.86	0.41
16	N First Ave/E Ida St	1	3	2	0	0	1	0	2	5	0	7	1015	4 ST	0.41	0.38
17	N Third Ave/Fern Ridge Rd SE	0	0	4	0	0	0	0	3	1	0	4	611	4 ST	0.41	0.36
18	N Third Ave/E Ida St	0	0	0	0	0	0	0	0	0	0	0	180	4 ST	0.41	0.00
19	N Tenth Ave/Fern Ridge Rd SE	0	1	0	0	0	0	0	0	1	0	1	490	3 ST	0.29	0.11
20	N Tenth Ave/Stayton Rd SE	0	0	0	0	0	0	0	0	0	0	0	346	4 ST	0.41	0.00
21	OR 22/Fern Ridge Rd SE	1	3	8	0	0	0	1	6	7	0	13	1021	4 ST	0.41	**0.70**
22	OR 22/E Santiam St	0	1	1	0	0	0	0	1	1	0	2	1003	4 ST	0.41	0.11

1. Property Damage Only

2. All Contexts Urban



Reported Crashes from 2011 - 2015
Stayton, Oregon

Figure **9**

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Coordinate System: NAD 1983 HARN StatePlane Oregon North FIPS 3601 Feet Intl

2). Per the APM, any intersection that has a crash rate equal to or greater than the corresponding 90th percentile rate is considered a high-risk intersection and is recommended for further review. Based on these criteria, four intersections are recommended for further review as described below.

Golf Club Road SE/Sublimity Road SE (Intersection #1)

The intersection of Golf Club Road SE/Sublimity Road SE is a westbound on and off ramp to OR 22 on the northwest side of the Stayton study area. The crash data summarized in Table 8 shows a high proportion of angle and turning crashes at this intersection. The intersection is stop controlled on the minor approaches, and eight of the ten crashes resulted from a failure to properly yield the right of way by vehicles at a stop sign. Four of the crashes resulted in injuries and none resulted in a fatality.

Cascade Highway SE/OR 22 WB Ramps (Intersection #8)

The intersection of Cascade Highway SE/OR 22 WB Ramps is a westbound on and off ramp to OR 22 on the north side of the Stayton study area. The crash data summarized in Table 8 shows that all crashes at this intersection in the study period were angle or turning crashes. All the crashes resulted from a failure to properly yield the right of way by vehicles at a stop-controlled approach or failure to stop at a stop sign. Four of the crashes at this intersection resulted in injuries and none resulted in a fatality.

Cascade Highway SE/OR 22 EB Ramps (Intersection #9)

The intersection of Cascade Highway SE/OR 22 EB Ramps is an eastbound on and off ramp to OR 22 on the north side of the Stayton study area. The crash data summarized in Table 8 shows that 23 of the 24 crashes were rear end crashes. All these crashes involved eastbound vehicles that had just exited OR 22 and 17 of the 23 crashes involved vehicles using the yield-controlled channelized right turn. These 17 rear end crashes likely occurred when the first eastbound vehicle to approach the intersection was required to yield to a southbound vehicle and the second eastbound vehicle to approach the intersection did not anticipate a need to stop. Nine of the crashes at this intersection resulted in injuries and none resulted in a fatality.

OR 22/Fern Ridge Road SE (Intersection #21)

The intersection of OR 22/Fern Ridge Road SE is an at-grade, minor approach stop-controlled intersection between a state facility and a county road. The crash data summarized in Table 8 shows that 11 of the 13 crashes involved angle or turning movements. Each of these 11 crashes resulted from a failure to properly yield the right of way by vehicles at a stop-controlled approach. Seven of the crashes at this intersection resulted in injuries and none resulted in a fatality.

SEGMENT CRASH RATES

The crash history of selected segments was reviewed to identify potential safety issues within the study area. City-wide crash data by crash type and severity obtained from ODOT is illustrated in Figure 9. Table 9 summarizes the data provided by ODOT for the study segments by crash type and severity.

Table 9. Segment Crash Summary (January 1, 2011 to December 31, 2015)

#	Roadway	Roadway Extents	Crash Type						Severity			Total	Functional Classification	Average Rate	Crash Rate
			Rear End	Turning	Angle	Head On	Pedestrian	Fixed Object	PDO[1]	Injury	Fatal				
1	Golf Club Road	OR 22 to Shaff Road	5	0	0	1	0	8	6	8	0	14	Arterial	1.30	0.46
2	Wilco Road	Shaff Road to Deschutes Drive	8	0	0	0	0	1	2	7	0	9	Collector	1.53	0.92
3		Deschutes Drive to W Washington Street	0	0	0	0	0	0	0	0	0	0	Arterial	1.30	0.00
4	Cascade Highway	OR 22 to Shaff Road	6	0	0	0	1	2	3	5	1	8	Principal Arterial	1.45	0.69
5	N First Avenue	Shaff Road to W Ida Street	3	3	1	0	0	1	5	3	0	8	Principal Arterial	1.45	0.41
6		W Ida Street to W Water Street	0	0	0	0	0	0	0	0	0	0	Principal Arterial	1.45	0.00
7	S First Avenue	W Water Street to southern UGB limits	0	0	0	0	0	4	4	0	0	4	Arterial	1.30	0.94

The crash rates shown in Table 9 were compared to the average rates for similar segments shown in ODOT Crash Rate Table II (Reference 3). Per the APM, any segment that has a crash rate equal to or greater than the corresponding average rate is considered a high-risk segment and is recommended for further review. Based on these criteria, no segments have a crash rate equal to or greater than the corresponding average rate and thus no segments are recommended for further review.

SAFETY PRIORITY INDEX SYSTEM

The ODOT Statewide Priority Index System (SPIS) identifies sites along both state highways and non-state facilities 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, published in 2016, a segment immediately north of Cascade Highway SE/Whitney Street is identified by ODOT as within the top 10% of statewide SPIS sites over the last five-year period. Note that the ODOT SPIS shows that a fatal pedestrian crash occurred just north of the Cascade Highway SE/Whitney Street intersection and was not intersection-related.

PEDESTRIAN AND BICYCLE CRASH REVIEW

Seven pedestrian crashes and six bicycle crashes occurred within the study area from 2011 to 2015:

Pedestrian Crashes:

Shaff Road/Quail Run Avenue

At 10:00 AM on November 21, 2015, a passenger vehicle exiting a commercial driveway from the south onto Shaff Road SE struck a pedestrian in the intersection. The driver of the vehicle failed to yield the right of way to the pedestrian. The pedestrian sustained a minor injury (not visible but leading to a complaint of pain) from the crash.

Fern Ridge Road/N First Avenue

At 7:00 AM on January 20, 2012, a passenger vehicle traveling west on Fern Ridge Road and attempting to turn south onto N First Avenue struck a pedestrian in the intersection. The driver of the vehicle failed to yield the right of way to the pedestrian. The pedestrian sustained a minor injury (not visible but leading to a complaint of pain) from the crash.

W Locust Street/Heritage Loop

At 6:00 AM on December 19, 2015, a passenger vehicle traveling east on W Locust Road and attempting to turn north onto Heritage Loop struck a pedestrian 50 feet north of the intersection. The driver failed to see or yield to the pedestrian, who was wearing dark clothing. The pedestrian sustained an incapacitating injury from the crash.

W Washington Street East of N Gardner Avenue

At 2:00 PM on June 15, 2012, a passenger vehicle traveling west on W Locust Road struck two pedestrians off the roadway. The driver was driving inattentively and lost control of the vehicle, causing it to run off the roadway and hit the pedestrians. One pedestrian sustained an incapacitating injury from the crash and the other sustained a minor injury (not visible but leading to a complaint of pain) from the crash.

Cascade Highway SE, South of Golf Lane SE Intersection

At 5:00 PM on December 10, 2014, a southbound passenger vehicle struck and killed a pedestrian on Cascade Highway SE. Conditions at the time of the crash were dark with heavy rain and the pedestrian attempted to cross at a location without a crosswalk.

N First Avenue/W High Street

At 2:00 PM on December 10, 2015, a passenger vehicle traveling south on N First Avenue struck a pedestrian in the intersection. The driver failed to yield the right of way to the pedestrian. The pedestrian sustained a minor injury (not visible but leading to a complaint of pain) injury from the crash.

N First Avenue/W Ida Street

At 7:00 PM on March 11, 2014, a passenger vehicle traveling north on N First Avenue and attempting to turn west onto Ida Street struck a pedestrian in the intersection. The driver failed to yield the right of way to the pedestrian. The pedestrian sustained a non-incapacitating injury from the crash.

Bicycle Crashes:

Shaff Road East of Golf Club Road

At 4:00 PM on March 1, 2011, a passenger vehicle exiting a commercial driveway from the south onto Shaff Road SE struck a bicyclist in the bicycle lane or sidewalk. The driver of the vehicle failed to yield the right of way to the bicyclist. The bicyclist sustained a non-incapacitating injury from the crash.

Shaff Road/Quail Run Avenue

At 7:00 AM on August 8, 2015, a passenger vehicle attempting to make an eastbound left turn at the intersection of Shaff Road SE/Quail Run Avenue failed to yield the right of way and struck a westbound bicyclist. The bicyclist sustained a non-incapacitating injury from the crash.

Shaff Road/Kindle Way

At 7:00 AM on May 1, 2015, a passenger vehicle attempting to make a southbound left turn at the intersection of Shaff Road SE/Kindle Way SE failed to yield the right of way to a westbound bicyclist. As a result, the bicyclist struck the vehicle and sustained a minor injury (not visible but leading to a complaint of pain) injury.

W Water Street East of S Douglas Avenue

At 7:00 PM on June 1, 2012, a passenger vehicle proceeding from west to east failed to yield the right of way and struck a bicyclist. Conditions were rainy and wet and the bicyclist sustained a non-incapacitating injury.

N First Avenue/E Fir Street

At 2:00 PM on August 21, 2014, a passenger vehicle proceeding from north to south failed to yield the right of way and struck a bicyclist. The driver's view was obscured by her vehicle. The bicyclist did not sustain an injury.

Fern Ridge Road/Wildflower Drive

At 3:00 PM on February 20, 2013, a southbound passenger vehicle at the intersection of Fern Ridge Road/Wildflower Drive failed to yield the right of way to a westbound bicyclist. The bicyclist sustained a non-incapacitating injury.

FATAL CRASH REVIEW

Two fatal crashes occurred within the study area from 2011 to 2015.

OR 22, West of E Santiam Street Intersection

At 1:00 PM on November 11, 2011, a westbound passenger vehicle on OR 22 crossed over the center line and into the oncoming traffic line, hitting an eastbound passenger vehicle head on. The driver of the former vehicle was killed in the crash. Per police, the driver may have suffered a medical emergency before the crash occurred, causing the illegal maneuver.

Cascade Highway SE, South of Golf Lane SE Intersection

At 5:00 PM on December 10, 2014, a southbound passenger vehicle struck and killed a pedestrian on Cascade Highway SE. Conditions at the time of the crash were dark with heavy rain and the pedestrian attempted to cross at a location without a crosswalk. This crash was also described in the pedestrian and bicycle crash review.

Cascade Highway SE at Whitney Street

ODOT has verified all crashes occurring through 2015; however, more recent crash data is available in preliminary form. Crash data from 2017 shows that a fatal crash occurred at the intersection of Cascade Highway SE and Whitney Street at 9:00 AM on September 7, 2017. In this crash, a westbound left-turning vehicle and a northbound through-moving vehicle collided, resulting in one fatality, one incapacitating injury, and one minor (not visible but leading to a complaint of pain) injury. This crash was the result of the northbound driver disregarding the traffic signal.

PUBLIC TRAFFIC SAFETY COMMENTS

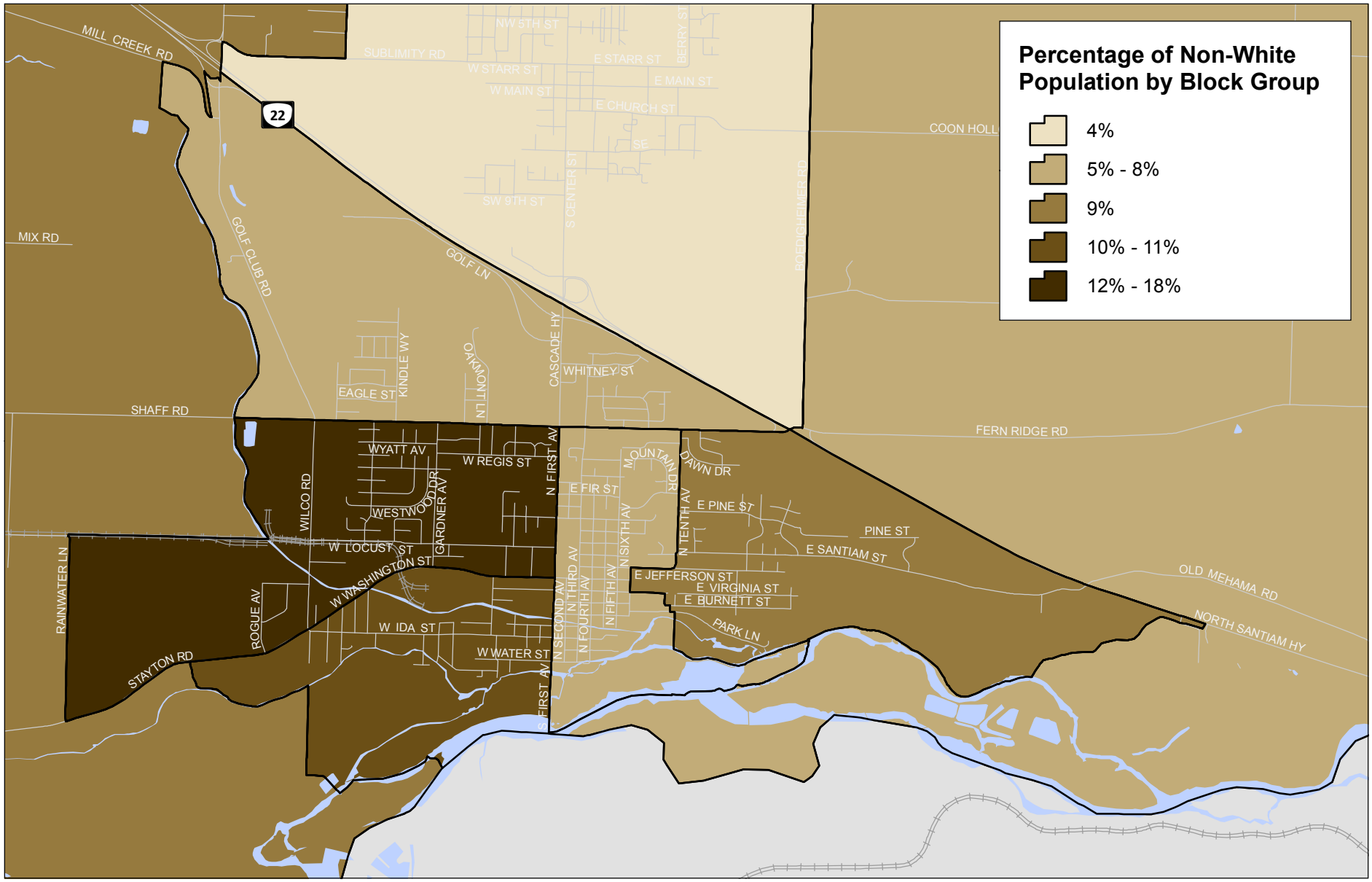
At their August meeting, the Stayton TSP Public Advisory Committee described locations throughout Stayton that have experienced close calls or that have the potential to be improved from a safety perspective. These locations were:

- School crosswalks across N First Avenue
- N First Avenue/Washington Street intersection
- N Tenth Avenue/E Santiam Street intersection
- N Third Avenue/Fern Ridge Road intersection

ENVIRONMENTAL JUSTICE ANALYSIS

The socio-economically sensitive populations within the City of Stayton consist of minorities, elderly people (people 65 years of age or older), youth (people 17 years of age or younger), people who do not speak English, disabled people, and people who live below the poverty line. 2010 census data was collected at the census block group level to show the concentrations of these populations as a percentage of the overall population. The data was combined with a general understanding of local conditions to ensure that the existing transportation system meets the needs of these individuals. Figures 10 through 16 illustrate the locations of these populations within Stayton.

- Minorities – As shown in Figure 10, the south and west sides of the city contain the highest concentration of minorities. The block group southwest of W Washington Street has a 10-11% concentration of non-white population while the block group on the west side between Shaff Road and W Washington Street has a 12-18% concentration of non-white population. The remaining portions of the city all have a less than 10% concentration of non-white population.
- Elderly People – As shown in Figure 11, the part of the city north of Shaff Road/Fern Ridge Road and the central part of the city have the highest concentration of people age 65 and older at 17%. Other parts of the city have an elderly population mostly under 12%.
- Youth – As shown in Figure 12, the west side of the city has the highest youth population at 28-29% of the population. The east side of the city has a similarly high youth population at 26-27% of the population. The northern and central parts of the city have lower youth populations at under 25% of the population.
- Non-English Speaking – As shown in Figure 13, the west side of the city has the highest population of people who do not speak English at 17-26% of the population. The east side of the city has a similarly high population of people who do not speak English at 16%. In the northern part of the city, 6-15% of the population does not speak English and less than 4% of people do not speak English in the central and southern part of the city. In total, about 15% of Stayton residents do not speak English.
- People with Disabilities – As shown in Figure 14, the north side of the city has the highest population of people with disabilities with 29%-32% of the population. The east and west sides of the city have a low population of people with disabilities at less than 18% while the central part of the city has 26-27% of the population with disabilities.



Minority Population
Stayton, Oregon

Figure **10**

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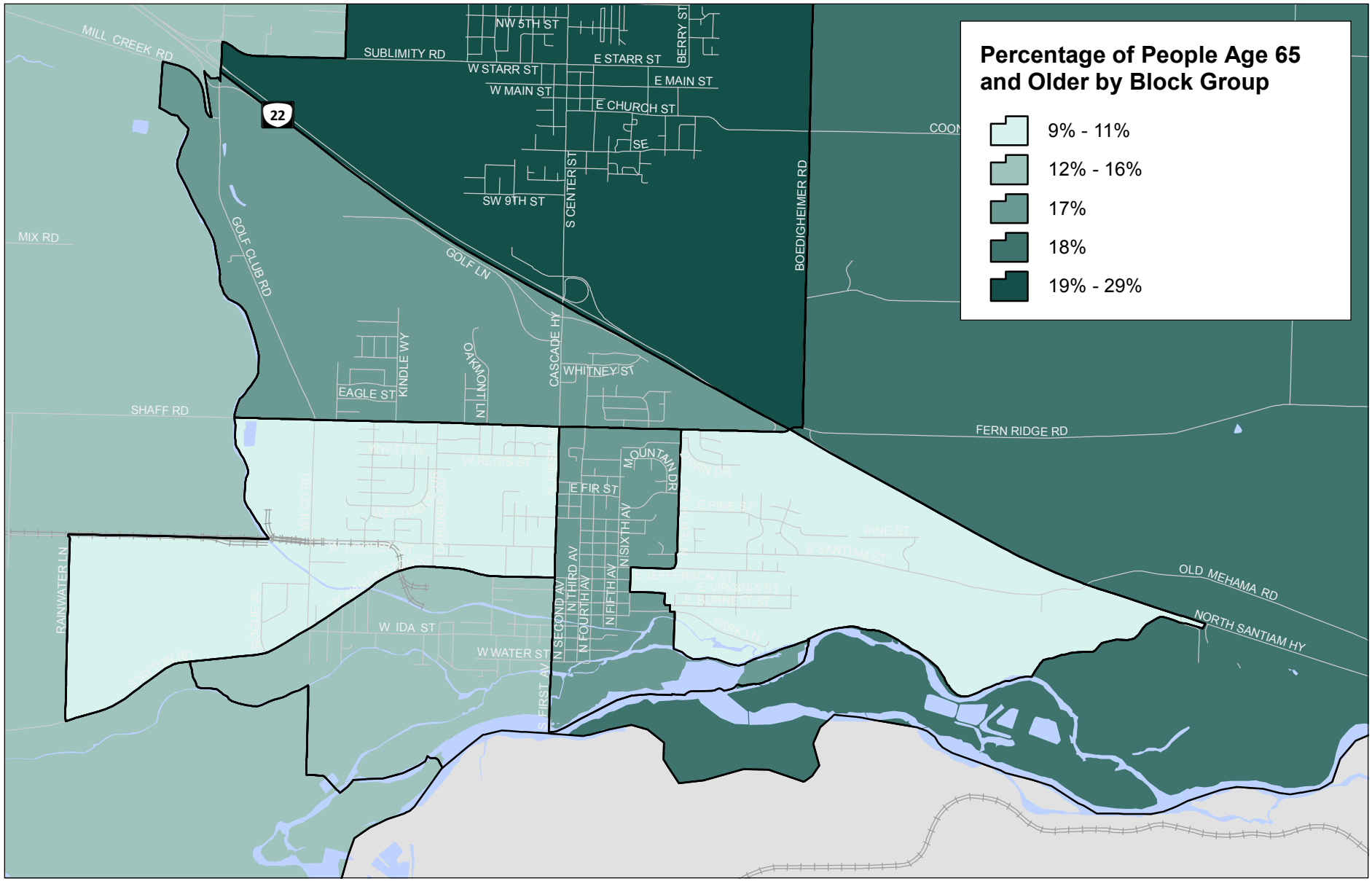
Coordinate System: NAD 1983 HARN StatePlane Oregon North FIPS 3601 Feet Intl
2010 Census Redistricting Data (Public Law 94-171) Summary File



Elderly Population
Stayton, Oregon

Figure
11

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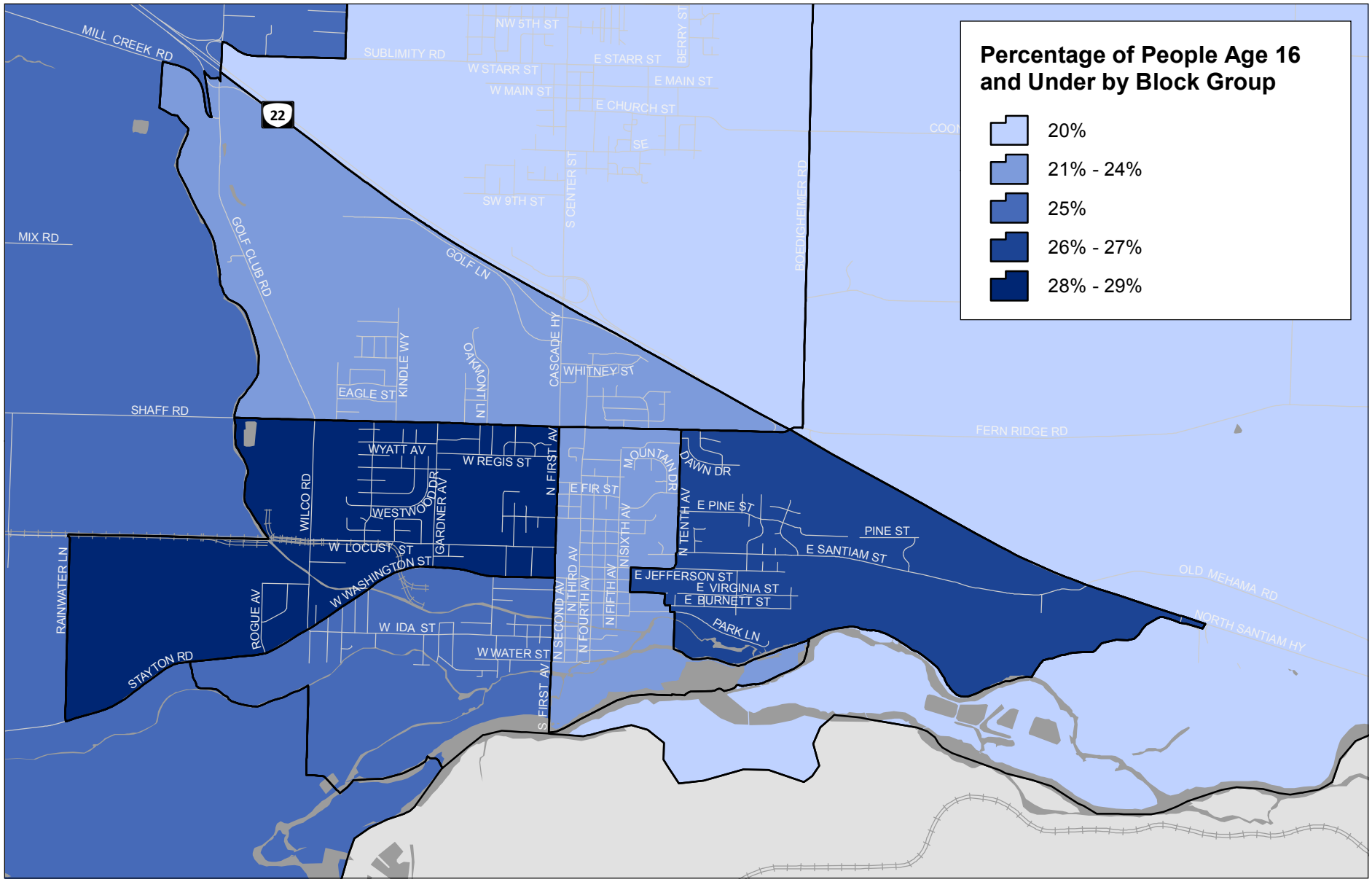
KITTELSON & ASSOCIATES

Coordinate System: NAD 1983 HARN StatePlane Oregon North FIPS 3601 Feet Intl
2010 Census Table DEC_10_SF1_P12



Youth Population
Stayton, Oregon

Figure
12

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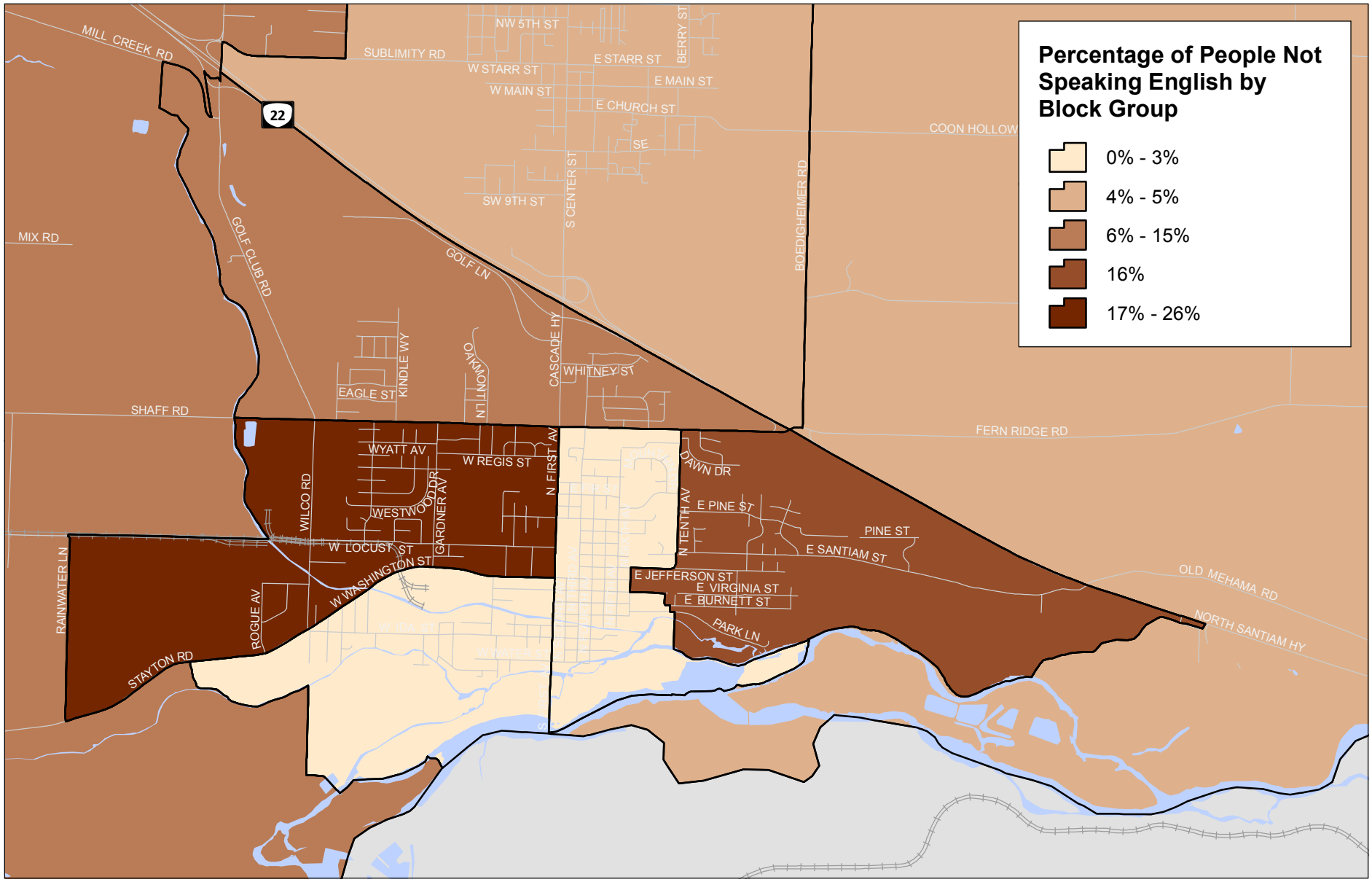
KITTELSON & ASSOCIATES

Coordinate System: NAD 1983 HARN StatePlane Oregon North FIPS 3601 Feet Intl
2010 Census Table DEC_10_SF1_P14



Non-English Speaking Population
Stayton, Oregon

Figure **13**

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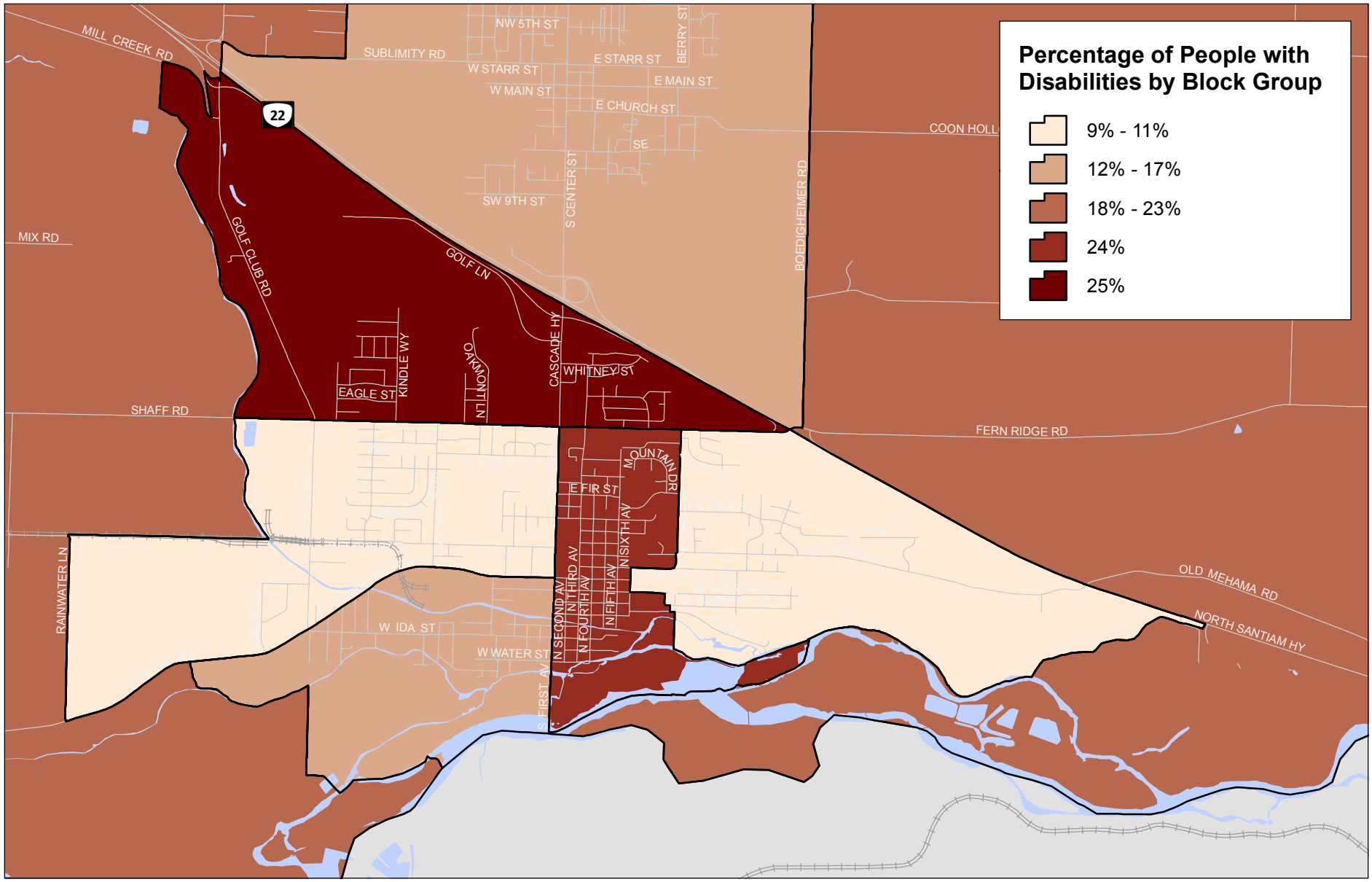
KITTELSON & ASSOCIATES

Coordinate System: NAD 1983 HARN StatePlane Oregon North FIPS 3601 Feet Intl
2016 ACS Table ACS_16_5YR_B99163



Disabled Population
Stayton, Oregon

Figure
14

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KITTELSON & ASSOCIATES

Coordinate System: NAD 1983 HARN StatePlane Oregon North FIPS 3601 Feet Intl
2016 ACS Table ACS_16_5YR_C21007

- Households without Access to a Personal Vehicle – As shown in Figure 15, the north and west sides of the city have the highest portion of households without access to a personal vehicle, at 14-17%. Overall, 9% of the households in Stayton do not have access to a personal vehicle. These households are more likely to rely on walking, bicycling, and public transportation for their transportation needs.

- People with Low income – As shown in Figure 16, the southwest corner of the city has the highest percentage of people earning less than twice the federal poverty level at 50-88% of the population. The west side of the city has 37-49% of people in this category, while the north and east side of the city has 28-36% of people in this category.

The socioeconomic conditions within the city will be considered in the development of the TSP update to ensure that the future transportation system meets the needs of the entire population while not creating adverse conditions for select segments of the population.

FUTURE GROWTH ASSUMPTIONS

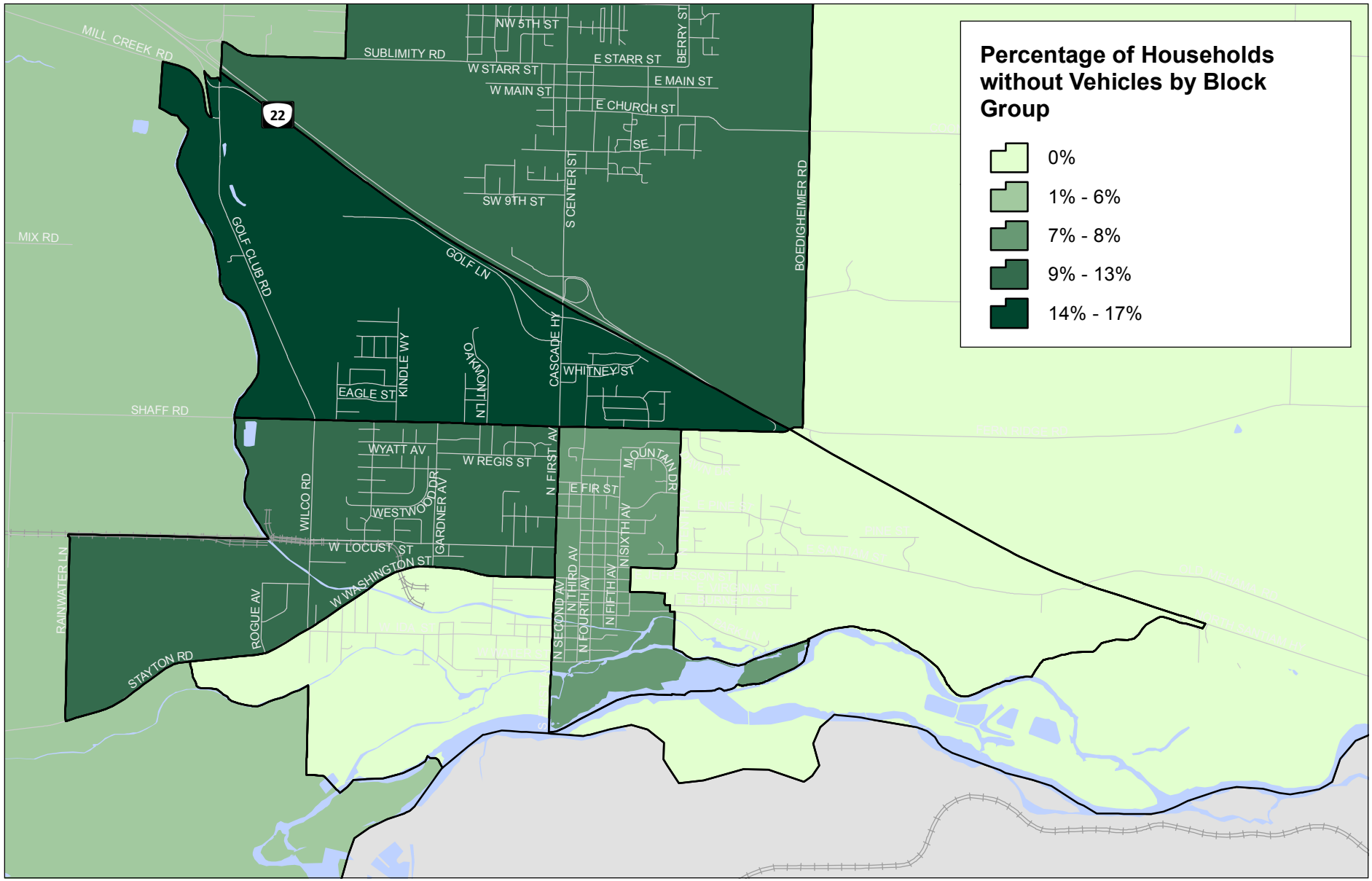
Analysis below shows projected 2040 operations at the 22 study intersections. To determine 2040 traffic conditions, traffic growth between present day and 2040 was projected through an understanding of expected household and employment growth in the area and accompanying trip generation.

PROJECTED LAND USES

Land use plays an important role in developing a comprehensive transportation system. The amount of land that is planned to be developed, the type of land uses, and how the land uses are mixed together all have a direct impact on how the transportation system will operate in the future. Understanding land use is critical to taking actions to maintain or enhance the transportation system. Population and employment growth play a significant role in determining future land use. The following provides a summary of the population and employment projections prepared for the Stayton TSP update. Appendix E contains a more detailed discussion on the projections.

POPULATION AND HOUSEHOLD FORECAST

Population data for Stayton was obtained from Portland State University's Population Research Center (PRC). The PRC's Coordinated Population Forecast for Marion County and Larger Sub Areas includes base year 2017 and forecast year 2035 and 2067 population estimates for Stayton as well as estimates of persons per household. Based on the data, the population is currently 8,138 persons and is projected to be 9,767 persons in the year 2040; this reflects an Average Annual Growth Rate (AAGR) of approximately 0.80 percent per year between 2017 and 2035 and an AAGR of approximately 0.70 percent per year between 2035 and 2040. The persons per household is currently 2.6 and is



Households Without Vehicles
Stayton, Oregon

Figure **15**

H:\22\22352 - Stayton Transportation System Plan\gis\15 Households with Vehicles.mxd - jsommerville - 10:29 AM 9/5/2018

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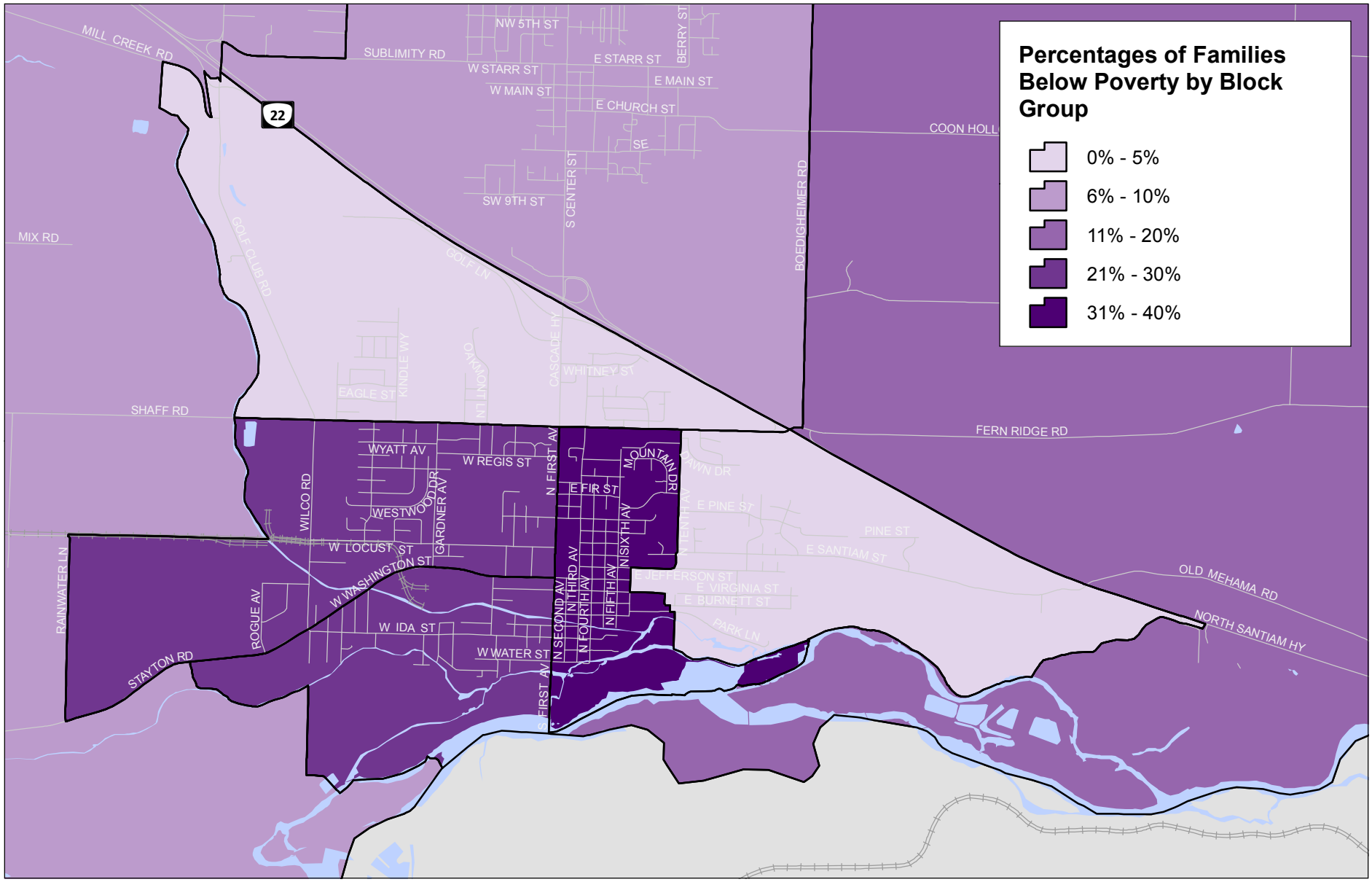
Coordinate System: NAD 1983 HARN StatePlane Oregon North FIPS 3601 Feet Intl
2016 ACS 5-Year Estimates Table B25044



Low Income Population
Stayton, Oregon

Figure **16**

H:\22\22352 - Stayton Transportation System Plan\gis\16 Low Income Population.mxd - jsommerville - 10:29 AM 9/5/2018

KITTELSON & ASSOCIATES

Coordinate System: NAD 1983 HARN StatePlane Oregon North FIPS 3601 Feet Intl
2016 ACS Table ACS_16_5YR_B17010

projected to be 2.6 in 2040. Therefore, there is a need for approximately 627 new homes in 2040. However, if the occupancy rate remains at 95 percent, there may be a need for 31 additional homes, or 658 new homes.

EMPLOYMENT FORECAST

Employment data for Stayton was obtained through the US Census Bureau's Center for Economic Studies "On the Map" tool and the State of Oregon's Mid-Valley Industry Employment Projections for the Linn, Marion, Polk, and Yamhill County. While the "On the Map" data shows a steady decline in jobs within the City since 2005, the State projects a 12 percent growth rate within the County, or an average annual growth rate of 1.2 percent. The State's projected growth rates vary considerably between job sectors, with the greatest growth occurring in manufacturing and health care jobs. Based on the data, there are currently 3,060 jobs within Stayton and there are projected to be 4,135 jobs in 2040, or an increase of 1,075 jobs. The job data was further divided into North American Industry Classification System (NAICS) sectors and converted to square-feet. Based on the data there is currently 282,410 square-feet of commercial and 622,159 square-feet of industrial space within the City and there is projected to be 380,802 square-feet of commercial and 829,986 square-feet of industrial space in the future

Table 10 summarizes the population and employment data for year 2017 and forecast year 2040 conditions. As shown, employment is expected to grow at a slightly higher rate than the population over the 23-year period.

Note that this growth estimate is more conservative than the growth estimate shown in the 2004 TSP. The 2004 TSP anticipated rapid growth that did not occur; the growth estimate shown below anticipates more conservative growth that will lead to lower projected volumes than shown in the 2004 TSP.

Table 10: Stayton Population and Employment Growth Summary

Land Use	2017	2040	Change	Annual Percent Change
Population	8,138	9,767	1,629	0.80%/0.70%
Households	3,130	3,757	627	0.80%/0.70%
Employment	3,060	4,135	1,075	1.2%
Square-feet (Com/Ind)	282K/622K	381K/830K	98K/207K	1.2%

The population and employment data shown in Table 10 was distributed throughout the Stayton based on information provided by the City on planned developments, information provided by the US Census, and information provided in the City's comprehensive plan and zoning designation map. The population and employment data was distributed based on Transportation Analysis Zones (TAZs) developed for the TSP update based on the current zoning designations and the location of major roadways and intersections throughout the City. The TAZs provide a convenient way of evaluating and summarizing the population and employment data for the City as well as a way to establish origin and destinations for new trips. Trip generation based on expected growth and origin-destination tables showing the distribution of this trip generation to and from the TAZs is

shown in Appendix F. Figure 17 shows the distribution of this trip generation onto the transportation network.

FUTURE CONDITIONS ANALYSIS

TRAFFIC OPERATIONS

Year 2040 traffic conditions were determined by applying the future growth assumptions outlined above to the existing traffic conditions. Lane configurations and traffic control devices were assumed to be identical to existing conditions. Figure 18 summarizes the PM peak hour turning movement counts and operations at the study intersections under 2040 traffic conditions. Table 11 summarizes the results of the traffic operations analysis at the study intersection under existing traffic conditions. Appendix G contains the year 2040 traffic conditions worksheets.

Table 11. 2040 Weekday PM Peak Hour Intersection Operations

#	Intersection	Level of Service (LOS)	Delay (Sec)	Volume/Capacity (v/c)	Measure of Effectiveness (MOE)		MOE Met?
					Agency	Maximum	
1	Golf Club Road at Sublimity Road/WB OR 22	C	16.0	0.15	ODOT	V/C 0.70[1]	Yes
2	Golf Club Road at EB OR 22	B	13.2	0.27	ODOT	V/C 0.80[1]	Yes
3	Golf Club Road at Mill Creek Road	D	31.8	0.20	County	LOS E[2]	Yes
4	Golf Club Road/Wilco Road at Shaff Road	D	25.3	-	County	LOS E[2]	Yes
5	Wilco Road at W Washington Street/Ida Street	B	13.6	-	County	LOS E[2]	Yes
6	Shaff Road at Gardner Road/Stayton Middle School	D	26.3	0.42	County	LOS E[2]	Yes
7	W Washington Street at Gardner Road	B	12.9	0.15	City	LOS E[3]	Yes
8	Cascade Highway at Sublimity Boulevard/WB OR 22	C	20.6	0.08	ODOT	V/C 0.70[1]	Yes
9	Cascade Highway at EB OR 22	A	8.2	-	ODOT	V/C 0.80[1]	Yes
10	Cascade Highway at Whitney Street	B	11.0	-	County	LOS E[2]	Yes
11	Cascade Highway/N First Avenue at Shaff Road/Fern Ridge Road	C	34.6	-	County	LOS E[2]	Yes
12	N First Avenue at Regis Street	F	52.7	0.08	City	LOS E[3]	Yes
13	N First Avenue at Hollister Street	C	24.4	0.17	City	LOS E[3]	Yes
14	N First Avenue at Locust Street	C	18.9	0.30	City	LOS E[3]	Yes
15	N First Avenue at Washington Street	C	20.1	-	County	LOS E[2]	Yes
16	N First Avenue at Ida Street	C	18.2	-	City	LOS E[3]	Yes
17	Fern Ridge Road at N Third Avenue	C	23.5	0.35	County	LOS E[2]	Yes
18	N Third Avenue at E Ida Street	A	7.4	-	City	LOS E[3]	Yes
19	Fern Ridge Road at N Tenth Avenue	D	31.9	0.52	County	LOS E[2]	Yes
20	N Tenth Avenue at E Santiam Street	A	8.9	-	County	LOS E[2]	Yes
21	Fern Ridge Road at OR 22	D	26.6	0.22	ODOT	V/C 0.80	Yes
22	E Santiam Street at OR 22	E	36.9	0.57	ODOT	V/C 0.70	Yes

[1] *This v/c ratio may be increased to 0.90 if it can be determined that vehicles queues will not extend onto the mainline or into the portion of the ramp needed to safely accommodate deceleration; and if an adopted Interchange Area Management Plan (IAMP) is present or can be developed.*
[2] *LOS F may be allowed depending on volume*
[3] *or LOS F with a v/c ratio of 0.95 or better*

Target measures of effectiveness for each agency are described in the Analysis Methodology and Assumptions Memorandum (Reference 1) and summarized in Table 11. As shown, all study intersections operate acceptably within their respective measures of effectiveness in the PM peak hour. Note that while the intersection of N First Avenue at

1 Golf Club Rd/ Sublimity Rd
12

2 Golf Club Rd/ EB OR 22
8
12 2

3 Golf Club Rd/ Mill Creek Rd
8
14

4 Golf Club Rd/ Shaff Rd
3 9
8
38
8 28

5 Wilco Rd/ W Washington Street
5 3 4
11 9 1
4 13
1 4

6 Shaff Rd/ Gardner Ave
87 2
81
2

7 W Washington St/ Gardner Ave
2 13
1 15
11 15

8 Cascade Hwy/ OR 22 WB Ramps
14

9 Cascade Hwy/ OR 22 EB Ramps
8
14

10 Cascade Hwy/ Whitney St
8
14

11 Cascade Hwy/ Shaff Rd
3 3 4
1 99 5
15 99 27
4 2 29

12 N First Ave/ Regis St
13 22
12 1
1 23

13 N First Ave/ Hollister St
22
23

14 N First Ave/ Locust St
3 19
3
20

15 N First Ave/ Washington St
3 16
3 33
1 35 10
15 10

16 N First Ave/ E Ida St
1 22
4 2
2 19

17 Fern Ridge Rd/ N Third Ave
2
123 9
131 7
13 2

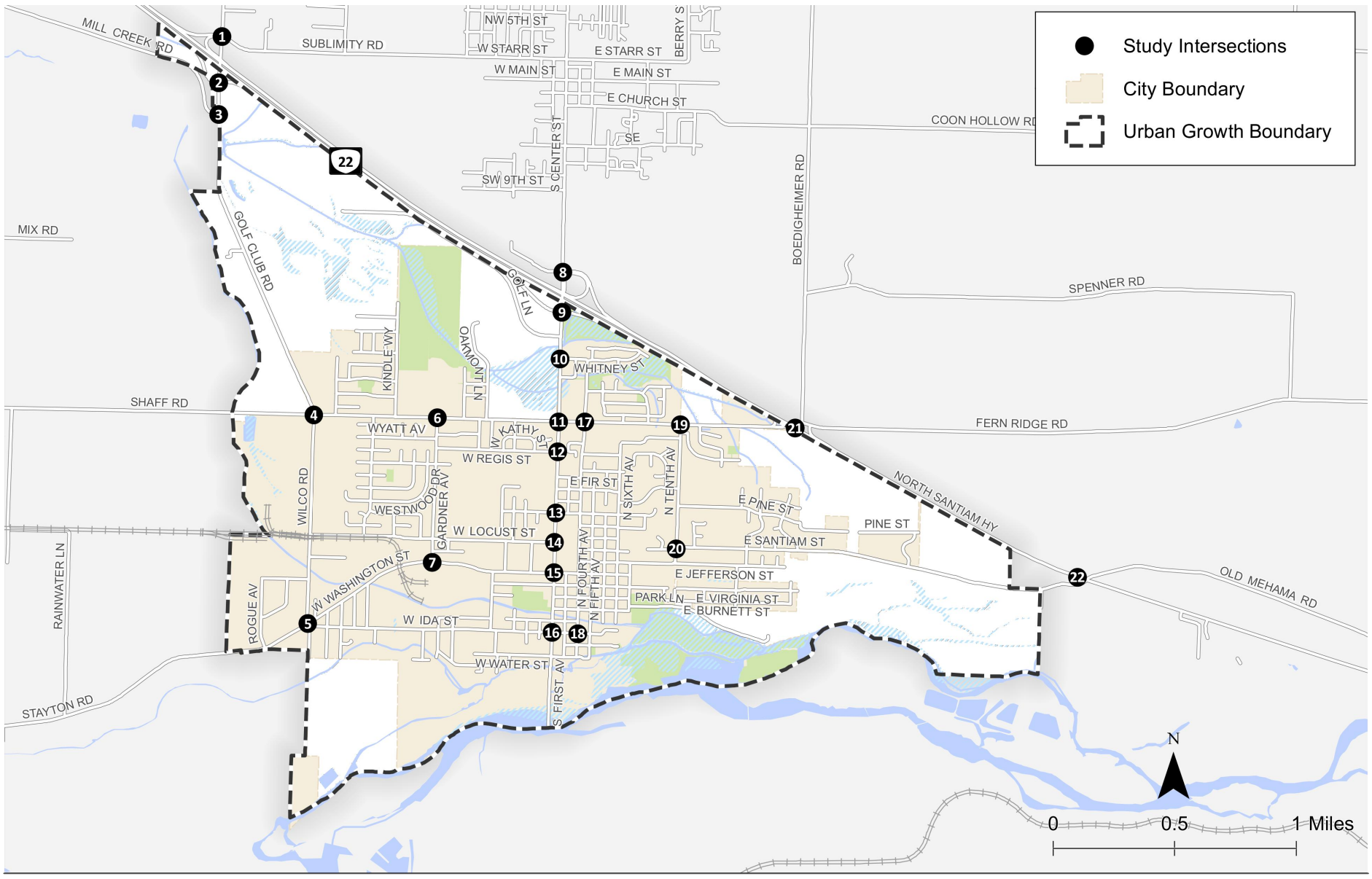
18 N Third Ave/ E Ida St

19 Fern Ridge Rd/ N Tenth Ave
83 44
90 84
45 25

20 E Santiam St/ N Tenth Ave
3 12 116
56
50
14 54

21 Fern Ridge Rd/ OR22
19 49
26
36 11

22 E Santiam St/ OR22
45 31
43
1
1 2



New Trips
Weekday PM Peak Hour
Stayton, Oregon

Figure
17

KITTELSON & ASSOCIATES

1 Golf Club Rd/ Sublimity Rd
CM=WB
LOS=C
Del=16.0
V/C=0.15
5 30 5
5 5 10
25 60 55
210 50 180

2 Golf Club Rd/ EB OR 22
CM=EB
LOS=B
Del=13.2
V/C=0.27
95 10
140 <5
385
290 35

3 Golf Club Rd/ Mill Creek Rd
CM=EB
LOS=D
Del=31.8
V/C=0.20
30 445 <5
30 5 10
155 5 10
140 265 5

4 Golf Club Rd/ Shaff Rd
LOS=D
Del=25.3
10 330 245
10 160
65 45
35 80
45 265 95

5 Wilco Rd/ W Washington Street
LOS=B
Del=13.6
70 230 60
85 80
75 95
40 5
25 115 5

6 Shaff Rd/ Gardner Ave
CM=NB
LOS=D
Del=26.3
V/C=0.42
<5 <5 <5
10 10
405 335
70 35
50 10 45

7 W Washington St/ Gardner Ave
CM=SB
LOS=B
Del=12.9
V/C=0.15
50 65
40 55
145 160

8 Cascade Hwy/ OR 22 WB Ramps
CM=WB
LOS=C
Del=20.6
V/C=0.08
10 320 30
15 25
25 5
55 15
20 340 240

9 Cascade Hwy/ OR 22 EB Ramps
LOS=A
Del=8.2
340 50
55
390
545 60

10 Cascade Hwy/ Whitney St
LOS=B
Del=11.0
580 160
125
65
490 35

11 Cascade Hwy/ Shaff Rd
LOS=C
Del=34.6
105 485 55
115 65
235 210
130 90
95 380 100

12 N First Ave/ Regis St
CM=WB
LOS=F
Del=52.7
V/C=0.08
35 665 <5
30 <5
<5 <5
75 5
75 545 <5

13 N First Ave/ Hollister St
CM=WB
LOS=C
Del=24.4
V/C=0.17
20 570 35
15 20
<5 <5
40 15
20 505 10

14 N First Ave/ Locust St
CM=EB
LOS=C
Del=18.9
V/C=0.30
70 555
55
45
45 450

15 N First Ave/ Washington St
LOS=C
Del=20.1
45 390 115
55 100
115 115
45 55
35 340 40

16 N First Ave/ E Ida St
LOS=C
Del=18.2
50 355 20
40 40
45 45
125 20
55 250 15

17 Fern Ridge Rd/ N Third Ave
CM=NB
LOS=C
Del=23.5
V/C=0.35
25 40 20
15 15
310 310
50 25
35 30 30

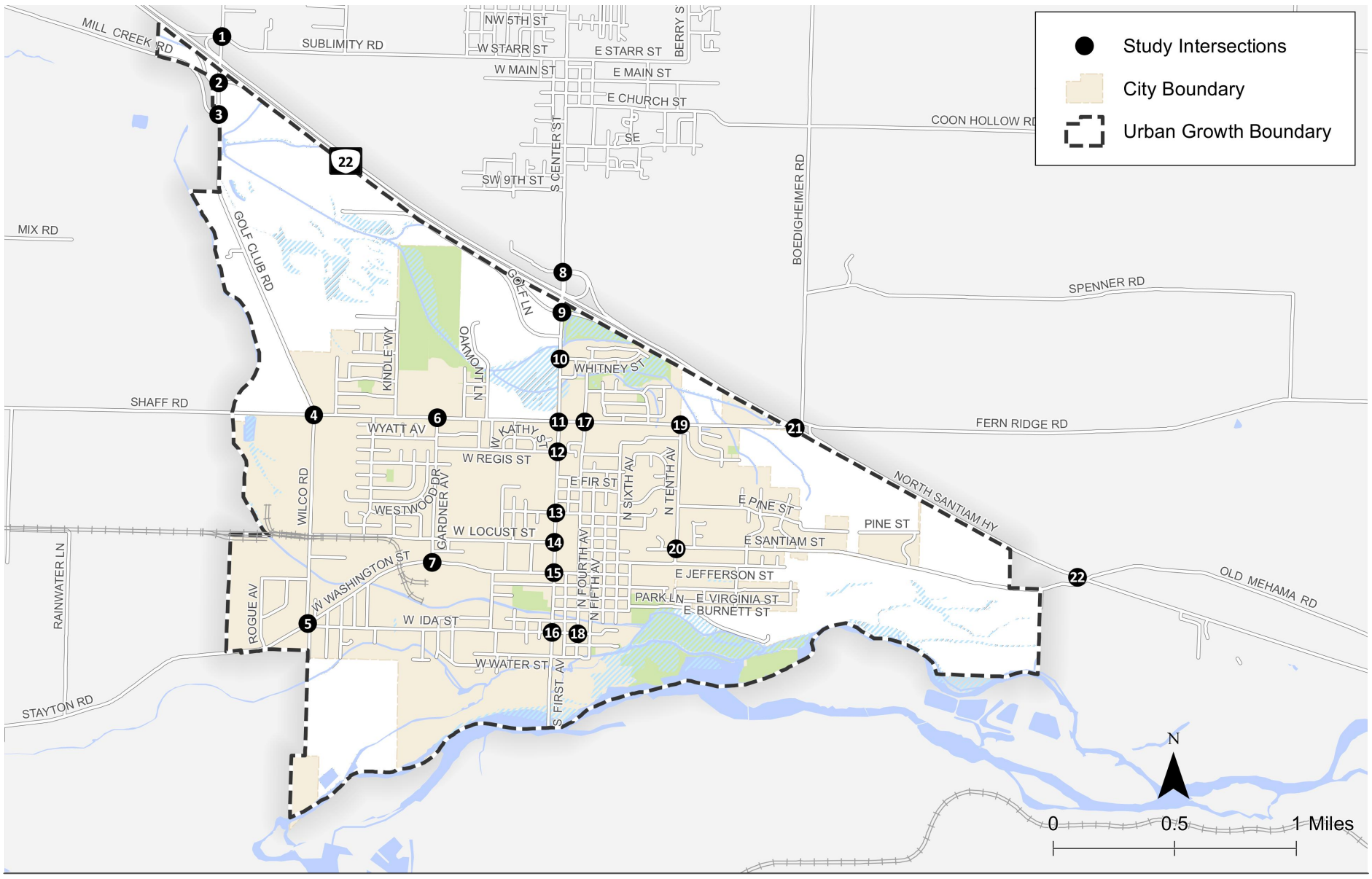
18 N Third Ave/ E Ida St
LOS=A
Del=7.4
25 20
25 5
15 25
20 5
10 20 <5

19 Fern Ridge Rd/ N Tenth Ave
CM=NB
LOS=D
Del=31.9
V/C=0.52
210 200
125 150
130 45

20 E Santiam St/ N Tenth Ave
CM=SB
LOS=A
Del=8.9
10 70 160
<5 80
<5 <5
5 125
4 40 155

21 Fern Ridge Rd/ OR22
CM=WB
LOS=D
Del=26.6
V/C=0.22
80 485 15
10 10
20 30
115 5
110 285 <5

22 E Santiam St/ OR22
CM=EB
LOS=E
Del=36.9
V/C=0.57
55 525 20
50 15
10 5
65 <5
50 330 <5



CM = CRITICAL MOVEMENT (TWSC)
LOS = INTERSECTION LEVEL OF SERVICE (SIGNALIZED/AWSC) / CRITICAL MOVEMENT LEVEL OF SERVICE (TWSC)
Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED/AWSC) / CRITICAL MOVEMENT CONTROL DELAY (TWSC)
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO
TWSC = TWO-WAY STOP CONTROL
AWSC = ALL-WAY STOP CONTROL

Future Traffic Conditions
Weekday PM Peak Hour
Stayton, Oregon

Figure 18

KITTELSON & ASSOCIATES

H:\22\22352 - Stayton Transportation System Plan\dwg\22352_Fig01.dwg Sep 14, 2018 - 4:46pm - bgraveline Layout Tab: Future PM

Regis Street operates at LOS F, the v/c ratio of the critical movement is better than 0.95. Therefore, this intersection meets City of Stayton mobility standards.

QUEUEING

A queueing analysis was conducted at the signalized study intersections. Table 12 summarizes the 95th percentile queues during the weekday PM peak hours under year 2040 traffic conditions. The storage lengths reflect the striped storage for each movement at the intersections. Appendix H contains the queueing reports for these study intersections.

Table 12. Future Weekday PM Peak Hour Queueing

Intersection	Movement	95th Percentile Queue	Storage Length (feet)	Adequate?
Cascade Highway SE/ OR 22 EB Ramps	SBL	25	150	Yes
	EBR	75	575	Yes
Cascade Highway SE/Whitney Street	SBL	50	100	Yes
	WBL	100	150	Yes
Shaff Road/N First Avenue	NBL	125	175	Yes
	SBL	100	100	Yes
	EBL	100	125	Yes
	WBL	100	100	Yes
N First Avenue/E Washington Street	NBL	50	100	Yes
	SBL	100	150	Yes
	EBL	50	75	Yes
	WBL	50	75	Yes
	WBR	25	50	Yes

As shown in Table 12, 95th percentile queues do not exceed the striped storage for any turning movement at any study intersection.

GOLF LANE REALIGNMENT

Note that per the Whitney Street/Cascade Highway operational analysis study (Reference 4), Golf Lane should be realigned to intersect Cascade Highway directly opposite Whitney Street. See the May 19, 2003 Memorandum of Understanding between Marion County and the City of Stayton for further details regarding this area.

TRANSPORTATION FUNDING

The following provides an overview of the City of Stayton's transportation funding and provides a forecast of potential funds for implementing the TSP based on existing funding sources. Additional funding sources could provide additional funding in the future.

EXISTING REVENUE SOURCES

The primary revenue sources contributing to transportation funding for Stayton are the state gas tax, ODOTs surface transportation program (STP), and the City's street maintenance fee, System Development Charges (SDCs), and most recently, a local gas

tax. Exhibit 1 illustrates the revenues from these sources over the past six years as well as projected for Fiscal Year (FY) 2018-19.

Exhibit 1: City of Stayton Transportation Revenue Sources

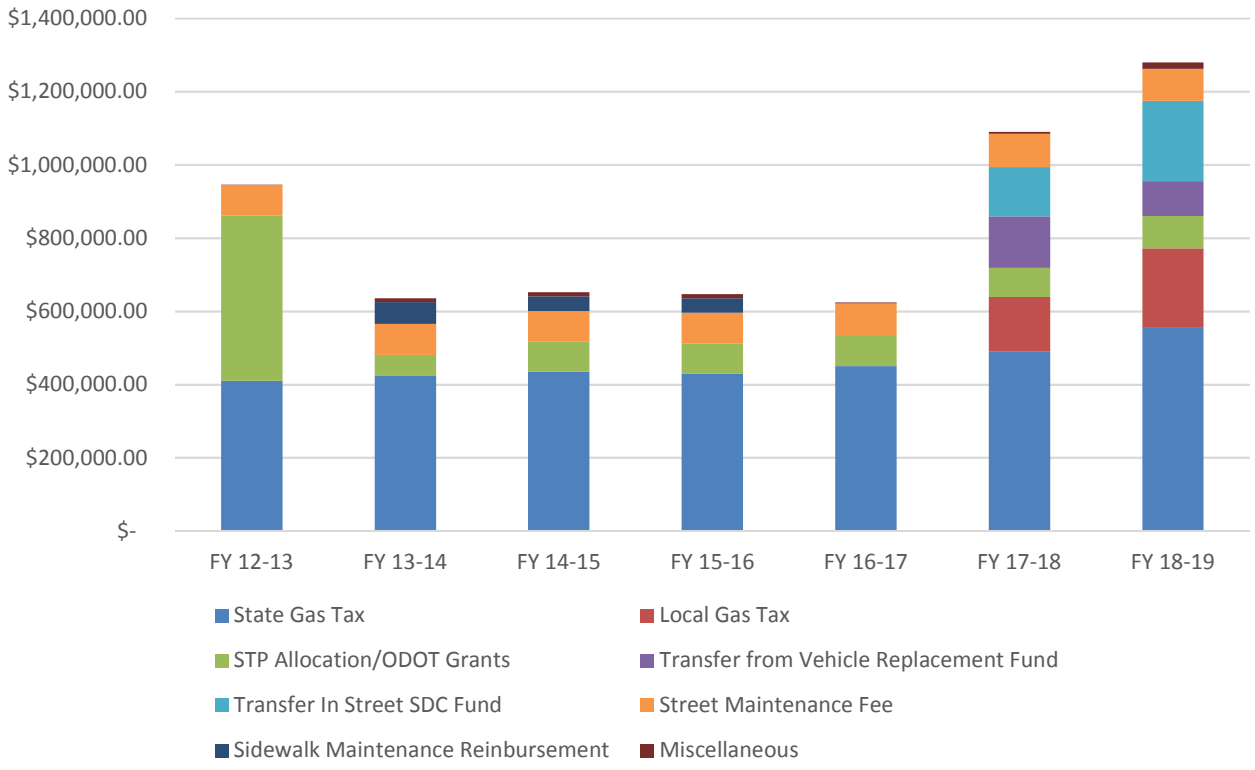


Table 13. City of Stayton Transportation Revenue

	FY 12-13	FY 13-14	FY 14-15	FY 15-16	FY 16-17	FY 17-18	FY 18-19
State Gas Tax	$410,000	$425,000	$435,000	$430,000	$450,000	$490,000	$556,800
Local Gas Tax						$149,000	$215,000
STP Allocation/ ODOT Grants	$451,119	$56,269	$81,876	$81,876	$85,000	$80,000	$88,100
Transfer from Vehicle Replacement Fund						$140,100	$95,700
Transfer In Street SDC Fund						$135,000	$219,000
Street Maintenance Fee	$84,000	$84,000	$84,000	$84,000	$87,000	$90,300	$87,900
Sidewalk Maintenance Reimbursement		$60,000	$40,000	$40,000			
Miscellaneous	$500	$10,450	$11,150	$11,150	$1,900	$6,000	$17,500
Total	**$945,619**	**$635,719**	**$652,026**	**$647,026**	**$623,900**	**$1,090,400**	**$1,280,000**

As shown in Exhibit 1 and Table 13, transportation funding has increased in the last two fiscal years in due to the local gas tax as well as SDCs. The following describes the most significant funding sources and their projections for the future.

STATE GAS TAX

State gas taxes are comprised of proceeds from excise taxes imposed by the state and federal government to generate revenue for transportation funding. The proceeds from these taxes are distributed to Oregon counties and cities in accordance with Oregon Revised Statute (ORS) 366.764, by county registered vehicle number, and ORS 366.805, by city population. The Oregon Constitution states that revenue from the state gas tax is to be used for the construction, reconstruction, improvement, maintenance, operation and use of public highways, roads, streets, and roadside rest areas.

Based on data provided by the City, total revenue from the state gas tax has increased over the last two years due to adjustments in the population estimate used by the state to determine the amount of funding to distribute to the City. The population is expected to increase by approximately 1.0 percent per year over the next several years (see Appendix E for the population and employment assumptions), therefore revenue from the state gas tax is estimated to increase by 1% each year.

LOCAL GAS TAX

In 2017, Stayton voters passed a $0.03 per gallon gas tax for the construction, reconstruction, improvement, repair, and maintenance of streets within the city. The tax was estimated to raise approximately $162,000 per year but is projected to generate $215,000 in Fiscal Year 2018-19. This funding source is estimated to increase by 1% each year based on local growth and growth of traffic on Highway 22.

SURFACE TRANSPORTATION PROGRAM (STP) ALLOCATION

The surface transportation program (STP) provides flexible funding that may be used by States and local municipalities for projects to preserve and improve the transportation system by reconstructing any Federal-aid highway, bridge, and/or tunnel projects on public roads, pedestrian and bicycle infrastructure, and transit capital projects, including bus terminals.

ODOT distributes STP funds to municipalities based on population. The funds may be distributed on an annual basis or may be saved up and distributed all at once for larger projects. Based on data provided by the City, STP funds have averaged approximately $85,000 per year over the past several years. Stayton also received a larger grant in FY 2012-13 for the Tenth Avenue project. The projections provided below assume annual STP funds of $85,000 per year plus $500,000 every five years for special grant funded projects.

SYSTEM DEVELOPMENT CHARGES

System Development Charges (SDCs) are fees assessed on developments for impacts to public infrastructure. All revenue is dedicated to transportation capital improvement projects designed to accommodate growth. The City can offer SDC credits to developers that provide public improvements beyond the required street frontage, including those that can be constructed by the private sector at a lower cost. For example, SDC credits might be given for providing off-site improvements, such as sidewalks and bike lanes that connect the site to nearby schools or other amenities.

Based on data provided by the City, revenue from SDCs have begun again after a period of little development. Based on the growth assumptions of an additional 646 households (597 single-family and 49 multi-family homes) and 1,074 jobs (resulting in approximately an additional 100,000 s.f. of commercial space and 200,000 s.f. of industrial space), it is assumed the City may average approximately $84,000 per year in SDCs from residential development and $54,000 per year from commercial and industrial development for a total future SDC assumption of $138,000 per year.

STREET MAINTENANCE FEE

The City of Stayton Transportation Maintenance Fee began in February 2011 and included on monthly utility bills. The fee is listed as a "Street Fee" and the funds from this fee must be used for street repair and maintenance. As the number of households in Stayton is anticipated to increase 1% per year over the TSP planning horizon, it is assumed that the Street Maintenance Fee will increase by 1% per year as well.

PROJECTED REVENUES

Overall transportation funding has increased over the last five years and is assumed to continue to increase over the TSP planning horizon. Table 14 provides an estimate of potential transportation funding over the TSP horizon based on the existing revenue sources and the growth assumptions described above. As shown, approximately $28 million dollars are anticipated to be available for transportation over the next 21 years. However, only a portion is assumed to be available for street improvements and capital projects (as opposed to pavement preservation alone). The following section describes what portions of that may be available for enhancements to the transportation system.

Table 14. Projected Transportation Funding

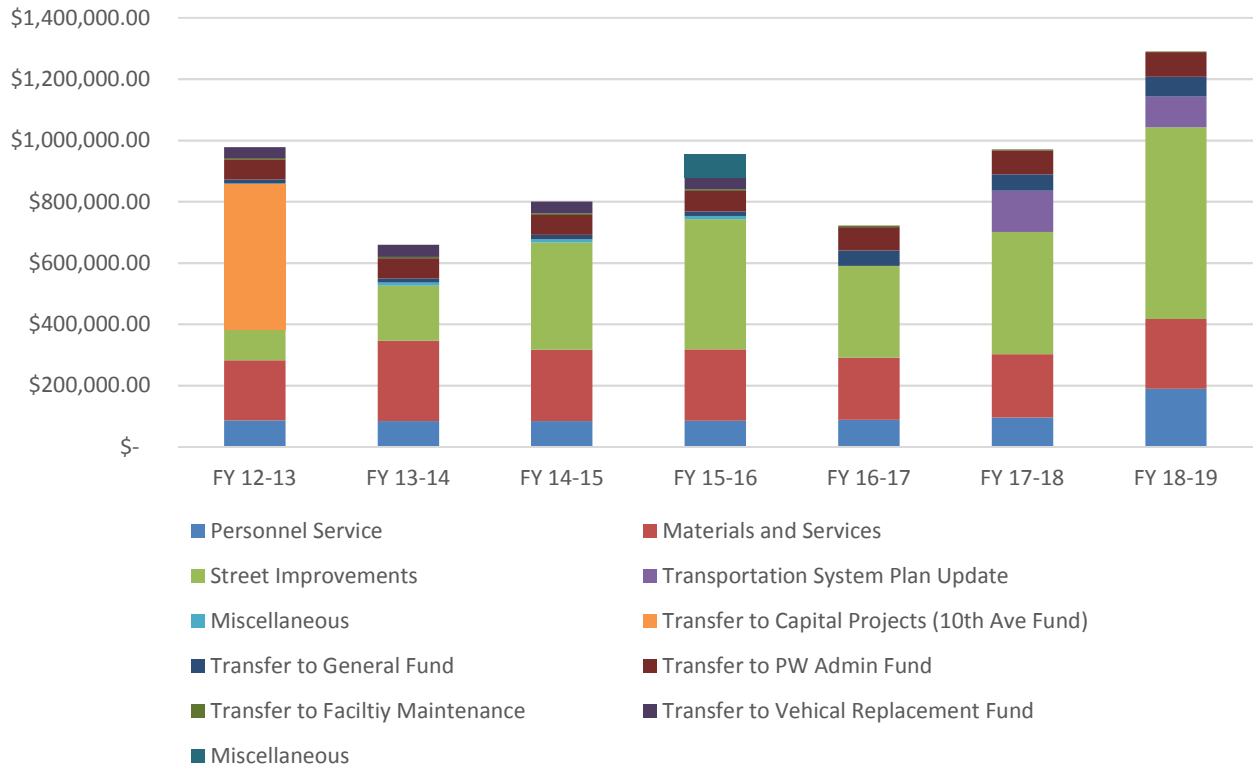
	FY 19-20	5-Year	10-Year	2040
State Gas Tax	$ 562,368	$ 2,867,520	$ 5,904,307	$ 13,080,123
Local Gas Tax	$ 217,150	$ 1,107,250	$ 2,279,860	$ 5,050,694
STP Allocation/ ODOT Grants	$ 85,000	$ 925,000	$ 1,850,000	$ 3,785,000
Transfer from Vehicle Replacement Fund	$ 33,686	$ 168,429	$ 336,857	$ 707,400

	FY 19-20	5-Year	10-Year	2040
Transfer In Street SDC Fund	$ 138,000	$ 690,000	$ 1,380,000	$ 2,898,000
Street Maintenance Fee	$ 88,779	$ 452,685	$ 932,092	$ 2,064,912
Sidewalk Maintenance Reimbursement	$ 20,000	$ 100,000	$ 200,000	$ 420,000
Miscellaneous	$ 8,379	$ 41,893	$ 83,786	$ 175,950
Total	**$ 1,153,362**	**$ 6,352,777**	**$ 12,966,902**	**$ 28,182,079**

TRANSPORTATION EXPENDITURES

The City's transportation expenditures are summarized by five main categories including personnel services, materials and services, capital improvements, fund transfers, and contingencies. Exhibit 2 illustrates the City's transportation expenditures over the past six fiscal years and projected for FY 2018-19.

Exhibit 2: City of Stayton Transportation Expenditures



As shown in Exhibit 2, transportation spending has increased steadily over the last five years with the exception of FY 2016-17. Table 15 shows the portions of the transportation expenditures that have been spent on street improvements and capital projects. Overtime these have averaged approximately 44% of the transportation budget over seven years including the projected FY 2018-19.

Table 15. City of Stayton Transportation Expenditures

	FY 12-13	FY 13-14	FY 14-15	FY 15-16	FY 16-17	FY 17-18	FY 18-19
Personnel Service	$ 86,275	$ 84,096	$ 84,470	$ 85,460	$ 88,600	$ 95,600	$ 189,600
Materials and Services	$ 196,030	$ 262,030	$ 232,780	$ 232,780	$ 201,900	$ 206,300	$ 228,000
Street Improvements	$ 100,000	$ 180,000	$ 350,000	$ 425,000	$ 300,000	$ 399,000	$ 625,000
Transportation System Plan Update						$ 135,000	$ 100,000
Miscellaneous		$ 10,000	$ 10,000	$ 10,000			
Transfer to Capital Projects (Tenth Ave Fund)	$ 476,500						
Transfer to General Fund	$ 13,900	$ 14,180	$ 14,180	$ 14,605	$ 50,000	$ 53,500	$ 65,000
Transfer to PW Admin Fund	$ 65,000	$ 65,000	$ 65,000	$ 66,950	$ 76,400	$ 78,200	$ 80,000
Transfer to Facility Maintenance	$ 4,922	$ 4,922	$ 4,922	$ 4,922	$ 4,700	$ 2,500	$ 2,500
Transfer to Vehicle Replacement Fund	$ 34,835	$ 38,835	$ 38,835	$ 38,835			
Miscellaneous				$ 75,000			
Total Transportation Expenditures	$ 977,462	$ 659,063	$ 800,187	$ 878,552	$ 721,600	$ 970,100	$ 1,290,100
Total Spent on Street Improvements and Capital Projects	**$ 576,500**	**$ 180,000**	**$ 350,000**	**$ 425,000**	**$ 300,000**	**$ 399,000**	**$ 625,000**
% Spent on Street Improvements and Capital Projects	59%	27%	44%	48%	42%	41%	48%

PROJECTED FUNDING FOR STREET IMPROVEMENTS AND CAPITAL PROJECTS

As described above, approximately $28 million dollars are anticipated to be available for transportation over the next 21 years. However, only a portion is assumed to be available for street improvements and capital projects (as opposed to street maintenance such as pavement preservation). STP Allocation, ODOT grants, and SDC funds are assumed to be used for street improvements and capital projects in the future along with a portion of state and local gas tax based on past transportation spending which averaged approximately 42% of gas taxes supporting street improvements (as opposed to street maintenance).

Table 16 illustrates the projected revenues for street improvements and capital projects over the next 1, 5, 10 and 21-year periods. Three scenarios are provided that vary in the assumed portion of gas taxes that could go towards these projects from the historical rate of 42%, 20% and 0%. As shown, depending upon street maintenance needs, between $6.68 and $14.4 million could be available for street improvements and capital projects over the next 21 years.

Table 16. Potential Funding for Street Improvements and Capital Projects

	FY 19-20	5-Year	10-Year	2040
State Gas Tax	$ 562,368	$ 2,867,520	$ 5,904,307	$ 13,080,123
Local Gas Tax	$ 217,150	$ 1,107,250	$ 2,279,860	$ 5,050,694
STP Allocation/ ODOT Grants	$ 85,000	$ 925,000	$ 1,850,000	$ 3,785,000
Transfer In Street SDC Fund	$ 138,000	$ 690,000	$ 1,380,000	$ 2,898,000
Estimated Revenues for Street Improvements and Capital Projects (42% of gas tax)	**$ 550,398**	**$ 3,284,403**	**$ 6,667,350**	**$ 14,297,943**
Estimated Revenues for Street Improvements and Capital Projects (20% of gas tax)	**$ 378,904**	**$ 2,409,954**	**$ 4,866,833**	**$ 10,309,163**
Estimated Revenues for Street Improvements and Capital Projects (0% of gas tax)	**$ 223,000**	**$ 1,615,000**	**$ 3,230,000**	**$ 6,683,000**

REFERENCES

1. Analysis Methodology and Assumptions Memorandum. *May 2018.* Kittelson & Associates, Inc.
2. Analysis Procedures Manual Version 1. *July 2018.* Oregon Department of Transportation.
3. Five-Year Comparison of State Highway Crash Rates. *2015.* Oregon Department of Transportation.
4. Whitney Street/Cascade Highway Operational Analysis. *August 2001.* Kittelson & Associates, Inc.

APPENDICES

A. Turning Movement Counts
B. Existing PM Operations
C. Existing PM Queueing
D. Crash History
E. Population and Employment Forecast
F. Trip Generation and Origin-Destination Tables
G. 2040 PM Operations
H. 2040 PM Queueing