CHAPTER 1:
INTRODUCTION TO THE SWEET HOME TRANSPORTATION SYSTEM PLAN

The City of Sweet Home has committed to developing a well planned comprehensive transportation system that supports and enhances future uses and balances the needs of future land development with a system that serves all users. In the development of a comprehensive Transportation System Plan (TSP), the City must also address Oregon's Transportation Planning Rule (TPR), Oregon Administrative Rule 660-12-000, which requires public jurisdictions such as Sweet Home to develop:

- a road plan for a network of arterial and collector streets;
- bicycle and pedestrian plans;
- air, rail, water, and pipeline plans;
- a transportation finance plan; and
- policies and land use regulations for implementing the TSP.

In addition, the TPR requires local jurisdictions to adopt land use and subdivision ordinance amendments to protect transportation facilities, and to establish requirements for bicycle facilities between residential, commercial, and employment/institutional areas. This Administrative Rule requires local communities to coordinate their plans with county and state transportation plans. Beyond the external requirements of the TPR and related statewide and federal policies, local conditions also point to the need for a system-wide study of transportation facilities and services.

Sweet Home's Needs

The City of Sweet Home stands to grow significantly over the next 20 years as certain types of jobs become more decentralized and as the community can continue to attract new industry and residents. A recent development proposal, the Santiam River Club, when developed, will significantly increase population and alter historic traffic patterns as the mill site in north Sweet Home redevelops to residential homes, service commercial, resort and light industrial. Sweet Home's quality of life and proximity to metropolitan areas and outdoor recreational activities, make it an ideal place for telecommuters or retirees to locate.

The TSP will provide a plan for the City that will identify strategies for resolving deficiencies in the transportation system to meet future needs. This plan will identify:

- Deficiencies in the road system conditions
- Safety issues
- Identify road connectivity needs
- Identify policies in the various titles of the City Code which are inconsistent with one another.

Project Guidance

The TSP development has been guided by a technical advisory committee. Key participants include: the Community Development Director, Public Works Director, Staff Engineer, City Manager and representatives from Oregon Department of Transportation (ODOT).

Community input has been provided by two Community Open Houses, Sweet Home Planning Commission Work Sessions and the Sweet Home City Council.

TSP DOCUMENT STRUCTURE

The TSP is intended to summarize the results of the public involvement process, the analysis of existing policies and conditions, the impact of future growth on the transportation system, and the identification of alternatives to address local transportation system needs in the City of Sweet Home. The introductory chapter provides the basis for the planning process and discusses the public involvement program.

Chapter 2 , Existing Conditions, provides a review of relevant city, county, state, and federal plans, policies and regulations. This chapter also lists the requirements of the Transportation Planning Rule and how the city, through the TSP, will address those requirements. The existing conditions inventory was conducted to develop an understanding of the physical, operational, safety, and travel characteristics and environmental constraints of the existing transportation system in the City of Sweet Home. The chapter also provides a summary of existing transportation deficiencies.

Chapter 3, Future Transportation System, presents needs for 2025 based on estimates of population and employment forecasts and other factors which influence transportation needs.

Chapter 4, Road Plan for Sweet Home, discusses existing and future arterials and collectors, access management and design standards.

Chapter 5, Public Transportation Plan, discusses public transportation routes and needs for Sweet Home.

Chapter 6, Bicycle and Pedestrian Plan, defines the role of bicycling and walking within the community and how the plan will guide local planning efforts.

Chapter 7, Air, Rail, Water and Pipeline Plan, provides these other transportation elements available in Sweet Home, existing conditions and needed improvements.

Chapter 8, Transportation Finance Plan, presents needed transportation improvements, cost and timing estimates and financing plan for these projects.

Technical Appendices, include background information and technical traffic analysis, street condition surveys, development code recommendations and findings.

CHAPTER 2
EXISTING TRANSPORTATION SYSTEM CONDITIONS

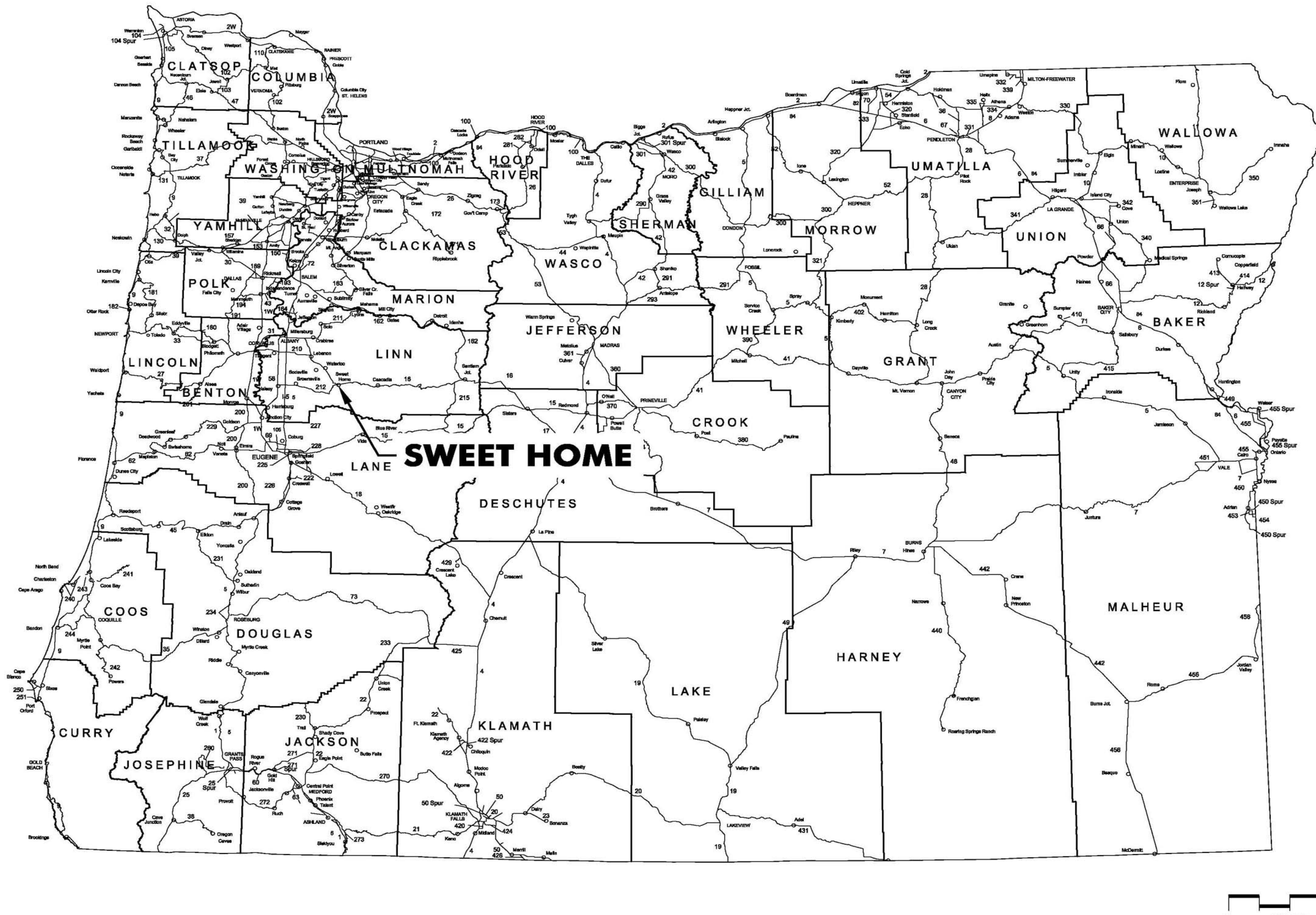
INTRODUCTION

This chapter presents an analysis of existing transportation system conditions in accordance with the applicable sections of Oregon Administrative Rule (OAR) 660-002-0020. Specifically, this chapter presents current data related to demographics, land use and transportation facility inventories. Background data, including traffic volumes, intersection operations, signal warrant analysis, queuing and crash data analysis are located in the technical appendices, Appendix C.

CITY LOCATION AND CONTEXT

The City of Sweet Home is located in east Linn County approximately 19 miles east of Interstate-5 (I-5). Sweet Home is approximately 80 miles south of Portland, 40 miles north of Eugene/Springfield and 45 miles west of Santiam Pass. Figure 2.1 characterizes Sweet Home's location within the context of the State of Oregon. The surrounding area is primarily rural, and has been served historically by a mostly agricultural and timber-based economy. Located within the South Santiam Watershed, the City is situated along the South Fork of the Santiam River at an elevation of about 537 feet. Sweet Home's topography in the central part of the City is generally flat. There are ridges surrounding the City, especially on the east side.

US 20 (Santiam Highway) runs east-west through the City along Main Street and forms the major transportation link through the community. ORE 228 (Holley Road) enters Sweet Home from the west and curves north to terminate at US 20 near the west end of the City. The study area boundary for this plan coincides with the Urban Growth Boundary (UGB), which is shown in Figure 2.2 together with the City limits and street system. Figure 2.2 also illustrates existing roadway classifications.



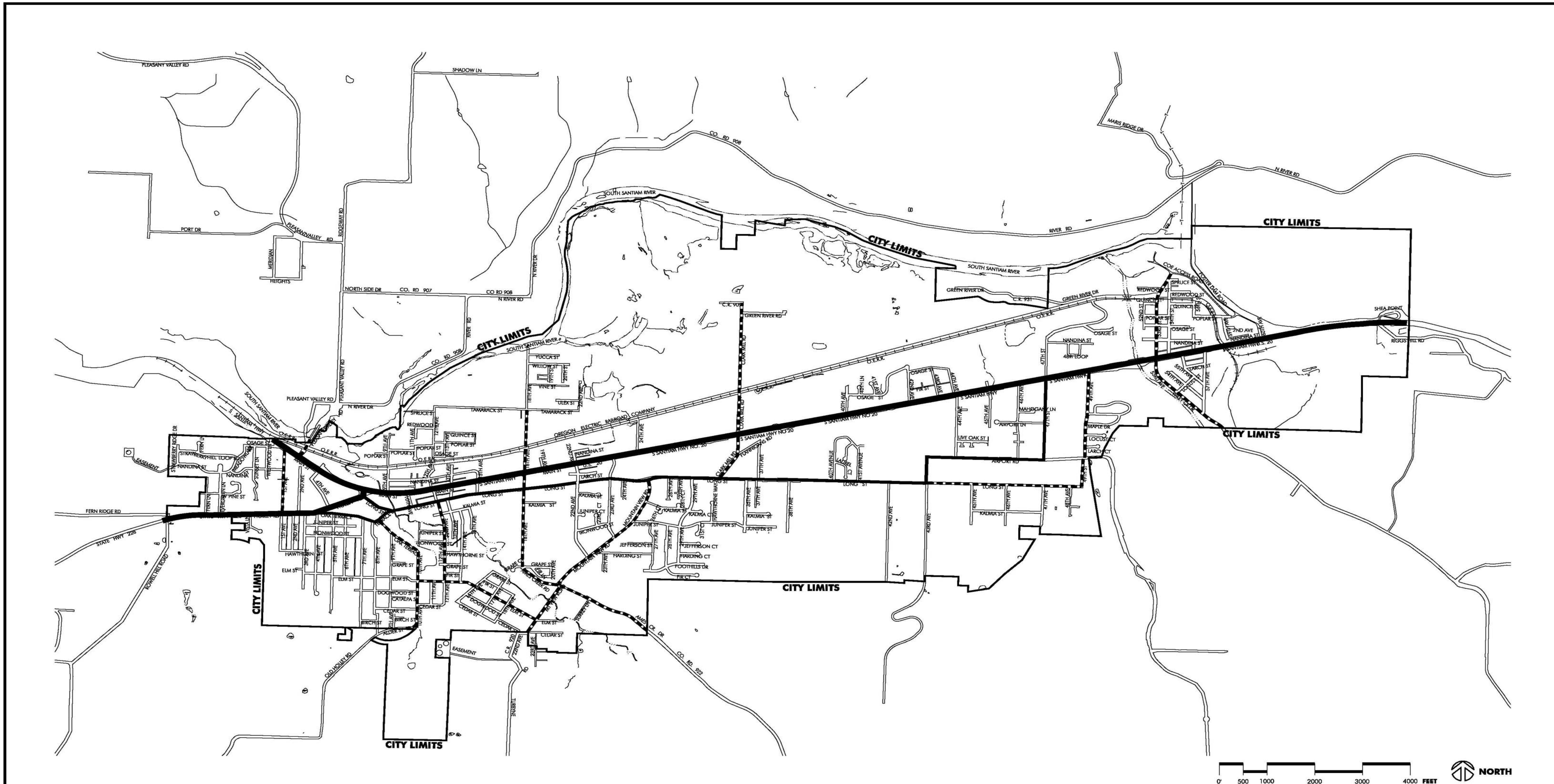
DELIVERABLE: 6.B
JOB#: 0415
DATE: 5/20/05
DRAWN: JSB/CGM
CHECKED: AY
REVISED: -
BASED ON DRAWINGS BY: Oregon Department of Transportation (ODOT)

SATRE ASSOCIATES

CITY OF SWEET HOME
Transportation System Plan Refinement and Update 20-30

Oregon Context Map

FIGURE **2.1**



SATRE ASSOCIATES

DELIVERABLE: 6.B
JOB#: 0415
DATE: 5/20/05
DRAWN: JSB/CGM
CHECKED: AY
REVISED: -

BASED ON DRAWINGS BY:
W & H PACIFIC, BEAVERTON, OR &
KITTLESON ASSOCIATES, PORTLAND, OR
August 7, 1997

LEGEND

- MAJOR ARTERIAL
- MINOR ARTERIAL
- COLLECTOR

CITY OF SWEET HOME
Transportation System Plan Refinement and Update 20-30

Existing Roadway Classification

FIGURE
2.2

DEMOGRAPHIC INFORMATION

In the year 2000, the U.S. Census Bureau estimated the total population of Sweet Home as 8,016 persons. For the period between 1980 and 2000, Sweet Home's average annual growth rate (AAGR) was 0.8 percent. However, Sweet Home has an adopted, County acknowledged population growth rate of 1.0 percent per year. According to the Portland State University Population Research Center, the estimated 2004 population was 8,380.

A proposed development known as Santiam River Club (SRC) is contemplated in north Sweet Home, which is estimated to increase the population by approximately 1,575 residential units or 4,079 persons, assuming 2.59 persons/household, based on 2000 Census data. If constructed, SRC would likely result in an increase in population above that historically contemplated or acknowledged through the County Coordinated Population Forecast process.

Table 2.1 - City of Sweet Home and Linn County
Population Comparison 1980-2004

Year	Sweet Home	Linn County
1980	6,960	89,495
1990	6,850	91,227
2000	8,016	103,069
2004	8,380*	106,350*
AAGR (average annual growth rate)	0.8%	0.8%

Source: US Census Bureau, * Portland State University Certified Population Estimate

According to 2000 Census data, the overwhelming majority (99.1 percent) of Sweet Home residents reside in households with only 70 persons (0.9 percent) residing in group quarters. Of those persons residing in households, about 70 percent live in family households as defined by the U.S. Census Bureau. These numbers indicate that the majority of Sweet Home's population live in family households, as opposed to living alone. The definition of "family" includes children living at the residence. Table 2.2 below shows that the percentage of persons living in family households is comparable to that of Linn County and is only 5 percent higher than the state overall.

Table 2.2 - Household Data Comparison - Sweet Home, Linn County and Oregon.

	Sweet Home		Linn		Oregon	
	Number	Percent	Number	Percent	Number	Percent
Total population	8016	100	103,069	100	3,421,399	100
in households	7946	99.1	102,075	99	3,343,908	97.7
in group quarters	70	0.9	994	1	77,491	2.3
Total households	3063	100	39,541	100	1,333,723	100
family households	2132	69.6	28,232	71.4	877,671	65.8
non-family households	931	30.4	11,309	28.6	456,052	34.2
Average household size	2.59	-	2.58	-	2.51	-

Source: U.S. Census Bureau

Year 2000 Census data show that 2,996 residents 16 years of age and older (roughly 37 percent of the population) commute to work with an average mean travel time of 25.2 minutes reported.[1] This suggests that many commuters are traveling outside the UGB for work. Likely destinations include Lebanon, Albany, Corvallis, Salem, and Eugene-Springfield. Table 2.3 below summarizes reported commute transportation mode.

Table 2.3 - Year 2000 Commute Mode Split Summary

Census Category	Number	Percent
Car, truck or van - - drove alone	2,312	77%
Car, truck or van - - carpooled	450	15%
Public transportation (including taxi)	27	1%
Walked	95	3%
Other means	32	1%
Worked at home	80	3%
Total	**2,996**	**100%**

Source: U.S. Census Bureau

LAND USE INFORMATION

The City of Sweet Home Comprehensive Land Use Plan, which guides official policy decisions related to development, was most recently updated in 2003. The plan contains goals and policies related to land use, natural features, housing, economic development, transportation and public facilities. This TSP will become an element of the City's Comprehensive Plan.

[1]Includes workers aged 16 years and over.

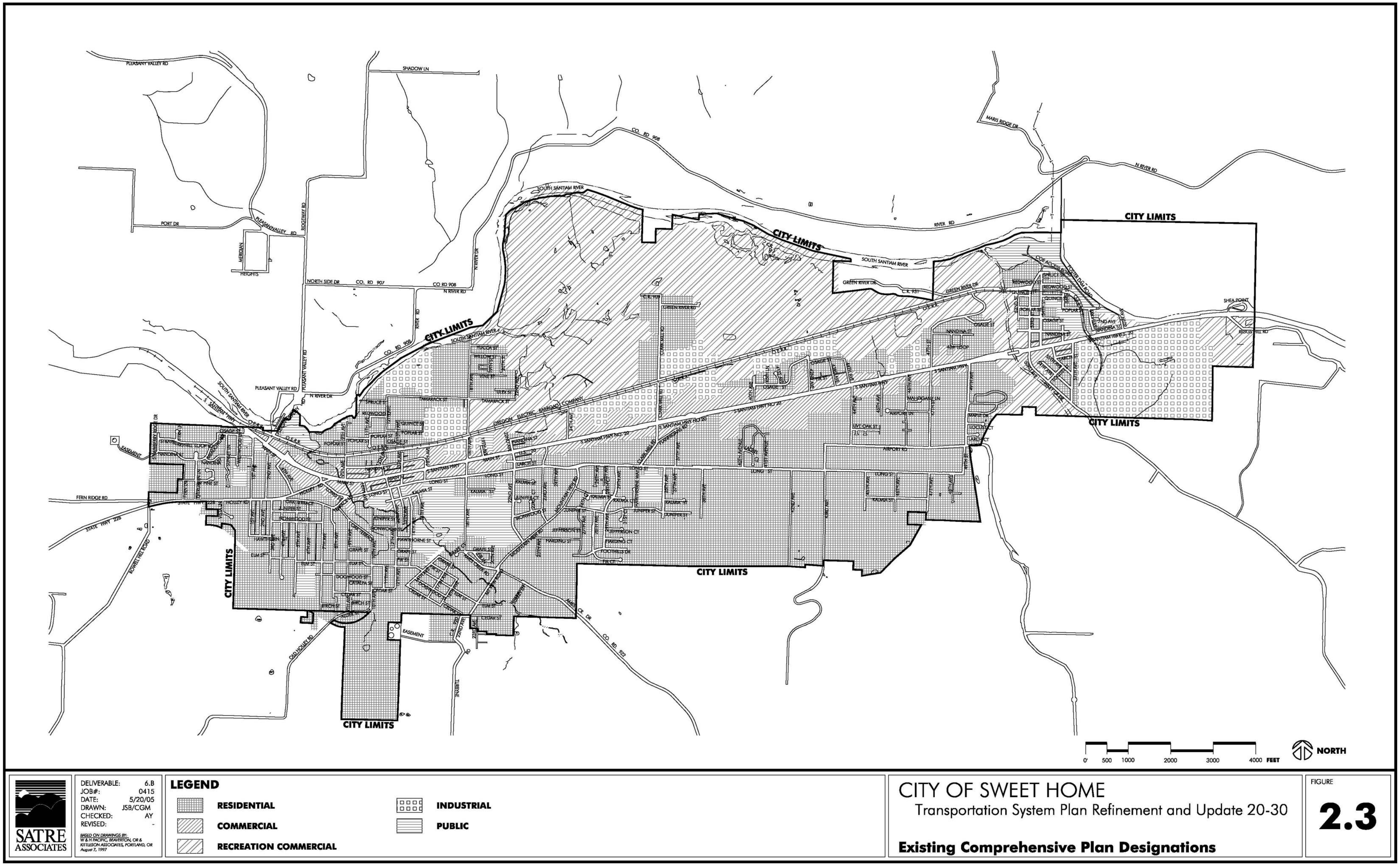
The Sweet Home Comprehensive Plan contains 11 separate land use designations in four general categories: Residential, Commercial, Industrial and Public. In addition, there are two overlay designations: Natural Resource and Planned Development. The City of Sweet Home Zoning Ordinance "implements the Comprehensive Plan by providing specific development guidelines for each Land Use Designation." Figure 2.3 shows the existing Comprehensive Plan Map with land designations identified.

A Buildable Lands Inventory (BLI) completed by ECONorthwest in 2001 and updated in 2003 shows that there is sufficient buildable residential, commercial and industrial land inside the UGB to accommodate growth through the year 2020. A summary of buildable lands is provided in Table 2.4.

Table 2.4 - Buildable Lands Summary (Year 2020)

Plan Designation	Acres		
	Needed	Existing	Balance
Residential	155	974	819
Commercial	16	117	101
Industrial	16	480	464
Public	9	11	2
Total	**196**	**1,582**	**1,386**

Source: ECONorthwest 2003 BLI


CITY LIMITS
0' 500 1000 2000 3000 4000 FEET
NORTH
DELIVERABLE: 6.B
JOB#: 0415
DATE: 5/20/05
DRAWN: JSB/CGM
CHECKED: AY
REVISED: -
SATRE ASSOCIATES
LEGEND
RESIDENTIAL
COMMERCIAL
RECREATION COMMERCIAL
INDUSTRIAL
PUBLIC
CITY OF SWEET HOME
Transportation System Plan Refinement and Update 20-30
Existing Comprehensive Plan Designations
FIGURE
2.3

FACILITY INVENTORY

Roadway Facilities

All public roadways in Sweet Home fall under the responsibility of either the Oregon Department of Transportation (ODOT), the City of Sweet Home or Linn County.

<u>State Facilities</u>
There are two State Highways described in the Oregon Highway Plan (OHP) that cross through Sweet Home. U.S. Highway 20 (US 20) is also known as State Highway 16, Santiam Highway and Main Street. The other State Highway is Oregon Highway 228 (ORE 228), is also known as Oregon Highway 212 and the Halsey-Sweet Home Highway. Both highways fall under ODOT jurisdiction and provide direct connections to I-5 to the west. See Figure 2.4 for a detail of the *Oregon Transportation Map for Sweet Home* showing the state highways which intersect the City. There are two state maintained bridges in Sweet Home. The two state bridge facilities are the US 20 crossings of Ames Creek at 9th Avenue and Wiley Creek near 53rd Avenue

US 20 is classified as a Principal Arterial on the Oregon Transportation Map. The highway intersects Sweet Home's westerly boundary at Mile Post 26.63 and its easterly boundary at Mile Post 31.31. It is a four to five-lane highway of Regional Importance according to the Oregon Highway Plan (OHP). US 20, which connects Sweet Home with Lebanon to the west and Cascadia to the east, provides a continuous east-west link across the State of Oregon from Newport, Oregon on the Pacific Coast to Ontario, Oregon at the Oregon/Idaho border.

The highway serves as a significant commuter route for Sweet Home residents who work at locations west and east of Sweet Home as well as destinations along the I-5 corridor. While not an identified Freight System Route in the OHP, US 20 does accommodate moderate truck volumes between Sweet Home and I-5 to the west (between 500 - 14,999 ADT). This section of US 20 is currently being considered for designation as a Freight Route by ODOT. Truck volumes to the east are relatively low between Sweet Home and OR 22 (under 500 ADT).

ORE 228 from I-5 to its intersection with US 20 and on through Sweet Home to its intersection with Highway 126 is designated a Scenic Byway. Identified as the "Over the River and Through the Woods Scenic Byway," this new classification for ORE 228 and US 20 is expected to bring tourists and travelers to the area throughout the year. US 20, in addition to its function as a state route, provides local access to the businesses located along Sweet Home's Main Street.

Four traffic signals are currently located along US 20 in downtown Sweet Home at the intersections of ORE 228, and 12th, 15th and 18th Avenues. Each of these signals is equipped with Opticom[2] for emergency services with late evening and early morning signals timed. Westbound left turns are

[2] Opticom Signals use a coded, infrared signal which gives any authorized vehicle (usually emergency or transit) the advantage of a green light thereby facilitating quicker and safer travel.

protected through a separate phase at the ORE 228/US 20 intersection. All other signalized intersections operate under two-phase control with permitted left turns.

Development along US 20 is characterized by a mix of older commercial buildings constructed close to the street and strip commercial development east of the downtown. The posted speed limit changes through town, but there are issues with speeding and the safety of pedestrian and bicycle crossings on the highway. The posted speed ranges from 25 mph in downtown Sweet Home (ORE 228 to 18th Avenue) to 45 mph at the east end of the City (east of 57th Avenue).

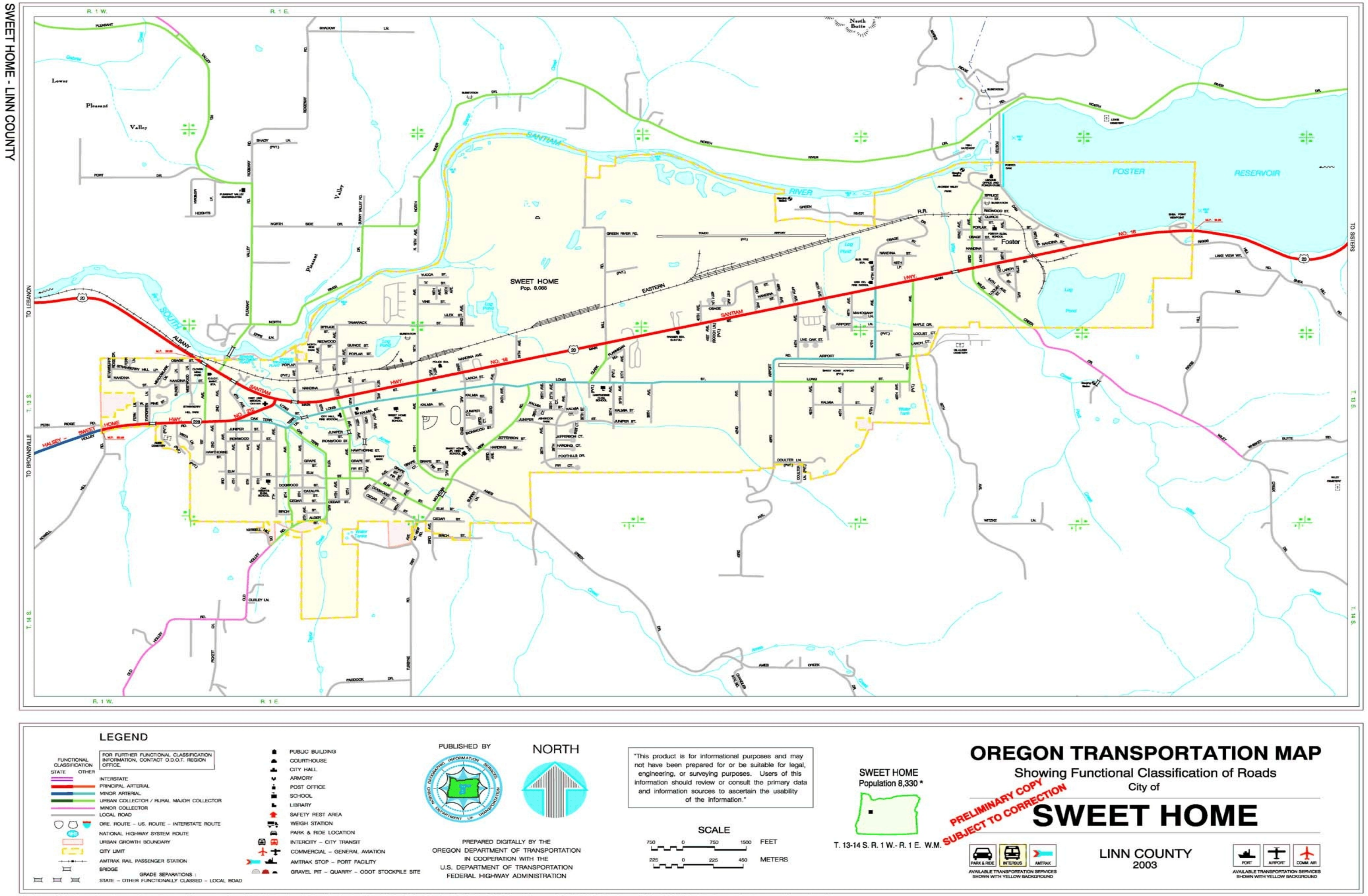
Curbed and planted center-lane medians complete with curb extensions have been installed through the downtown section of the highway from 10th Avenue to 18th Avenue, with breaks at the signalized intersections. The planted medians prohibit left turn movements from some private accesses along the highway in this downtown section.

A designated bike lane is provided along the highway from 18th Avenue east to the Wiley Creek Bridge. Sidewalks are provided along Main Street through downtown Sweet Home from 1st Avenue east to 56th Avenue. On-street parking is permitted on both sides of the roadway throughout the downtown.

ORE 228 is classified as a Principal Arterial on the Oregon Transportation Map. The highway intersects Sweet Home's westerly boundary at Mile Post 20.59 terminating where it intersects US 20 (at Mile Post 21.40). A two-lane facility designated as an Oregon Highway of District Importance, ORE 228 is constructed to rural standards with no designated bike lanes or on-street parking, with the exception of the area west of 1st Street on the north side of the highway, which is improved to urban standards. At present, sidewalks are provided on both sides of the roadway from 1st to 4th Avenues, but are intermittent or not provided along the remaining sections of the roadway.

Oregon ORE 228 is scheduled for improvements under the 2006-2009 Statewide Transportation Improvement Program (STIP) within the Sweet Home City limits to the intersection with US 20, project number 13095. The improvements will bring the highway up to an urban standards with sidewalks, curb and gutter and bike lanes.

County Facilities
Portions of Alder Street, Pleasant Valley Road, portions of Foster Dam Road are Linn County owned and maintained facilities.



Copies available from the Oregon Department of Transportation, Map Distribution Unit, Mill Creek Office Park, 555 13th St. NE, Suite 2, Salem, Oregon 97301-4178, Telephone (503) 986-3154, http://www.odot.state.or.us/tdmappingpublic
* Based on current Oregon Population Report, College of Urban and Public Affairs, Portland State University, http://www.upa.pdx.edu/CPRC.

SWEET HOME - LINN COUNTY

City Facilities
City streets are generally classified according to their function. Such classifications provide for consistency in construction, operation and maintenance standards within classifications and an understanding by the public of the importance of specific facilities and their associated improvements within the system. The Transportation Planning Rule requires cities to classify streets according to their function. The classifications must be consistent with state and regional transportation plans for continuity among adjacent or overlapping jurisdictions and must be based on each street's actual use. The functional hierarchy of streets provides:

- Grouping of streets by the service they provide;
- Facility definitions to handle different desired levels of access and mobility;
- An understanding of how a street is being used;
- Guidelines on how streets are to be designed.

City streets are generally two-lane facilities with traffic control limited to two-way or all-way stop-control intersections. The intersections of ORE 228, 12th Avenue, 15th Avenue, and 18th Avenue with Main Street are signalized, as noted above. Developed transportation infrastructure ranges from gravel drives to fully improved streets designed to an urban standard with curb, gutter, sidewalks and in some cases bike lanes. Several dedicated but unimproved rights-of-way (ROW) also exist.

The downtown area and nearby residential areas are generally well connected with most streets improved with curbs and sidewalks. Moving away from these areas, the roads generally take on a more rural, unimproved character. There are known safety issues for pedestrians and bicyclists due to the lack of sidewalks and bike lanes, particularly along Long Street and Mountain View in the vicinity of the Junior High School. Additionally, a number of local streets in Sweet Home are known to carry more traffic than they are designed to handle.


Downtown sidewalks

Long Street is the main east-west connector south of the highway. The existing condition of Long Street poses several problems for the City; the street is narrow with no shoulders, bike lanes, or sidewalks along most of its length east of downtown. There are several residential subdivisions and school routes along Long Street and because there are no pedestrian or bicycle facilities, there are safety concerns by residents and the City. Long Street functions as a Minor Arterial facility from ORE 228 to 43rd Avenue, and as a Collector facility from 43rd Avenue to 49th Avenue. All-way stop-controlled (AWSC) intersections are located at 12th Avenue, 18th Avenue, 22nd Avenue and 43rd Avenue; all other intersections are two-way stop-controlled (TWSC) at the minor street approaches to Long Street. Sidewalks are provided along Long Street from ORE 228 to 23rd Avenue, but are intermittent east of 22nd Avenue. A bike lane shoulder is provided from Mountain View Road to Clark Mill Road. Chapter 8 provides

additional information regarding needed improvements to Long Street.
Transportation infrastructure on the north side of town (north of the highway) is not well connected. Large parcels have been served by dead end streets off the highway. In addition, both the Santiam River, which defines the northern boundary of the City, and the rail road tracks present significant physical barriers to efficient north-south transportation connectivity. At present, several private, non-permitted rail crossings are known to exist between 18th and 47th Avenues which present significant safety concerns. The SRC development is expected to improve local street connectivity with a private street system and a few main public streets in north Sweet Home. Even so, the prevalence of dead end streets and substandard streets located throughout Sweet Home present challenges for the City to serve new development. Chapter 3 provides a further discussion, analysis and strategy for improving street connectivity throughout the City.

There are four City maintained bridges in Sweet Home. All of the City bridges cross Ames Creek. From west to east the bridges are located at the Long Street/Oak Terrace junction, 12th Avenue, 14th Avenue and Mountain View Road. The 12th Avenue bridge may need to be replaced and there are no known structural issues associated with the remaining City maintained bridges in Sweet Home.

Sweet Home currently uses the American Public Works Association (APWA)/ODOT Joint Oregon Standard Specifications for Construction which generally calls for a minimum four-inch asphaltic/concrete (AC) surface on a twelve-inch compacted base. All minor arterial and collector streets within the City limits are constructed with a minimum of two ten to eleven-foot travel lanes.

Driveways in Sweet Home are located to serve individual residences and are sited away from intersections. While there are known cases of access points which pose potential conflicts with traffic, no detailed inventory has been completed.

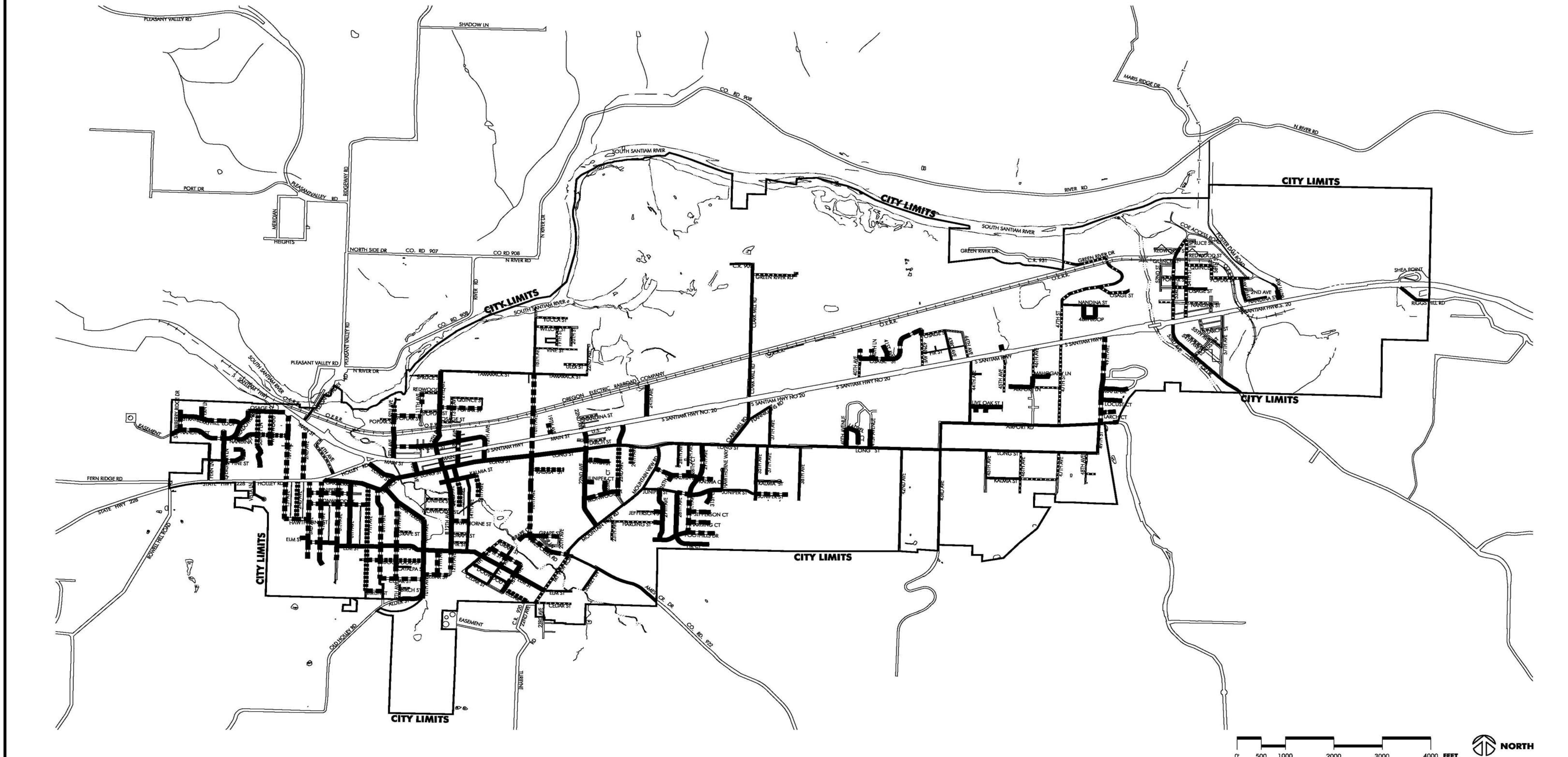
Table 2.5 shows that about 18 miles of City streets (45 percent of all streets) are improved to an urban standard. Of those improved streets, about ten miles (25 percent of all streets; 58 percent of improved streets) are in good to fair condition. In total, there are over 40 miles of streets (30 miles paved) in Sweet Home.

Table 2.5 - 2005 City Street Conditions Summa

Rating	Imroved Streets	Condition	Miles	Percent	Number
	Curbs, Sidewalks, Gutters	Good	9.166	22%	107
	Curbs, Sidewalks, Gutters	Fair	9.49	22%	124
	Curbs, Sidewalks, Gutters	Poor	2.32	5%	24
Subtotal			*20.98*	*49%*	*255*
	Unimproved Streets				
	Pavement, Overlays	Good	10.63	25%	92
	Pavement, Overlays	Poor	2.8	7%	28
	Oil Mat	Good	1.11	3%	9
	Oil Mat	Poor	4.49	11%	59
	Gravel	-	0.88	2%	16
	Grass, Trees	-	1.68	4%	33
Subtotal			*21.59*	*51%*	*237*
Total Street Miles			42.57	100%	492

Source: City of Sweet Home Public Works

Figure 2.5 shows existing road conditions for City maintained facilities in Sweet Home. Figure 2.6 shows speed zones for posted transportation facilities.



DELIVERABLE: 6.B
JOB#: 0415
DATE: 5/20/05
DRAWN: JSB/CGM
CHECKED: AY
REVISED: -

BASED ON DRAWINGS BY:
W & H PACIFIC, BEAVERTON, OR &
KITTLESON ASSOCIATES, PORTLAND, OR
August 7, 1997

SATRE ASSOCIATES

LEGEND

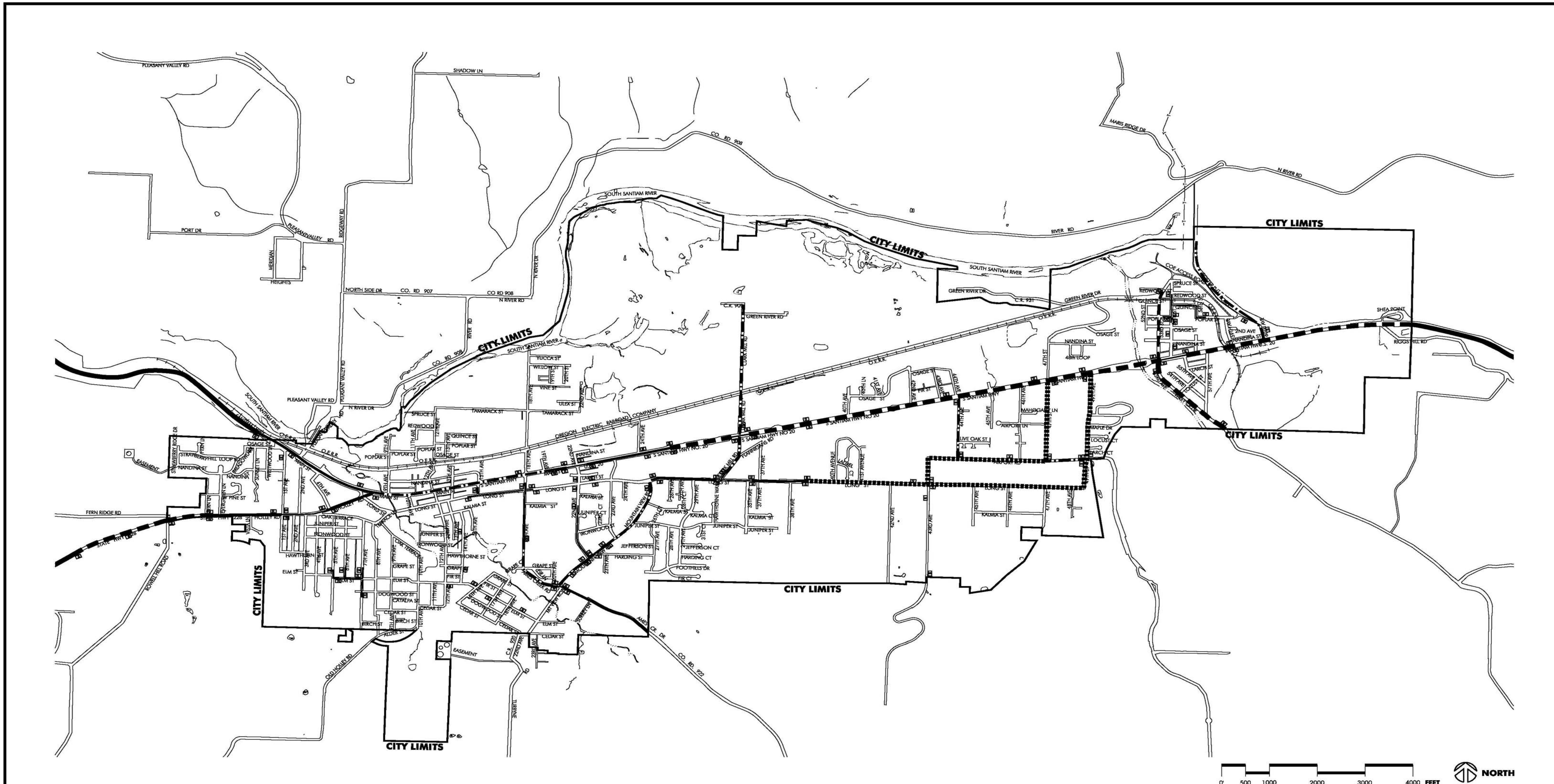
- Curbs / Sidewalks / Gutters: GOOD
- Curbs / Sidewalks / Gutters: FAIR
- Curbs / Sidewalks / Gutters: POOR
- Pavement / Overlays: GOOD
- Pavement / Overlays: POOR
- Oil Mat: GOOD
- Oil Mat: POOR
- Gravel
- Grass / Trees

CITY OF SWEET HOME

Transportation System Plan Refinement and Update 20-30

Existing Road Conditions

FIGURE **2.5**



DELIVERABLE:	6.B
JOB#:	0415
DATE:	5/20/05
DRAWN:	JSB/CGM
CHECKED:	AY
REVISED:	-

SATRE ASSOCIATES

BASED ON DRAWINGS BY: W & H PACIFIC, BEAVERTON, OR & KITTLESON ASSOCIATES, PORTLAND, OR August 7, 1997

LEGEND

20 MPH*
25 MPH**
30 MPH
35 MPH
40 MPH
45 MPH
55 MPH

* SCHOOL ZONE
** DOWNTOWN AREA and PREVIOUS 30, 35 & 40 MPH ZONES ONLY;
ALL OTHER 25MPH NO COLOR

NOTE: 45MPH EXTENDS APPROXIMATELY 0.8 MILE WEST OF CITY LIMITS

CITY OF SWEET HOME

Transportation System Plan Refinement and Update 20-30

Posted Speed Zones

FIGURE **2.6**

Pedestrian Facilities and Activity

Sidewalks are provided throughout the downtown core and some residential areas. Sidewalks with minimum eight-foot widths are located in all of the commercial areas along Main Street and are well connected with most streets improved with curbs and sidewalks. Moving away from the downtown and nearby residential areas, the roads take on a more rural, unimproved character with the eastern part of the City having fewer sidewalks than the western and central areas. There are safety issues for pedestrians and bicyclists along Long Street and Mountain View in the vicinity of the Junior High School due to the lack of sidewalks and bike lanes. Figure 2.5 shows the location of streets with sidewalks.

Pedestrian Crossings in the Downtown Area

The condition of sidewalks constructed prior to 1995 is poor to fair, with cracks and tree-heaving resulting in hazardous conditions for pedestrians. Sidewalks developed after 1995 are generally in better condition. Chapter 6, Pedestrian and Bicycle Plan, provides standards for sidewalk and bicycle facility construction and also provides a plan for improvements needed for the full network. Sweet Home currently requires that all new bicycle and pedestrian facilities comply with the Americans with Disabilities Act (ADA) requirements. Additionally, all ADA ramps installed since 1999 have been designed and constructed consistent with APWA standards. Table 2.6 presents a summary of the location and costs associated with ADA ramp installation over the last 5 years. There are 32 ramp installation or replacement projects identified by Public Works which remain, which is presented in Chapter 8.

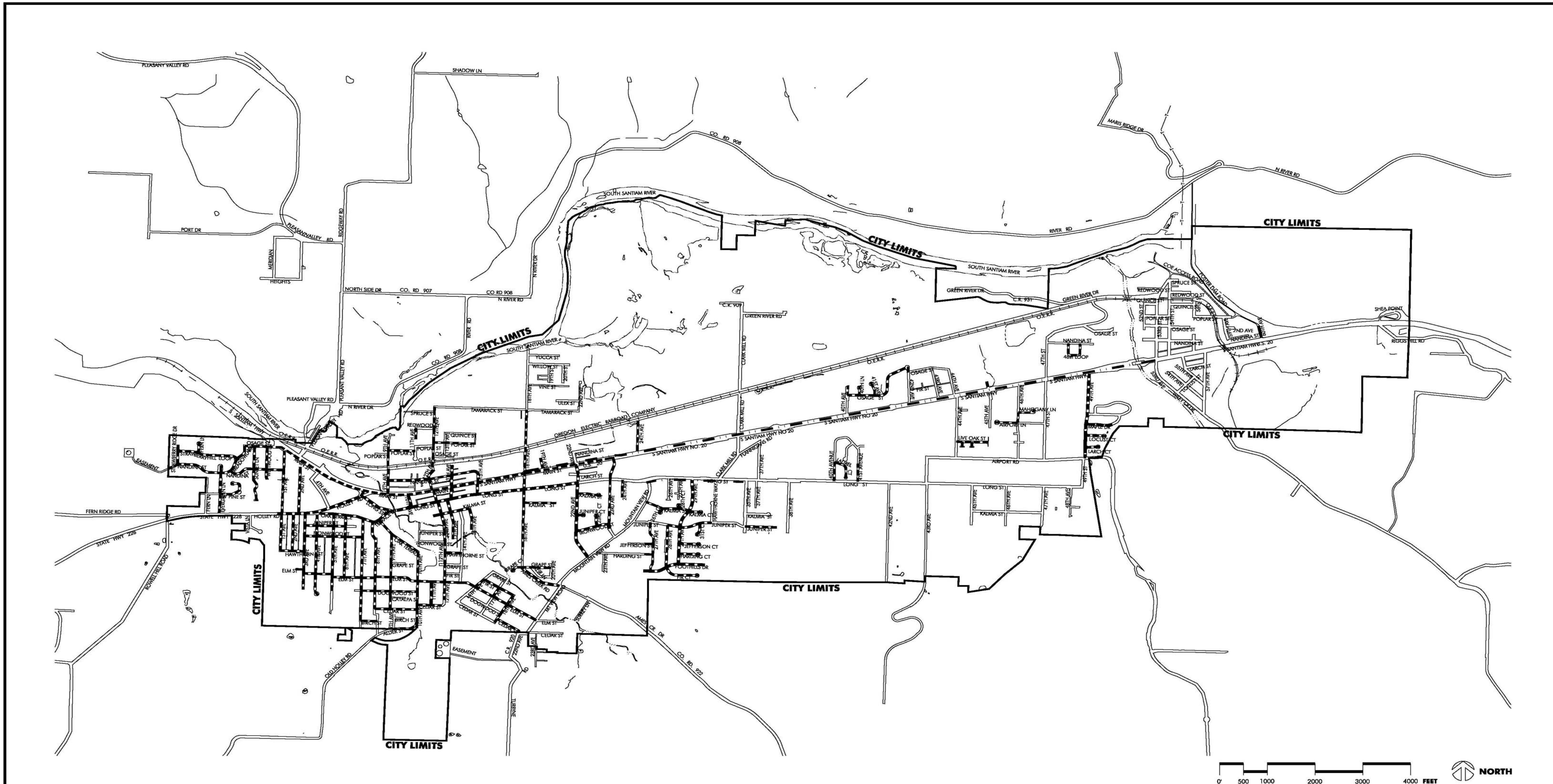
Table 2.6: ADA Ramp Installation and Replacement 1999 - 2004

Project Year	Primary Street	Cross Street	Corner(s)	Comments	# of Ramps	Ramp #	Cost/Ramp	ADA Ramps
1999	Nandina St	Sunset Ln	SE		1	11		-
	Nandina St	Westwood Ln	SW		1	12		-
	Evergreen Ln	Nandina St	NE, SW, NW		3	6,5,9		-
	Evergreen Ln	Meadowlark Ln	SE, NE, NW		3	7,8,10		-
	Evergreen Ln	West Pine St	SE, NE, SW, NW		4	1,2,3,4		-
Year Total					12		$	-
2000	Hawthorne St	1st Ave	NE		1	30	$1,700	$1,700
	Hawthorne St	2nd Ave	NW, NE		2	31, 32	$1,500	$3,000
	Elm St	3rd Ave	SW, NW, SE		3	33, 34, 35	$1,500	$4,500
	Elm St	10th Ave	NW	Sidewalk Repairs & New			$1,200	$1,200
	Elm St	11th Ave	SE	Ramp Repair	1		$1,500	$1,500
	Elm St	16th Ave	SW	Sidewalk Repair, Apron Access			$3,000	$0
Year Total					7		$	11,900.00
2001	Dogwood St	8th Ave	SE, NE, SW, NW		4	48, 49, 50, 51	$1,700	$6,800
	Dogwood St	9th Ave	SE, NE, SW, NW		4	54, 55, 56, 57	$1,700	$6,800
	Catalpa St	9th Ave	SE, NE.		2	58, 59	$1,100	$2,200
	Cedar St	8th Ave	NE.		1	47	$1,100	$1,100
	Cedar St	9th Ave	NW, NE		2	60, 61	$1,500	$3,000
Year Total					13		$	19,900.00
2002	Cedar St	11th Ave	NE, NW		2	62, 63	$1,500	$3,000
	Kalmia	12th Ave	NW	City Hall / Court	1	na	$1,100	$1,100
	Kalmia	14th Ave	SW.		1	94	$1,000	$1,000
	Fir St	14th Ave	SW		1	79	$1,100	$1,100
	Fir St	16th Ave	SE, NE		2	89, 90	$1,100	$2,200
	Fir St	17th Ave	SE, SW, NW		3	86, 87, 88	$1,500	$4,500
	Cedar St	18th Ave	SE, NE		2	83, 84	$1,500	$3,000
Year Total					12		$	15,900.00
2004	Grape St	18th Ave	SE, NE		2	17, 18	$1,500	$3,000
	Grape St	20th Ave	SW		1	65	$1,100	$1,100
	Osage St	42nd Ave	SW		1	67	$1,100	$1,100
	Main St	47th Ave	NW	ODOT permit req'd	1	na	$2,500	$2,500
	Long St	22nd Ave	SE	Repair	1		$1,500	$1,500
	16th Ave	Elm St	Fir St	Sidewalk to Park Entrance	1		$3,000	$3,000
	Oak Terrace	8th Ave	Southside	Sidewalk Link	1		$1,000	$1,000
Year Total					6		$	13,200.00
Total 1999 - 2004					50		$	60,900.00

Source: City of Sweet Home Public Works Engineering

Pedestrian crossings along Main Street are located at each of the signalized intersections: ORE 228, 12th Avenue, 15th Avenue, and 18th Avenue. At each of these locations, crosswalks with pedestrian indicators are provided. In addition, crosswalks are located along US 20 at 9th, 10th, 13th, and 22nd Avenues; mid-block crosswalks are located between 10th and 12th Avenues, 13th and 15th Avenues, and 15th and 18th Avenues. The planted median along Main Street from 10th Avenue to 18th Avenue provides a crossing refuge for pedestrians half-way across the roadway and encourages mid-block pedestrian crossings. A similar planted median is under construction at 60th Avenue.

Pedestrian and bicycle facilities are shown in Figure 2.7.



DELIVERABLE: 6.B
JOB#: 0415
DATE: 5/20/05
DRAWN: JSB/CGM
CHECKED: AY
REVISED: -

BASED ON DRAWINGS BY:
W & H PACIFIC, BEAVERTON, OR &
KITTLESON ASSOCIATES, PORTLAND, OR
August 7, 1997

SATRE ASSOCIATES

LEGEND

BIKEWAY
SIDEWALK

CITY OF SWEET HOME
Transportation System Plan Refinement and Update 20-30

Pedestrian and Bicycle Facilities

FIGURE
2.7

Activity Centers
Sweet Home has a variety of activity centers that are central to the community. These are shown in Figure 2.7. Activity centers are important because these are locations where the community focuses trips for daily activities and may have conflicts with pedestrians, bicycles and automobiles. This analysis is further discussed in Chapter 3 and Chapter 6. These activity centers include:

- City Hall
- Fire Station
- Police Station
- Library
- Post Office
- High school, middle and grade schools
- Community Center, including the Boys & Girls Club, Senior Center
- East Linn Medical Clinic
- Parks
- Outdoor Event Center on Long Street
- Other City Facilities, such as the wastewater treatment plant, water treatment plant and city maintenance yard.
- Other government offices**,** such as the US Forest Service, Linn County Fire Protection District, ODOT maintenance yard and US Army Corps of Engineers Foster Dam Office.

Bicycle Facilities and Activity
As shown in Figure 2.7, primary bicycle activity centers and trip generators are the elementary, junior high, and high schools, and the commercial areas of downtown. Limited bicycle activity was also observed within the residential areas of the City. Few bicycle parking racks were noted, none of which are protected from the weather. Chapter 6 contains the City's bicycle and pedestrian plan.

Public Transportation
While there is no public City transit service in Sweet Home, there are two shuttle services available to local residents: The Linn Shuttle and the Sweet Home Dial-A-Bus.

The Linn Shuttle is operated in conjunction with the Sweet Home Senior and Community Center. The mission of the Linn Shuttle is to "provide a safe transportation service that supports the economic, social, transportation and environmental needs of the community it serves." The shuttle is funded in part by monies from the State Cigarette Tax[3] and the Small Cities and Rural Transportation Funds. Transportation on the shuttle is available to anyone for a fee; one-way, single ride and multi-ride tickets are available. Through an agreement with the Linn-Benton Community College, students and staff are able to ride for free with a current ID card. The Linn Shuttle currently operates four scheduled routes per day between Sweet Home and Albany. The shuttle supports multi-modal transportation through provision of a bike rack for riders on a first come first served basis. Additionally, there are two "Park-and-Ride" locations served by the Linn County Shuttle Service: One at Kalmia Street between 12th and 13th Avenues and another at the Community Center/Boys and Girls Club located on 18th Avenue.

[3] A portion of the State Cigarette Tax Funds are set aside for Elderly and Handicapped Transportation Systems.

The Sweet Home Dial-A-Bus serves Sweet Home and the area between Crawfordsville and Cascadia and as far west as US 20 at Santiam Terrace (approximately five miles northwest of Sweet Home). The bus is available for door-to-door service with 24-hour notice. The bus operates between 7:00 am and 4:00 pm Monday through Friday and is lift equipped to accommodate persons with disabilities. As with the Linn Shuttle, transportation is available to the public for a fee. One-way, single ride and multi-ride tickets are available for purchase.

Rail and Aviation

One rail line serves Sweet Home from the west terminating at the Foster Mill site on the east side of the City. The line is operated by Albany and Eastern Railroad Company (railroad ROW is identified as the Oregon Electric Railroad Company on the transportation maps) and connects Sweet Home to Albany. Within the City limits the line is located roughly one block north of US 20 running roughly parallel thereto.

Rail service is limited to freight with a daily average of two trains primarily serving the plywood mill. When inside the City limits trains travel at a maximum authorized speed of 25 miles per hour (mph) due in part to poor track quality and lack of warning equipment at a number of track crossings. There are several private, non-permitted rail crossings located between 9th Avenue and 53rd Avenue.

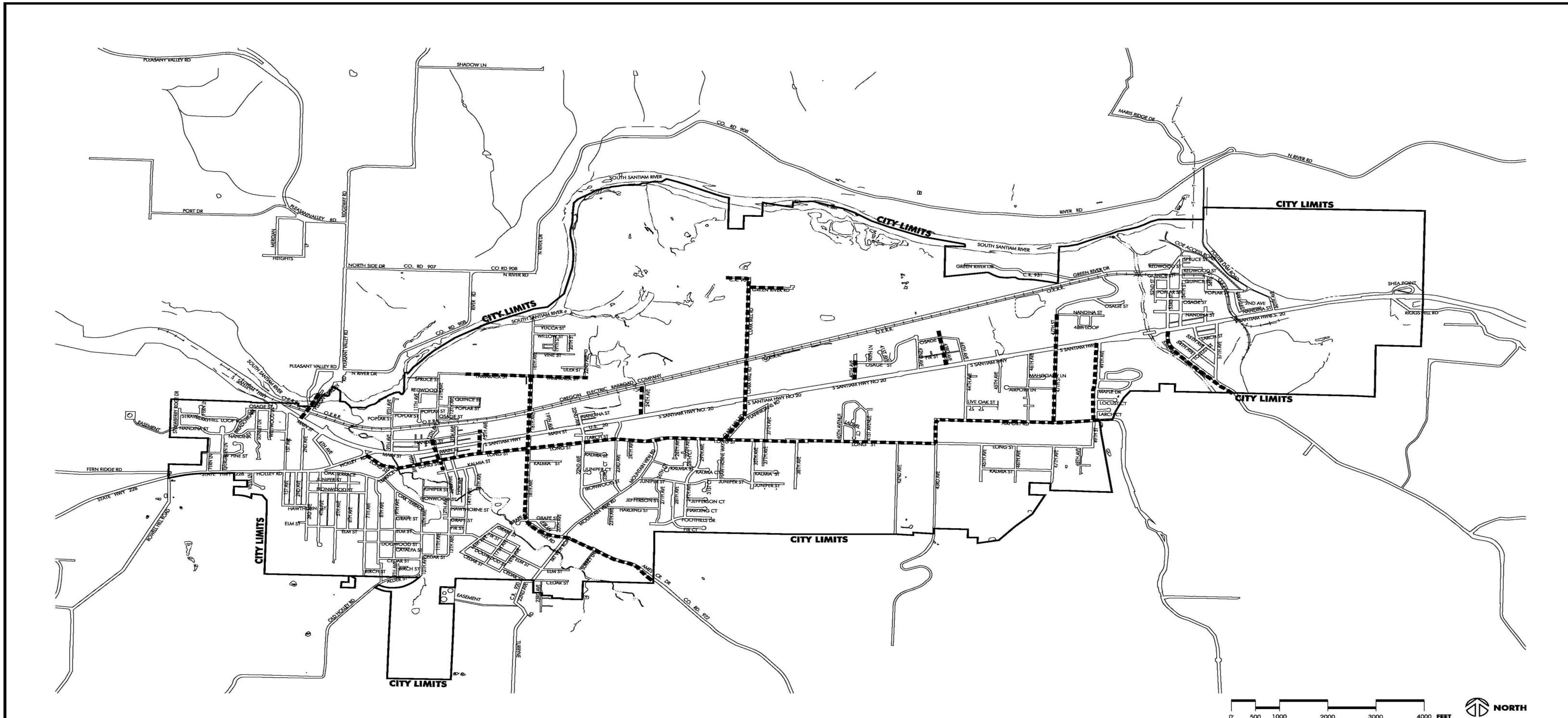
In August of 2003, approval was granted by the ODOT Rail Division to widen the permitted #12 at-grade crossing located at 18th Avenue to accommodate an ADA accessible sidewalk. The proposed improvements included replacement of the existing non-standard sidewalk and relocation of the guardrails and crossing signals. To date the improvements have not been completed per the agreement between the City of Sweet Home and the Albany and Eastern Railroad company.

With the recent closure and vacation of the Stock/Tomco Airfield in 2002, Sweet Home currently has only one airport, Langmack Field, also known as Sweet Home Painting Airport, which is a privately owned facility. Langmack Field is located south of Airport Road, between 43rd and 49th Avenues (Latitude 44.39944, Longitude -122.68417). The 2,~~2~~**1**00 foot long runway is oriented east-west at an elevation of 6**45**~~0~~ feet **and has a 20 foot runway width**. The runway is constrained to east and west by existing residential development and to the east by topography, thereby making expansion or upgrades to public use standards unlikely. While the Sweet Home zoning code does contain an Airport Overlay Zone (SH**M**C Chapter 17.76), it was developed specifically to cover the now vacated Stock/Tomco Airport. At present there are no airport overlay zone regulations or local land use restrictions governing development on or near Langmack Field. It is the City's intent to develop an Airport Overlay Zone for Langmack Field as part of this TSP update process.

Truck Routes

There are no OHP designated Freight System Routes in Sweet Home. US 20 accommodates moderate truck volumes between Sweet Home and I-5 to the west (between 500 - 14,999 ADT). Because of this traffic, a Freight Route designation for this section of US 20 is currently being considered by ODOT. Main Street serves as a primary route and Long Street serves as a secondary truck route. Truck volumes to the east are relatively low, under 500 ADT, between Sweet Home and State Highway 22 (Santiam Junction). Long Street is the secondary east-west truck route through the City with north south connections located at 12th Avenue, 18th Avenue, Clark Mill Road, 47th Avenue and 49th Avenue. Additional streets identified as truck routes include Airport Street, Green River Drive, Pleasant Valley Road, Tamarack Street, 43rd Avenue, and 53rd Avenue (Wiley Creek Drive).

At the present time there is no available data demonstrating that additional public infrastructure is needed to serve truck transportation needs in Sweet Home. Figures 2.8 show the existing truck routes.



SATRE ASSOCIATES

DELIVERABLE: 6.B
JOB#: 0415
DATE: 5/20/05
DRAWN: JSB/CGM
CHECKED: AY
REVISED: -

BASED ON DRAWINGS BY: W & H PACIFIC, BEAVERTON, OR & KITTLESON ASSOCIATES, PORTLAND, OR August 7, 1997

LEGEND

- - - - - - - - ADOPTED TRUCK ROUTE

CITY OF SWEET HOME

Transportation System Plan Refinement and Update 20-30

Existing Truck Routes

FIGURE **2.8**

Pipelines and Other Networks

There are no major public pipelines in Sweet Home. An existing 6-inch high pressure natural gas transmission line is located in the US 20 right-of-way and runs from the west City limit boundary to 18th Avenue, thence south on 18th Avenue to Long Street thence east to its easterly terminus at 47th Avenue. Standard City water, storm sewer, sanitary sewer and natural gas lines are also located throughout the City.

There are no developed water transportation networks in Sweet Home.

Traffic Operations

It is important to examine existing traffic operations within the City of Sweet Home to help determine transportation infrastructure needs for the City. The following section provides information about operations

Methodology

Intersection operational characteristics are generally defined by two mobility standards: volume-to-capacity (v/c) ratio and level-of-service (LOS). Mobility standards relate to how easily vehicles flow on a given roadway. Volume-to-capacity ratio is a measurement of roadway congestion, calculated by dividing the number of vehicles passing through a section of highway during the peak hour by the capacity of the section. A v/c ratio approaching 1.0 indicates that the area is more congested. ODOT uses v/c ratio while the City uses LOS to measure roadway congestion.

Since both entities have roadways within the study area, both mobility standards are included in the analysis.

ODOT uses the v/c ratio mobility standard on State roadways. US 20, classified as a Regional Highway within a non-MPO UGB, varies in speed from 25 MPH to 45 MPH within the City limits. For posted speeds less than 45 MPH, a maximum allowable v/c ratio is 0.80, and for posted speeds equal to or greater than 45 MPH, a maximum allowable v/c is 0.75. For purposes of this analysis, the US 20/47th Avenue, US 20/Clark Mill Road and US 20/53rd Avenue intersections maximum allowable v/c is 0.75.

ORE 228, classified as a District/Local Interest Road within a non-MPO UGB, posted speed along ORE 228 is 35 mph within the Sweet Home City limits resulting in a maximum allowable v/c of 0.85.

The City of Sweet Home uses LOS mobility standard on City roadways. Table 2.9 presents level of service criteria for arterial roadways.

Table 2.7: Level of Service Criteria for City Arterial Roadways

LOS	Typical Traffic Flow Conditions
A	Primarily free-flow operations at average travel speeds, usually about 90 percent of the FFS for the given street class. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Control delay at signalized intersections is minimal.
B	Reasonably unimpeded operations at average travel speeds, usually about 70 percent of the FFS for the street class. The ability to maneuver within the traffic stream is slightly restricted, and control delays at signalized intersections are not significant.
C	Stable operations; however, ability to maneuver and change lanes in midblock locations may be more restricted than at LOS B, and longer queues, adverse signal coordination, or both may contribute to lower average travel speeds of about 50 percent of the FFS for the street class.
D	Borders on a range in which small increases in flow may cause substantial increases in delay and decreases in travel speed. LOS D may be due to adverse signal progression, inappropriate signal timing, high volumes, or a combination of these factors. Average travel speeds are about 40 percent of the FFS.
E	Characterized by significant delays and average travel speeds of 33 percent or less of the FFS. Such operations are caused by a combination of adverse progression, high signal density, high volumes, extensive delays at critical intersections, and inappropriate signal timing.
F	Characterized by street flow at extremely low speeds, typically one-third to one-fourth of the FFS. Intersection congestion is likely at critical signalized locations, with high delays, high volumes, and extensive queuing.

Source: Transportation Research Board, Highway Capacity Manual. National Research Council, 2000.

LOS is a measure of the average control delay (in seconds) experienced by drivers at an intersection and is described by a letter on a scale from 'A' to 'F'. Level of Service D is generally considered to present the minimum acceptable design standard. AT LOS D, small increases in traffic volumes lead to significant changes in speed and delay. Table 2.8 presents the level of service criteria for signalized and unsignalized intersections. Once an unsignalized intersection reaches a higher delay time, the LOS declines and signalization of the intersection should be considered as the LOS reaches LOS D, E or F.

Table 2.8: Level of Service Criteria for City Intersections

LOS	Delay per Vehicle (s/veh)	
	Signalized	Unsignalized
A	≤ 10	0 - 10
B	> 10-20	> 10-15
C	> 20-35	> 15-25
D	> 35-55	> 25-35
E	> 55-80	> 35-50
F	> 80	> 50

Source: Transportation Research Board, Highway Capacity Manual. National Research Council, 2000.

2005 ANALYSIS YEAR

Intersection Operations

Traffic operating conditions at the intersections in this study were determined using the software package Synchro6, developed by Trafficware Corporation and Highway Capacity Manual methodologies. The results of the intersection capacity analysis are shown for signalized and unsignalized intersections in Table 2.9.

Table 2.9: 2005 Intersection Operational Analysis

Intersection	Intersection Control		2005 v/c	2005 Delay	2005 LOS
US 20 / Pleasant Valley	Two-Way Stop	NB Lt/Th/Rt	0.04	23.2	C
		SB Lt/Th/Rt	0.80	58.8	F
		EB Lt	0.06	8.9	A
		WB Lt	0.00	0.1	A
ORE 228/Oak Terrace	Two-Way Stop	NB Lt/Rt	0.20	12.7	B
		WB Lt	0.02	1.2	A
ORE 228/Long	All-Way Stop	NB Lt/Rt	0.44	8.7	A
		EB Th/Rt		9.9	A
		WB Lt/Th		10.3	B
US 20/ORE 228	Signal		0.47	15.1	B
US 20/12th Ave	Signal		0.46	7.3	A
US 20/15th St	Signal		0.44	8.2	A
US 20/18th Ave	Signal		0.45	12.8	B
18th Ave/Long	All-Way Stop	NB Lt/Th/R	0.57	11.6	B
		SB Lt/Th/Rt		11.7	B
		EB Lt/Th/Rt		13.4	B
		WB Lt/Th/Rt		11.7	B
US 20/Clark Mill	Two-Way Stop	NB Lt/Th/Rt	0.20	18.4	C
		SB Lt/Th/Rt	0.10	14.2	B
		EB Lt	0.03	8.4	A
		WB Lt	0.03	8.5	A
US 20/47th Ave	Two-Way Stop	NB Lt/Th/Rt	0.03	12.5	B
		SB Lt/Th/Rt	0.05	11.0	B
		EB Lt	0.03	8.0	A
		WB Lt	0.00	7.9	A
US 20/53rd St	Two-Way Stop	NB Lt/Th/Rt	0.07	14.1	B
		SB Lt/Th/Rt	0.07	10.4	B
		EB Lt	0.03	2.0	A
		WB Lt	0.00	0.0	A

Legend

NB - Northbound
SB - Southbound
EB - Eastboound
WB - West Bound
Lt - Left
Rt - Right
Th - Through

Table 2.9 shows that all intersections in 2005 operate at acceptable levels per ODOT mobility standards in the 1999 Oregon Highway Plan; however, the unsignalized US 20/Pleasant Valley intersection, which operates above ODOT mobility standards (v/c 0.80) during the PM peak hour is on the verge of failure. Analysis of signal warrants for future year conditions are contained in the Appendix H-6. High traffic volumes on US 20 result in few acceptable gap in traffic for southbound left turning vehicles. The southbound movements will experience high delays under peak hour conditions. During other times of the day the southbound vehicles will experience less delay.

EXISTING PLANS AND POLICIES

The Transportation Planning Rule, Oregon Administrative Rule 660-012-0000, requires that Sweet Home's existing plans, policies and land use regulations be in compliance with that this administrative rule. A review of the City's land development codes, including the zoning ordinance, land division ordinance and comprehensive plan has been conducted with recommended changes and additions summarized in Appendix F. Revisions to Sweet Home's development codes will to be implemented as part of the adoption of the TSP.

Oregon Transportation Plan

The Oregon Transportation Plan (OTP), in it's policy element, defines the goals, policies and actions for the state over the next forty years. It directs the coordination of transportation modes and the relationship of transportation to land use, economic development, the environment, and energy use. It is used by ODOT to carry out its responsibilities of coordination of transportation elements with federal, state, regional, and local plans. In its system element, the OTP identifies a coordinated multimodal transportation system, a network of facilities and services for air, rail, highway, public transit, pipeline waterways, marine transportation, bikeways and other modes of transportation.

The OTP was adopted by the Oregon Transportation Commission on September 15, 1992. The financing program and legislation needed to implement the plan was submitted to the 1993 legislature, however, the financing plan failed to gain the support of the legislature at that time.

The OTP is part of an ongoing transportation planning process within ODOT. ORS 184.168(1) requires the state agencies to use the OTP to guide and coordinate transportation activities. The goals and policies stated in the OTP define a balanced and efficient transportation system that promotes accessibility for all potential users.

Along with its associated modal plans (described subsequently), the OTP must comply with the state agency coordination program and the state-wide planning goals. The Land Conservation and Development Commission's (LCDC) Transportation Planning Rule (TPR) which implements Goal 12 (transportation), requires ODOT to identify a system of transportation facilities and services adequate to meet identified state transportation needs and to prepare a transportation system plan. The OTP, including the policy and system elements and adopted modal and facility plans, is intended to meet the requirements for the state TSP.

Oregon Highway Plan

The 1999 Oregon Highway Plan (OHP), builds upon and applies the policies outlined in the 1992 OTP. The Oregon Highway Plan is a key component of the OTP, and it merits special consideration. The adopted policies of the OHP that pertain to the City of Sweet Home TSP include:

- OHP Policy 1B: Land Use and Transportation
- OHP Policy 1C: State Highway Freight System
- OHP Policy 1G: Major Improvements
- OHP Policy 1F: Highway Mobility Standards
- OHP Policy 2G: Rail and Highway Compatibility
- OHP Policy 3A: Classification and Spacing Standards
- OHP Policy 4A: Efficiency of Freight Movement
- OHP Policy 4B: Alternative Passenger Modes
- OHP Policy 4D: Transportation Demand Management

The Oregon State Highway Division (OSHD) has devised a functional classification system to prioritize highway improvement needs and define operational objectives. The highway classification system defines four levels of importance (LOI) including:

1. Interstate
2. Statewide
3. Regional
4. District

Regional Highways - US 20 is identified as a Regional Highway. The primary function of highways in this level is to provide connections and links to areas within regions of the state, between small urbanized areas and larger population centers, and to higher level facilities. A secondary function is to serve land uses in the vicinity of these highways.

The management objective is to provide for safe and efficient high-speed continuous-flow operation in rural areas, except where there are significant environmental constraints, and moderate to low-speed operation in urban and urbanizing areas with moderate interruptions to flow.

District Highways - ORE 228 is identified as a District Highway. The primary function of highways in this level is to serve local traffic and land access. Highways included in this level primarily serve local functions and are of relatively low significance from a statewide perspective. They are often routes that held a higher function during the early development of Oregon's highway system. With the passage of time and the construction of other through routes the importance of District highways from a statewide perspective has diminished. They now serve a similar function to county roads and City streets. ORE 228 (Holley Road) is included in this category.

The management objective is to provide for safe and efficient moderate to high-speed continuous-flow operation in rural areas reflecting the surrounding environment, and moderate to low-speed operation in urban and urbanizing areas with a moderate to high level of interruptions to flow.

Access Management Policy - Several factors, including the number, spacing, type and location of accesses, intersections, and traffic signals have a significant effect on the capacity, speed, safety and general operational efficiency of highways. These factors need to be effectively managed in order to operate the highway system safely, at reasonable levels of service and in a cost-effective manner. Collectively these factors comprise access management.

The OHP Access Management policy provides a framework for making access decisions. It is used by the OSHD to carry out its responsibilities for managing access under statutes and administrative rules. It is also used to guide the design of highways and coordination with local comprehensive planning

Oregon Bicycle and Pedestrian Plan (1996)

The Oregon Bicycle and Pedestrian Plan outlines the general principles and policies that ODOT follows to provide bikeways along state highways and describes the framework for cooperation between ODOT and local jurisdictions. The Plan offers guidance to cities and counties for the development of local plans. It also states ODOT's commitment to providing wide, paved shoulders in rural areas as a part of its standard construction practices. The state priority is to complete the bicycle and pedestrian networks within urban areas and to accommodate recreational improvements as a part of rural road improvements.

Oregon Transportation Safety Action Plan (2004)

The Oregon Transportation Safety Action Plan (OTSAP) presents an overview of the current transportation safety environment, 10 and 20 year visions for transportation safety in Oregon, a set of action items to be completed and an implementation strategy to ensure that all performance measures are met. Of the actions items contained in the plan, the following key actions have been selected for implementation by 2012:

- Develop a Traffic Law Enforcement Strategic Plan (Action Item #1);
- Traffic Law Enforcement Training (Action Item #2);
- Judicial Training (Action Item #4);
- Research based Public Information and Education Program (Action Item #8);
- Improve and expand Driver Education delivery system (Action Item #10);
- Modify federal guidelines to allow better allocation of resources along safety needs (Action Item #16);
- Review EMS statutes, create integrated EMS system for Oregon. Create EMS plan (Action Item #26);
- Continue to address DUI (Action Item #37);
- Continue public information efforts for proper use of belts, child restraints (Action item #50);

Sweet Home's TSP support the OTSAP for transportation safety. The TSP contains elements relating to education and public information relating to transportation, such as bicycle and pedestrian safety and traffic safety.

Oregon Aviation System Plan (2000)

The Oregon Aviation System Plan (ASP), adopted in 2000 as part of the State Transportation Plan in accordance with ORS 184.618, provides state policy guidance and a framework for the planning and operation of a safe, convenient, and economic system of airports. The ASP contains the following elements:

- A classification of public and private airports;
- An analysis and projection of state and regional aeronautical facility and service needs;
- A strategic plan designed to carry out the purpose and policy of the aviation system planning rule (OAR 660-13);
- Policies that promote planning, coordination, and technical assistance in airport development and safety;
- A state aviation facility plan for each state-owned airport; and
- A mechanism to change the classification of an airport, including coordination with affected local governments.

A city or county with planning jurisdiction for an airport identified in the state ASP is required to prepare a local Airport Facility Plan (AFP) in accordance with the Airport Planning Rule (APR).

Sweet Home has one privately owned private use airport with 3 or more based aircraft, Langmack Field.. Therefore, the City must ensure that the Comprehensive Plan complies with ORS 836.608(2) through (6) and (8) and OAR 660-013-0155(1) through (4). The Airport Land Use Compatibility Guidebook developed by the Department of Aviation provides guidelines for compliance with these Administrative Rules.

Oregon Rail Plan (2001)

The Oregon Rail Plan provides a comprehensive evaluation of the State's rail planning, freight rail and passenger rail systems. The Plan contains three elements, which summarize the state's goals and objectives, measure the state's performance to-date and refines the projected costs, revenues and investment needs with regard to rail transportation of people and goods. The elements are: (1) Rail Policies and the Planning Process, (2) Freight Element and (3) Passenger Element. Because the Rail Line in Sweet Home is a branch line, the primary responsibility for the City is ensuring that the line is maintained to allow a minimum 25 mph speed of operation.

Rail service is limited to freight in Sweet Home with a daily average of 2 trains primarily serving the plywood mill. When inside the City limits, trains travel at a maximum authorized speed of 25 miles per hour (mph) due in part to poor track quality and lack of warning equipment at a number of track crossings. In addition, the condition of the crossings are poor. Maintenance for these crossings is the responsibility of the City and railroad. There are several private, non-permitted rail crossings located between 12th Avenue and Osage Street.

Corridor Planning

ORE 228 and US 20 between I-5 and Mile Post 71.50 (at Highway 126) was designated a Scenic Byway in 2004. The byway offers travelers the opportunity to pass through some of Oregon's oldest towns (Brownsville, Crawfordsville and Sweet Home) while traveling through an area rich with recreational activities.

A specific corridor planning document titled *Interim Strategy for US-20/ORE-34* was developed in May of 1998 by the Cascades West Council of Governments. The document recommends a strategy and objectives for the operation, preservation, and enhancement of transportation facilities within the US-20/ORE-34 Corridor. The strategy covers a 20-year planning horizon, building on federal, state, and local transportation and land use policies and plans, together with a comprehensive consultation with stakeholders in the corridor. The Interim Corridor Strategy is the first step in the development of the Corridor Plan and Refinement Plans for the specific areas and issues in the corridor. The document has not been adopted by the Oregon Transportation Commission and thus does not hold any regulatory authority with respect to transportation planning with the corridor area.

Oregon Benchmarks

The Oregon Progress Board, an independent state planning and oversight agency created by the Legislature in 1989 is responsible for monitoring the State's 20-year strategic vision, *Oregon Shines*. The Board developed benchmarks to measure progress towards meeting the goals of *Oregon Shines*. The goals are three-fold: 1) quality jobs for all Oregonians, 2) safe, caring and engaged communities, and 3) healthy, sustainable surroundings. Benchmarks are organized into seven categories: economy, education, civic engagement, social support, public safety, community development and environment.

These measures present a planning guide used by all State agencies to track quality of life issues throughout the state. In 1992, the Governor's Task Force on State Government recommended in its report, New Directions, that Oregon Benchmarks be integrated into the goals of state agencies, and their planning and budgeting be directed towards addressing the significant Benchmarks. Biannual progress reports track the effectiveness of the benchmarks program for communities throughout the state.

A number of transportation related Benchmarks guide ODOT planning efforts. One of the core benchmarks is to provide livable communities, a component of which entails providing transportation facilities to points near where people live and work. This same theme on improving transportation access options appears under the Developed Communities Benchmark. In addition, this Benchmark emphasizes access to alternative transportation modes. Under this same Developed Communities Benchmark, specific goals exist for improving state highways, transit facilities, and air service. Under the Benchmark to maintain Oregon's capacity for expansion and growth, transportation related goals are considered to be critical. Specifically, this Benchmark calls for improvements to telecommunication networks throughout the State. All of these goals are considered important to improving the livability, the developed environment, and the capacity for expansion and growth of communities throughout Oregon.

TRANSPORTATION SYSTEM IMPROVEMENT PROJECTS

The City of Sweet Home does not have a developed or adopted Capital Improvements Plan for transportation infrastructure. At the present time, funds are allocated for maintenance and infrastructure upgrades on an as needed basis. Furthermore, Sweet Home does not currently have an adopted Systems Development Charge for transportation infrastructure. Addressing existing and future improvement needs and identifying funding sources is a key element to be addressed during this TSP update process.

The City currently does have an existing agreement with the Albany and Eastern Railroad company to widen the #12 at-grade crossing located at 18th Avenue to accommodate an ADA accessible sidewalk. The proposed improvements include replacement of the existing non-standard sidewalk and relocation of the guardrails and crossing signals. To date, the improvements have not been completed per the agreement between the City of Sweet Home and the Albany and Eastern Railroad company.

The City plans to improve or install up to 32 ADA accessible pedestrian ramps. The ramp replacements and upgrades have been occurring since 1999 as funds become available.

OTHER DOCUMENTS AND DATA

The following summary narrative is from the Traffic Impact Study (TIS) prepared by Access Engineering for the Santiam River Club (SRC), formerly Salmon Run. The TIS concludes that traffic impacts will result in system failures at several points on US 20 and the need for improvements including addition of turn lanes and signalized intersection control. The SRC will have a direct impact on the provision of an interconnected transportation system, particularly in north Sweet Home, because of the proposed private street system. The TIS recommends several street improvements upon development of the project. Once a detailed site plan or subdivision plan is submitted the City will determine needed improvements and timing based on the TIS and refinement of the development plan.

> *The current Master Plan for SRC proposes to develop the 752.19 acre site as a mixed-use development consisting of 1,575 residential units, related commercial land uses, 238.75 acres of open space sanctuary, the Salmon Run Institute, and two hotels. Current planning envisions nineteen separate areas to be developed over an eight-year period. Most of the residential acreage, 95%, along with the related commercial areas and open space are located north of the Burlington Northern Railroad. This area has only two public accesses to the City street system. The main access, located at the Salmon Run Institute, is along 18th Avenue about 300 feet north of the railroad tracks. The second access is located at the north end of 47th Avenue/Green River Drive where it crosses the railroad tracks. There are four small development areas located south of the railroad tracks comprising 37.86 acres one of which is a water treatment facility. These three residential areas will have separate accesses to City streets.*
>
> *At full build-out, the SRC will generate an estimated total of 12,268 external daily trips*

and 1,124 trips during the PM peak hour. Slightly more than 2,000 daily and 175 peak hour trips will use 47th Avenue, 8,900 daily and 816 peak hour trips will use 18th Avenue, with the remaining trips spread out on at least three other streets between 18th and 47th Avenue. The analysis for the build-out year, 2013, indicates that the 18th Avenue signalized intersection with Highway 20 will fail the ODOT mobility standards. The stop sign controlled intersection of 47th Avenue and Highway 20 will fail the ODOT mobility standard by the year 2017.

Based on the proposed development schedule, between 2009 and 2013 the Highway 20 and 18th Avenue intersection will exceed the mobility standards. The recommended mitigation measures for the intersection include:

- *Traffic signal, providing separate left-turn phasing for the Highway 20 approaches,*
- *Providing separate left-turn lanes and phasing for 18th Avenue approaches,*
- *Lengthening of the eastbound left-turn pocket or allowing protected-permitted left-turn phasing,*
- *Adding an additional westbound right-turn lane.*

The first two measures are recommended to be implemented soon after the Salmon Run Institute is open and no later than the opening of the first hotel or 100 homes in the Institute area. Lengthening of the eastbound left-turn pocket or allowing protected-permitted left-turn phasing should be implemented as soon as demand reaches the capacity of the lane, no later than 2010. The additional westbound right-turn lane is the most expensive mitigation measure but it is also the lowest priority and may not be needed.

The Highway 20 at 47th Avenue intersection should be signalized when signal warrants are met, estimated to be sometime between 2013 and 2017.

A full copy of the SRC Transportation Impact Analysis is included in Appendix B.

PUBLIC PERCEPTION OF PROBLEMS AND NEEDS

On September 28, 2004 the City of Sweet Home held an open house to identify transportation issues. Representatives from the City Council, Planning Commission, Sweet Home School District, ODOT, City Staff and the public participated in a presentation and question and answer session. The intent of the session was to inform the community about the TSP update process and solicit feedback about the existing transportation network and transportation issues for the community. The results of the questions and answer session are summarized below.

Safety
- There was general concern for pedestrian safety due to the lack of sidewalks.
- Kids cross the highway against the traffic signal.
- Bicyclists use the sidewalks along the highway, endangering pedestrians.
- Long Street is a hazard due to sight distance near the high school, no place for bikes or pedestrians.

- Maybe install flashing lights at highway pedestrian crossings.
- Use combination of regulations, education, improvements, and enforcement to improve safety.

Traffic
- There is a lot more traffic as the City is filling in and new homes are being built.
- Long Street is congested – how much more will it take?
- Elm Street very busy since infill development has occurred.

Development Code
- There are no bicycle parking requirements.
- Consider stormwater needs when drafting street standards.
- City Council members expressed a desire for the development code to be flexible enough to allow different solutions depending on the particulars of a development site.
- There should be Traffic Impact Analysis triggers in the code.
- Use combination of regulations, education, improvements, and enforcement to improve safety.

CHAPTER 3:
FUTURE TRANSPORTATION SYSTEM CONDITIONS

This chapter summarizes the year 2025 future conditions traffic analysis conducted as part of this Sweet Home Transportation System Plan (TSP) update. This chapter presents the 20-year future and the transportation demand forecast to occur within the City of Sweet Home, based on estimates of population, employment and known development increases in the study area. This chapter summarizes the methodology used to estimate the population and employment growth as well as the anticipated future conditions. Appendix D provides the technical background information and analysis used to determine needed improvements to the transportation system. The following information and analysis is presented in Appendix D:

- Mode split
- Traffic assignment
- No-build roadway network
- Year 2025 average daily traffic (ADT)volumes on the city's roadways
- Year 2025 weekday p.m. peak hour traffic volumes at key intersections
- Year 2025 level of service (LOS) at key intersections
- Operating LOS/operations analysis

TRAVEL DEMAND FORECAST METHODOLOGY

Population and Employment Forecasting Methodology

In order to estimate future traffic volumes for the year 2025, an estimate of population and employment within the city, as well as growth in the areas outside of Sweet Home is needed. Increases in population and employment within the city create increased travel on state and local streets and highways. Growth outside of the city, including residential growth in unincorporated Linn County and recreation-related development in Bend and Sisters, will increase traffic to and through Sweet Home, as residents of the Willamette Valley use Highway 20 as the route to recreation areas.

The U.S. Census Bureau estimated the total population of Sweet Home in 2000 as 8,016 persons.

Sweet Home adopted the Linn County acknowledged population growth rate of 1.0 percent per year. Portland State University Population Research Center, the estimated 2004 population was 8,380.

The Sweet Home Comprehensive Plan contains population, employment and housing forecasts through the year 2020. In accordance with the County Coordinated Population Forecast and adopted 1 percent growth rate, the Comprehensive Plan projects a 2020 population of 9,485 or an approximate 1,469 person increase from 2000.

As discussed in Chapter 2, an approved development known as Santiam River Club (SRC) is contemplated in north Sweet Home. If constructed, SRC would likely result in an increase in population above that forecast in the Comprehensive Plan or acknowledge through the County Coordinated Population Forecast process. Additional discussion of population growth expectations relative to the SRC development is presented below under the assessment of the Transportation Analysis Zones. Table 3.1 shows the historic and projected Sweet Home population as compared to Linn County as a whole.

Table 3.1 - City of Sweet Home and Linn County Population Projection Comparison 1980-2020

Year	Sweet Home	Linn County
1980	6,960	89,495
1990	6,850	91,227
2000	8,016	103,069
2020	9,485	133,508
AAGR	**0.9%**	**1.2%**

Source: U.S. Census Bureau, Linn County Coordinated Population Forecast, City of Sweet Home

The Sweet Home Comprehensive Plan projects job growth occurring at 1.2 percent between 2000 and 2020 with an overall increase of 633 jobs. Office jobs are expected to increase at a higher rate (2.3 percent) than other sectors with jobs in public, industrial and commercial sectors increasing at relative rates of 1.1 percent, 0.9 percent and 0.8 percent respectively.

The housing trend currently favors single-family residential development over multi-family residential development by a ratio of 7:1. The Comprehensive Plan estimates that this trend is expected to continue through the 20 year planning period. Single-family housing will most likely continue to fill the needs of homeowners with both single-family and multi-family dwellings meeting the needs of renters.

Based on the expected population, employment and housing forecasts, ECONorthwest completed an inventory of Buildable Lands for Sweet Home in 2001. The study concluded that there is sufficient buildable residential, commercial and industrial land inside the UGB to accommodate growth through the year 2020. Table 3.2 shows that there is an overall surplus of 819 acres of residential, 101 acres of commercial and 464 acres of industrial land available in Sweet Home. Table 3.2 also shows that there is only a two acre surplus of public land available within the planning period.

Table 3.2: Buildable Lands Summary (Year 2020)

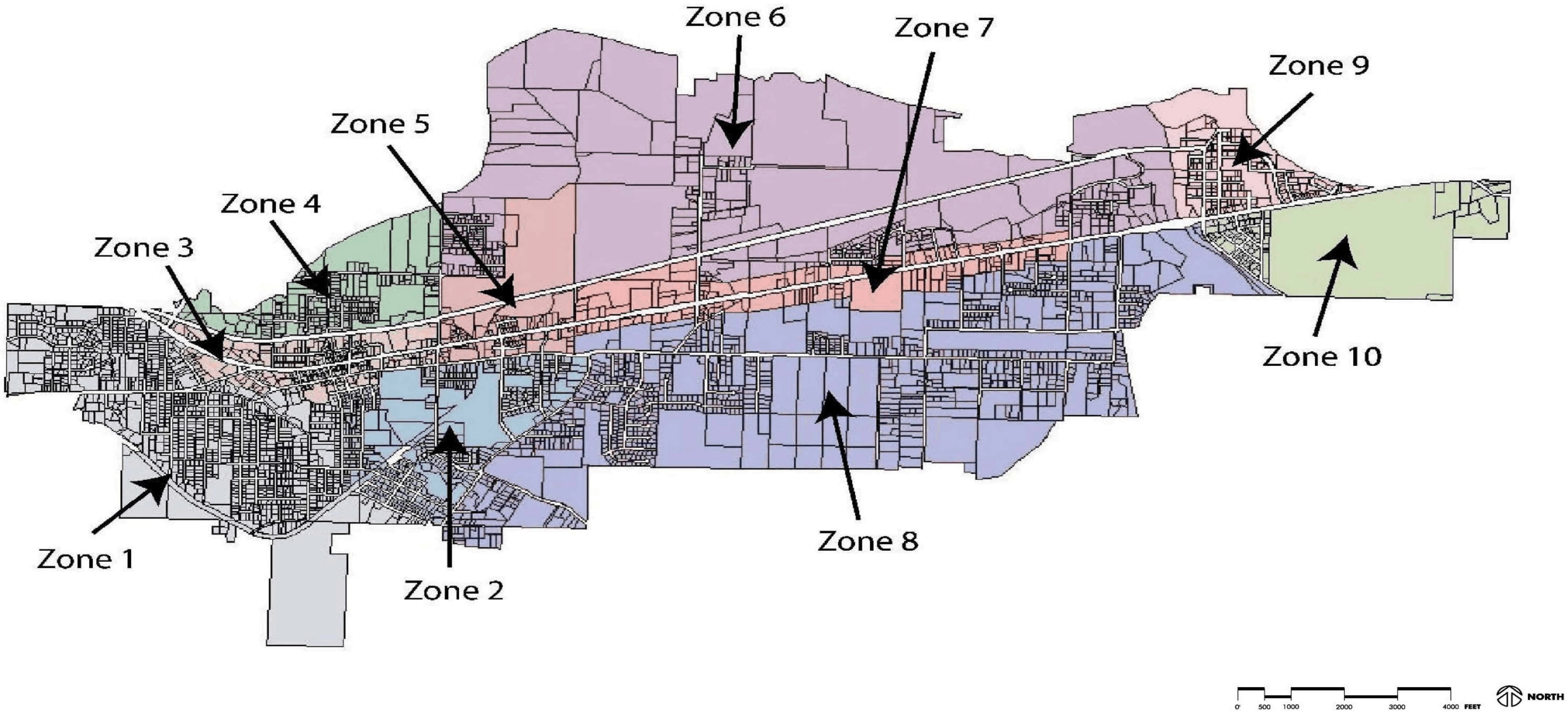
Plan Designation	**Acres**		
	Needed	**Existing**	**Balance**
Residential	155	974	819
Commercial	16	117	101
Industrial	16	480	464
Public	9	11	2
Total	**196**	**1,582**	**1,386**

Source: ECONorthwest 2001 BLI

The City currently provides an adequate mix of available residential, commercial and industrial land. As with many communities in Oregon, Sweet Home is experiencing a changing economy. The community's industrial base used to be wood processing, accounting for one-quarter of total employment in 1990. Since 1990, the wood products employment base has declined, replaced by increases in the service and retail sectors. The SRC development in north Sweet Home is expected to be developed in phases between 2005 and 2015. Partially located on an existing mill site, the proposed development will reclaim existing mill buildings and uses and replace them with service, retail, light industrial, resort and housing uses.

In order to estimate the future transportation system needs for Sweet Home, a growth rate needs to be identified which represents a reasonable scenario for the future of the city. The SRC development (as approved in the SRC Master Plan) will increase population, employment and housing growth above that currently contemplated in the Comprehensive Plan or anticipated in the County Coordinated Population Forecast.

To assess potential population growth with consideration of the SRC development, City Staff developed a revised set of traffic analysis zones (TAZ). First, staff redrew the TAZ boundaries to better follow existing physical/political boundaries. Ten zones were created, as shown in Figure 3.1. Next staff verified the population and housing figures and updated the numbers based on the new boundaries. The primary update to the TAZ numbers was inclusion of anticipated population and employment increases from the SRC development. Housing assumptions stated that the homes would be permanent residents, not be seasonal or vacation housing. The results from the assessment of the TAZ's is shown in Tables 3.3 and 3.4.



SATRE ASSOCIATES

DELIVERABLE: 6.B
JOB#: 0415
DATE: 5/20/05
DRAWN: JSB/CGM
CHECKED: AY
REVISED: -

BASED ON DRAWINGS BY:
W & H PACIFIC, BEAVERTON, OR &
KITTLESON ASSOCIATES, PORTLAND, OR
August 7, 1997

LEGEND

ZONE 1	ZONE 4	ZONE 7	ZONE 10
ZONE 2	ZONE 5	ZONE 8	
ZONE 3	ZONE 6	ZONE 9	

CITY OF SWEET HOME
Transportation System Plan Refinement and Update 20-30

Transportation Analysis Zones

FIGURE **3.1**

Table 3.3 - Population and Households by TAZ

TAZ #	Population (2000)	Households (2000)	Population (2025)	Households (2025)
1	2,459	619	3,176	799
2	1,063	402	1,373	519
3	302	78	390	101
4	909	315	1,174	407
5	198	88	479	297
6	337	270	5,069	2,969
7	804	325	1,038	420
8	1,546	595	1,997	768
9	183	17	236	22
10	215	103	278	133
Totals	8,016	2,812	15,210	6,435

Table 3.4 - Commercial/Industrial Growth by TAZ

TAZ #	Commercial (2000)	Industrial (1990)	Commercial (2017)	Industrial (2017)
1	6,500	0	6,500	0
2	100,000	0	105,000	0
3	295,000	145,700	310,000	152,985
4	15,000	295,000	20,000	392,940
5	0	1,500,500	326,300	150,000
6	0	150,000	50,000	150,000
7	700,000	114,300	950,000	135,000
8	15,000	0	20,000	0
9	100,000	1,400,000	175,000	1,400,000
10	20,000	0	35,000	0
Totals	1,251,500	3,605,500	1,997,800	2,380,925

Table 3.3 above shows an expected growth rate of approximately 3.6 percent average annual growth rate (AAGR) over the planning period. This represents a 2.6 percent *per year* increase over the adopted growth rate for Sweet Home. The projection assumes an increase of 7,194 persons or an overall growth rate of 90 percent. The projected growth could present challenges with respect to the provision of transportation service through the planning period.

Santiam River Club (SRC) Transportation Impact Analysis Forecast
The SRC development will pose significant changes in Sweet Home's existing transportation system. The Traffic Impact Study (TIS) for SRC is an important element of Sweet Home's TSP, because the TIS identifies areas in the City that will need mitigation improvements when SRC develops. The following summary narrative is from the Traffic Impact Study (TIS) prepared by Access Engineering for the SRC. The TIS concludes that system failures at several points on Highway 20 will result in the need for improvements including addition of turn lanes and signalized intersection control. The complete TIS is in Appendix B.

> *Based on the proposed development schedule, at some point between 2009 and 2013 the Highway 20 and 18th Avenue will exceed the mobility standards. The recommended mitigation measures for the intersection include:*
>
> - *Providing separate left-turn phasing for the Highway 20 approaches,*
> - *Providing separate left-turn lanes and phasing for 18th Avenue approaches,*
> - *Lengthening of the eastbound left-turn pocket or allowing protected-permitted left-turn phasing,*
> - *Adding an additional westbound right-turn lane.*
>
> *The Highway 20 and 47th Avenue intersection should be signalized when signal warrants are met, estimated to be sometime between 2013 and 2017. Additional study of the 47th Avenue intersection will need to be completed upon submittal of a detailed development plan.*

2025 ANALYSIS YEAR

Intersection Operations

A Level 2 Cumulative Analysis states all projects within the planning period and recommended mitigation will be assumed in future year analysis. The Santiam Development TIS identified the following mitigation at the US 20/18th Avenue intersection to maintain ODOT mobility standards:

- North, south, and eastbound left-turn lanes with storage capacities of 150, 150, and 200 feet respectively.
- Addition of a westbound right-turn lane with 75 feet of storage capacity.
- Providing separate protected/permissive phases for left-turning movements.

Providing a southbound left-turn lane at the US 20/Pleasant Valley intersection, as identified in the 2005 analysis year, will help maintain ODOT mobility standards until 2007. However, beyond 2007 it is recommended the intersection be signalized to meet acceptable mobility standards. It is assumed a signal will be in place for 2025 future year analyses.

For 2025 analysis, the following assumptions were made:

- Signal installation at US 20/Pleasant Valley intersection
- All Santiam Development impacts and required/recommended mitigation was assumed as previously mentioned.

Traffic operating conditions at the study intersections were determined with software and methodologies previously stated in 2005 operational analysis. Capacity analysis results are shown for signalized and unsignalized intersections in the following table.

Table 3.5 - 2025 Intersection Operational Analysis

Intersection	Intersection Control		2025 v/c	2025 Delay	2025 LOS
US 20 / Pleasant Valley	Signal		0.60	9.5	A
ORE 228/Oak Terrace	Two-Way Stop	NB Lt/Rt	0.36	17.1	C
		WB Lt	0.04	1.4	A
ORE 228/Long	All-Way Stop	NB Lt/Rt	0.61	10.4	A
		EB Th/Rt		13.3	B
		WB Lt/Th		14.3	B
US 20/ORE 228	Signal		0.71	21.2	C
US 20/12th Ave	Signal		0.79	21.8	C
US 20/15th St	Signal		0.79	27.3	C
US 20/18th Ave	Signal		0.76	35.6	D
18th Ave/Long	All-Way Stop	NB Lt/Th/Rt	0.82	27.0	D
		SB Lt/Th/Rt		30.7	D
		EB Lt/Th/Rt		75.2	F
		WB Lt/Th/Rt		32.6	D
US 20/Clark Mill	Two-Way Stop	NB Lt/Th/Rt	1.35	303.4	F
		SB Lt/Th/Rt	0.49	48.8	E
		EB Lt	0.07	10.0	A
		WB Lt	0.07	10.2	B
US 20/47th Ave	Two-Way Stop	NB Lt/Th/Rt	0.38	38.5	E
		SB Lt/Th/Rt	0.38	21.4	C
		EB Lt	0.11	9.0	A
		WB Lt	0.00	8.4	A
US 20/53rd St	Two-Way Stop	NB Lt/Th/Rt	0.23	24.4	C
		SB Lt/Th/Rt	0.15	12.7	B
		EB Lt	0.05	8.4	A
		WB Lt	0.00	0.0	A

Legend

NB - Northbound
SB - Southbound
EB - Eastboound
WB - West Bound
Lt - Left
Rt - Right
Th - Through

Based on the 2025 analysis, all intersections operate within acceptable limits except the US 20/Clark Mill Road intersection which does not meet ODOT mobility standards and the 18th Avenue/Long Street intersection which does not meet City mobility standards. Signal warrant analyses (further detailed at the end of this chapter) performed at the US 20/Clark Mill intersection do not indicate warrants are met and crash data analysis does not identify the need for mitigation.

Future Needs

The SRC TIS required the following mitigation to maintain ODOT mobility standards: Striping northbound, southbound and eastbound left turn lanes with storage capacity of 150, 150, and 200 feet respectively, providing separate protected/permissive phases for turning movements and addition of a westbound right turn lane with 75 feet of storage capacity.

During analysis of 2025 the following assumptions were necessary to maintain ODOT mobility standards:

- Signal installation at US 20/Pleasant Valley intersection
- Installation of eastbound and westbound left turn lanes at US 20/12th Avenue, US 20/15th Avenue, eastbound left turn lane at US 20/53rd Avenue, and northbound and southbound left turn lanes at US 20/Clark Mill Road intersections.
- All SRC impacts and required/recommended mitigation was assumed as previously mentioned.

For 2025, PM peak traffic volumes all intersections operate within ODOT mobility standards except US 20/Clark Mill Road intersection. After conducting signal warrant analyses no warrants were met. Analysis of crash data did not prompt for any mitigation to be considered.

CHAPTER 4:
SWEET HOME ROAD PLAN

This chapter presents a Road Plan for the City of Sweet Home in accordance with Oregon Transportation Planning Rule, OAR 660-012-0020(2)(b). Specifically, this chapter includes:

- A map of future arterial and collector streets;
- Standards for access management and local street layout; and
- Provisions for bicycle and pedestrian facilities as required by OAR 660-012-0045(3)(b).

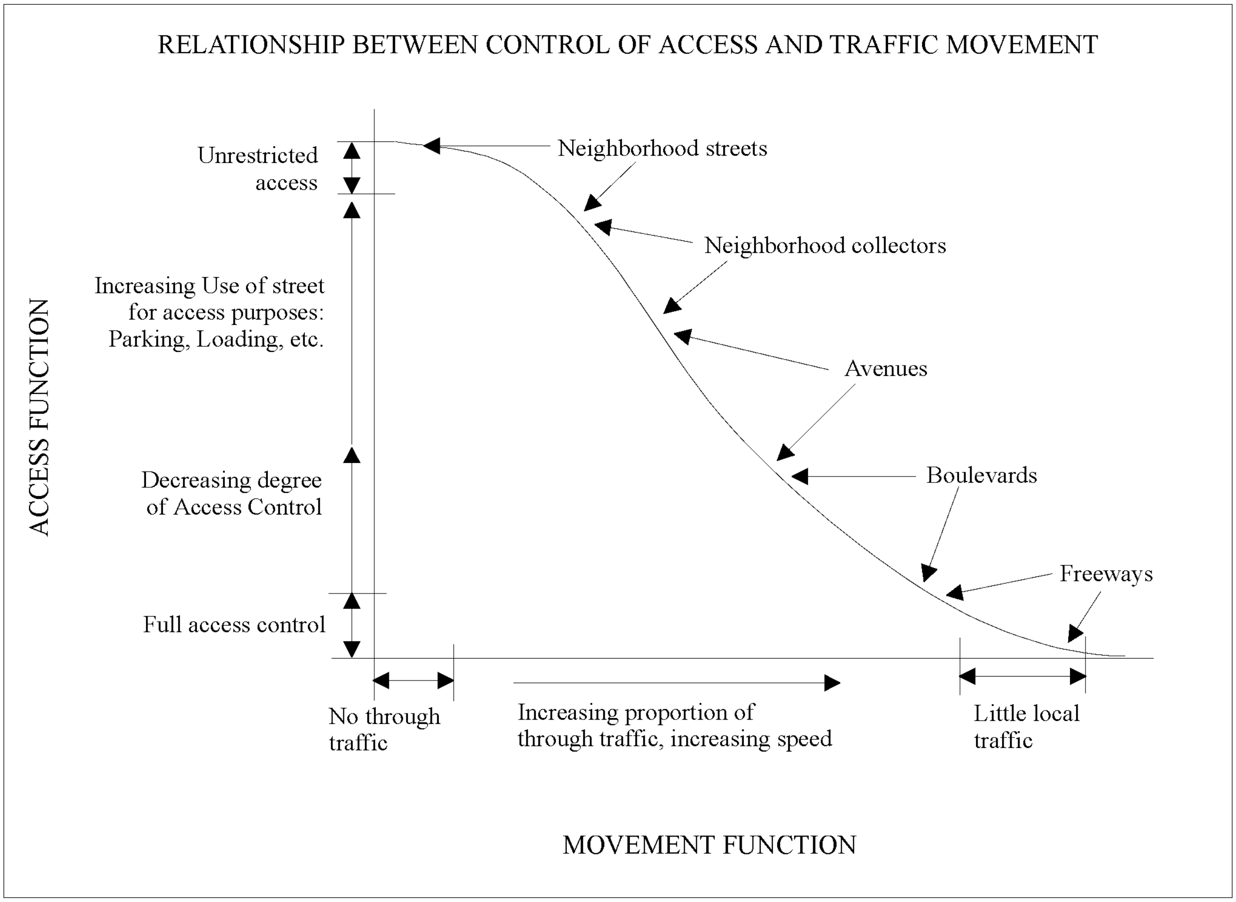
Future roadway improvement projects are listed in Chapter 8, Transportation Financing Program.

SWEET HOME ARTERIAL AND COLLECTOR STREET PLAN

Streets are generally classified according to their function. Such classifications provide for consistency in construction, operation and maintenance standards within classifications and an understanding by the public of the importance of specific facilities and their associated improvements within the system.

Roadways provide two functions: mobility and access. From a design perspective, these functions can be incompatible; high or continuous speeds are desirable for mobility, while low speeds are more desirable for access. The logical spacing of a grid arterial and collector street system allows traffic to access all areas of the city without diverting excessive traffic through local streets. Local street intersection conflicts are the greatest on streets where such spacing has not been achieved. Local streets within the grid can follow any pattern which does not promote through traffic. Figure 4.1 shows the relationship of the functional classification to access and mobility. The diagram shows that as access is controlled on higher functional class streets (arterials, freeways, etc) speed and traffic movement increases.

Figure 4.1 - Access/Mobility Relationship



Sweet Home currently classifies streets as Major Arterial, Minor Arterial, Collector, and Local (unclassified) streets. Table 4.1 below summarizes the key use characteristics of each.

Table 4.1 - Functional Classification

Street Type	Average Daily Trips	Managed Speed (mph)
Major Arterial	8,000 - 30,000	25-55 mph
Minor Arterial	3,000 - 10,000	25-40 mph
Collector	1,500 - 5,000	25 mph
Local	Less than 5,000	< 25 mph

Highways 20 (US 20) and 228 (ORE 228) are both Major Arterials in Sweet Home connecting to Interstate 5 (I-5) and providing links regional communities and activity centers. In Sweet Home, both roadways also serve a high number of local trips. Arterial streets are typically designed to

facilitate the movement of large volumes of traffic and discourage the use of minor arterials, collectors, and local streets for non-local trips. Access to major arterials should be carefully managed to ensure efficient traffic flow.

Minor Arterials provide both access and circulation within residential neighborhoods and commercial/industrial areas. Major and minor arterials differ in two ways:

- Controlled access may not be required for all minor arterials; and
- Minor arterials may be located in residential neighborhoods, distributing trips from the major arterials through the area to their ultimate destinations.

The standard minor arterial is characterized by a range of land uses that typically result in a greater intensity of development along its route or at major intersections with collectors or arterials. Land uses such as low to medium high density mixed residential, commercial, or industrial and their associated traffic volumes are examples of this kind of intensity.

Collectors are similar in function to minor arterials in that controlled access is generally unnecessary, and that they are located in residential neighborhoods or business areas, distributing trips from the arterials through the area to their ultimate destinations. For collector streets, however, land use along its route is generally low to medium density in nature. The intensity of development at intersections along its route is also generally less intense than might occur for minor arterials. Traffic calming techniques such as traffic circles, bulbed intersections, or speed humps may be appropriate as typical means of controlling traffic speeds on residential collectors. The purpose of the collector is to minimize the impact of traffic to adjacent land uses while recognizing that collector roadways are still necessary to serve less intense residential areas.

Table 4.2 presents an inventory of arterial and collector streets in Sweet Home based on posted speed limits and current function. Planned arterial and collector streets are illustrated on Figure 4.2, Planned Arterial and Collector Street Network.

Table 4.2 - Existing Arterial and Collector Street Inventory

Roadway	Classification	Improvement Status	From	To	Needs Inventory
Main Street (US 20)	Major Arterial	Does not meet Design Standards	58th Ave	East City Limits	Curb/Gutter/Sidewalks
Holley Road (OR 228)	Major Arterial	Does not meet Design Standards	West City Limits	1st Ave	Curb/Gutter/Sidewalks
Holley Road (OR 228)	Major Arterial	Does not meet Design Standards	4th Ave	Main Street (US 20)	Curb/Gutter/Sidewalks
Long Street	Minor Arterial	Does not meet Design Standards	22nd Ave	43rd Ave	Curb/Gutter/Sidewalks
43rd Avenue	Minor Arterial	Does not meet Design Standards	Long Street	Airport Road	Curb/Gutter/Sidewalks
Airport Road	Minor Arterial	Does not meet Design Standards	43rd Ave	49th Ave	Curb/Gutter/Sidewalks
49th Avenue	Minor Arterial	Does not meet Design Standards	Main Street (US 20)	Airport Road	Sidewalks
Clark Mill Road	Collector	Does not meet Design Standards	Main Street (US 20)	North End	Curb/Gutter/Sidewalks
Clark Mill Road	Collector	Does not meet Design Standards	Main Street (US 20)	Long Street	Curb/Gutter/Sidewalks
Mountain View Road	Collector	Does not meet Design Standards	Long Street	Ames Creek Road	Curb/Gutter/Sidewalks
Mountain View Road	Collector	Does not meet Design Standards	Ames Creek Road	South City Limits	Curb/Gutter/Sidewalks
Ames Creek Road	Collector	Does not meet Design Standards	18th Ave	Mountain View Road	Sidewalks
Ames Creek Road	Collector	Does not meet Design Standards	Mountain View Road	East City Limits	Curb/Gutter/Sidewalks
Long Street	Collector	Does not meet Design Standards	43rd Ave	49th Ave	Curb/Gutter/Sidewalks
Wiley Creek Road	Collector	Does not meet Design Standards	Main Street (US 20)	South City Limits	Curb/Gutter/Sidewalks
Oak Terrace	Collector	Does not meet Design Standards	Terrace Lane	10th Ave	Sidewalks
10th Avenue	Collector	Meets Design Standards	Oak Terrace	South City Limits	Sidewalks
18th Avenue	Collector	Does not meet Design Standards	Tamarack Street	Main Street (US 20)	Sidewalks
18th Avenue	Collector	Does not meet Design Standards	Kalmia Street	Ames Creek Road	Sidewalks
47th Avenue	Collector	Does not meet Design Standards	Main Street (US 20)	North City Limits	Curb/Gutter/Sidewalks
47th Avenue	Collector	Does not meet Design Standards	Airport Road	Main Street (US 20)	Curb/Gutter/Sidewalks
49th Avenue	Collector	Does not meet Design Standards	Airport Road	Long Street	Curb/Gutter/Sidewalks
53rd Avenue	Collector	Does not meet Design Standards	Main Street (US 20)	Spruce Street	Curb/Gutter/Sidewalks

Notes:

* Funding contigent on grant/cost share availablity or adjacent property development.

** Indeterminate schedule due to lack of stable funding cycles.

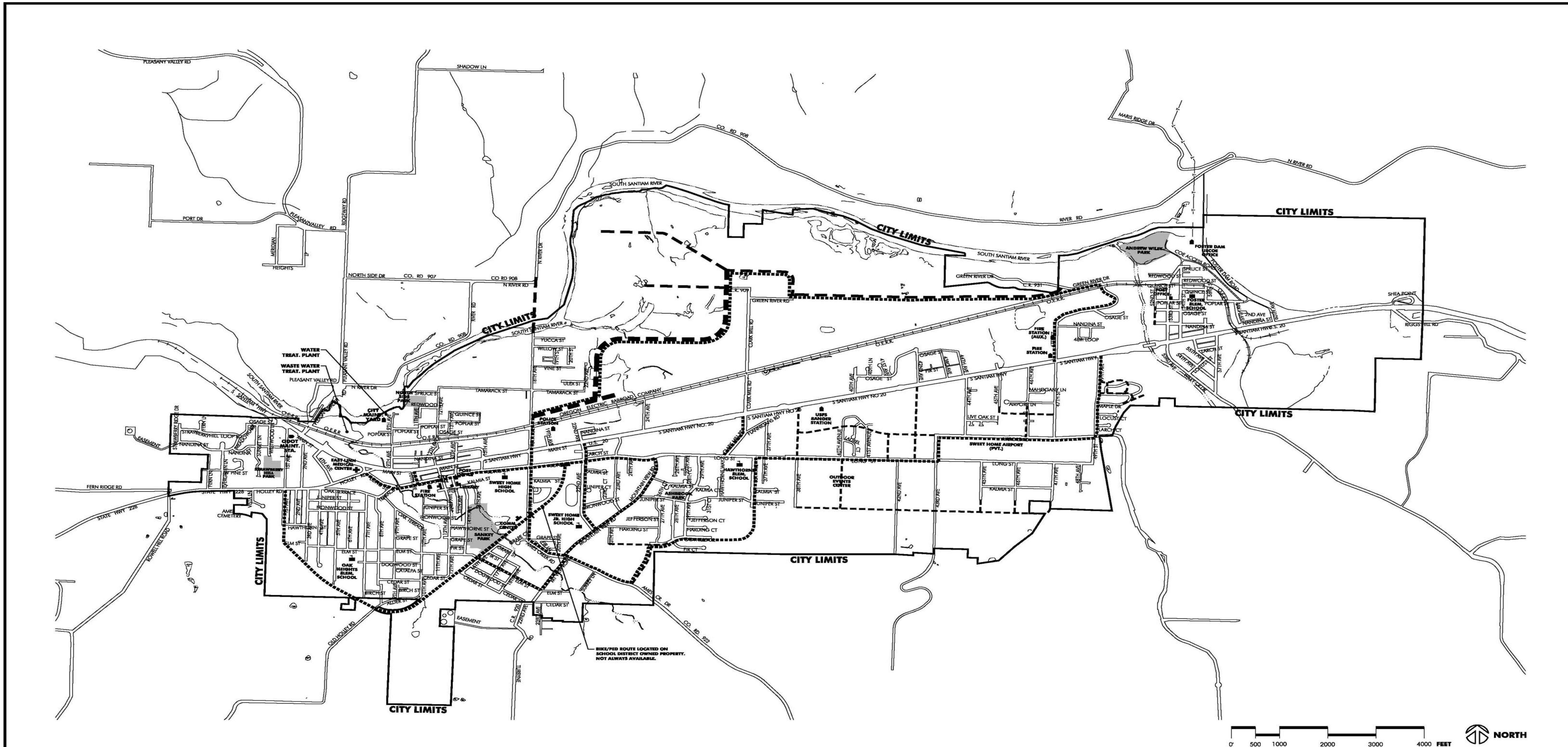
City of Sweet Home Public Works Engineering

Chapter 8, Transportation Financing Program, outlines needed improvements to streets, ADA sidewalk ramps, alley improvements and bicycle and pedestrian facility improvements. Chapter 8 also provides financing strategies for completing these projects.

Appendix E provides a street condition survey for alleys and all streets within the City of Sweet Home.

Road Improvement Timing

It is recommended that the City adopt policies to determine when to require street improvements and which standards to apply. The range of possibilities include: half street standard improvements upon issuance of final subdivision/partition plat approval, site development or building permits; and minimum standards for unimproved streets upon installation of sewer and/or water mains, including minimum grading, grades, drainage and base.



SATRE ASSOCIATES

DELIVERABLE: 6.B
JOB#: 0415
DATE: 5/20/05
DRAWN: JSB/CGM
CHECKED: AY
REVISED: -

BASED ON DRAWINGS BY:
W & H PACIFIC, BEAVERTON, OR &
KITTLESON ASSOCIATES, PORTLAND, OR
August 7, 1997

LEGEND

- PROPOSED ARTERIAL STREET
- PROPOSED COLLECTOR STREET
- PROPOSED LOCAL STREET
- PROPOSED BICYCLE/PEDESTRIAN ROUTE

CITY OF SWEET HOME
Transportation System Plan Refinement and Update 20-30

Planned Arterial and Collector Street Network

FIGURE
4.2

ACCESS MANAGEMENT AND DESIGN STANDARDS

The City of Sweet Home's access management and street design standards are intended to provide City staff with standards and guidelines for protecting the function and integrity of the City's transportation system. These standards will be part of the implementing development ordinances for the TSP.

Table 4.3 - City of Sweet Home Street Design and Access Management Standards

Standards	Major Arterial	Minor Arterial	Collector	Local Street	Neighborhood Street w/in PD
ROW Width (max.)	80	70	60	50	20
Curb to curb Width (max.)	60	40	40	30	20
Travel Lane Width	11	10.5	10	7	7
Number of Lanes	4	2-3	2	2	2
Median/Center Turn Width	12	11.5	Not required	Not required	Not required
Bike Lane Width (both sides)	6	6	One side 6 feet	Not required	Not required
Parking Width	8	8	8	7	Not required
Curb *	6 inch	6 inch	6 inch	6 inch	Not required
Planting Strip Width**	7	7	7	3	3
Sidewalk Width	8	7	6	5	Not required
Street Spacing	1 mile	½ mile	½ mile	250 feet	100 feet
Design Speed	40/25 mph	35 mph	25 mph	25 mph	20 mph
Access Management: Minimum Intersection Spacing	300 feet	100 feet	100 feet	75 feet	50 feet
Access Management: Driveway Spacing	No direct driveway access	shared driveway access	shared driveway access	direct access allowed	direct access allowed.

City of Sweet Home Public Works Engineering

* Or other City approved alternative, such as “Green Streets” standards, as defined by Portland Metro Green Streets handbook. A green street can be defined as a street designed to integrate a system of stormwater management within its right of way:

- reduce the amount of water that is piped directly to streams and rivers
- be a visible component of a system of "green infrastructure" that is incorporated into the aesthetics of the community
- make the best use of the street tree canopy for stormwater interception as well as temperature mitigation and air quality improvement
- ensure the street has the least impact on its surroundings, particularly at locations where it crosses a stream or other sensitive area.

** Planting Strip minimum is three (3) feet. Planting strips may include filtration strips and swales, minimum width depending on ROW allowance or as defined by street classification.

*** Design Speed on Main is 25 mph west of Clark Mill and 40 mph east of Clark Mill and on Holley Street.

CHAPTER 5:

TRANSPORTATION DEMAND MANAGEMENT PLAN
METROPOLITAN PLANNING ORGANIZATION PARKING
PUBLIC TRANSPORTATION PLAN

The Transportation Demand Management Plan requirements of OAR 660-012-0020(2)(f) are not applicable to Sweet Home because the City's population does not exceed 25,000 persons.

Likewise, the parking plan requirements of OAR 660-012-0020(2)(g) are not applicable to Sweet Home because it is not located within the bounds of a Metropolitan Planning Organization.

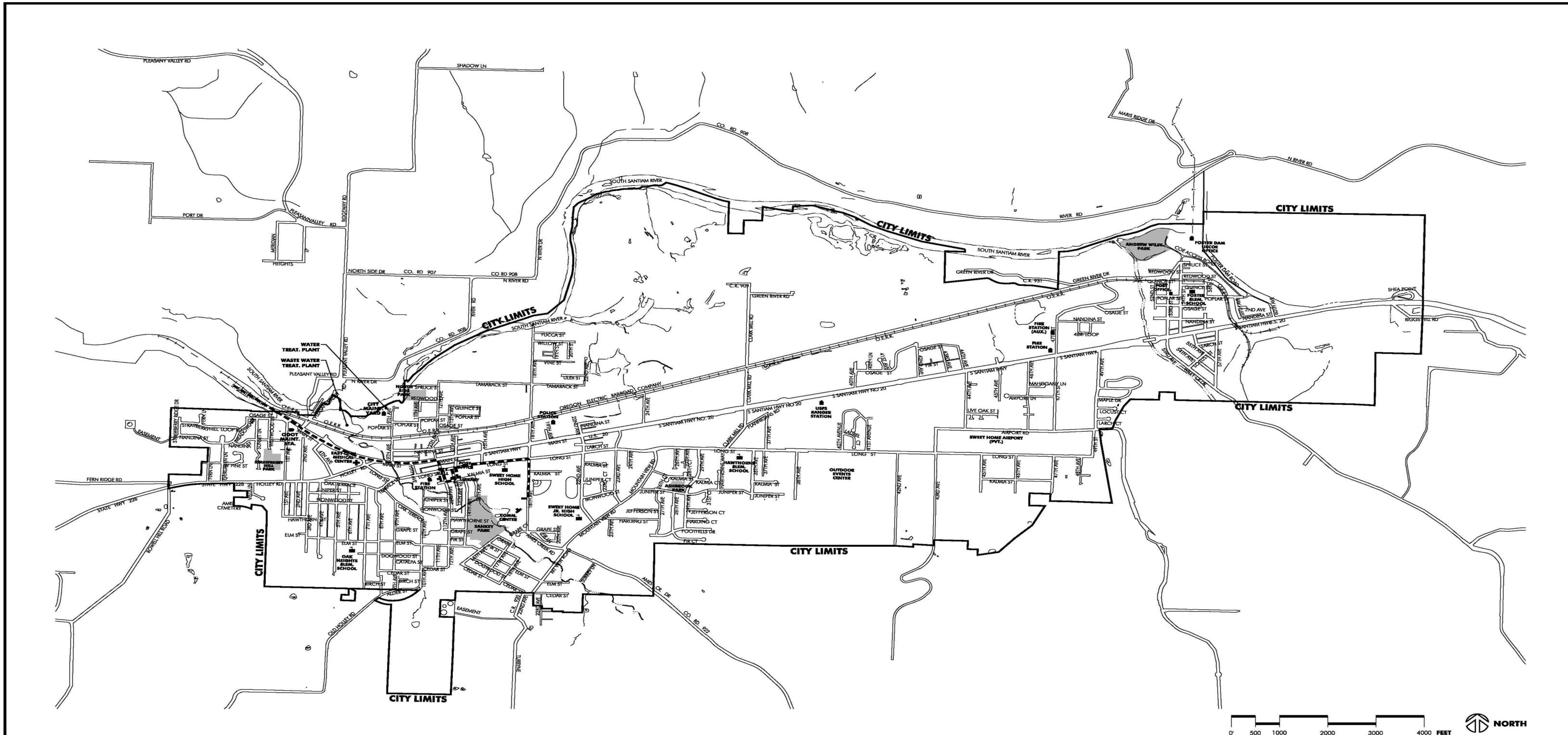
This chapter presents a Transit Plan for the City of Sweet Home in accordance with OAR 660-012-0020(2)(c). Specifically, this chapter includes:

- Describes public transportation services for the transportation disadvantaged with any service inadequacies identified;
- Describes intercity bus and passenger rail service and identifies the locations of terminals; and
- Describes the existing and planned routes and other relevant transit system information.

SWEET HOME PUBLIC TRANSPORTATION SERVICES PLAN

Sweet Home's public transportation needs are currently served by the Linn Shuttle and the Sweet Home Dial-a-Bus. The Linn Shuttle is operated by the Senior Center and provides four daily routes between Sweet Home and Albany. Providing public transportation services primarily for elderly and disabled residents, the shuttle is available for all residents of Sweet Home for a fee. The Sweet Home Dial-a-Bus also serves the needs of the transportation disadvantaged by offering door-to-door transportation by appointment. The Linn Shuttle is funded partially through state grants.

Figure 5.1 shows the scheduled Linn Shuttle routes in Sweet Home. The map shows the location of the Sweet Home Senior Center where the shuttle is based as well as key stops within the Sweet Home UGB.



SATRE ASSOCIATES	DELIVERABLE: 6.B JOB#: 0415 DATE: 5/20/05 DRAWN: JSB/CGM CHECKED: AY REVISED: - BASED ON DRAWINGS BY: W & H PACIFIC, BEAVERTON, OR & KITTLESON ASSOCIATES, PORTLAND, OR August 7, 1997	**LEGEND** ------- **LINN COUNTY SHUTTLE ROUTES**

CITY OF SWEET HOME
Transportation System Plan Refinement and Update 20-30

Linn County Shuttle Routes

FIGURE
5.1

INTERCITY PUBLIC TRANSPORTATION

The Linn Shuttle provides daily service between Sweet Home and Albany. That, however, is the limit of intercity public bus service to or from Sweet Home. There are no passenger trains providing rail service to the City.

Given the limited nature of transit service in Sweet Home, there are no dedicated transit facilities, terminals or transfer stations within the City Limit. Stops for the Linn Shuttle are shown on Figure 5.1. The Sweet Home Senior Center serves as a park and ride location.

Project List

No Projects.

CHAPTER 6:
BICYCLE AND PEDESTRIAN PLAN

This chapter documents the review and assessment of needs, deficiencies, policies and improvement options affecting the bicycle and pedestrian transportation systems within the Sweet Home Urban Growth Boundary (UGB) in accordance with OAR 660-012-0020(2)(d). Specifically, this chapter includes:

- A discussion of the local policy context for developing and maintaining the non-motorized travel modes;
- An evaluation of needs and deficiencies in the existing systems;
- A discussion of various short, mid and longer-term improvement strategies for enhancing and expanding these systems;
- A summary of improvements and;
- A bicycle and pedestrian network map showing existing and planned routes throughout the planning area.

The purpose of the Bicycle and Pedestrian plan is to provide a framework for viable and safe facilities for pedestrians and bicyclists. Information contained in this chapter was obtained largely from the existing conditions inventory discussed in Chapter 2, the future transportation system conditions discussed in Chapter 3, needed sidewalk and bicycle facility improvements discussed in Chapter 8 as well as the goals and policies related to non-motorized travel from several relevant planning documents.

Policy Context and Background

The City of Sweet Home received a Draft Pedestrian and Bicycle Plan (Plan), in 1995, prepared by David Evans and Associates. The Plan contains an inventory of the pedestrian and bicycle facilities (as of 1995), commentary on various legal requirements for bicycle and pedestrian facilities, and a set of recommendations for the City to implement. The plan was referenced in the 1998 TSP update and is hereby incorporated by reference into this revision of the TSP. The *City of Sweet Home Comprehensive Plan* goals, policies and objectives were reviewed and modified as appropriate during the development of this TSP update.

The City of Sweet Home's existing *Comprehensive Plan* includes goals and policies directed at enhancing the bicycle and pedestrian transportation system. These policies focus on building a network of bicycle facilities, largely on the arterial and collector street system, that connect the residential neighborhoods, commercial centers and schools. Specifically, the *Comprehensive Plan* indicates that:

- *"Efforts will be made to complete or connect existing sidewalks along routes to schools, parks, or commercial areas."* (Policy 4-8)

- *"Efforts will be made to extend trails, pedestrian ways, and bikeways through existing residential areas."* (Policy 4-14)

- *"To encourage connectivity and pedestrian access, residential blocks shall meet the development standards, except when topographical constraints make the standards impractical. When existing conditions or topography prevent a cross street, a pedestrian access way to connect streets should be considered as part of the development."*
(Policy 4-15)

- *"Sweet Home will require businesses in the Highway Commercial zone to have plan showing the design for vehicular traffic, and that address pedestrian and bicycle needs."* (Policy 5-7)

- *"The City shall consider Pedestrian and Bicycle System recommendations as listed in the Transportation System Plan."* (Policy 6-5)

Pertaining to pedestrians and bicyclists, the Comprehensive Plan suggests the need for sidewalks and bikeways...*"pedestrian and bicycle facilities provide a safe alternative route for non-motorized transportation"*(Ch. 6, P. 42). The non-motorized transportation system extends beyond the city limits of Sweet Home, therefore, goals and policies inherent in the *Linn County Bicycling Plan (Bicycling Plan)*, as adopted in May 1999, were also considered in developing improvement strategies and recommendations for the City.

Provisions for Bicyclists and Pedestrians are made within the Sweet Home Municipal Code under Title 12 (Streets, Sidewalks and Public Places), Title 16 (Subdivision) and Title 17 (Zoning). Specific provisions are made regarding the placement of non-motorized transportation facilities including sidewalks, bicycle lanes, pedestrian/bicyclist paths and associated amenities (such as bicycle racks). Along with the adoption of the 2005 TSP specific changes are proposed to update the development code to provide more pedestrian and bicyclist amenities in order to meet state requirements.

State Planning Goal 12, The *Transportation Planning Rule*, requires the Oregon Department of Transportation (ODOT) and the cities and counties of Oregon to cooperate and to develop balanced transportation systems, including bicycle and pedestrian facilities through the following measures:

- Local governments shall adopt land use or subdivision regulations for urban areas and rural communities to require:

- Bicycle parking facilities as part of new multiple-family residential developments of four units or more, new retail, office and institutional developments, and all transfer stations and park-and-ride lots;

- Facilities providing safe and convenient pedestrian and bicycle access within and from new subdivisions, planned developments, shopping centers and industrial parks to nearby residential area, transit stops, and neighborhood activity centers, such as schools, parks and shopping. This shall include:

  1. Sidewalks along urban arterials and collectors.
  2. Bikeways along arterials and major collectors.
  3. Where appropriate, separate bike or pedestrian ways to minimize travel distances within and between the areas and developments listed above.

  Routes shall be:

  1. Reasonably free from hazards, particularly types or levels of automobile traffic which would interfere with or discourage pedestrian or cycle travel for short trips.
  2. Provide a direct route of travel between destinations.
  3. Meet travel needs of cyclists and pedestrians considering destination and length of trip.

Local governments shall identify improvements to facilitate bicycle and pedestrian trips to meet local travel needs in developed areas. Appropriate improvements should provide for more direct, convenient and safer bicycle or pedestrian travel within and between residential areas and neighborhood activity centers (i.e., schools, shopping, transit stops). Specific measures include, for example, constructing walkways between cul-de-sacs and adjacent roads, providing walkways between buildings, and providing direct access between adjacent uses.

The Rule has a goal of no increase in metropolitan automobile trips in the first 10 years, a reduction of 10% in 20 years, and a reduction of 20% in 30 years.

Oregon Revised Statute (ORS) 366.514 requires the provision of bicycle and pedestrian facilities on all arterial and major collector construction, reconstruction, or relocation projects where conditions permit. Additionally, in any fiscal year, at least one percent of road improvement funds in a jurisdiction must be allocated for bicycle/pedestrian projects.

Oregon has created a 20-year Transportation Plan to meet the requirements of Goal 12 and the Intermodal Surface Transportation Efficiency Act (ISTEA). The Plan stresses that people must have choices and that transportation systems must support land-use plans. This includes improved circulation systems for bicycles and pedestrians whereby housing, day care, schools, commercial areas and employment can be reached easily and safely.

Goals and Objectives

The 1995 Draft Pedestrian and Bicycle Plan included a number of goals and objectives some of which are pertinent to the current planning context and are indicated below.

Goals:
- Integrate pedestrian and bicycle paths into the overall transportation system plan and in the recreational planning for the area.
- Provide and maintain a comprehensive system for safe and convenient access within the area for bicycle and pedestrian traffic.
- Promote walking and bicycling as alternative forms of transportation for all ages.
- Comply with the Americans with Disabilities Act (ADA) standards.

Objectives:
- Require that all new development conform to all City ordinances.
- Develop funding sources, and seek additional sources for maintenance and new projects.
- Ensure that technical and aesthetic concerns are addressed.
- Link land uses such as parks, schools, shopping areas and residential areas through the utilization of pedestrian and bicycle facilities.
- Work with the Police Department and other appropriate agencies and community groups on safety and enforcement issues.

Existing Conditions and Needs

Sweet Home is a compact city with many destinations located within one-half mile to three miles of each other. Many regions, within the city of Sweet Home, due to street system connectivity, density levels, employment centers and flat topography, have excellent pedestrian and bicycling amenities. Sweet Home's downtown is relatively easy to walk or bike, with a grid pattern of short blocks and many through connections interrupted by only Ames Creek. The interconnected grid pattern of the older parts of town transitions into a more suburban pattern of long blocks and cul-de-sacs in the newer portions of the City.

The main corridor through town, U.S. 20 (Main Street/South Santiam Highway) carries traffic between Interstate 5 and Central Oregon. The swift movement of automobiles and trucks heading through town for other destinations creates a special need to plan for safe and visible pedestrian and bicycling facilities. While improvements have been made, U.S. 20 still provides inadequate facilities for pedestrians and bicyclists for much of its length. The downtown stretch of the highway provides a median with mid-block crosswalks creating a high degree of visibility and safety for motorists, bicyclists and pedestrians. Sidewalks and other facilities are needed in all areas of the City, especially the newer, more suburban, outer reaches.

Chapter Two of this TSP update discusses the existing pedestrian and bicycling conditions in detail. Figure 2.1 (Page 2-x) shows existing bike lanes and sidewalks in Sweet Home. The areas of greatest pedestrian activity are located near downtown and are generated from activity associated with the schools, post office, public library, city hall, convenience and grocery stores and a community recreation center.

While some streets in downtown provide adequate pedestrian amenities and can accommodate bicycles many of the other streets in town lack these amenities . Some of the barriers to efficient and desirable pedestrian and bicycle travel include a lack of walkways and difficulty of crossing Highway 20 outside of downtown, lack of sidewalks and bike lanes or paths on collector streets, lack of east-west connectivity (other than Long Street and Highway 20), and a lack of connection between the newer and older parts of town via the street system which makes it difficult to connect the downtown core to the newer residential areas.

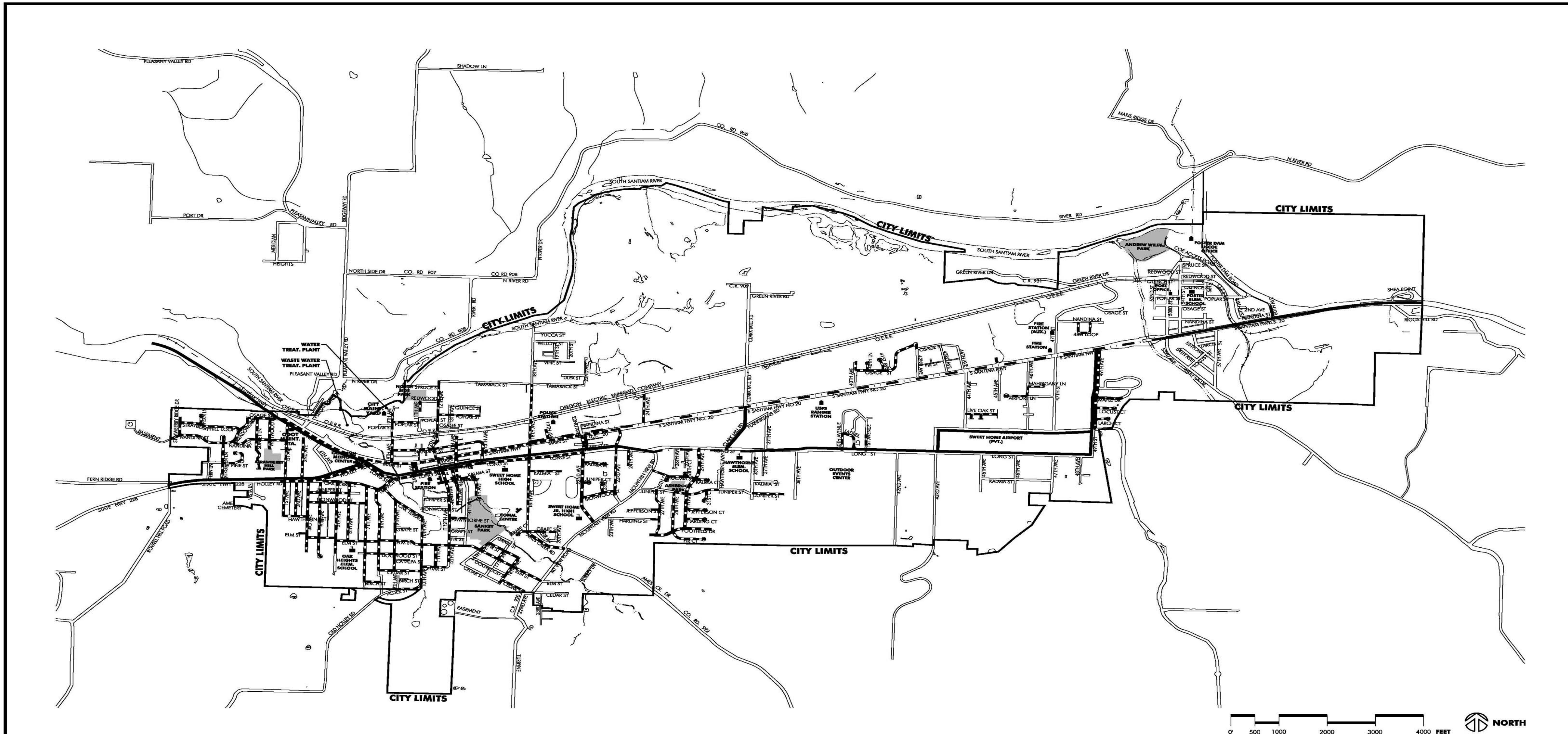
Table 6.1 provides needed bicycle and pedestrian facilities for the City of Sweet Home. The project list is updated to 2005.

Table 6.1 Needed Pedestrian and Bicycle Facilities for the City of Sweet Home

Street	From	To	Improvement	Cost ('000's)/Source	CIP	Priority	Classification	Improvement Status
Ames Creek Road	18th Ave	Mountain View Road	1	24/*	**	High	Collector	Does not meet Design Standards
Holley Road (OR 228)	West City Limits	1st Ave	2	1108 (ODOT)/State	2006 STIP	High	Major Arterial	Does not meet Design Standards
Holley Road (OR 228)	4th Ave	Main Street (US 20)	2	543 (ODOT)/State	2006 STIP	High	Major Arterial	Does not meet Design Standards
Long Street	22nd Ave	Mtn View Road	2	1080/*	**	High	Minor Arterial	Does not meet Design Standards
Long Street	Mtn View Road	35th Ave	2	1080/*	**	High	Minor Arterial	Does not meet Design Standards
Mountain View Road	Long Street	Ames Creek Road	2	480/*	**	High	Collector	Does not meet Design Standards
Mountain View Road	Ames Creek Road	South City Limits	2	205/*	**	High	Collector	Does not meet Design Standards
Tamarack Street	12th Avenue	18th Avenue	2	288/*	**	High	Local	Does not meet Design Standards
14th Avenue	Kalmia Street	Elm Street	2	258/*	**	High	Local	Does not meet Design Standards
18th Avenue	Kalmia Street	Ames Creek Road	1	36/*	**	High	Collector	Does not meet Design Standards
44th Avenue	Airport Road	Main Street (US 20)	2	278/*	**	High	Local	Does not meet Design Standards
47th Avenue	Airport Road	Main Street (US 20)	2	278/*	**	High	Collector	Does not meet Design Standards
Airport Road	43rd Ave	49th Ave	2	495/*	**	Medium	Minor Arterial	Does not meet Design Standards
Long Street	Holley Road	22nd Ave	3	5/*	**	Medium	Minor Arterial	Meets Design Standards
10th Avenue	Long Street	Main Street (US 20)	3	2/*		Medium	Local	Meets Design Standards
22nd Avenue	Long Street	Main Street (US 20)	3	2/*		Medium	Local	Meets Design Standards
Long Street	35th Ave	43rd Ave	2	495/*	**	Medium	Collector	Does not meet Design Standards
Long Street	43rd Ave	49th Ave	2	495/*	**	Medium	Collector	Does not meet Design Standards
Clark Mill Road	Main Street (US 20)	Long Street	2	158/*	**	Medium	Collector	Does not meet Design Standards
Clark Mill Road	Main Street (US 20)	North End	2	480/*	**	Medium	Collector	Does not meet Design Standards
43rd Avenue	Long Street	Airport Road	2	90/*	**	Medium	Minor Arterial	Does not meet Design Standards
47th Avenue	Main Street (US 20)	North City Limits	2	602/*	**	Medium	Collector	Does not meet Design Standards
49th Avenue	Airport Road	Long Street	1	98/*	**	Medium	Collector	Does not meet Design Standards
53rd Avenue	Main Street (US 20)	Spruce Street	2	285/*	**	Medium	Collector	Does not meet Design Standards
54th Avenue	Main Street (US 20)	Spruce Street	2	285/*	**	Medium	Collector	Does not meet Design Standards
49th Avenue	Main Street (US 20)	Airport Road	1	57/*	**	Low	Minor Arterial	Does not meet Design Standards
Ames Creek Road	Mtn View Road	East City Limits	2	325/*	**	Low	Collector	Does not meet Design Standards
Wiley Creek Road	Main Street (US 20)	South City Limits	2	330/*	**	Low	Collector	Does not meet Design Standards
18th Avenue	Tamarack Street	Main Street (US 20)	1	45/*	**	Low	Collector	Does not meet Design Standards
18th Avenue	Main Street (US 20)	Kalmia Street	3	5/*	**	Low	Collector	Meets Design Standards
Elm Street	10th Ave	Mountain View Road	3	5/*	**	Low	Collector	Meets Design Standards
Oak Terrace	Terrace Lane	10th Ave	4	20/*	**	Low	Collector	Does not meet Design Standards
10th Avenue	Oak Terrace	South City Limits	4	54/*	**	Low	Collector	Meets Design Standards
Pedestrian Trail	Ames Cr Road	Foothills - 35th Avenue	5	7/*	**	High	Bike & Ped Route	Alignment conditions vary
Pedestrian Trail	1st Avenue	18th Avenue	6	15/*	**	High	Bike & Ped Route	Undeveloped Trail Width
Pedestrian Trail	18th Ave	Clark Mill Rd - 47th Ave	7	na/Private	N/A	Medium	Bike & Ped Route	Alignment conditions vary

Notes:

City	City Path Program options.	*	Funding contigent on grant/cost share availablity or adjacent property development.	1 = Sidewalk/Bike Lane	5 = ADA/Easements
State	ROW projects or grant/cost share options.			2 = Curb/Sidewalk/Bike Lane	6 = Access/Clearing/ADA/Bridge
Private	Private Development Construction	**	Indeterminate schedule due to lack of stable funding cycles.	3 = Bike Lane Striping	7 = Access/Width
				4 = Sidewalk	



SATRE ASSOCIATES	DELIVERABLE: 6.8 JOB#: 0415 DATE: 5/20/05 DRAWN: JSB/CGM CHECKED: AY REVISED: - BASED ON DRAWINGS BY: W & H PACIFIC, BEAVERTON, OR & KITTELSON ASSOCIATES, PORTLAND, OR August 7, 1997	**LEGEND** EXISTING BIKEWAY EXISTING SIDEWALK PROPOSED BIKEWAY

CITY OF SWEET HOME

Transportation System Plan Refinement and Update 20-30

Pedestrian and Bicycle Network

FIGURE **6.1**

Strategies and Summary

To enhance pedestrian and bicycle safety and to encourage bicycling as a viable travel mode the City of Sweet Home should implement the projects identified below, and as discussed within this report and in Table 6.1. Priorities for pedestrian and bicycle system improvements are to serve major destinations (such as schools, parks, shopping and employment areas) while filling in gaps to create an interconnected system.

- Construct new sidewalks and bicycle lanes as part of roadway improvements.
- Retrofit bicycle lanes onto existing streets by removing parking (if necessary to clear space for bike lanes), street widening, narrowing travel lanes, or providing additional space through other means.
- Overcome barriers to pedestrian and bicycle circulation through the use of accessways, multi-use paths or easements, or other creative strategies.
- Implement safety improvements such as evaluating and addressing where possible the contributing causes to existing bicycle accidents to identify appropriate street or intersection improvements (including sight distance, lack of clear view triangle, or other factors).
- Provide and improve access to schools and other activity centers.
- Add new sidewalks and bicycle lanes along Highway 20 and Highway 228 and collector streets to fill in gaps utilizing adaptable sidewalk standards to help fit into the existing environment
- Ensure ADA compliance of pedestrian facilities
- Implement operational improvements such as crosswalks where active pedestrian protection can be provided (such as signal or flashing beacon), curb extensions to reduce street crossing distance for pedestrians, adequate signal timing for safe pedestrian street crossing, pedestrian detection devices.
- Improve the general pedestrian and bicycle environment:
    - Support facilities like parking and safe storage, "share the road" signage and others
    - Perform routine maintenance within bikeways and pedestrian paths
    - Support efforts to encourage safe bicycle use through staff training, data collection about bicycle use, public education and outreach, and other activities
    - Overcome barriers to the non-motorized transportation system (power poles - or other impediment - placed within the sidewalk or bicycle way, narrow road shoulders, unsafe street crossings)
    - Incorporate planter strips or other feature designed to separate pedestrians from

automobiles

- Address the need for pedestrian connectivity and accessibility through the land use/land development process including development of pedestrian-friendly building site design and orientation.
- Develop accessways between buildings to shorten walking distances
- Provide street lighting
- Assure that bicycle parking is provided as a component of all new commercial, industrial and multiple-family development

CHAPTER 7:
AIR, RAIL, WATER AND PIPELINE PLAN

This chapter presents an Air, Rail, Water and Pipeline Plan for the City of Sweet Home in accordance with OAR 660-012-0020(2)(e). Specifically, this chapter includes:

- An Airport Planning Element with location and Transportation Planning Rule compliance information;
- A Rail Planning Element;
- A Waterway Transportation Planning Element; and
- A Pipeline Transportation Planning Element.

AIRPORT PLANNING ELEMENT

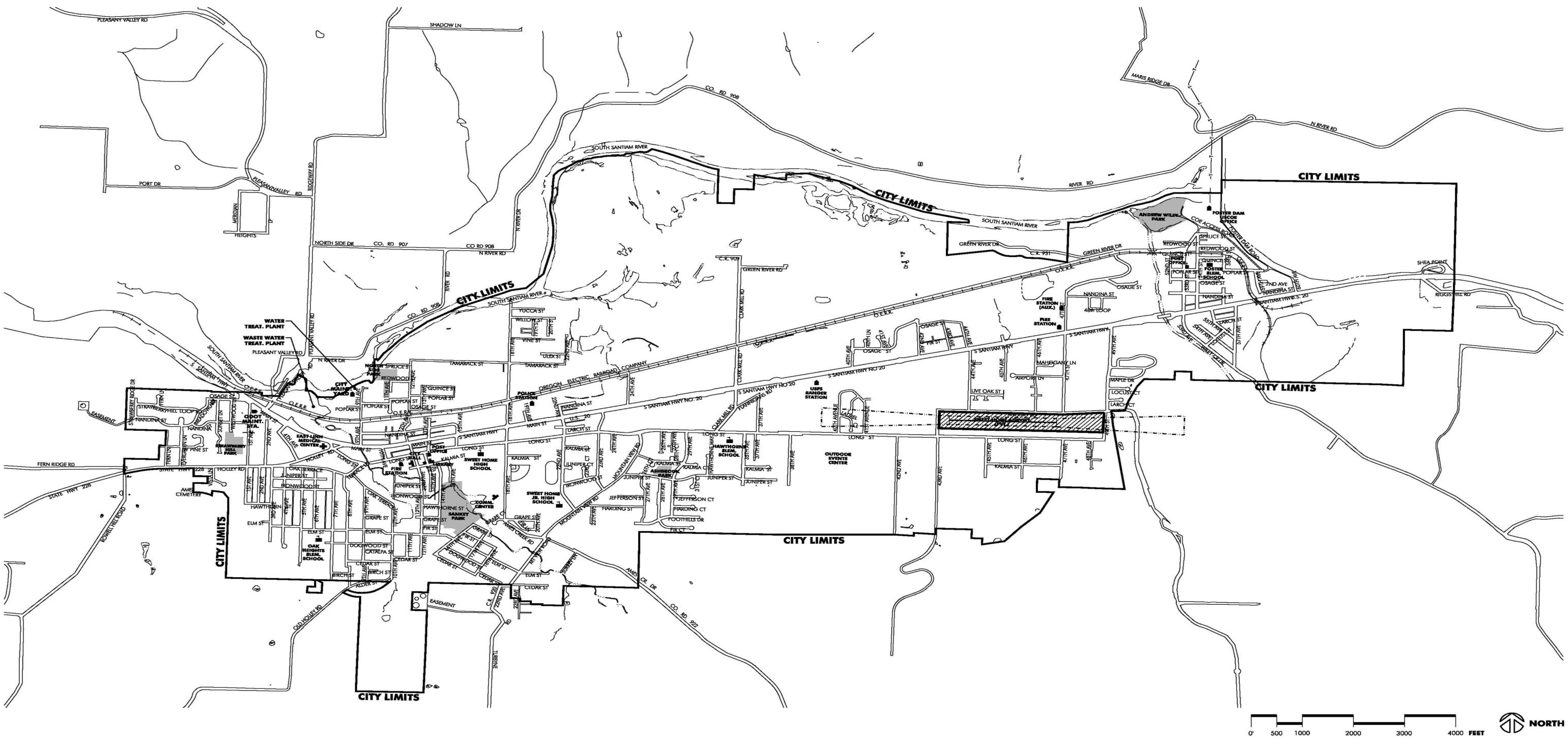
Sweet Home has one privately owned private use airport: Langmack Field, also designated by the State as the Sweet Home Painting Airport. The airport is located on the south side of Airport Road, between 43rd and 49th Avenues. The airport runway is 2,200 feet long and is oriented east-west at an elevation of 650 feet (Latitude 44.39944, Longitude -122.68417). The Oregon Department of Aviation officially lists the name of this private airport as Sweet Home Painting Airport.

Expansion of the airport is not expected due to existing topographical constraints to the east and existing development constraints to the north, west and south. Similarly, upgrading the airport for public use is unlikely for the same reasons.

While the field is used infrequently, it is located within the City Limits of Sweet Home and residentially zoned property surrounds the airport on four sides. At the present time, Sweet Home's zoning code does not contain Airport Overlay Zone regulations for Langmack Field. In order to ensure compliance with the airport/land-use compatibility requirements of the Transportation and Airport Planning Rules, application of land use regulations to the airport and its surrounds is required.

The Airport Planning Element of the TSP must demonstrate compliance with ORS 836.608(2) through (6) and (8), and OAR 660-013-0155(1) through (4). To comply with these regulations, an Airport Overlay Zone for Langmack Field will be adopted as an implementing ordinance along with the TSP. Figure 7.1 shows the location and ownership boundary of Langmack Field and the Airport Overlay Zone.

The nearest public airport is the Eugene Airport at Mahlon Sweet Field.



DELIVERABLE:	6.B
JOB#:	0415
DATE:	5/20/05
DRAWN:	JSB/CGM
CHECKED:	AY
REVISED:	-

BASED ON DRAWINGS BY: W & H PACIFIC, BEAVERTON, OR & KITTLESON ASSOCIATES, PORTLAND, OR August 7, 1997

SATRE ASSOCIATES

LEGEND

LANGMACK FIELD BOUNDARY

AIRPORT OVERLAY ZONE

CITY OF SWEET HOME

Transportation System Plan Refinement and Update 20-30

Langmack Field Location and Ownership Boundary

FIGURE **7.1**

RAIL PLANNING ELEMENT

One branch rail line operated by Albany and Eastern Railroad Company serves Sweet Home. The rail line enters the City from the west terminating at the Foster Mill site on the east side of the Sweet Home. The rail line serves a freight function only with one train visiting the City per day. There are no designated stations or rail yards within Sweet Home; some industrial users have direct access to the railroad.

The nearest public train station is located in Albany (Eugene, Corvallis and Salem are other nearby cities with passenger train service).

At present, there is no identified need to implement passenger rail service or expand freight rail service in Sweet Home. Anticipated development in north Sweet Home (the Santiam River Club Development) will largely eliminate the need for future additional freight rail service to the City, but may create the need for passenger rail service.

WATERWAY TRANSPORTATION PLANNING ELEMENT

According to the Oregon Division of State Lands website, which provides a list of navigable waterways, there are no navigable waterways or port facilities currently located within or near Sweet Home and no such facilities anticipated within the planning period. Therefore, no further planning action or information is required at this time.

http://statelands.dsl.state.or.us/navigwaterways.htm

PIPELINE TRANSPORTATION PLANNING ELEMENT

There are no major regional pipeline or pipeline terminals currently located within or near Sweet Home and no such facilities anticipated within the planning period. Therefore, no further planning action or information is required at this time.

CHAPTER 8:
TRANSPORTATION FINANCING PROGRAM

This chapter presents finance program information for the City of Sweet Home TSP. OAR 660-012-0040 requires transportation finance programs for all cities with populations greater than 2,500 persons. In accordance with the OAR, this transportation finance program includes:

- A list of planned transportation facilities and major improvements;
- A general estimate of the timing for planned transportation facilities and major improvements; and
- A determination of the cost estimates for the transportation facilities and major improvements.

In addition, this chapter reviews potential funding sources and presents recommended local funding actions for further review and evaluation.

PLANNED TRANSPORTATION FACILITIES AND MAJOR IMPROVEMENTS

Improvements

The following section presents needed transportation system improvements for Sweet Home. Table 8.1 summarizes the needed roadway system transportation facilities identified in the intersection, queuing and signal warrant analyses prepared by Group MacKenzie and by City of Sweet Home staff.

Table 8.1 - Needed Road System Improvements

Roadway	Classification	Improvement Status	From	To	Needs Inventory	Estimated Cost ($ in Thousands)	Funding Source	CIP Timing
Main Street (US 20)	Major Arterial	Meets Design Standards	West City Limits	58th Ave	None	NA	NA	Completed
Main Street (US 20)	Major Arterial	Does not meet Design Standards	58th Ave	East City Limits	Curb/Gutter/Sidewalks	2180 (ODOT)	State	Unknown
Holley Road (OR 228)	Major Arterial	Does not meet Design Standards	West City Limits	1st Ave	Curb/Gutter/Sidewalks	1108 (ODOT)	State	2006 STIP
Holley Road (OR 228)	Major Arterial	Meets Design Standards	1st Ave	4th Ave	None	NA	NA	NA
Holley Road (OR 228)	Major Arterial	Does not meet Design Standards	4th Ave	Main Street (US 20)	Curb/Gutter/Sidewalks	543 (ODOT)	State	2006 STIP
Oak Terrace	Minor Arterial	Meets Design Standards	4th Ave	Terrace Lane	None	NA	NA	NA
Terrace Lane	Minor Arterial	Meets Design Standards	Oak Terrace	Long Street	None	NA	NA	NA
Long Street	Minor Arterial	Meets Design Standards	Holley Road	22nd Ave	None	NA	NA	NA
Long Street	Minor Arterial	Does not meet Design Standards	22nd Ave	43rd Ave	Curb/Gutter/Sidewalks	1080	*	**
43rd Avenue	Minor Arterial	Does not meet Design Standards	Long Street	Airport Road	Curb/Gutter/Sidewalks	90	*	**
Airport Road	Minor Arterial	Does not meet Design Standards	43rd Ave	49th Ave	Curb/Gutter/Sidewalks	495	*	**
49th Avenue	Minor Arterial	Does not meet Design Standards	Main Street (US 20)	Airport Road	Sidewalks	57	*	**
Clark Mill Road	Collector	Does not meet Design Standards	Main Street (US 20)	North End	Curb/Gutter/Sidewalks	480	*	**
Clark Mill Road	Collector	Does not meet Design Standards	Main Street (US 20)	Long Street	Curb/Gutter/Sidewalks	158	*	**
Mountain View Road	Collector	Does not meet Design Standards	Long Street	Ames Creek Road	Curb/Gutter/Sidewalks	480	*	**
Mountain View Road	Collector	Does not meet Design Standards	Ames Creek Road	South City Limits	Curb/Gutter/Sidewalks	205	*	**
Ames Creek Road	Collector	Does not meet Design Standards	18th Ave	Mountain View Road	Sidewalks	24	*	**
Ames Creek Road	Collector	Does not meet Design Standards	Mountain View Road	East City Limits	Curb/Gutter/Sidewalks	325	*	**
Long Street	Collector	Does not meet Design Standards	43rd Ave	49th Ave	Curb/Gutter/Sidewalks	495	*	**
Elm Street	Collector	Meets Design Standards	10th Ave	Mountain View Road	None	NA	NA	NA
Wiley Creek Road	Collector	Does not meet Design Standards	Main Street (US 20)	South City Limits	Curb/Gutter/Sidewalks	330	*	**
Oak Terrace	Collector	Does not meet Design Standards	Terrace Lane	10th Ave	Sidewalks	20	*	**
10th Avenue	Collector	Meets Design Standards	Oak Terrace	South City Limits	Sidewalks	54	*	**
12th Avenue	Collector	Meets Design Standards	Elm Street	Tamarack Street	None	NA	NA	NA
18th Avenue	Collector	Does not meet Design Standards	Tamarack Street	Main Street (US 20)	Sidewalks	45	*	**
18th Avenue	Collector	Meets Design Standards	Main Street (US 20)	Kalmia Street	None	NA	NA	NA
18th Avenue	Collector	Does not meet Design Standards	Kalmia Street	Ames Creek Road	Sidewalks	36	*	**
47th Avenue	Collector	Does not meet Design Standards	Main Street (US 20)	North City Limits	Curb/Gutter/Sidewalks	602	*	**
47th Avenue	Collector	Does not meet Design Standards	Airport Road	Main Street (US 20)	Curb/Gutter/Sidewalks	278	*	**
49th Avenue	Collector	Does not meet Design Standards	Airport Road	Long Street	Curb/Gutter/Sidewalks	98	*	**
53rd Avenue	Collector	Does not meet Design Standards	Main Street (US 20)	Spruce Street	Curb/Gutter/Sidewalks	285	*	**

Notes:

* Funding contigent on grant/cost share availablity or adjacent property development.

** Indeterminate schedule due to lack of stable funding cycles.

City of Sweet Home Engineering

Table 8.2 summarizes the high priority (priority 1-1.5) resurfacing projects listed in the Sweet Home 10-Year Resurfacing Capital Improvement projects list that were not completed as of 2004. High priority projects are to be completed by the year 2007.

Table 8.2 - High Priority Resurfacing Projects

Priority	Street Name	Surface Width (ft.)	From	To	Road Miles	Est COST
1	Tamarack - A	20	18th	12th	0.37	$11,559.00
1	Kamia - A	32	Mt View	29th	0.23	$11,372.00
1.5	49th - A	40	Hwy 20	Airport Rd	0.38	$23,692.00
1.5	12th - C	32	Elm	S. end	0.09	$4,738.00
1.5	29th - A	29	Long	Juniper	0.23	$10,306.00
1.5	2nd - A	32	Hwy 228	N. end	0.19	$9,477.00
1.5	Fir Ct	32	Foothills	E. end	0.15	$7,582.00
1.5	Nandina - B	33	Strawberry Ridge	Evergreen	0.19	$9,773.00
1.5	Strawberry Loop	29	Strawberry Ridge	Meadowlark	0.23	$10,650.00
1.5	16th	29	Elm	Fir	0.04	$1,804.00
1.5	19th	27	Hwy 20	N. end	0.11	$4,798.00
1.5	23rd - A	29	Long	Ironwood	0.27	$12,024.00
1.5	24th	28	Long	S. end	0.08	$3,317.00
1.5	26th Ct	28	Kalmia	S. end	0.06	$2,488.00
1.5	Dogwood - B	31	7th	8th	0.04	$1,836.00
1.5	Fern Ln	29	Strawberry Loop	N. end	0.04	$1,708.00
1.5	Hawthorne - B	29	12th	14th	0.06	$2,577.00
1.5	Juniper - A	29	3rd	6th	0.15	$6,871.00
1.5	Juniper - C	32	29th	31st Ct	0.08	$3,791.00
1.5	Kalmia - B	29	18th	E. end	0.12	$5,582.00
1.5	Larch Ct	29	49th	E. end	0.05	$2,362.00
1.5	Locust Ct	28	49th	E. end	0.08	$3,317.00
1.5	Maple Dr	22	49th	E. end	0.09	$3,258.00
1.5	Poplar - A	28	12th	E. end	0.16	$7,048.00
1.5	Strawberry Ridge	29	Nandina	Strawberry Loop	0.08	$3,607.00
1.5	Sunset	29	Osage	LCAH	0.14	$6,441.00
1.5	West Pine	33	Evergreen	E. end	0.14	$7,329.00
1.5	Green River - C	22	Clark Mill Rd	W. end	0.09	$2,932.00
1.5	Kalmia - D	18	35th	E. end	0.09	$2,665.00

Total costs: $ 184,903.00

Table 8.3 presents medium (priority 2-2.5) and low priority (priority 3-3.5) resurfacing projects listed in the Sweet Home 10-Year Resurfacing Capital Improvement projects list. Medium priority resurfacing projects are to be completed by 2010 and low priority projects are to be completed by 2015. Completion years are subject to change or delay due to priority of repairing underground utilities, water, and sanitary sewer prior to street paving.

Table 8.3 - Medium and Low Priority Resurfacing Projects

Priority	Street Name	Surface Width (ft.)	From	To	Road Miles	Est. COST	CIP Year
2	18th - A	35	Hwy 20	Ames Creek	0.57	$31,096.00	8
2	Ironwood - A	29	3rd	7th	0.19	$8,588.00	9
2	1st - B	32	Hwy 228	Hawthorne	0.15	$7,582.00	9
2	3rd	32	Hwy 228	S. end	0.34	$17,058.00	9
2	4th	32	Hwy 228	S. end	0.334	$17,058.00	9
2	8th - A	29	Cedar	Oak Terrace	0.38	$17,177.00	9
2	9th	29	Oak Terrace	Cedar	0.34	$15,459.00	9
2	Harding	20	Mt View	E. end	0.15	$4,738.00	9
2	Poplar - C	28	11th	9th	0.1	$4,561.00	10
2	17th	29	Elm	Fir	0.04	$1,718.00	10
2	Cedar - A	32	8th	10th	0.11	$5,686.00	10
2	11th	29	Elm	Cedar	0.11	$5,153.00	10
2	13th - A	29	Kalmia	S. end	0.09	$4,294.00	10
2	18th - D	29	Elm	Cedar	0.08	$3,435.00	10
2	Cedar	29	10th	12th	0.09	$3,865.00	10
2	Cedar - B	29	18th	Mt View	0.09	$4,294.00	10
2	Fir	29	16th	18th	0.11	$5,153.00	10
2	Grape	32	18th	20th	0.11	$5,686.00	10
2	Westwood	34	Osage	S. end	0.14	$7,552.00	10
2.5	4th	30	Hwy 228	300' North	0.06	$6,663.00	2
2.5	1st - A	29	Hwy 228	Hwy 20	0.3	$13,742.00	7
2.5	13th - B	36	Hwy 20	N. end	0.08	$4,265.00	8
2.5	2nd - B	29	Hawthorne	Hwy 228	0.15	$17,177.00	8
2.5	9th	29-37	Poplar	Hwy 20	0.19	$9,773.00	8
2.5	Dogwood	29	8th	10th	0.23	$26,765.00	8
2.5	Elm - C	33	W. end	5th	0.15	$19,546.00	8
2.5	Hawthorn - A	32	1st	3rd	0.09	$11,846.00	8
2.5	Kalmia	38	12th	W. end	0.03	$1,688.00	8
2.5	Mt View - B	22	Cedar	Ames Ck	0.25	$8,470.00	8
2.5	47th - A	20	Airport Rd	Hwy 20	0.27	$24,877.00	8
2.5	Nandina - A	32	Meadowlark	1st	0.21	$10,425.00	9
3	12th - A	33-36	Long	Kalmia	0.06	$21,316.00	4
3	12th - F	33-36	Kalmia	Elm	0.47	$63,388.00	4
3	22nd	42	Mt View	Long	0.34	$55,973.00	4
3	Long - C	27	22nd	Mt View	0.27	$34,781.00	5
3	10th - C	45	Long	Hwy 20	0.07	$4,664.00	6
3	12th - D	31	Nandina	Hwy 20	0.06	$2,754.00	6
3	13th - C	35	Long	Kalmia	0.06	$7,774.00	6
3	23rd - B	33	Long	Hwy 20	0.09	$12,216.00	6
3	Birch	30	7th	8th	0.06	$18,878.00	6
3	Long - B	21	Mt View	Clark Mill	0.27	$26,121.00	6
3	12th - E	36	Long	Hwy 20	0.04	$2,132.00	7
3	15th - C	36	Nandina	Hwy 20	0.04	$6,397.00	7
3.5	Tamarack	18	18th	E. end	0.21	$54,103.00	2

Total costs: $636,890.00

Over the last five years, Sweet Home has completed 50 sidewalk and ADA ramp replacement or repair projects. At present, 32 additional projects have been identified by the City Public Works staff. Cost per project generally range between $1,000 and $3,000 dollars to complete. Total estimated cost to complete identified pedestrian improvements is $64,700. At the current rate of replacement, all identified sidewalk and ramp replacement or repair projects will be completed by 2008. Table 8.4 provides the needed ADA ramp improvements, estimated cost and location, by priority year.

Table 8.4 Needed ADA Ramp Improvements

Project Year	Primary Street	Cross Street	Corner(s)	Comments	Ramps	Ramp #	Est. Cost	ADA Ramps
Group 1								
	Hawthorne St	1st Ave	NE		1	30	$ 1,700	$ 1,700
	Hawthorne St	2nd Ave	NW, NE		2	31, 32	$ 1,500	$ 3,000
	Elm St	3rd Ave	SW, NW, SE		3	33, 34, 35	$ 1,500	$ 4,500
	Elm St	10th Ave	NW	Sidewalk Repairs & New			$ 1,200	$ 1,200
	Elm St	11th Ave	SE	Ramp Repair	1		$ 1,500	$ 1,500
	Elm St	16th Ave	SW	Sidewalk Repair, Apron Access			$ 3,000	$ -
	1st Ave	Main St	SW, SE	Crosswalk setback from Stop t	2	na, na	$ 1,900	$ 3,800
Total					9			$ 15,700.00
Group 2								
	Dogwood St	8th Ave	SE, NE, SW, NW		4	48, 49, 50, 51	$ 1,700	$ 6,800
	Dogwood St	9th Ave	SE, NE, SW, NW		4	54, 55, 56, 57	$ 1,700	$ 6,800
	Catalpa St	9th Ave	SE, NE.		2	58, 59	$ 1,100	$ 2,200
	Cedar St	8th Ave	NE		1	47	$ 1,100	$ 1,100
	Cedar St	9th Ave	NW, NE		2	60, 61	$ 1,500	$ 3,000
Total					13			$ 19,900.00
Group 3								
	Cedar St	11th Ave	NE, NW		2	62, 63	$ 1,500	$ 3,000
	Kalmia	12th Ave	NW	City Hall / Court	1	na	$ 1,100	$ 1,100
	Kalmia	14th Ave	SW.		1	94	$ 1,000	$ 1,000
	Fir St	14th Ave	SW		1	79	$ 1,100	$ 1,100
	Fir St	16th Ave	SE, NE		2	89, 90	$ 1,100	$ 2,200
	Fir St	17th Ave	SE, SW, NW		3	86, 87, 88	$ 1,500	$ 4,500
	Cedar St	18th Ave	SE, NE		2	83, 84	$ 1,500	$ 3,000
Total					12			$ 15,900.00
Group 4								
	Grape St	18th Ave	SE, NE		2	17, 18	$ 1,500	$ 3,000
	Grape St	20th Ave	SW		1	65	$ 1,100	$ 1,100
	Osage St	42nd Ave	SW		1	67	$ 1,100	$ 1,100
	Main St	47th Ave	NW	ODOT permit req'd	1	na	$ 2,500	$ 2,500
	Long St	22nd Ave	SE	Repair	1		$ 1,500	$ 1,500
	16th Ave	Elm St	Fir St	Sidewalk to Park Entrance	1		$ 3,000	$ 3,000
	Oak Terrace	8th Ave	Southside	Sidewalk Link	1		$ 1,000	$ 1,000
Total					6			$ 13,200.00
Total ADA Ramp Placement Remaining					34			
Cost ADA Ramp								$ 64,700.00

Sweet Home Engineering Staff

Table 8.5 provides a listing of needed alley approach and alley improvements, location and cost estimate for each.

Table 8.5 Needed Alley Improvements

Project	Item	Primary Street	Cross Street	Comments	Alley	Alley #	Est. Cost	Alley Aprons
Group								
	Alley	8th to 9th Ave	Oak Terr- Elm	2x Approach Apron	2	A5.1, A5.2	$ 2,500	$ 5,000
	Alley	Holley Rd - Hawth	1st - 2nd	ODOT permit	1	A1.2	$ 2,000	$ 2,000
	Alley	Ironwood - Elm	4th - 5th		1	A3.1	$ 2,000	
	Alley	Ironwood - Elm	6th - 7th		2	A4.1, A4.2	$ 2,500	$ 5,000
	Alley	9th to 12th Ave	Main - Nandina		1	A10.1	$ 2,000	$ 2,000
	Alley	12th to 13th Ave	Main - Nandina		1	A11.1	$ 2,000	$ 2,000
	Alley	10th to 12th Ave	Main - Long		1	A6.2	$ 2,000	
	Alley	22nd to E.end	Main - Larch		1	A9.1	$ 2,000	$ 2,000
Total					10			$ 18,000.00
Group								
	Hard Surf. Appr.	Alley		20' fom Prop.Line	14		$ 1,200	$ 16,800
	Hard Surf. Appr.	City Property	Long St @ 10th	20' fom Prop.Line			$ 1,200	$ 1,000
Total								$ 17,800.00
Total Alley Replacement					10			
Total Cost Alley & Approach								$ 35,800.00

Sweet Home Engineering Staff

Bicycle and pedestrian facilities and public improvements are listed in Table 8.6

+

Table 8.6 Needed Bicycle and Pedestrian Improvements

Street	From	To	Improvement	Cost ('000's)/Source	CIP	Priority	Classification	Improvement Status
Ames Creek Road	18th Ave	Mountain View Road	1	24/*	**	High	Collector	Does not meet Design Standards
Holley Road (OR 228)	West City Limits	1st Ave	2	1108 (ODOT)/State	2006 STIP	High	Major Arterial	Does not meet Design Standards
Holley Road (OR 228)	4th Ave	Main Street (US 20)	2	543 (ODOT)/State	2006 STIP	High	Major Arterial	Does not meet Design Standards
Long Street	22nd Ave	Mtn View Road	2	1080/*	**	High	Minor Arterial	Does not meet Design Standards
Long Street	Mtn View Road	35th Ave	2	1080/*	**	High	Minor Arterial	Does not meet Design Standards
Mountain View Road	Long Street	Ames Creek Road	2	480/*	**	High	Collector	Does not meet Design Standards
Mountain View Road	Ames Creek Road	South City Limits	2	205/*	**	High	Collector	Does not meet Design Standards
Tamarack Street	12th Avenue	18th Avenue	2	288/*	**	High	Local	Does not meet Design Standards
14th Avenue	Kalmia Street	Elm Street	2	258/*	**	High	Local	Does not meet Design Standards
18th Avenue	Kalmia Street	Ames Creek Road	1	36/*	**	High	Collector	Does not meet Design Standards
44th Avenue	Airport Road	Main Street (US 20)	2	278/*	**	High	Local	Does not meet Design Standards
47th Avenue	Airport Road	Main Street (US 20)	2	278/*	**	High	Collector	Does not meet Design Standards
Airport Road	43rd Ave	49th Ave	2	495/*	**	Medium	Minor Arterial	Does not meet Design Standards
Long Street	Holley Road	22nd Ave	3	5/*	**	Medium	Minor Arterial	Meets Design Standards
10th Avenue	Long Street	Main Street (US 20)	3	2/*		Medium	Local	Meets Design Standards
22nd Avenue	Long Street	Main Street (US 20)	3	2/*		Medium	Local	Meets Design Standards
Long Street	35th Ave	43rd Ave	2	495/*	**	Medium	Collector	Does not meet Design Standards
Long Street	43rd Ave	49th Ave	2	495/*	**	Medium	Collector	Does not meet Design Standards
Clark Mill Road	Main Street (US 20)	Long Street	2	158/*	**	Medium	Collector	Does not meet Design Standards
Clark Mill Road	Main Street (US 20)	North End	2	480/*	**	Medium	Collector	Does not meet Design Standards
43rd Avenue	Long Street	Airport Road	2	90/*	**	Medium	Minor Arterial	Does not meet Design Standards
47th Avenue	Main Street (US 20)	North City Limits	2	602/*	**	Medium	Collector	Does not meet Design Standards
49th Avenue	Airport Road	Long Street	1	98/*	**	Medium	Collector	Does not meet Design Standards
53rd Avenue	Main Street (US 20)	Spruce Street	2	285/*	**	Medium	Collector	Does not meet Design Standards
54th Avenue	Main Street (US 20)	Spruce Street	2	285/*	**	Medium	Collector	Does not meet Design Standards
49th Avenue	Main Street (US 20)	Airport Road	1	57/*	**	Low	Minor Arterial	Does not meet Design Standards
Ames Creek Road	Mtn View Road	East City Limits	2	325/*	**	Low	Collector	Does not meet Design Standards
Wiley Creek Road	Main Street (US 20)	South City Limits	2	330/*	**	Low	Collector	Does not meet Design Standards
18th Avenue	Tamarack Street	Main Street (US 20)	1	45/*	**	Low	Collector	Does not meet Design Standards
18th Avenue	Main Street (US 20)	Kalmia Street	3	5/*	**	Low	Collector	Meets Design Standards
Elm Street	10th Ave	Mountain View Road	3	5/*	**	Low	Collector	Meets Design Standards
Oak Terrace	Terrace Lane	10th Ave	4	20/*	**	Low	Collector	Does not meet Design Standards
10th Avenue	Oak Terrace	South City Limits	4	54/*	**	Low	Collector	Meets Design Standards
Pedestrian Trail	Ames Cr Road	Foothills - 35th Avenue	5	7/*	**	High	Bike & Ped Route	Alignment conditions vary
Pedestrian Trail	1st Avenue	18th Avenue	6	15/*	**	High	Bike & Ped Route	Undeveloped Trail Width
Pedestrian Trail	18th Ave	Clark Mill Rd - 47th Ave	7	na/Private	N/A	Medium	Bike & Ped Route	Alignment conditions vary

Notes:

City — City Path Program options.
State — ROW projects or grant/cost share options.
Private — Private Development Construction

* Funding contigent on grant/cost share availablity or adjacent property development.
** Indeterminate schedule due to lack of stable funding cycles.

1 = Sidewalk/Bike Lane
2 = Curb/Sidewalk/Bike Lane
3 = Bike Lane Striping
4 = Sidewalk
5 = ADA/Easements
6 = Access/Clearing/ADA/Bridge
7 = Access/Width

FUNDING SOURCES

Transportation funding originates from a variety of federal, state and local sources. This section presents (1) general information about the range of federal, state and local funding options available to the city, (2) a summary of current funding mechanisms and (3) recommendations for funding existing and future transportation improvement and maintenance activities.

Federal Transportation Funding

The Safe, Accountable, Flexible and Efficient Transportation Equity Act of 2003 (SAFETEA)

SAFETEA is the third incarnation of a transportation vision first forwarded by the United States Congress in 1991. The Intermodal Surface Transportation Efficiency Act (ISTEA), adopted in 1991 and renewed in 1998 through the Transportation Equity Act of the 21st Century (TEA-21), recognized the importance of a safe multi-modal surface transportation system to the Nation's economy. ISTEA and TEA-21 provided federal funding for a wide variety of state transportation programs aimed at strengthening and integrating surface transportation infrastructure.

SAFETEA, also known as TEA-3, places an emphasis on transportation safety with over $201 billion in funding proposed for highway and safety programs and nearly $46 billion in funding for public transportation programs from fiscal year 2004 through fiscal year 2009. Since the expiration of the TEA-21 legislation in September of 2003, the President has signed six extensions of TEA-21 into law. Currently, reauthorization of the federal transportation legislation proposed in TEA-3 has been postponed until 2005. In the interim, the $388 billion omnibus spending bill signed into law by the President on December 8, 2004 does provide funds for transportation for the current fiscal year (FY-05).

For additional information and updates on the ongoing legislative process, visit the following websites:

www.fhwa.dot.gov/reauthorization
www.tea3.org

Transportation Enhancement Program

The Transportation Enhancement (TE) program provides federal highway funds for projects that strengthen cultural, aesthetic or environmental elements of the transportation system. Typical projects include sidewalk and streetscape construction, bike lanes and shared use paths, viewpoints and interpretive sites and transportation related historic preservation. TE funds are specifically allocated for special or additional projects not normally required on highway projects.

All projects funded by TE dollars must conform to federal (Title 23) and state procedures and participation in the program requires a minimum funding match of 10.27% (in Oregon).

Additionally, the minimum request must be $200,000 unless an exception is granted prior to application submittal.

Information about the Transportation Enhancement Program is available from ODOT or by visiting the following website:

www.enhancements.org

State Funding Options

State Transportation Improvement Program (STIP)

The Statewide Transportation Improvement Program, known as the STIP, is Oregon's four-year transportation capital improvement program. The document identifies funding for, and scheduling of, transportation projects and programs. It includes projects on the federal, state, city, and county transportation systems, multimodal projects (highway, passenger rail, freight, public transit, bicycle and pedestrian), and projects in the National Parks, National Forests, and Indian tribal lands.

Programs and projects funded through the STIP must comply with state and local land use laws. All STIP projects require local match. Projects are developed in accordance with federal planning regulations, and the goals, policies, and guidance set forth in the *Oregon Transportation Plan*, ODOT's overall policy document directing transportation investments for the state.

The 2004-2007 STIP lists two projects that will impact Sweet Home. Project Number 11876 is a $2,106,000 road preservation overlay project located on Highway 20 just west of the City limits. This project is completed. Project 13095 includes various bicycle and pedestrian improvements in Lebanon, Halsey and Sweet Home, totaling $4,264,000 and constructed is estimated to start in 2006. The Draft 2006-2009 STIP continues one project in Sweet Home, which is a continuation of Project Number 13095, to start work in 2006.

The STIP is updated every two years, with planning and public review of the 2006-2009 STIP currently under review. For additional information visit the following website:

www.odot.state.or.us/stip/

State Scenic Byway Program

Highway 20 through Sweet Home is designated a Sate Scenic Byway and is eligible for funding by the National Scenic Byway, which is a program of the Federal Highway Administration (FHWA) and is administered in Oregon by the Oregon Department of Transportation. Projects must be consistent with the Scenic Byway Corridor Management Plan and require a 20 percent local match.

Minimum project size is $200,000.00. Projects may include: visitor, bicycle, pedestrian facilities, including rest areas, shoulder improvements, interpretive signs, etc.

Local Funding Options

Systems Development Charge (SDC)

SDC's are one-time funding mechanisms which allow the city to recover the cost of the impacts from development on public facilities. SDC fees are established by the city and adopted via ordinance. SDC fees are usually collected with building permits and calculation of the fee is based on impact and cost of the transportation system. Sweet Home does not have an adopted SDC for transportation infrastructure at this time. The City is in the process of updating water and sewer SDCs. SDCs are not considered a long term source of funding for major street projects.

Local Gas Tax

Local gas taxes are assessments added to each gallon of gas purchased within a specified geographic area. A number of communities in Oregon including Cottage Grove, Dundee, Eugene, Sandy, Springfield, Stanfield, The Dalles, Tillamook and Woodburn, have local gas tax ordinances. Gas Tax rates vary between 1 and 3 cents per gallon in the communities listed above.

Utility Fee

Transportation utility fees are fees charged based on use of the local transportation system. In practice, the city could assess a monthly fee from each residential, commercial and industrial property in the city based on the number of trips generated from the property per day. Trip calculations for transportation utility fees could be determined based on the average daily trip rates for specified uses as published in the Institute of Transportation Engineers trip generation manual. Another option for calculation would be a flat fee per residence and business. A number of communities in Oregon utilize a transportation utility fee to pay for transportation related needs ranging from capital improvements to street maintenance. Sweet Home currently does not charge a utility fee. This option is unlikely to be approved by the City, unless the fee is low.

General Obligation Bonds

A variety of bond instruments (long-term debt instruments obtained from a qualified lender) could be utilized to fund specified transportation improvement projects and in some cases transportation maintenance. As an example, Sweet Home currently uses revenues from property tax payments to pay for the debt service on the new Police/Emergency Dispatch Building built with the assistance of $950,000 in General Obligation Bonds. Bond issuance requires voter approval. Specific projects that are presented to the voters will have a higher probability of being approved. This option is not likely to be passed by the voters, unless the project is a high priority and popular with the community.

Local Option Levy (Taxes)

Funds raised through taxes and special levies (additional tax) can be made available to fund transportation projects including capital construction, maintenance and operations. Tax Rates are generally determined based on the assessed value of real property.

Improvement District

Local Improvement Districts (LID's) may be established to provide funding for specific infrastructure within a specific geographic area of the city. Improvement districts are generally used to provide funding for improvements which benefit an identified group of property owners. This option can be initiated by a neighborhood to fund a local street improvement. LID's usually require a specific percentage of property owner support in order for the project to be approved by the City.

Parking Meters/Traffic Fines

Revenues generated from parking meters or parking fees and traffic fines can be use to fund transportation related projects at the discretion of the community. Sweet Home does not currently have any metered parking or time limits on parking within the city limits. This option may not be viable for Sweet Home, due to limited revenue source, need for enforcement and economic development interests in the downtown area.

Private Donations

While uncommon sources for transportation funding, private donations can be used for infrastructure improvements. Donations are typically offered for philanthropic or tax relief reasons and are generally tied to specific improvements.

EXISTING FUNDING SOURCES

This section presents an overview of current revenues, expenditures, and other local funding mechanisms. Table 8.4 presents a summary of transportation revenues and expenditures for the 2004-2005 fiscal year.

Table 8.7 - 2004-2005 Transportation Budget Summary

2004-2005 ADOPTED BUDGET				
COMBINED SUMMARY OF REVENUES AND EXPENDITURES				
with Comparisons to 2003-2004 Adopted Budget				
	Special Revenue Funds			
	State Gas Tax Fund	Street Maintenance	Path Program	Public Transit
BEGINNING BALANCES	**$100,000**	**$1,545,337**	**$56,931**	**$0**
REVENUES:				
Current Property Taxes	0	0	0	0
Delinquent Property Taxes	0	0	0	0
Interest	2,000	20,000	1,000	0
Fees, Franchises, etc	393,259	70,552	50,000	28,161
Grant Projects	0	0	0	0
TOTAL REVENUES	395,259	90,552	51,000	28,161
Transfers In from Other Funds	0	0	7,389	0
TOTAL AVAILABLE RESOURCES	495,259	1,635,889	115,320	28,161
EXPENDITURES:				
Personal Services	242,265	0	0	0
Materials & Services	78,500	158,000	0	28,161
Capital Outlay	3,750	0	113,000	0
Debt Service	0	0	0	0
Contingency	30,000	0	0	0
TOTAL EXPENDITURES	354,515	158,000	113,000	28,161
Transfers Out to Other Funds	54,085	57,389	0	0
RESERVES/ENDING FUND BAL.	**$86,659**	**$1,420,500**	**$2,320**	**$0**

City of Sweet Home

State Gas Tax Fund

The State of Oregon shares a portion of the fuel tax paid by consumers purchasing gasoline and diesel in Oregon. Estimates for this revenue are based on a formula that is set by state law and provided annually by the State Department of Revenue. With a population of 8,380 the City expects to receive $46.93 per person or $393,259 as presented in the 2004-2005 operating budget. Over the last 5 years, Sweet Home has received between $300,000 and $350,000 annually from the State Gas Tax Fund. State Gas Tax is used for maintenance, materials and services in Sweet Home.

Street Maintenance Fund

The revenue for this fund comes mainly from its Ending Fund Balance. During the 1991-92 fiscal year, Linn County had transferred the jurisdiction 8.78 miles of County roads within the City of Sweet Home to the City. Along with these roads came approximately $1.7 million. It has been a goal of the Budget Committee and City staff to maintain a fund balance of $1.5 million using interest earned on the money to fund projects.

During the 1998-99 year, $189,500 was utilized from this fund to pay for the costs of the 12th Avenue and 28th Avenue LID's. Principal and Interest payments received from property owners in these areas continue to be paid into this fund.

<u>Path Program</u>

The Path Program utilizes City Street Maintenance Funds to help provide bike paths, curb cuts and wheelchair ramps throughout Sweet Home. The program is specifically intended to ensure compliance with Federal ADA standards and implement the Sweet Home Bicycle and Pedestrian Plan.

<u>Transit Program</u>

Every year the Sweet Home Senior Center applies for a transportation grant from the Oregon Department of Transportation to help defray the cost of running the Sweet Home shuttle bus. Historically, the City has been designated as the pass-through for grant funding with the City issuing a check to the Senior Center when funds are received.

<u>Additional Funding</u>

Some transportation related expenditures (street lights, for example) are paid for via general fund dollars on an as needed basis. A utility fee for street lights to pay for the electricity charges could be an option for the City. At the present time, there are no other sources of funding for transportation related activities in Sweet Home.

RECOMMENDED FUTURE FUNDING SOURCES

At the present time, transportation funding in Sweet Home is insufficient to meet existing maintenance and system upgrade needs. Interest generated by the Street Maintenance Fund, for example, has not been adequate to ensure completion of the resurfacing projects listed in the 10-Year Resurfacing CIP. Likewise, the funds made available through the path program are insufficient to adequately address the improvement goals outlined in the Pedestrian and Bicycle Plan.

To ensure adequate funding in the future, Sweet Home should make adoption of a Transportation SDC a top priority. Additional revenue sources such as a local gas tax, transportation improvement district, utility fees and other long term funding options should also be studied and presented to the community and elected officials to determine the most equitable way to fund needed transportation system improvements for the community.

APPENDIX A:
GLOSSARY OF TERMS AND ACRONYMS

Glossary of Terms and Acronyms
(adapted from the 1999 Oregon Highway Plan)

1999 Oregon Highway Plan (OHP) -"1999 Oregon Highway Plan" means the 1999 Oregon Highway Plan and all amendments approved by the Oregon Transportation Commission as of the adoption of this rule. The Highway Plan is an element of the Oregon Transportation Plan. Goal 1 of the Highway Plan defines the highway classification system. Goal 3 deals with Access Management.

AADT – Average Annual Daily Traffic – Same as ADT, Average Daily Traffic.

AASHTO - American Association of State Highway and Transportation Officials.

Acceleration Lane - A speed-change lane, including a tapered area, that enables a vehicle entering a roadway to increase its speed to a rate that allows it to safely merge with through traffic.

Access – Access is the right to cross the highway right-of-way to enter or exit abutting property. "Access" is not the correct term to use to refer to a particular point of access, road, driveway, etc. To distinguish, think of "access" as a concept while an "approach" is a thing.

Access Control – "Access Control" means no right of access exists between a property abutting the highway and the highway. The right of access may have been acquired by the Oregon Department of Transportation or eliminated by law.

Access Management - Measures regulating physical connections to streets, roads and highways from public roads and private driveways. The systematic control of the location, spacing, design and operation of driveways, median openings, interchanges, and street connections to a roadway, as well as roadway design applications that affect access, such as median treatments and auxiliary lanes and the appropriate separation of traffic signals.

Access Management Strategy - A project delivery strategy that identifies the location and type of approaches and other necessary improvements to the highway and that is intended to improve current conditions of the section of highway by moving in the direction of the access management spacing standards.

Access Management Plan (AMP) – A plan for a designated section of highway that identifies the location and type of approaches and necessary improvements to the state highway or local roads and that is intended to improve current conditions of the section of highway by moving in the direction of the access management spacing standards. Both the Oregon Department of Transportation and the appropriate local jurisdiction must adopt the Access Management Plan, and the plan should be included in a Transportation System Plan.

Acknowledged – When used to refer to a Transportation System Plan or comprehensive plan,"acknowledged" means reviewed and found to be consistent with the State Land Use Planning Goals and OAR 660 by the Department of Land Conservation and Development. ODOT is encouraged to comment on the effects of local plans on the state system within the acknowledgment process, and plans are often amended to respond to ODOT concerns before acknowledgment. A local plan may be adopted and go into effect without being acknowledged. An acknowledged plan has greater weight of law and is not easily challenged.

ADA - Americans with Disabilities Act. Most applicable here in regard to sidewalks and pedestrian crossing location and design.

Administrative Remedy (or Appropriate Remedy) – See "Remedy," below.

ADT - Average Daily Traffic - Total yearly two-way traffic volume on a section of roadway divided by 365. Also referred to as Average Annual Daily Traffic or AADT.

Alignment - Geometric arrangement of a roadway (e.g. curvature).

Alternate Access - The physical existence of other means to access a property than the proposed approach, such as an existing public right of way, another location on the subject state highway, an easement across adjoining property, a different highway, a service road, or an alley, including singularly or as a joint approach, but without a conclusive determination that the alternate access is "reasonable" as defined in section (51) of this rule.

Alternate Modes - Transportation options other than single occupant vehicles, including rail, transit, carpool, walking and bicycles.

Approach - A legally constructed approach road or private road crossing, recognized by the Oregon Department of Transportation as grandfathered or existing under a valid Permit to Operate.

Approach Road – A legally constructed, public or private connection, providing vehicular access to and/or from a highway and an adjoining property.

Arterial - A major roadway intended primarily to serve through traffic, which function is served by careful access control. Arterials are intended to serve moderate to high volumes of traffic traveling relatively long distances at higher speeds.

At-Grade - At ground level. An at-grade intersection is one where a highway intersects another highway or approach road at the same level rather than using an overpass or underpass.

Buildout (or "Full Buildout") – Condition when a phased development is completed, or when a planned area is fully developed. Used here to anticipate capacity needs over time for a defined local area.

Capacity - Maximum volume of traffic that a roadway section is able to carry on a sustained basis. Also, the measure of the maximum rate of flow at which vehicles reasonably can be expected to traverse a point on a lane or road during a specified period under prevailing traffic, roadway and signalization conditions, usually expressed as vehicles per hour.

Classification of Highways - The Oregon Department of Transportation's highway classifications defined in the 1999 Oregon Highway Plan.

Collector – Classification of a Road intended to move traffic between local roads and arterials.

Commercial Center - An area of concentrated commercial activity inside an urban growth boundary or other urban area, as defined below. May denote a Commercial Center Highway Segment designation (see Highway Segment Designation, below).

Commercial Node - An area of concentrated commercial activity inside an urban growth boundary or other urban area as defined below, smaller than a commercial center, and typically associated with a transit or other transportation node.

Community Center - Area of concentrated civic and public activity that may include a public plaza, post office, library, school facilities and municipal buildings, inside an urban growth boundary or other urban area, as defined below.

Comprehensive Plan – A land use plan developed by a city or county to meet the requirements of OAR 660 and the State Land Use Planning Goals, administered by DLCD. Comprehensive Plans include a Transportation Element and typically that element will be, or will include by reference, a Transportation System Plan under the Transportation Planning Rule (OAR 660-012), unless the city or county is exempt from the TPR due to population numbers below the thresholds set in 660-012-0055 (6).

- “Consistent with” a comprehensive plan – A project is consistent with a plan when the general policies in the transportation plan support the type of project that is proposed.

- “Included in” a comprehensive plan – is more specific than “consistent with” but for purposes of Division 51 should be interpreted to mean included in principle. For example, the plan includes a policy is to increase connectivity in the general area of the proposed approach without identifying precisely where such connection(s) will be located.

- “Identified in” a comprehensive plan – is specific. If a project is identified in a plan, then a more or less specific location and type of project is described in the plan.

- The local government is the primary authority for determining whether a project is consistent with their plan. However, when a local government has made a decision that is not compatible with ODOT’s goals and objectives, the Oregon Department of Transportation will need to review the local plan to see whether the local action is truly consistent with that plan. If not, ODOT may have grounds for an appeal of the local decision if necessary to protect safety and mobility on state facilities.

Corridor Plan - A plan that identifies and addresses issues of strategic importance to the long-term functionality and character of a transportation corridor, typically including a description of current conditions, capacity and safety analyses, partnership agreements with local government(s), and the development of future alternatives or actual strategies to improve and preserve the operational, safety, aesthetic and economic values of the corridor.

Crash History - At least the three most recent years of crash data recorded by the Oregon Department of Transportation's Crash Analysis and Reporting Unit.

Deceleration Lane - A speed change lane, including a tapered area, that enables a turning vehicle to exit a through lane and slow to a safe speed before completing a turn.

District Highway – Facilities of county-wide significance and that function largely as county and city arterials or collectors, provide connections and links between small, urbanized areas, rural centers and rural hubs, and also serve local access and traffic. The management objective for District Highways is continuous flow operation in rural areas reflecting the surrounding environment, and moderate to low-speed operation in urban and urbanizing areas for traffic flow and pedestrian and bicycle movements. Inside Special Transportation Areas, local access is a priority. Inside Urban Business Areas, mobility is balanced with local access needs.

Division 51 - "Division 51" means Oregon Administrative Rules (OAR) 734-051- 0010 through 734-051-0560 and Tables 1, 2, 3, 4, 5, 6, 7 and 8 adopted and made a part of division 51 rules and Figures 1, 2, 3 and 4 adopted and made a part of division 51 rules.

DLCD - Department of Land Conservation and Development. Among other things, DLCD administers the Transportation Planning rule in partnership with ODOT.

Driveway Return Radius - A circular pavement transition at the entrance of a driveway that facilitates turning movements.

Easement - Limited right of use of property: a limited right to make use of a property owned by another, for example, a right of way across the property. An easement is typically conveyed by a recorded document such as a deed. Existence of a recorded easement does not by itself establish a right of access and does not guarantee the approval of an application or the location of an approach.

Egress – Noun; an exit, or Verb; to exit.

Et. al. – "And others," used to indicate there are additional items or sources besides the ones listed, though typically of a lower priority than those listed.

FHWA - Federal Highway Administration.

Freeway – A route or segment of highway that is completely access-controlled with no abutter's right of access and access limited to grade-separated interchanges. In Oregon only highways in the Interstate Highway system are classified as freeways.

Frontage Road - An access road that typically parallels a major public roadway between the right-of-way of the major roadway and the front building setback line. A frontage road provides access to private properties while limiting the number of approaches on the principal roadway.

Functional Area of an Intersection - The area beyond the physical intersection that creates adequate space for drivers to see conditions at the intersection, make decisions about where they want to be when they get to the intersection, maneuver through necessary lane changes, and have adequate time to stop. In addition, the area needed for vehicle storage at the signal or stop sign is part of the functional area of an intersection.

GIS – Geographic Information Systems. A computerized system of mapped data that can be used to find information such as tax records, natural features, property boundaries and ownerships, and specific locations; to search and sort data by type, location and across multiple parameters; to do analysis; and to generate maps, tables and reports.

Highway Mobility Standards - The established standards for maintaining the efficient movement of traffic as defined in the 1999 Oregon Highway Plan and based upon volume to capacity (V/C) ratios. Mobility standards generally establish acceptable levels of mobility based upon highway classifications, segment designations, and density of development.

Highway Segment Designation - One of four designations based upon land use patterns and acceptable levels of mobility, where efficient through traffic has to be balanced against the need for local access. Designations include Special Transportation Areas, Commercial Centers, Urban Business Areas and Urban segments, as defined in the Oregon Highway Plan. "Urban" is a default designation for highways within Urban Growth Boundaries that have not been given one of the other three designations.

Ingress – Noun; entrance, or Verb; to enter.

Intersection - An area where two or more roadways or an approach and a roadway join or cross at grade.

Intersection Sight Distance - The distance required for drivers to see conditions at the intersection, make decisions about where they want to be when they get to the intersection, have time to maneuver through necessary lane changes, and have adequate time to stop as needed.

Interstate Highway (part of the National Highway System) – Provide connections to major cities, regions of the state, and other states. A secondary function in urban areas is to provide connections for regional trips within the metropolitan area. The Interstate Highways are major freight routes and their objective is to provide mobility. The management objective is to provide for safe and efficient high-speed continuous-flow operation in urban and rural areas.

Joint Use Approach - A single point of access used by two or more properties, ownerships and/or developments for access to a highway.

Local Street Network Plan – Part of, or a refinement to, a Transportation System Plan that sets out long term strategies for creating and maintaining local connectivity and access to developable lands from other than arterial streets and highways.

Level of Service - A qualitative measure describing the operational conditions within a stream of traffic with factors that include speed, travel time, ability to maneuver, traffic interruptions, safety, waiting time periods (delay), and driver comfort and convenience. Levels are represented by letters "A" through "F", with "A" for the freest flow and "F" for the least free flow. Because LOS is not a quantitative measure, and is subject to variability in the assumptions for the various factors, it is difficult to apply consistently. ODOT uses the more objective standard, V/C ratio, in place of LOS as of adoption of the 1999 Highway Plan. Many local TSP policies are based upon LOS.

Local Road – As a roadway classification, "local road" means a roadway with the primary function of providing access to adjacent properties. The term may also be used to refer to any road owned by a city or county.

LOS - Level of Service. See above.

Median - The portion of the roadway separating opposing traffic streams.

Mitigate – To make less harsh or less severe. Variations: If a situation can be mitigated, it is "mitigable." If it cannot, it is "immitigable."

Mitigation Measures - Conditions, improvements, modifications, and restrictions, as set forth in OAR 734-051-0145, required by the Oregon Department of Transportation or initiated by an applicant for approval of a deviation or an application. The intent is to mitigate, that is avoid and/or compensate for, any adverse impacts of traffic from the proposed approach on the highway system. Measures required as mitigation may include but are not limited to limitations on turning movements, deceleration lanes, nontraversable medians, elimination of other approaches, and design considerations.

Modal - Referring to a mode or modes of transportation.

Mode of Transportation - A means of moving people or goods, including but not limited to private vehicles, commercial trucks and alternative modes as defined above.

MPO - Metropolitan Planning Organization. A planning body in an urbanized area that has responsibility for developing transportation plans for that area. MPOs are formed based upon US Census data, and are required to be formed in areas that have greater than 50,000 population before those areas can qualify for certain types of federal funding for transportation projects.

OAR - Oregon Administrative Rules. Rules written by state agencies to apply applicable state laws to agency activities, including clarifying statutes, other legislation and executive orders, and implementing those laws that apply to the agency's mission.

ODOT - Oregon Department of Transportation.

OHP - Oregon Highway Plan. The Highway Plan adopted in 1999 by the Oregon Transportation Commission, is an element of the Oregon Transportation Plan.

ORS - Oregon Revised Statutes.

OTC - Oregon Transportation Commission.

OTP - Oregon Transportation Plan. The OTP is the core document for State transportation planning, and includes by reference modal and topic plans for aviation, bikes and pedestrians, public transportation, rail freight, rail passenger service, transportation safety and the Willamette Valley transportation strategy and also includes corridor plans.
Peak Hour –The highest one-hour volume observed on an urban roadway during a typical or average week or the 30th highest hourly traffic volume on a rural roadway typically observed during a year. The Portland Metro Area, however, the uses a two-hour peak period.

Pedestrian - A person on foot, in a wheelchair or walking a bicycle.

Planned - Not currently existing but anticipated for the future when referring to items such as a roadway or utility connection shown in a corridor plan, comprehensive plan, or transportation system plan (TSP). A planned transportation facility in a TSP will typically identify a funding source for that project or improvement.

Public Approach - An approach serving multiple properties, owned and operated by a public entity, and providing connectivity to the local road system. For purposes of Division 51, an approach road owned and operated by a public entity may be a private road by definition if it does not connect to the local road system. This distinction is important because roads that do connect to the local street system can help reduce the need to use the state highway for local trips.

Raised Median - A nontraversable median where curbs are used to help delineate the boundary and the adjacent traffic lane, and to elevate the surface of the median above the surface of the adjacent travel lane. Nontraversable medians reduce conflict points on the roadway by limiting the number and location of opportunities for cross traffic and left turns.

Regional Highways – Typically provide connections and links to regional centers, Statewide or Interstate Highways, or economic or activity centers of regional significance. The management objective is to provide safe and efficient, high-speed, continuous-flow operation in rural areas and moderate to high-speed operations in urban and urbanizing areas. A secondary function is to serve lands uses in the vicinity of intersecting highways. Inside Special Transportation Areas, local access is a priority. Inside Urban Business Areas, mobility is balanced with local access.

Right of Way - Real property or an interest in real property owned by the Oregon Department of Transportation, defined in the 1999 Oregon Highway Plan as follows: A general term denoting publicly owned land, property, or interest therein, usually in a strip. The entire width between the exterior right-of-way lines including the paved surface, shoulders, ditches, and other drainage facilities in the border area between the ditches or curbs and right- of-way lines. Also refers to the Right of Way section of the Transportation Operations Division of ODOT.

Roadway - The paved portion of a highway or other road.

ROW - Right-of-way. See above.

Safety Factors - The factors identified in OAR 734-051-0080(9) including the character of roadway character, traffic character, geometric character, environmental character and operational character.

Safety Improvements – Safety improvements generally comprise the whole gamut of types of mitigations and design approaches used to improve safety on the highway facility. For purposes of establishing a "Benefit" with an approach on an expressway pursuant to OAR 734-051- 0085, there are specific types of safety improvements provided in the rules, as follows:

A decrease in the number of existing conflict points;

- Elimination of existing left turns;
- Elimination of an existing overlap of left turn movements;
- The addition of a left turn lane where existing conditions meet the Oregon Department of Transportation's installation criteria; or
- Provision of adequate sight distance at the alternate approach or the subject approach where existing sight distance is deficient.

Sight Distance - The distance visible to the driver of a passenger vehicle measured along the normal travel path of a roadway from a designated location and to a specified height of object above the roadway when the view is unobstructed by traffic.

Signal Progression - The progressive movement of traffic at a planned rate of speed without stopping, through adjacent signalized intersections within a traffic control system.

Spacing Standards - mean Access Management Spacing Standards as set forth in OAR 734-051-0115 and specified in Tables 2, 3, and 4, adopted and made a part of division 51 rules and Access Management Spacing Standards for Approaches in an Interchange Area as set forth in OAR 734-051-0125 and specified in Tables 5, 6, 7, and 8 and Figures 1, 2, 3, and 4, adopted and made a part of Division 51 rules.

State Highway System - Public roads owned and operated by the State of Oregon through the Oregon Department of Transportation.

Statewide Highways (part of the National Highway System) – Typically provide inter-urban and inter-regional mobility and provide connections to larger urban areas, ports and major recreation areas that are not directly served by Interstate Highways. A secondary function is to provide connections for intra-urban and intra-regional trips. The management objective is to provide safe and efficient, high-speed, continuous-flow operation. In constrained and urban areas, interruptions to flow should be minimal. Inside Special Transportation Areas, local access may also be a priority. All Oregon statewide highways are also National Highway System routes with the exception of Highway 82 in Wallowa and Union Counties.

STIP - State Transportation Improvement Program. The capital improvement plan for the State Highway System.

Stopping Sight Distance - The distance a driver needs, when travelling at a given speed, to bring a vehicle to a stop after an object on the roadway becomes visible, including the distance traveled during the driver's perception and reaction times and the vehicle braking distance.

Storage Length - Lane footage added to a deceleration lane to store the maximum number of vehicles likely to accumulate during a peak period to minimize conflicts with through traffic lanes.

TDM - Transportation Demand Management. The practice of reducing peak hour traffic volumes by measures that reduce trips at those times such as carpooling incentives, van pooling, staggering shift changes, use of alternate modes of transportation, etc.

Through Movement -The predominant direction of traffic flow through an intersection.

TIS – (Traffic Impact Study) - a report prepared by a professional engineer that analyzes existing and future roadway conditions resulting from the applicant's development.

TPR – Transportation Planning Rule. OAR 660-012 et seq which implements Statewide Planning Goal 12 (Transportation) and promotes the development of safe, convenient and economic transportation systems that are designed to reduce reliance on the automobile. DLCD administers the TPR in cooperation with ODOT. Some local jurisdictions are exempt from the Transportation Planning Rule due to small populations, as specified in the TPR.

Traffic Characteristics - Parameters describing the distribution of vehicles in a traffic stream, such as planning analysis hour factor, direction distribution factor, peak-hour factor, adjusted saturation flow rate and percentage turns from exclusive turn lanes.

Traffic Impact Study - A report prepared by a professional engineer that analyzes existing and future roadway conditions resulting from the applicant's development.

Trip - A one-way vehicular movement. A vehicle entering a property and later exiting that property has made two trips. A vehicle driving from one business to another inside the property has made an additional "internal" trip.

TSP – Transportation System Plan. The result of local implementation of the Transportation Planning Rule, a TSP establishes a plan for facilities and services to meet local transportation needs over a twenty year period, including some level of capital planning to pay for needed improvements.

UGB - Urban Growth Boundary. UGBs are established in the comprehensive plans of cities and counties to show where future growth will go outside of city boundaries and to anticipate the appropriate zoning of that land when it is annexed to the city. Land within a UGB but not yet annexed into the city is considered “urbanizable.”

Urban - The area within the urban growth boundary, within a Special Transportation Area of an unincorporated community, or within an Urban Unincorporated Community defined in OAR 660-022-0010(9). For purposes of these rules, the Region Access Management Engineer may apply the "urban" standards in OAR 734-051-0080 to infill or redevelopment projects in an otherwise rural area on commercial or industrial zoned land where the land has been developed into an urban block pattern including a local street network, and the posted highway speed is at or below 45 miles per hour.

Vehicle Trips Per Day - The total of all one-direction vehicle movements with either the origin or destination inside the study site that includes existing, primary, pass by, and diverted linked trips and is calculated in accordance with the procedures contained in the Institute of Traffic Engineers' Trip Generation Report. Adjustments to the standard Institute of Traffic Engineers' rates for mode split may be allowed if calculated in accordance with Transportation Planning Rule and the Institute of Traffic Engineers' Trip Generation Report procedures. Adjustments to the standard Institute of Traffic Engineer's rates for multi-use internal site trips may be allowed if calculated in accordance with the Institute of Traffic Engineers' procedures and if the internal trips do not add vehicle movements to the approaches to the highway.

Vehicular Access - Access by motorized vehicles to a property from a street, roadway, highway, easement, service road, or alley including singular or joint access.

VMT - Vehicle Miles Traveled. A measure of travel demands on the road system that can be used to represent planning issues such as retail market distribution, jobs/housing balance and driver behavior. VMT equals the total miles traveled be all vehicles within a study area in a specified period of time.

V/C Ratio - Volume to Capacity Ratio. A measure of roadway congestion calculated by dividing the number of vehicles passing through a section of highway during the peak hour by the capacity of the road section.

Work Day -Monday through Friday, excluding holidays.

APPENDIX B:
SANTIAM DEVELOPMENT (SRC)
TRANSPORTATION IMPACT ANALYSIS
Access Engineering

Table of Contents

Santiam Development Traffic Impact Study
Sweet Home, Oregon

1. Introduction and Executive Summary

The purpose of this report is to fulfill the Traffic Impact Study requirements of the City of Sweet Home and ODOT for the proposed Santiam Development located on the south bank of the Santiam River between 18th Avenue and Wiley Creek in Sweet Home, Oregon. This study will document the estimated traffic impacts resulting from the development and recommend mitigation measures if necessary.

The current Master Plan for the Santiam Development proposes to develop the 752.19 acre site as a mixed-use development consisting of 1,575 residential units, related commercial land uses, 238.75 acres of open space sanctuary, the Salmon Run Institute, and two hotels. Current planning envisions nineteen separate areas to be developed over an eight-year period. Most of the residential acreage, 95%, along with the related commercial areas and open space are located north of the Burlington Northern Railroad. This area has only two public accesses to the City street system. The main access, located at the Salmon Run Institute, is along 18th Avenue about 300 feet north of the railroad tracks. The second access is located at the north end of 47th Avenue/Green River Drive where it crosses the railroad tracks. There are four small development areas located south of the railroad tracks comprising 37.86 acres one of which is a water treatment facility. These three residential areas will have separate accesses to city streets.

At full build-out, the Santiam Development will generate an estimated total of 12,268 external daily trips and 1,124 trips during the PM peak hour. Slightly more than 2,000 daily and 175 peak hour trips will use 47th Avenue, 8,900 daily and 816 peak hour trips will use 18th Avenue, with the remaining trips spread out on at least three other streets between 18th and 47th Avenue. The LOS analysis for the build-out year, 2013, indicates that the 18th Avenue signalized intersection with Santiam Highway will fail the ODOT mobility standards. The Stop sign controlled intersection of 47th Avenue and Santiam Highway will fail the ODOT mobility standard by the year 2017.

Based on the proposed development schedule, at some point between 2009 and 2013 the Santiam Highway and 18th Avenue will exceed the mobility standards. The recommended mitigation measures for the intersection include:

- Providing separate left-turn phasing for the Santiam Highway approaches,
- Providing separate left-turn lanes and phasing for 18th Avenue approaches,
- Lengthening of the eastbound left-turn pocket or allowing protected-permitted left-turn phasing,
- Adding an additional westbound right-turn lane.

The first two measures are recommended to be implemented soon after the Institute is open and no later than the opening of the first hotel or 100 homes in the Institute area. Lengthening of the eastbound left-turn pocket or allowing protected-permitted left-turn phasing should be implemented as soon as demand reaches the capacity of the lane, no later than 2010. The additional westbound right-turn lane is the most expensive mitigation measure but it is also the lowest priority and may not be needed.

The Santiam Highway at 47th Avenue intersection should be signalized when signal warrants are met, estimated to be sometime between 2013 and 2017.

2. Location and Vicinity Map

The Santiam Development is located on the south bank of the Santiam River between118th Avenue and Wiley Creek in Sweet Home, Oregon (see Figure 1 in Appendix A). All but 5% of the acreage lies to the north of the Burlington Northern Railroad. The Santiam Highway, US 20, runs roughly parallel to the Burlington Northern tracks 600 feet to the south at 18th Avenue and about 1600 feet south at Wiley Creek.

3. Description of Proposed Development

The total project area is 752.19 acres of which 238.75 acres will be devoted to open space sanctuary leaving 513.44 acres to be developed. The current Master Plan for the Santiam Development is shown in Figure 2 in Appendix A. The current zoning in the project area is mainly industrial with areas designated as open space, recreational, and some residential area at the east end. Current planning envisions nineteen separate areas to be developed over an eight-year period with the majority of the acreage devoted to residential land uses. Table 1 summarizes the residential development plan.

Table 1: Master Plan - Probable Development

Map Key	Name	Probable Use	Acres	Residential Units	Probable Residential Development Period
A	Wiley Creek Neighborhood	Residential	22.33	36	Year 1 - Year 8
B	Mark's Ridge & Meadowview Neighborhoods	Residential	65.68	115	Year 2 - Year 7
C	Central Terrace	Residential	70.09	175	Year 3 - Year 7
D	Oak Savanna Meadow	Residential	34.06	47	Year 2 - Year 6
E	Santiam River Club Village	Commercial/Residential	46.29	200	Year 1 - Year 5
F	Wetland View Terrace	Residential	24.36	36	Year 5 - Year 7
G	Westlake Neighborhood	Residential	47.88	75	Year 6 - Year 8
H	Riverbank Neighborhood	Residential	26.31	88	Year 7 - Year 8
I	Riverbend Neighborhood	Residential	25.90	62	Year 7 - Year 8
J	The Perch	Commercial/Residential	16.34	88	Yaer 3 - Year 4
K	Twin Rails Neighborhood	Residential	10.65	40	Year 4
L	Santiam Institute Residential	Residential	46.98	300	Year 4 - Year 8
M	Santiam Institute	Rec., Comm., Res.	34.35	36	Year 5 - Year 7
N	Senior Lifestyle	Residential	4.36	150	Year 5 - Year 6
O	Railway Village	Residential	7.24	36	Year 7 - Year 8
P	The Glade	Residential	19.10	60	Year 7 - Year 8
Q	Water Treatment Facility	Water Treatment Facility	5.30	N/A	N/A
R	Sanctuary Corridor & Riparian Buffer	Open Space	238.75	N/A	N/A
S	Clark Mill Crossing	Residential	6.22	31	Year 7 - Year 8
Total			752.19	1575	

There will be only two major access locations for the areas north of the railroad; one along 18th Avenue about 300 feet north of the railroad tracks, and the second at the north end of 47th Avenue/Green River Drive. No new railroad crossing are proposed. One or more emergency only connections will also be provided at locations such as near the north end of Clarks Mill Road. There are four small development areas located south of the railroad tracks, areas O, P, Q, and S, comprising 37.86 acres one of which, area Q, is a water treatment facility. These three residential areas will have separate accesses to city streets.

A total of 1,575 residential dwelling units are planned. According to the Master Plan, three types of home ownerships are expected; 43% (684 units) are designated as primary dwellings, 46% (715 units) are designated as second or recreational homes, and 11% (177 units) are designated as retirement homes. Ownership types vary throughout the areas. Area N is designated as a Senior Lifestyle residential area with 85% of the dwellings expected to be primary homes. Areas O, P, and S are south of the railroad tracks and are expected to be 95% primary homes. Appendix B contains a chart showing the probable ownerships types and by area.

Besides the residential development, several areas have been designated for a combination of commercial and residential uses. Area E - Santiam River Club Village is planned to have a 40,000 square foot commercial area in addition to the 200 residential units planned in the area. In area J - The Perch a 60-room boutique hotel and other commercial space are planned in addition to its 88 planned residential units. Area M - The Santiam Institute, located at the main entrance east of 18th Avenue, will be the main community and tourist destination of the development. The concept of this area envisions a joint venture among the City of Sweet Home, Linn-Benton Community College, and the Salmon Run Institute that will provide a variety of community, educational, and retail uses that serve the broad needs of the Sweet Home area and the development. The specific uses in the Institute have not been defined in detail but are expected to include many of the following:

- A Natural History Museum featuring exhibits from the local area and region
- A Limber Mill Demonstration Museum
- A 150-room Mid-level Hotel with convention meeting spaces
- A Recreation Center with pool, and other recreational activities
- An Artist Colony with gallery(s) and retail areas for local and regional arts and crafts
- Exhibition halls and/or classrooms and workrooms
- A Day Care Center
- A Farmer's Market area
- Restaurants, Brew Pub, Food Courts
- Concert Site for community celebrations

Area M, the Santiam Institute, is the gateway to areas J through N and is located on the site of an abandoned mill. Development of this area will require demolition and clearing in the first year. Some of the Institute's uses may begin to appear in the 2nd year and residential development in area J is expected by the 3rd year. By the 4th year the hotels and the residential developments in areas J, K, L, and M should be well underway. Appendix B contains a chart showing the expected number of visitors to the Salmon Run Institute during the eight years of development.

4. Existing Conditions

4.1 Street System

The Santiam Highway (U.S. 20, Highway 16), known as Main Street. in the study area, is a principal ODOT arterial through the city of Sweet Home and is classified as a Region highway in the 1999 Oregon Highway Plan. Santiam Highway from 18th Avenue to just west of the Wiley Creek Bridge is a five-lane roadway 72-feet wide with two 12-foot travel lanes, a 5-foot bike lane in each direction and a 14-foot center-turn-lane. The entire section has curbs, gutters, and sidewalks on both sides. Posted speeds vary from 25 MPH at18th Ave to 35 MPH at about 19th Avenue and increase to 45 MPH from west of Clark Mill Road to beyond the study area to the east.

At the intersection with 18th Avenue, Main Street has a two-foot wide curbed island separating the relatively short left-turn pockets from the opposing through lanes in both directions on the highway. West of the intersection in downtown Sweet Home, Main Street transitions to a four-lane roadway with a 6-foot wide curbed median and parking allowed on both sides. The intersection of Main Street and 18th Avenue is signalized and operates as a two-phase intersection.

Eighteenth Avenue is a city street classified as a collector from Tamarack Street to the south. Between Tamarack Street and Long Street the roadway is 42-44 feet wide with curbs and sidewalks, a single lane in each direction, and parking allowed on both sides. The intersection with Long Street is only approximately 300 feet south of Main Street. This intersection is controlled by an all-way Stop. South of Long Street18th Avenue continues as a collector street and serves the southern part of the city. The posted speed is 25 MPH north of Long Street and 30 MPH to the south.

Long Street is a city street classified as a minor arterial and runs east-west south of Santiam Highway from Ore 228 to 43rd Avenue and then continues as a collector street to 49th Avenue. The street is 42-44 feet wide and has curbs and sidewalks on both approaches to 18th Avenue. There is a single travel lane in each direction and parking is allowed. The posted speed is 25 MPH.

Forty-seventh Avenue north of Santiam Highway is a local street with a 22 foot width of pavement and no shoulders or other improvements. Traveling north, the roadway curves to the east just north of Nandina Street and becomes Osage Street, then curves back to the north at the next intersection becoming Green River Drive which then crosses the railroad tracks into the eastern end of the development area. The intersection of 47th and Nandina is controlled by an all-way Stop with northbound right turns permitted without stopping. There is poor sight distance for westbound Nandina Street at this intersection because of trees and the curving roadway to the north. At the “T”-intersection of Osage and Green River Drive, the short leg controlled by a Stop sign is Osage Street running to the southeast. The unposted speed on all these streets is 25 MPH.

4.2 Existing Traffic Conditions

According to the ODOT Transportation Volume Tables website, traffic on U.S. 20 was last counted in 2001. Table 2 shows the average daily traffic (ADT) volumes from this source for 2001 and the estimates for 2002 at key locations in the study area.

Table 2: Traffic Volume History

Location / Year	2001 ADT	2002 ADT
U.S. 20: .01 mi. east of 18th (MP 27.73)	10,800	11,100
U.S. 20: .01 mi. west of 23rd (MP 28.08)	10,700	10,900
U.S. 20: .01 mi. east of Clarks Mill Road (MP 28.60)	12,800	13,100
U.S. 20: .01 mi. west of 47th (MP 27.73)	10,100	10,400

Access Engineering staff conducted PM peak hour turning movement counts at Santiam Highway and 18th Avenue, Santiam Highway and 47th Avenue, and 18th Avenue and Long Street during 2004. Summary Sheets for these counts can be found in Appendix C.

4.3 Existing Design Hour Volumes

Design hour volumes (DHV) are the 30th highest hour volumes for a given year. In urban and dense rural areas, the DHV usually occurs on a weekday during the peak month of the year. To convert the PM peak hour volumes to DHV a seasonal factor must be applied. On this section of U.S. 20 there are two components to the traffic flow. One is local/Sweet Home-area traffic which has a low seasonal variation. The second is the through traffic with origins and destinations in and beyond the Cascade Range recreation areas which have a high seasonal variation. Traffic on the City streets in the study area are assumed to be 100% local traffic. The through traffic component on U.S. 20 can be estimated by comparing the 2001 ADT at the east city limits of Sweet Home (MP 31.31) to the 2001 ADT at 18th and 47th Avenues from the ODOT 2001 Traffic Volume Tables.

Based on the information in Table 3 below, roughly 38% of the traffic on Santiam Highway at 18th Avenue and 41% at 47th Avenue is through traffic. This component will exhibit a seasonal factor similar to the rural conditions at the ODOT automatic traffic recorder (ATR) 22-017 near Upper Soda on US 20. The remaining traffic on Santiam Highway, and the City street system, will exhibit a seasonal factor similar to an urban location, the ATR 22-013 located on the south side of Lebanon.

Table 3: Through Traffic Component on Santiam Highway

Location	2001 ADT	% Through
US 20: East city limits of Sweet Home (MP 31.31)	4,100	100%
U.S. 20: .01 mi. east of 18th (MP 27.73)	10,800	38%
U.S. 20: .01 mi. west of 47th (MP 27.73)	10,100	41%

The 2002 ODOT Seasonal Factors Table provided by ODOT's Transportation Planning and Analysis Unit (TPAU) was consulted to determine the seasonal factors to apply. The seasonal factor is the ratio of the factors for the dates of the traffic counts to the factor for the peak period at the ATR.

For traffic volumes on Santiam Highway, two factors are applied, one for the local and one for the through components of traffic. Table 4 below shows the peak factor, the count date factor, and the resulting seasonal factor (Count Date factor/Peak Factor) for each traffic count. The seasonal factors were then applied to the peak hour counts to obtain the existing DHV's. These DHV's are shown on Figure 3 in Appendix A.

Table 4: Seasonal Factor Determination

Location (Count Date)	Traffic Component	Count Date Factor	Peak Factor (Date)	Seasonal Factor (Count/Peak Factors)
Main @ 18th (4/29/04)	Local Through	0.9544 1.5717	0.8804 (7/15) 0.8834 (8/15)	1.0840 - Local Component 1.7792 - Through Component
Main @ 47th (1/28/04)	Local Through	1.0665 2.4054	0.8804 (7/15) 0.8834 (8/15)	1.2114 - Local Component 2.7228 - Through Component
18th @ Long (6/15/04)	Local	0.8865	0.8804 (7/15)	1.0069 - All Traffic

4.4 Crash Records

Crash records for Santiam Highway in the study area, MP 27.5 to MP 30.00, have not yet been received from ODOT's Crash Analysis and Reporting Unit.

5. Analysis Data

5.1 Future Traffic Volumes

Future traffic growth for the area was obtained from the draft of the City of Sweet Home Transportation System Plan (TSP) provided by the city. The TSP forecasts traffic levels for the year 2017 on the collector and arterial streets in the Sweet Home area. The projected ADT's on Santiam Highway and 18th Avenue and the PM peak hour traffic levels for the intersections of Santiam Highway with 18th and 47th Avenues and 18th Avenue with Long Street were as the No-Build traffic levels in this study. The No-Build traffic levels for intermediate years analyzed in this study were calculated by assuming a straight-line growth from the 2004 DHV to the adjusted TSP's 2017 peak hour traffic volumes.

To determine the background traffic for the Build conditions, an adjustment was made to the TSP's 18th Avenue traffic projections to account for the different land use assumed for the Santiam Development area (TAZ 5). The TSP assumed industrial development in this area. This traffic was subtracted from the projections before the Santiam Development traffic is added back. However, since 18th Avenue also serves TAZ 4 in the TSP, a flat 2% per year increase in traffic on 18th Avenue north of Santiam Highway was assumed. No adjustment was made to 47th Avenue since the traffic increase was relatively small.

5.2 Trip Generation

The trip generation estimates for the Santiam Development are based on the Seventh Edition of the Institute of Transportation Engineers Trip Generation Manual. This is a mixed use development assumed to consist of 1,575 dwelling units with minor commercial land uses, two hotels, and the Salmon Run Institute .

The residential areas can be aggregated into three types based on the expected ownership classes described in section 3 above. Each residential type will have a different trip generation characteristic. Since access to the development is limited to two locations over two miles apart at either end, with the 18th Avenue access anchored by the Salmon Run Institute, the interior residential areas north of the railroad will function much like a closed community.

Four ITE residential land uses have been selected that best describe the residential ownership types and are shown in Table 5 below. By using the ITE classifications 270-Residential PUD, 260-Recreational Homes, and 251-Senior Adult Housing-Detached, the individual trips generated by the commercial uses, for example in area E, need not be calculated as they are included as internal trips in the residential trip generation for those classifications..

Table 5: ITE Codes Used for Residential Trip Generation

Residence Type	ITE Land Use	Rational
Primary Homes Areas O, P, & S	210-Single-Family Detached Housing	95% are primary dwellings, south of railroad with separate access to street system
Primary Homes All other areas	270-Residential PUD	ITE land use includes limited retail and recreational services as internal trips
Second Homes	260-Recreational Homes	ITE land use also includes internal services
Retirement Homes	251-Senior Adult Housing -Detached	ITE land use for independent including services

Trip generation for the Salmon Run Institute and the planned boutique and mid-level hotels are determined separately from the residential trip generation. Trips generated by the Salmon Run Institute are estimated based on the number of expected visitors on the peak day of the year (see "Day Visitor Population" in Appendix B). The following method is used to translate visitors into trips. First, the hotel visitors are subtracted from the total since those trips are generated separately. Next, commonly used modal split percentages (70% auto, 25% transit, and 5% walking or cycling) and average occupancy rates (2.25 persons per passenger car) are applied to arrive at an estimate of the number of vehicles per day. The average daily trips assume an entering and exiting trip for each vehicle. Finally, the PM peak hour trips are assumed to be 10% of the average daily trips.

Trip generation for the hotels is based on the number of occupied rooms using ITE land use 330-Resort Hotels. Table 6 on the next page lists the expected trip generation for the year of opening, year 4 of development, and year 8, the full build-out year.

The Trip Generation Manual provides trip rates for uses on free-standing sites, therefore a sum of these individual trips will overstate the actual number of trips made to the development from off-site by the number of trips made between the uses on the site. These on-site trips are called internal trips. The Santiam Development is a mixed-use development. As such there is a high potential for interaction among the uses in the development. The internal trips between the residential uses and the commercial nodes in the development have been taken into account as described above. However, there is also a very high potential for internal trips between the hotels and the Salmon Run Institute as well as a potential for internal trips among the different residential types and between the residences and the Institute. The ITE Trip Generation Handbook provides some information on internal trip rates for mixed-use developments, however, no information is available for a recreational or institutional component. Table 6 includes our estimate of the internal trips that emphasizes the link between the hotels and the Institute as well as between the residences and the Institute.

Table 6: Trip Generation for Santiam Development

			Year 1			Year 4			Year 8		
Land Use (ITE Code)	**Unit**	**Internal Trip %**	**Size**	**Rate***	**Trips**	**Size**	**Rate***	**Trips**	**Size**	**Rate***	**Trips**
Average Daily Trips											
Residential PUD (270)	D.U.	10%	9	12.89	116	185	8.97	1494	588	7.80	4128
Recreational Homes (260)	D.U.	10%	61	3.16	193	339	3.16	964	710	3.16	2019
Senior Adult Housing (251)	D.U.	10%	0	N/A	0	0	N/A	0	150	5.09	687
Single-Family Housing (210)	D.U.	0%	0	N/A	0	0	N/A	0	127	10.20	1295
Resort Hotels (330)	Rooms	25%	0	N/A	0	200	8.92	1338	200	8.92	1338
Salmon Run Institute	Visitors	10%	0	N/A	0	1000	0.56	560	5000	0.56	2800
Total					**309**			**4356**			**12268**
PM Peak Hour Trips											
Residential PUD (270)	D.U.	10%	9	1.00	9	185	0.78	130	588	0.69	365
Recreational Homes (260)	D.U.	10%	61	0.26	16	339	0.26	79	710	0.26	166
Senior Adult Housing (251)	D.U.	10%	0	N/A	0	0	N/A	0	150	0.84	113
Single-Family Housing (210)	D.U.	0%	0	N/A	0	0	N/A	0	127	1.05	133
Resort Hotels (330)	Rooms	25%	0	N/A	0	200	0.44	66	200	0.44	66
Salmon Run Institute	Visitors	10%	0	N/A	0	1000	0.06	56	5000	0.06	280
Total					**25**			**331**			**1124**

* The trip rates for codes 270, 251, and 210 are based on regression curves. The rate shown is the resultant rate for the size shown.

5.3 Trip Distribution and Assignment

The trip distribution for the Santiam Development in the PM peak hour is made in two parts. The external trips to and from the Institute and the hotels are mainly tourist oriented and as such are distributed to Santiam Highway in proportion to the relative percentage of traffic eastbound and westbound. The remaining residential traffic is distributed in proportion to the existing traffic movements at the intersections studied. The external residential trips from areas A through E are assigned to the 47th Avenue access while all other trips are assigned to 18th Avenue.

Figure 4 shows the expected distribution in 2005, the first year of development. Figure 5 shows the resulting traffic at the intersections studied with and without the development. Figure 6 shows the expected distribution in 2009, the fourth year of development. Figure 7 shows the resulting traffic at the intersections studied with and without the development. Figure 8 shows the expected distribution in 2013, at the expected full build-out. Figure 9 shows the resulting traffic at the intersections studied with and without the development.

5.4 Level-of-Service Analysis - General

The Highway Capacity Manual defines the methods by which level-of-service (LOS) is calculated in this analysis. The Synchro6 Software was used to evaluate the operation of all study intersections. At signalized intersection, a saturation flow rate of 1800 vehicles per lane per hour of green and 4 seconds lost time were used. The volume to capacity ratio (V/C) reported for the signalized intersection and the All-way Stop intersection is the Intersection Capacity Utilization (ICU) as reported by Synchro6; the LOS reported is based on the average intersection delay which is shown in seconds. For unsignalized intersections, the V/C, average vehicle delay in seconds, and LOS are reported for the critical movement.

According to the 1999 Oregon Highway Plan Mobility Standards, the maximum V/C ratio for U.S. 20, a Regional highway within a non-MPO urban growth boundary with a speed limit less than 45 MPH is 0.80. This standard applies to the Santiam Highway at 18th Avenue intersection. For the Santiam Highway at 47th Avenue intersection where the speed is 45 MPH, the maximum allowed V/C for Santiam Highway is 0.75.

5.5 Level-of-Service Analysis - 2005

Table 7 shows the results of the operational analysis of the study intersections for the first year of the development compared to the existing 2004 traffic conditions. Development in Year 1 is expected to be limited to areas A and E with all access to occur at 47th Avenue. The existing pre-timed signal operation at Santiam Hwy. and18th Avenue was evaluated. The Synchro6 worksheets can be found in Appendix D.

Table 7: 2005 Design Hour LOS Analysis; No Build vs. Year 1 Build

Intersection Critical Movement	2004 Existing DHV			2005 Build - Year 1		
	V/C	Delay	LOS	V/C	Delay	LOS
Main St. (Santiam Hwy.) @ 18th Avenue	0.55	14.2	B	0.56	14.4	B
Long Street. @ 18h Avenue Eastbound Movements	0.47 0.40	10.9 11.6	B B	0.47 0.40	10.9 11.6	B B
Main St. (Santiam Hwy.) @ 47th Avenue Northbound Movements	0.04	16.5	C	0.05	17.7	C

The analysis shows that all intersections will operate without exceeding the mobility standards after year 1 of the development

5.6 Level-of-Service Analysis - 2009

By the intermediate year 2009, year 4 of the development, residential development in areas A through E, with access at 47th Avenue, is expected to be at 65% of the projected total. The Santiam Institute will have been open for a few years and is expected to attract 1,000 visitors on the peak day. Residential development in the surrounding areas J, through N is expected to be at a little less than 25% of the projected total. Both hotels are expected to be in operation by 2009. The Institute, hotels, and areas J through N will access the street system via 18th Avenue.

Table 8 shows the results of the operational analysis of the study intersections for the fourth year of the development compared to No-Build traffic conditions. The Salmon Run Institute entrance is currently proposed to be 250-300 feet north of the railroad tracks. Since almost all traffic using this access will have origins or destinations to the south, we have assumed that a northbound free right turn into the development will be constructed. All exiting movements will be controlled by a Stop sign. No further changes to the study intersections are anticipated by the TSP by 2009. The Synchro6 worksheets can be found in Appendix E.

Table 8: 2009 Design Hour LOS Analysis; No Build vs. Year 4 Build

Intersection Critical Movement	**2009 No-Build**			**2009 Build - Year 4**		
	V/C	**Delay**	**LOS**	**V/C**	**Delay**	**LOS**
Main St. (Santiam Hwy.) @ 18th Avenue	0.61	15.6	B	0.67	15.2	B
Long Street. @ 18h Avenue	0.53	14.2	B	0.54	14.1	B
Eastbound Movements	0.57	16.0	C	0.57	16.0	C
Main St. (Santiam Hwy.) @ 47th Avenue Northbound Movements	0.13	19.5	C	0.23	28.4	D
Salmon Run Institute Access @ 18h Avenue Westbound Movements	N/A			0.20	11.8	B

Again, all intersections will operate within the mobility standards. Even though the V/C and LOS at the signal at Santiam Highway and 18th Avenue is well within acceptable limits, an increase in left-turn movements from the downtown area will increase conflicts with opposing through movements. Separate left-turn phasing for Santiam Highway approaches, recommended in the TSP, would reduce the conflicts and should be considered by this time.

5.7 Level-of-Service Analysis - 2013

By the 2013, the development is expected to be completed. Table 9 shows the results of the operational analysis of the study intersections for the eighth year of the development compared to No-Build traffic conditions. By this time separate left-turn phasing on Santiam Highway is assumed for both the no-Build and Build conditions. No further changes to the study intersections are anticipated by the TSP by 2013. The Synchro6 worksheets can be found in Appendix F.

Table 9: 2013 Design Hour LOS Analysis; No Build vs. Year 8 Build (Full Build-out)

Intersection Critical Movement	**2013 No-Build**			**2013 Full Build-Out**		
	V/C	**Delay**	**LOS**	**V/C**	**Delay**	**LOS**
Main St. (Santiam Hwy.) @ 18th Avenue	0.63	18.7	B	1.12	84.9	F
Long Street. @ 18h Avenue Eastbound Movements	0.64 0.74	20.6 25.2	C D	0.70 0.79	23.7 30.6	C D
Main St. (Santiam Hwy.) @ 47th Avenue Northbound Movements Southbound Movements	 0.27 0.30	 28.0 22.0	 D C	 0.60 0.69	 72.3 43.9	 F E
Salmon Run Institute Access @ 18h Avenue Westbound Movements	N/A			 0.71	 23.2	 C

By full build-out of the development, the 18th Avenue signalized intersection with Santiam Highway will fail the mobility standards. Mitigation measures at this intersection will be considered below.

At 47th Avenue and Santiam Highway, the southbound approach has a higher V/C but a lower delay than the northbound approach. This is because the majority of traffic southbound is making a right turn which has less opposing traffic than left turns made by northbound traffic. The maximum V/C, 0.69, meets the mobility standard, however the northbound movements will begin to experience long delays by 2013.

The Long Street at 18th Avenue all-way Stop and the Salmon Run Institute access on 18th Avenue will both operate within the mobility standards.

At the Salmon Run Institute access on 18th Avenue, westbound exiting volumes will surpass the volumes on 18th Avenue. Consideration of an all-way Stop (retaining the northbound free right turn) should be made.

5.8 Mitigation Measures for Full Build-out

Increased outbound traffic on the southbound approach to Santiam Highway on 18th Avenue along with increased eastbound left-turns and westbound right turns inbound from the highway to the development cause failure of that intersection. The existing downtown development on Main Street to the west constrains the roadway in that direction. The eastbound left-turn pocket must be lengthened however, requiring the removal of parking to accommodate it. Parking can be removed from 18th Avenue on the north and south approaches to allow left-turn lanes to be provided within the existing curbed roadway width. When these measures were analyzed using protected left-turns in all directions, the V/C was 0.88, still above the 0.80 mobility standard. It was found that an additional westbound right-turn lane is sufficient to bring the V/C down to 0.80.

Table 9M summarizes the results of the operational analysis of the mitigation measures identified for Santiam Highway and 18th Avenue. The table also shows the 95th percentile queues expected at the intersection which should be used to determine the length of the added turning lanes. It also shows the queues in the north and southbound through lanes which should be checked against the available storage length between the intersetions and the railroad crossing. The table also shows the resultant LOS if an all-way Stop is implemented at the Salmon Run Institute access and 18th Avenue. The Synchro6 worksheets can be found in Appendix F.

Table 9M: 2013 Design Hour LOS Analysis; Build-out Conditions with Mitigation

Intersection Critical Movement	**V/C**	**Delay**	**LOS**	**Queue** (Feet)
Main St. (Santiam Hwy.) @ 18th Avenue	0.80	39.5	D	
Eastbound Left-turn Lane				284
Westbound Left-turn Lane				83
Westbound Right-turn Lane				350
Northbound Left-turn Lane				128
Northbound Through Lane				249
Southbound Left-turn Lane				305
Southbound Through Lane				198
Salmon Run Institute Access @ 18h Avenue	0.44	12.0	B	
Westbound Movements	0.64	16.7	C	

The analysis shows that the mitigation measures will bring the intersection of Santiam Highway and 18th Avenue into compliance with the mobility standards.

5.9 Timing of Mitigation Measures

Based on the proposed development schedule, at some point between 2009 and 2013 the Santiam Highway and 18th Avenue will exceed the mobility standards. The recommended mitigation measures for the intersection include:

- Separate left-turn phasing for the Santiam Highway approaches,
- Separate left-turn lanes and phasing for 18th Avenue approaches,
- Lengthening of the eastbound left-turn pocket or allowing protected-permitted left-turn phasing,
- Add an additional westbound right-turn lane.

Timing of these measures is dependent upon the speed of the development of the site and that is difficult to project with assurance.

It appears that separate left-turn phasing can be accomplished utilizing the existing traffic signal poles and mast arms and restriping the 18th Avenue approaches can be accomplished within the existing curbs. These measures would be relatively inexpensive and would benefit traffic generated by the Institute. It is recommended that these measures be implemented soon after the Institute is open and no later than the opening of the first hotel or the development of 100 homes in the Institute area.

Lengthening of the eastbound left-turn pocket requires median replacement and parking removal in front of downtown businesses, a more expensive and difficult procedure. The existing left-turn pocket is relatively short. A rule of thumb is that the length of a single separately phased left-turn pocket in feet should equal the peak hour volume of the left-turn lane, provided the intersection is not over saturated. If the existing lane is 100 feet in length its capacity should be 100 vehicles in the peak hour. The estimated demand in 2009 for eastbound left turns is 84 in the peak hour. Given the accelerated pace of development following year 4, this left-turn pocket will probably exceed capacity by 2010. Another option that would reduce the queue build up in the left-turn pocket would be to introduce protected-permitted phasing for the left turns. This would allow left turns after during the through phase and could be a temporary measure until the lane can be lengthened. Either measure should be implemented as soon as possible and no later than 2010.

Widening the westbound approach to provide a right-turn lane will impact the existing signal pole on the northeast corner of the intersection as well as require utility pole relocation and possibly some disruption to the service station business on that corner. This is the mostly expensive mitigation measure but it is also the lowest priority. The TSP projects a higher growth in traffic over today's levels in the westbound direction than eastbound primarily due to growth in Sweet Home east of 18th and south of Santiam Highway. There is also a component of through traffic growth on the highway. No reductions were made in these background traffic levels on Santiam Highway which may be attracted into the Institute as pass-by traffic. Reductions of through traffic due to pass-by trips could negate the need for a separate right-turn lane. Because the need for this measure depends to a large part on through traffic growth on the highway and growth of other sections of Sweet Home, the Santiam Development should not be responsible for providing it if it is needed.

5.10 Level-of-Service Analysis - 2017

The year 2017 is the horizon year of the City of Sweet Home TSP. A summary of the operational analysis of the study intersections for that year is provided in Table 10. The mitigation measures for Santiam Highway and 18th Avenue are assumed for the Build-out conditions. The TSP finds that the intersection of Santiam Highway and 47th Avenue will fail the mobility standard by the year 2017 and that it will meet a signal warrant. An analysis of both conditions with and without a traffic signal is provided. The Synchro6 worksheets can be found in Appendix G.

Table 10: 2017 Design Hour LOS Analysis; No Build vs. Full Build-out

Intersection Critical Movement	2017 No Build			2017 Full Build-Out		
	V/C	Delay	LOS	V/C	Delay	LOS
Main St. (Santiam Hwy.) @ 18th Avenue	0.72	25.5	C	0.86	49.4	D
Long Street. @ 18h Avenue	0.74	30.3	D	0.77	43.4	E
Eastbound Movements	0.85	38.4	E	0.98	63.0	F
Main St. (Santiam Hwy.) @ 47th Avenue (Signal)	0.49	4.6	A	0.51	8.0	A
Main St. (Santiam Hwy.) @ 47th Avenue (Stop sign)						
Northbound Movements	0.46	44.5	E	1.07	205.6	F
Southbound Movements	0.49	34.6	D	1.01	116.1	F
Salmon Run Institute Access @ 18h Ave. (AWSC)	N/A			0.44	12.2	B
Westbound Movements				0.65	17.2	C

By 2017 the V/C at the intersection of Santiam Highway and 18th Avenue will increase beyond the mobility standard due to the projected increased through traffic on the highway and further development in Sweet Home. However, the LOS of the intersection, “D”, is acceptable for urban areas.

By 2017 the Santiam Highway and 47th Avenue intersection at full build-out will meet signal warrants and a traffic signal installation is recommended.

At 18th Avenue and Long Street at full build-out, the eastbound movements will fail. A traffic signal is not recommended at this intersection because of its proximity to the Santiam Highway and 18th Avenue intersection. If left-turn lanes are provided for the eastbound and westbound approaches, the all-way Stop control will operate at a V/C of 0.44 and a LOS of “B”. Providing these left-turn pockets is the recommended mitigation measure.

6. Internal Street System

All streets within the development are proposed to be private streets. The Master Plan shows a main road looping through the site from end to end connecting all development areas. Each area has a neighborhood street making at least one connection to the main road. The City of Sweet Home has requested that an analysis of the main road that connects the 18th Avenue and 47th Avenue be made. Of concern is the cross section of the roadway.

The average daily traffic on each section of the roadways in the development was estimated assuming that all external trips generated by areas A through E will use 47th Avenue while the trips generated by areas F through N will use 18th Avenue. The internal trips between the areas were estimated by adding 10% to the totals. Figure 11 in Appendix A shows the estimated ADT's on the internal streets of the development at full build-out.

Table 6 in the TSP provides a general guide to the functional classification of streets for various levels of ADT and travel speed. Local streets generally have ADT's of 1,000 vehicles or less and speed of 25 MPH or less. Collector streets generally have ADT's of 1,500 to 5,000 with speeds of 25 MPH. Minor arterial streets have ADT's from 3,000 to 10,000 with speeds greater than 25 MPH.

Comparing these guidelines to the proposed street system, it appears that all neighborhood streets would fall in the local street classification. The neighborhood street entering area L would be only one with more than 1000 ADT.

On the main road at the west end from 18th Avenue through area J, the full build-out ADT's would be in the range of a minor arterial street classification. However, the speeds will be 25 MPH or less in the Institute area, M, and the mixed-use area, J, which will be the focus of tourist and community destinations with numerous off-street parking areas, and heavy pedestrian and bicycle activity. A roadway cross section that includes two 11-foot travel lanes with 6-foot on-street bike lanes and 8-foot wide sidewalks is recommended. A minimum 10-foot wide separate bike/pedestrian path would be an option to providing these facilities on the roadway. The estimated ADT's on the remainder of the main road from area L to 47th Avenue are less than 2,250 vehicles and while it road would function as a collector, lane widths of 10 feet would be acceptable.

APPENDIX C:

EXISTING CONDITIONS TRAFFIC ANALYSIS

Existing Traffic Operations and Demand

Sweet Home's transportation system was evaluated based on daily and peak hour traffic volumes on the study area roadways. Historical average daily traffic (ADT) volumes along US 20 and ORE 228 were used to observe trends in the transportation system. Fourteen-hour turning movement counts were obtained at eleven key locations in the City of Sweet Home during peak months for 2004.

Average Daily Traffic Volumes

Table C.1 shows the ADT for locations along the state highways within the city of Sweet Home from 1998 to 2003. The ADTs are averaged over the year for the individual years shown.

Table C.1: ADT Volumes

	Milepost	Location	ADT Year			
			1993	1998	2002	2003
US 20	26.64	West City Limits of Sweet Home	11,000	11,900	11,300	11,100
	26.79	0.02 mile east of Pleasant Valley Road	12,000	12,900	13,700	13,500
	27.10	0.03 mile east of Halsey-Sweet Home Highway	15,000	16,200	14,600	14,400
	27.43	0.01 mile east of 13th Avenue	14,000	14,600	13,000	12,500
	27.71	0.01 mile west of 18th Avenue	13,000	14,100		
	27.73	0.01 mile east of 18th Avenue	14,000	13,000	11,100	10,900
	28.08	0.01 mile west of 23rd Avenue	14,000	12,600	10,900	10,700
	28.60	0.01 mile East of Clark Mill Road	13,000	13,500	13,100	12,900
	29.83	0.01 mile west of 47th Avenue	12,000	12,200	10,400	10,200
	30.27	0.02 mile west of Foster Road	6,100	6,400	6,300	6,200
	30.30	0.01 mile east of Foster Road	5,100	4,800	4,500	4,400
	30.86	0.01 mile east of Poplar Street	4,100	4,700	4,100	
ORE 228	20.60	0.01 mile east Fern Ridge Road	4,000	4,500	5,100	5,100
	21.03	0.01 mile west of 1st Avenue	6,100	5,900	6,000	6,100
	21.15	0.01 mile east 3rd Avenue	5,400	6,500	6,200	6,300
	21.37	0.01 mile west Long Street	5,300	6,100	5,100	5,200
	21.39	0.01 mile southwest of Santiam Highway	5,800	5,500	5,000	5,100

Based on data contained in the previous table, the following observations are made:

- Between 1993 and 1998 traffic volumes increased, however in recent years traffic volumes have decreased.
- Traffic volumes are significantly higher on US 20 near the west city limits compared to the east of city limits indicating a high number of trips have Sweet Home as a destination.
- Approximately 30 percent of highway traffic near the west and east city limits consists of long-distance trips passing through Sweet Home. This indicates a large number of trips, approximately 70 percent, have Sweet Home as an origination or destination.

Crash Analysis

When evaluating the relative safety of an intersection, consideration is given not only to the total number and types of crashes occurring, but also to the number of vehicles entering the intersection. This leads to the concept known as "crash rate" which is usually expressed in terms of the number of crashes occurring per one million vehicles entering the intersection (MEV). Intersections having a crash rate less than 1.0/MEV are generally considered relatively safe. At crash rates higher than 1.0/MEV, consideration may be given to correcting operational problems.

Crash data for the study area intersections and roadways was obtained from ODOT for January 1999 through December 2003 and is presented in the following table.

Table C.2: Crash Summary

Intersection	1999	2000	2001	2002	2003	Total	ADT	Rate
US 20/Pleasant Valley	1	5	1	2	2	11	13,420	0.45
ORE 228/Oak Terrace	1	-	-	-	-	1	6,140	0.09
ORE 228/Long St	-	-	-	-	-	0	6,540	0.00
US 20/ORE 228	2	5	2	1	-	10	17,160	0.32
US 20/12th Ave	-	-	-	5	-	5	17,480	0.16
US 20/15th Ave	2	1	4	4	3	14	16,200	0.47
US 20/18th Ave	1	4	2	2	2	11	17,640	0.34
18th Ave/Long St						N/A	8,390	-
US 20/Clark Mill Rd	3	1	1	2	1	8	10,720	0.41
US 20/47th Ave	1	-	1	-	1	3	6,890	0.24
US 20/53rd Ave	1	2	2	1	-	6	6,010	0.55

Reported crashes at the US 20/ORE 228, US 20/12th Avenue, US 20/15th Avenue and US 20/18th Avenue intersections for the five years reviewed were primarily characterized as rear-end, angle and turning collisions typical of signalized intersections. Crash rates are all below the threshold rate of 1.0/MEV; therefore, it is concluded the intersections do not currently warrant further consideration for safety mitigation measures.

Eleven crashes were reported at the US 20/Pleasant Valley Road intersection and were primarily characterized as turning collisions typical for unsignalized intersections experiencing high delay on the minor approaches. The crash rate is 0.45, below the minimum threshold.

No crashes were reported at the intersection of ORE 228 and Long Street for the time period evaluated. Crash data was not available for the intersection of 18th Avenue and Long Street.

All other intersections on US 20 had crash rates below the minimum threshold for a high-risk crash location.

Based on this analysis, specific, correctable crash patterns were not identified, and collisions appear to be characteristic for the types intersection traffic control. Therefore, it is not recommended safety mitigation measures be constructed. All crash data and calculations are in the appendix.

Existing Traffic Volumes

The evaluation of a roadway system capacity and level-of-service is typically based on an analysis of peak hour traffic volumes. The design hour volume (DHV) is used for ODOT planning and project level analysis. For roadways, the DHV represents the 30th highest hour traffic volumes of, i.e. for hourly traffic volume data for vehicles in both directions throughout the year, sorted from highest to lowest, the 30th highest volume represents the DHV. Experience has shown that the 30th highest volume for a recreational route typically ranges from 11 to 25 percent of the Average Annual Daily Traffic (AADT).

To determine the DHV, peak month traffic volumes needs to be used. For traffic counts obtained throughout the year, conversion from a given month to the peak month can be accomplished by applying a seasonal adjustment factor. Data collected from ODOT Automatic Traffic Recorder (ATR) station #22-013, located approximately six miles from the west city limits of Sweet Home, was used to convert traffic volumes collected in March to the peak month of July.

Based on the historic ODOT data, a seasonal adjustment factor of 117 percent was used to determine DHVs.

DHVs on US 20 (Santiam Highway) range from approximately 450 to 1,300 vehicles per hour (vph) for both directions. Side street approach volumes are generally less than 150 vph, except the north approach of Pleasant Valley Road which has approximately 200 vph and the south approach of ORE 228 which has approximately 275 vph.

DHVs on ORE 228 (Halsey-Sweet Home Highway) range from approximately 275 to 500 vph for both directions. Side street approach volumes are generally less than 100 vph, except for the south approach of Long Street, which has approximately 150 vph.

Manual intersection volume counts were obtained in 2004. To adjust these volumes to 2005, a background traffic growth rate of 2% per year was applied to the 2004 volumes based on ODOT historical count information.

Traffic Operations

Methodology

Intersection operational characteristics are generally defined by two mobility standards: volume-to-capacity (v/c) ratio and level-of-service (LOS). Mobility standards relate to how easily vehicles flow on a given roadway. Volume-to-capacity ratio is a measurement of roadway congestion, calculated by dividing the number of vehicles passing through a section of highway during the peak hour by the capacity of the section. A v/c ratio approaching 1.0 indicates that the area is more congested. ODOT uses v/c ratio while the City uses LOS to measure roadway congestion.

Since both entities have roadways within the study area, both mobility standards are included in the analysis.

ODOT uses the v/c ratio mobility standard on State roadways. US 20, classified as a Regional Highway within a non-MPO UGB, varies in speed from 25 MPH to 45 MPH at the east end of the City limits. For posted speeds less than 45 MPH, a maximum allowable v/c ratio is 0.80, and for posted speeds equal to or greater than 45 MPH, a maximum allowable v/c is 0.75. For purposes of this analysis, the US 20/47th Avenue, US 20/Clark Mill Road and US 20/53rd Avenue intersections maximum allowable v/c is 0.75.

ORE 228, classified as a District/Local Interest Road within a non-MPO UGB, posted speed along ORE 228 is 35 mph within the Sweet Home City limits resulting in a maximum allowable v/c of 0.85.

The City of Sweet Home uses LOS mobility standard on City roadways. Table C.3 presents level of service criteria for City arterial roadways.

Table C.3: Level of Service Criteria for City Arterial Roadways

LOS	Typical Traffic Flow Conditions
A	Primarily free-flow operations at average travel speeds, usually about 90 percent of the FFS for the given street class. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Control delay at signalized intersections is minimal.
B	Reasonably unimpeded operations at average travel speeds, usually about 70 percent of the FFS for the street class. The ability to maneuver within the traffic stream is slightly restricted, and control delays at signalized intersections are not significant.
C	Stable operations; however, ability to maneuver and change lanes in midblock locations may be more restricted than at LOS B, and longer queues, adverse signal coordination, or both may contribute to lower average travel speeds of about 50 percent of the FFS for the street class.
D	Borders on a range in which small increases in flow may cause substantial increases in delay and decreases in travel speed. LOS D may be due to adverse signal progression, inappropriate signal timing, high volumes, or a combination of these factors. Average travel speeds are about 40 percent of the FFS.
E	Characterized by significant delays and average travel speeds of 33 percent or less of the FFS. Such operations are caused by a combination of adverse progression, high signal density, high volumes, extensive delays at critical intersections, and inappropriate signal timing.
F	Characterized by street flow at extremely low speeds, typically one-third to one-fourth of the FFS. Intersection congestion is likely at critical signalized locations, with high delays, high volumes, and extensive queuing.

Source: Transportation Research Board, Highway Capacity Manual. National Research Council, 2000.

LOS is a measure of the average control delay (in seconds) experienced by drivers at an intersection and is described by a letter on a scale from 'A' to 'F'. Level of Service D is generally considered to present the minimum acceptable design standard. AT LOS D, small increases in traffic volumes lead to significant changes in speed and delay. Table C.4 presents the level of service criteria for signalized and unsignalized intersections. Once an unsignalized intersection reaches a higher delay time, the LOS declines and signalization of the intersection should be considered as the LOS reaches LOS D or F.

Table C.4: Level of Service Criteria for City Intersections

LOS	Delay per Vehicle (s/veh)	
	Signalized	Unsignalized
A	≤ 10	0 - 10
B	> 10-20	> 10-15
C	> 20-35	> 15-25
D	> 35-55	> 25-35
E	> 55-80	> 35-50
F	> 80	> 50

Source: Transportation Research Board, Highway Capacity Manual. National Research Council, 2000.

2005 ANALYSIS YEAR

Intersection Operations

Traffic operating conditions at the intersections in this study were determined using the software package Synchro6, developed by Trafficware Corporation and Highway Capacity Manual methodologies as described above. The results of the intersection capacity analysis are shown for signalized and unsignalized intersections in Table C.5.

Table C.5: 2005 Intersection Operational Analysis

Intersection	Intersection Control		v/c	2005 Delay	LOS
US 20 / Pleasant Valley	Two-Way Stop	NB Lt/Th/Rt	0.04	23.2	C
		SB Lt/Th/Rt	0.80	58.8	F
		EB Lt	0.06	8.9	A
		WB Lt	0.00	0.1	A
ORE 228/Oak Terrace	Two-Way Stop	NB Lt/Rt	0.20	12.7	B
		WB Lt	0.02	1.2	A
ORE 228/Long	All-Way Stop	NB Lt/Rt	0.44	8.7	A
		EB Th/Rt		9.9	A
		WB Lt/Th		10.3	B
US 20/ORE 228	Signal		0.47	15.1	B
US 20/12th Ave	Signal		0.46	7.3	A
US 20/15th St	Signal		0.44	8.2	A
US 20/18th Ave	Signal		0.45	12.8	B
18th Ave/Long	All-Way Stop	NB Lt/Th/R	0.57	11.6	B
		SB Lt/Th/Rt		11.7	B
		EB Lt/Th/Rt		13.4	B
		WB Lt/Th/Rt		11.7	B
US 20/Clark Mill	Two-Way Stop	NB Lt/Th/Rt	0.20	18.4	C
		SB Lt/Th/Rt	0.10	14.2	B
		EB Lt	0.03	8.4	A
		WB Lt	0.03	8.5	A
US 20/47th Ave	Two-Way Stop	NB Lt/Th/Rt	0.03	12.5	B
		SB Lt/Th/Rt	0.05	11.0	B
		EB Lt	0.03	8.0	A
		WB Lt	0.00	7.9	A
US 20/53rd St	Two-Way Stop	NB Lt/Th/Rt	0.07	14.1	B
		SB Lt/Th/Rt	0.07	10.4	B
		EB Lt	0.03	2.0	A
		WB Lt	0.00	0.0	A

Table C.5 shows that all intersections in 2005 operate at acceptable levels per ODOT mobility standards in the 1999 Oregon Highway Plan; however, the unsignalized US 20/Pleasant Valley intersection, which operates above ODOT mobility standards (v/c 0.80) during the PM peak hour is on the verge of failure. Analysis of signal warrants for future year conditions are contained in the appendix. High traffic volumes on US 20 result in few acceptable gaps in traffic for entering southbound left turning vehicles. The southbound movements will experience high delays under peak hour conditions. During other times of the day the southbound vehicles will experience less delay.

Queuing Guidelines

Queue lengths, in addition to mobility standards, are another important consideration in determining LOS and v/c ratios. A queue length is the length of vehicles waiting at an intersection. Longer queue lengths may lead to conflicts between vehicles and nearby driveways, intersections and other turning movements at intersections. Analyses were performed at the study intersections to determine existing and anticipated 95th percentile queue lengths. The 95th percentile queue length is the maximum queue length anticipated to be present 5 percent of the time (3 minutes) during the analysis hour. Synchro6 analysis software was used with a queue storage assumption of 25 feet per vehicle. Queue lengths are presented in Table C.5.

Table C.5: 2005 PM Peak Queue Lengths (Feet)

Intersection	Lane Group	Queue Length
US 20/Pleasant Valley	NB Lt/Th/Rt	27
	SB Lt/Th/Rt	150
	EB Lt	37
	WB Lt/Th	5
ORE 228/Oak Terrace	NB Lt/Rt	85
	WB Lt/Th	37
ORE 228/Long St	NB Lt/Rt	48
	NB Rt	49
	EB Th/Rt	86
	WB Lt/Th	99
US 20/ORE 228	NB Lt/Th	112
	NB Rt	51
	EB Lt/Th	124
	EB Th	121
	WB Lt	134
	WB Th	90
	WB Th/Rt	96
US 20/12th Ave	NB Lt/Th/Rt	93
	SB Lt/Th/Rt	82
	EB Lt/Th	166
	EB Th/Rt	143
	WB Lt/Th	111
	WB Th/Rt	87
US 20/15th Ave	NB Lt/Th/Rt	113
	SB Lt/Th/Rt	94
	EB Lt/Th	139
	EB Th/Rt	127
	WB Lt/Th	138
	WB Th/Rt	116
US 20/18th Ave	NB Lt/Th/Rt	100
	SB Lt/Th/Rt	93
	EB Lt/Th	173
	EB Th/Rt	175
	WB Lt	70
	WB Th	131
	WB Th/Rt	118
18th Ave/Long St	NB Lt/Th/Rt	68
	SB Lt/Th/Rt	71
	EB Lt/Th/Rt	103
	WB Lt/Th/Rt	73
US 20/Clark Mill	NB Lt/Th/Rt	47
	SB Lt/Th/Rt	34
	EB Lt	18
	WB Lt	22
US 20/47th Ave	NB Lt/Th/Rt	24
	SB Lt/Th/Rt	29
	EB Lt	20
US 20/53rd St	NB Lt/Th/Rt	23
	SB Lt/Th/Rt	35
	EB Lt/Th	20

The current roadway queue storage areas have capacity to accommodate all queue lengths. Along US 20 two locations have queue lengths which, back into through traffic for westbound travel; US 20 at 12th Avenue and US 20 at 15th Street. A left turn lane would lessen the impact of left turning traffic from slowing the flow of through traffic at these locations.

APPENDIX D:
FUTURE CONDITIONS
TRAFFIC ANALYSIS

Future Traffic Volumes

Future traffic volumes are estimated using a Level 2 Cumulative Analysis as defined in ODOT TSP preparation guidelines. In addition to trending historical growth patterns, a Level 2 analysis examines the existing and planned land uses to predict future development growth and to forecast the traffic generated from that development.

Background growth is general growth in traffic not related to traffic from specific projects. Projections for background traffic growth in Sweet Home were made based on ODOT historical count information and anticipated development within the City. These counts indicated traffic growth in this area of 2% per year. Twenty-one years of growth at this rate was applied to existing traffic volumes to project traffic volumes for 2025.

As also identified by the guidelines, a Level 2 analysis requires an in-depth assessment of planned land uses be performed to develop a probable forecast of traffic generation at planning area build-out. In Sweet Home, one large project has been identified, the Santiam Development, and impacts are identified in a March 7, 2003 Traffic Impact Study (TIS).

The TIS identifies anticipated additional trip generation resulting from a comprehensive plan amendment and zone change. The TIS identifies traffic impacts and mitigation at 4 of the 11 intersections evaluated in this TSP update. Based on TIS materials, addition trip distribution and traffic assignment was performed to determine Santiam Development impacts at the remaining 7 intersections.

2025 ANALYSIS YEAR

Intersection Operations

A Level 2 Cumulative Analysis states all projects within the planning period and recommended mitigation will be assumed in future year analysis. The Santiam Development TIS identified the following mitigation at the US 20/18th Avenue intersection to maintain ODOT mobility standards:

1. North, south, and eastbound left-turn lanes with storage capacities of 150, 150, and 200 feet respectively.
2. Addition of a westbound right-turn lane with 75 feet of storage capacity.
3. Providing separate protected/permissive phases for left-turning movements.

Providing a southbound left-turn lane at the US 20/Pleasant Valley intersection, as identified in the 2005 analysis year, will help maintain ODOT mobility standards until 2007. However, beyond 2007 it is recommended the intersection be signalized to meet acceptable mobility standards. It is assumed a signal will be in place for 2025 future year analyses.

For 2025 analysis, the following assumptions were made:

1. Signal installation at US 20/Pleasant Valley intersection
2. All Santiam Development impacts and required/recommended mitigation was assumed as previously mentioned.

Traffic operating conditions at the study intersections were determined with software and methodologies previously stated in 2005 operational analysis. Capacity analysis results are shown for signalized and unsignalized intersections in the following table.

Table 3.5a: 2025 Intersection Operational Analysis

Intersection	Intersection Control		v/c	2025 Delay	LOS
US 20 / Pleasant Valley	Signal		0.60	9.5	A
ORE 228/Oak Terrace	Two-Way Stop	NB Lt/Rt	0.36	17.1	C
		WB Lt	0.04	1.4	A
ORE 228/Long	All-Way Stop	NB Lt/Rt	0.61	10.4	A
		EB Th/Rt		13.3	B
		WB Lt/Th		14.3	B
US 20/ORE 228	Signal		0.71	21.2	C
US 20/12th Ave	Signal		0.79	21.8	C
US 20/15th St	Signal		0.79	27.3	C
US 20/18th Ave	Signal		0.76	35.6	D
18th Ave/Long	All-Way Stop	NB Lt/Th/Rt	0.82	27.0	D
		SB Lt/Th/Rt		30.7	D
		EB Lt/Th/Rt		75.2	F
		WB Lt/Th/Rt		32.6	D
US 20/Clark Mill	Two-Way Stop	NB Lt/Th/Rt	1.35	303.4	F
		SB Lt/Th/Rt	0.49	48.8	E
		EB Lt	0.07	10.0	A
		WB Lt	0.07	10.2	B
US 20/47th Ave	Two-Way Stop	NB Lt/Th/Rt	0.38	38.5	E
		SB Lt/Th/Rt	0.38	21.4	C
		EB Lt	0.11	9.0	A
		WB Lt	0.00	8.4	A
US 20/53rd St	Two-Way Stop	NB Lt/Th/Rt	0.23	24.4	C
		SB Lt/Th/Rt	0.15	12.7	B
		EB Lt	0.05	8.4	A
		WB Lt	0.00	0.0	A

Based on the 2025 analysis, all intersections operate within acceptable limits except the US 20/Clark Mill Road intersection which does not meet ODOT mobility standards and the 18th Avenue/Long Street intersection which does not meet City mobility standards. Signal warrant analyses (further detailed at the end of this chapter) performed at the US 20/Clark Mill intersection do not indicate warrants are met and crash data analysis does not identify the need for mitigation.

Queuing Guidelines

Analyses were performed at the 11 study intersections to determine anticipated 95th percentile queue lengths. 2025 analysis assumptions and simulation parameters are the same as for 2005. Queue lengths, in feet, are presented in the following table for 2025.

Table 3.5b: 2025 PM Peak Queue Lengths (Feet)

Intersection	Lane Group	Queue Length	Storage Length
US 20/Pleasant Valley	NB Lt/Th/Rt	39	[2]
	SB Lt/Th/Rt	173	[1]
	EB Lt	91	100
	WB Lt/Th	166	[1]
ORE 228/Oak Terrace	NB Lt/Rt	184	[1]
	WB Lt/Th	79	75
ORE 228/Long St	NB Lt/Rt	101	[1]
	NB Rt	78	75
	EB Th/Rt	368	[1]
	WB Lt/Th	143	[1]
US 20/ORE 228	NB Lt/Th	141	110[2]
	NB Rt	129	110[2]
	EB Lt	0	75
	EB Rt	138	150
	WB Lt	224	150
	WB Th/Rt	491	[1]
US 20/12th Ave	NB Lt/Th/Rt	232	[1]
	SB Lt/Th/Rt	187	[1]
	EB Lt/Th	1012	[1]
	EB Th/Rt	1011	[1]
	WB Lt/Th	902	[1]
	WB Th/Rt	905	[1]
US 20/18th Ave	NB Lt	85	150
	NB Th/Rt	227	[1]
	SB Lt	87	125
	SB Th/Rt	376	[1]
	EB Lt	270	200
	EB Th/Rt	498	[1]
	WB Lt	171	150
	WB Th/Rt	1914	75
18th Ave/Long St	NB Lt/Th/Rt	179	[1]
	SB Lt/Th/Rt	154	[1]
	EB Lt/Th/Rt	729	[1]
	WB Lt/Th/Rt	327	[1]
US 20/Clark Mill	NB Lt/Th/Rt	136	[1]
	SB Lt/Th/Rt	78	[1]
	EB Lt	44	150
	WB Lt	38	150
US 20/47th Ave	NB Lt/Th/Rt	51	[1]
	SB Lt/Th/Rt	90	[1]
	EB Lt	51	60
	WB Lt	4	60
US 20/53rd St	NB Lt/Th/Rt	43	[1]
	SB Lt/Th/Rt	50	[1]

US 20/15th Ave	NB Lt/Th/Rt	266	1
	SB Lt/Th/Rt	212	1
	EB Lt/Th	686	1
	EB Th/Rt	678	1
	WB Lt/Th	1081	1
	WB Th/Rt	1081	1

EB Lt/Th	48	60
WB Th/Rt	0	1

[1] Storage capacity is greater than 200 feet or to previous intersection

[2] Storage capacity is to previous intersection

As depicted in the previous tables, the queue lengths exceed many roadway storage capacities and the following mitigation is necessary:

1. Installation of east and westbound left-turn lanes at the US 20/12th Avenue, US 20/15th Avenue and Long Street/18th Avenue intersections.
2. Installation of an eastbound left-turn lane at the US 20/53rd Avenue intersection.
3. Installation of north and southbound left-turn lanes at the US 20/Clark Mill Road intersection.

2025 operation analysis were performed assuming the above-identified mitigation was constructed. Analysis results are presented in the following tables.

Table 3.6a: 2025 Mitigated Intersection Operational Analysis

Intersection	Intersection Control		2025 v/c	2025 Delay	2025 LOS
US 20 / Pleasant Valley	Signal		0.60	9.5	A
ORE 228/Oak Terrace	Two-Way Stop	NB Lt/Rt	0.36	17.1	C
		WB Lt	0.04	1.4	A
ORE 228/Long	All-Way Stop	NB Lt/Rt	0.61	10.4	A
		EB Th/Rt		13.3	B
		WB Lt/Th		14.3	B
US 20/ORE 228	Signal		0.71	21.2	C
US 20/12th Ave	Signal		0.66	12.6	B
US 20/15th St	Signal		0.68	13.1	B
US 20/18th Ave	Signal		0.76	35.6	D
18th Ave/Long	All-Way Stop	NB Lt/Th/R	0.65	22.1	C
		SB Lt/Th/Rt		24.4	C
		EB Lt/Th/Rt		14.6	C
		WB Lt/Th/Rt		11.0	C
US 20/Clark Mill	Two-Way Stop	NB Lt/Th/Rt	1.13	278.6	F

		SB Lt/Th/Rt	0.27	85.8	F
		EB Lt	0.07	10.0	A
		WB Lt	0.07	10.2	B
US 20/47th Ave	Two-Way Stop	NB Lt/Th/Rt	0.38	38.5	E
		SB Lt/Th/Rt	0.38	21.4	C
		EB Lt	0.11	9.0	A
		WB Lt	0.00	8.4	A
US 20/53rd St	Two-Way Stop	NB Lt/Th/Rt	0.23	24.4	C
		SB Lt/Th/Rt	0.15	12.7	B
		EB Lt	0.05	8.4	A
		WB Lt	0.00	0.0	A

With the assumed mitigation, all intersections operate within mobility standards except the US 20/Clark Mill Road intersection. As previously identified, this intersection does not meet signal warrants; therefore, no mitigation is recommended.

Queuing Guidelines

Analyses were performed at the 11 study intersections to determine anticipated 95th percentile queue lengths assuming previously identified mitigation. 2025 analysis assumptions and simulation parameters are the same as for 2005. Queue lengths, in feet, are presented in the following table for 2025 recommended mitigation.

Table 3.6b: 2025 PM Peak Mitigated Queue Lengths (Feet)

Intersection	Lane Group	Queue Length	Storage Length
US 20/Pleasant Valley	NB Lt/Th/Rt	30	[2]
	SB Lt/Th/Rt	173	[1]
	EB Lt	91	100
	WB Lt/Th	133	[1]
ORE 228/Oak Terrace	NB Lt/Rt	155	[1]
	WB Lt/Th	85	75
ORE 228/Long St	NB Lt/Rt	81	[1]
	NB Rt	63	75
	EB Th/Rt	170	[1]
	WB Lt/Th	134	[1]
US 20/ORE 228	NB Lt/Th	134	110[2]
	NB Rt	116	110[2]
	EB Lt	20	75
	EB Rt	47	150
	WB Lt	210	150
	WB Th/Rt	333	[1]
US 20/12th Ave	NB Lt/Th/Rt	135	[1]
	SB Lt/Th/Rt	127	[1]
	EB Lt	121	150
	EB Th/Rt	309	[1]
	WB Lt	96	150
	WB Th/Rt	221	[1]
US 20/15th Ave	NB Lt/Th/Rt	231	[1]
	SB Lt/Th/Rt	161	[1]
	EB Lt	93	150
	EB Th/Rt	264	[1]
	WB Lt	125	150
	WB Th/Rt	276	[1]

Intersection	Lane Group	Queue Length	Storage Length
US 20/18th Ave	NB Lt	148	150
	NB Th/Rt	307	[1]
	SB Lt	184	125
	SB Th/Rt	577	[1]
	EB Lt	243	200
	EB Th/Rt	422	[1]
	WB Lt	164	150
	WB Rt	129	75
18th Ave/Long St	NB Lt/Th/Rt	242	[1]
	SB Lt/Th/Rt	156	[1]
	EB Lt	102	150
	EB Th/Rt	144	[1]
	WB Lt	115	150
	WB Th/Rt	273	[1]
US 20/Clark Mill	NB Lt	77	125
	NB Th/Rt	42	[1]
	SB Lt	32	75
	SB Th/Rt	39	[1]
	EB Lt	31	150
	WB Lt	35	150
US 20/47th Ave	NB Lt/Th/Rt	59	[1]
	SB Lt/Th/Rt	79	[1]
	EB Lt	46	60
	WB Lt	3	60
US 20/53rd St	NB Lt/Th/Rt	39	[1]
	SB Lt/Th/Rt	45	[1]
	EB Lt	24	60
	WB Th/Rt	3	[1]

[1] Storage capacity is greater than 200 feet or to previous intersection

[2] Storage capacity is to previous intersection

As depicted in the previous tables, roadway storage areas have capacity to accommodate the majority of queues. Where left-turn queues exceed striped storage capacity, the two-way left-turn (TWLT) lane will accommodate overflow; therefore, no further mitigation is recommended.

Signal Warrant Analysis

Guidelines for traffic signal installation are presented in the Millennium Edition of the *Manual on Uniform Traffic Control Devices* (MUTCD). These guidelines are referred to as signal warrants. The MUTCD identifies eight signal warrants that present criteria for consideration of a traffic signal. Typically, an intersection will first meet the peak hour volume signal warrant.

Warrant 1 - Eight Hour Vehicular Volume
  Case A - Minimum Vehicular Volume
  Case B - Interruption of Continuous Traffic
Warrant 2 - Four Hour Vehicular Volume
Warrant 3 - Peak Hour Vehicular Volume
Warrant 4 - Pedestrian Volume
Warrant 5 - School Crossing
Warrant 6 - Coordinated Signal System
Warrant 7 - Crash Experience
Warrant 8 - Roadway Network

Further, OAR 734-020-0460 (1) stipulates only MUTCD Warrant 1 Case A and Case B may be used to project a future need for a traffic signal. Case A addresses high volumes on the intersecting minor street and Case B addresses high volumes on the major street .

2005 signal warrant analysis indicates the US 20/Pleasant Valley intersection meets Warrants 1, 2, and 3. Is should be noted that before a signal can be installed, a field warrant analysis will need to be conducted by ODOT Region 2 and the ODOT Traffic Management Section will make the final decision on signal installation.

Signal warrant analyses at the US 20/Clark Mill Road intersection were unmet for 2025 PM peak traffic volumes.

Turn Lane Guidelines

Left and right-turn lanes improve intersection operation by reducing through traffic delays and rear-end crash potential. ODOT left and right-turn lane guidelines are based on intersection approach volumes.

The following table summarizes the turn lane analysis. Specific ODOT guidelines are included in the appendix.

Table 3.7: Turn Lane Analysis

Intersection	Travel Direction	Left Turn Warrant Met?	Right Turn Warrant Met?
US 20/12th Ave	Eastbound	Yes	Yes
	Westbound	Yes	Yes
US 20/15th Ave	Eastbound	Yes	Yes
	Westbound	Yes	Yes
US 20/53rd Ave	Eastbound	Yes	Yes
	Westbound	No	No

The US 20/12th Avenue, US 20/15th Avenue, and US 20/53rd Avenue intersections meet criteria for installation of eastbound left-turn lanes. The US 20/12th Avenue and US 20/15th Avenue intersections meet criteria for installation of westbound left-turn lanes. Through traffic at these locations experience significant delays caused by left-turning vehicles and installation of left-turn lanes will reduce delays.

Although right-turn lane warrants are met, none are recommended because right-turning vehicles do not cause significant delay to through vehicles and through traffic queue lengths are in excess of right-turn lane storage lengths which can realistically be provided.

APPENDIX E:
STREET CONDITIONS SURVEY

10 YEAR ASPHALT STREET CAPITAL IMPROVEMENT PROJECTS

Revised: 12/93; 4/03; 4/04

City of Sweet Home Public Works Department

STREET CONDITION SURVEY

CONDUCTED JULY 1991; APRIL 2003;

Rating	Improved Street	Condition	Miles	Number	Unimproved Street	Condition	Miles	Number
1	Curbs, Sidewalks, Gutters	Good	5.894	44				
2	Curbs, Sidewalks, Gutters	Fair	4.75	28				
3	Curbs, Sidewalks, Gutters	Poor	7.68	59				
4					Pavement, Overlays	Good	7.85	41
5					Pavement, Overlays	Poor	4.2	21
6					Oil Mat	Good	1.29	10
7					Oil Mat	Poor	6.09	56
8					Gravel		0.80	14
9					Grass, Trees		1.83	24
Subtotal Imp./Unimp. Street Miles			18.33				22.06	
Total Street Miles							40.39	
Total Paved Miles							37.76	

Code

*	Federal Aided Roads
@	Heavy Haul Route per Ord 1042 in 1992
+	24" Storm recommended per 1993 revision of 10yr Street CIP
Hold " "	Water/Sewer Infrastructure Repair or Upgrade Prior

Traffic Demand: T.D.

1	Low
2	Medium
3	High

Improvement Scope (Per 1993 revision of 10yr Street CIP)

A	Reconstruct	#5 Heavy Haul Route
B	Reconstruct	#5 Normal Traffic
C	3" Overlay	#3 & #4 Heavy Haul Route
D	2-1/2" Overlay	#4 Normal Traffic
E	1" Overlay	#2 Heavy Haul Route & #3 Normal Traffic
OK	No Surface improvement Needed	#1's Heavy Haul Route & Normal Traffic

Notes:

CB
Shdr
Imp
Priority
Est Year
CIP Year
Year Com.

ALLEY STREET CAPITAL IMPROVEMENT PROJECTS								Imp/Scope:	A-Recon, B-Grade, All alleys #8 need H.S.A.			
Revised: 12/93; 4/03, 2/05								Alley Condition/Rate Scale 1-9				
City of Sweet Home Public Works Department								Apron Condition/Rate Scale 1-3				
ALLEY CONDITION SURVEY								1.837	Road Miles (2x for Lane Mile)			
CONDUCTED JULY 1991; APRIL 2003; FEB 2005												
ALLEY NUMBER	R-O-W WIDTH	BETWEEN FROM	BETWEEN TO	FROM	TO	APPROACH NUMBER	ROAD MILES	ALLEY CON/RATE	APRON CON/RATE	ALLEY IMP/SCOPE	APRON IMP/SCOPE	YEAR COMPLETED
A1	12	1st Ave	2nd Ave	Hawthorne St	Holley Rd	1	0.157	8	2	B		
						2			3		A	
A2	12	2nd Ave	3rd Ave	Hawthorne St	Holley Rd	1	0.157	8	1			2005
						2			1			2005
A3	20	4th Ave	5th Ave	Elm St	Ironwood St	1	0.161	8	3	B	A	
						2			2			
A4	20	6th Ave	7th Ave	Elm St	Ironwood St	1	0.170	8	3	B	A	
						2			3		A	
A5	20	Elm St	Oak Terrace	8th Ave	9th Ave	1	0.053	8	3	B	A	
						2			3		A	
A6	20	Long St	Main St	10th Ave	12th Ave	1	0.095	2	1			
						2			3		A	
A7	20	Long St	Main St	12th Ave	13th Ave	1	0.055	1	1			2005
						2			2			
A8	20	Long St	Main St	13th Ave	East End	1	0.051	1	2			
						2			na			
A9	20	Long St	Main St	22nd Ave	East End	1	0.074	8	2	B		
						2			na			
A10	20	Main St	Nandina St	9th Ave	East End	1	0.102	3	3	A	A	
						2			na			
A11	20	Main St	Nandina St	12th Ave	13th Ave	1	0.076	8	2			
						2			2			
A12	20	Main St	Nandina St	13th Ave	East End	1	0.053	8	2	B		
						2			na			
A13	20	Main St	Nandina St	22nd Ave	East End	1	0.057	8	2			
						2			na			
A14	25	10th Ave	12th Ave	Ironwood St	Juniper St	1	0.104	9	na			
						2			na			
A15	20	9th Ave	12th Ave	Main St	Nandina St	1	0.047	3	1			
						2			2			
A16	20	9th Ave	12th Ave	Nandina St	North End	1	0.025	8	2			
						2			na			
A17	20	9th Ave	12th Ave	Nandina St	North End	1	0.025	8	2			
						2			na			
A18	20	Nandina St	RR Tracks	13th Ave	East End	1	0.019	8	2			
						2			na			
A19	20	Main St	Osage St	42nd Ave	43rd Ave	1	0.100	9	na			
						2			na			
A20	20	Main St	Osage St	43rd Ave	44th Ave	1	0.057	9	na			
						2			na			
A21	20	Larch St	Main St	56th Ave	57th Ave	1	0.074	8	na	B		
						2			na			
A22	20	Main St	Nandina St	53rd Ave	54th Ave	1	0.038	9	na			
						2			na			
A23	20	Main St	Nandina St	54th Ave	56th Ave	1	0.087	9	na			
						2			na			

CODE / Note	STREET NAME	SURFACE WIDTH	FROM	TO	ROAD MILES		CB	SHDR	T. D.	CON / RATE	IMP SCOPE	PRTY	Est COST	CIP YEAR	YEAR COM-PLETED
	10th	45	Long	Hwy 20	0.07		Y	N/A	3	1	E	3	4 664	6	
@	12th	33-36	Long	Kalmia	0.06		Y	N/A	2	1	C	3	21 316	4	
	12th	31	Tamarack	Redwood	0.1		Y	G	2	1	OK	1.5			1993
	12th	31	Redwood	Poplar	0.1		Y			1	OK				1993
	12th	31	Poplar	Nandina	0.1		Y			1	OK				1993
	12th	31	Nandina	Hwy 20	0.06		Y	N/A	3	1	E	3	2 754	6	
	12th	33-36	Kalmia	Elm	0.47		Y	N/A	2	1	D	3	63 388	4	
	13th	35	Long	Kalmia	0.06		Y	N/A	2	1	D	3	7 774	6	
	13th	43	Long	Hwy 20	0.04		Y	N/A	3	1	E	3	2 547	7	1997
@	15th	48	Hwy 20	Long	0.04		Y	N/A	3	1	E	2.5	2 843	8	1998
	18th	30	Elm	Fir	0.05		N	N/A	1	1	OK	1			
@	18th	36	Hyw 20	RR ROW	0.27		N	N/A	2	1	C	2.5	44 778	7	1998
	22nd	42	Mt View	Long	0.34		Y	N/A	2	1	D	3	55 973	4	
	23rd	33	Long	Hwy 20	0.09		Y	N/A	2	1	D	3	12 216	6	
@	24th	19	Hwy 20	N. end	0.17		N	N/A	2	1	A	3.5	45 231	3	1996
	28th Ave	35	Juniper	Foothills	0.18		Y	N/A		1					
	40th Av	29	Long	N. end	0.09		Y	N/A		1					
	41st	23	Long	N. end	0.07		N	N/A		1					
	48 Loop	27	Nandina	Nandina	0.14		Y	N/A		1					2002
	5th	41	Oak Terrace	Elm	0.45		Y	N/A	1	1	D	2.5	72 854	7	1998
	6th	32	Elm	Oak Terrace	0.27		Y	N/A	2	1	OK	1.5			1993
	Airport Ln	26	46th	W. end	0.09		Y	N/A	1	1	D	1			
	Elm	33	5th	8th	0.15		Y	N/A	2	1	D	3	19 546	6	1997
	Evergreen	32	Nandina	Hwy 228	0.19		Y	N/A	2	1	E	2	9 477	9	2000
	Jefferson Ct	32	29th	E. end	0.09		Y	N/A	1	1	OK	1			
	Laurel Ct	29	41st	S. end	0.09		Y	N/A		1					
	Live Oak	32	44th	E. end	0.16		Y	N/A		1					
@ , *	Long - A	40	Hwy 228	Terrace Lane	0.11		Y	N/A	3	1	OK	2			1993
	Mahogany	27	46th	E. end	0.07		N	N/A		1					
	Meadowlark	33	Osage	Evergreen	0.12		Y	N/A	2	1	E	2.5	6 352	8	2000
*	Oak Terrace	31	Terrace Lane	Hwy 228	0.26		Y	N/A	2	1	OK	1.5			
*	Oak Terrace	24	10th	Terrace Lane	0.21		Y	N/A	2	1	OK	1.5			
	Osage	32	40th	42nd	0.34		Y	N/A	1	1	OK	1			
	Osage	35	Hwy 20	Meadowlark	0.15		Y	N/A	2	1	D	3	20 731	6	1996
	Poplar	28	11th	9th	0.1		Y	N/A	2	1	E	2	4 561	10	
	Sunset	27	Nandina	S. end	0.1		Y	N/A		1					
*	Terrace Ln	34	Oak Terrace	Long	0.06		Y	N/A	2	1	OK	1.5			
	Harding St	28	East End	27th	0.03		Y	N/A		1					2004
	Jefferson St	28	East End	27th	0.03		Y	N/A		1					2004
	Foothills	36	28th	27th	0.06		Y	N/A		1					2004
	Foothills	36	27th	West End	0.03		Y	N/A		1					2004
	27th Avenue	28	Foothills	Harding	0.08		Y	N/A		1					2004
	27th Avenue	28	Harding	Jefferson	0.05		Y	N/A		1					2004
	27th Avenue	28	Jefferson	Juniper	0.10		Y	N/A		1					2004
Total	44					5.89									
*	10th	31	Elm	Alder	0.23		Y	N/A	2	2	E	2	11 017	9	1990
	12th	32	Elm	S. end	0.09		Y	N/A	1	2	E	1.5	4 738	10	
	12th	36	Long	Hwy 20	0.04		Y	N/A	3	2	E	3	2 132	7	
	17th	29	Elm	Fir	0.04		Y	N/A	1	2	E	2	1 718	10	
@ , *	18th	35	Hwy 20	Ames Creek	0.57		Y	N/A	2	2	OK	2	31 096	8	
Hold Water	1st	29	Hwy 228	Hwy 20	0.3		Y	N/A	2	2	E	2.5	13 742	7	
	23rd Ct	32	Ironwood	N. end	0.05		Y	N/A		2					
	29th	29	Long	Juniper	0.23		Y	N/A	1	2	E	1.5	10 306	10	
	29th	32	Juniper	Foothills	0.19		Y	N/A	1	2	OK	1			
	2nd	32	Hwy 228	N. end	0.19		Y	N/A	1	2	OK	1.5	9 477	10	
	40th Ln	32	Osage	N. end	0.04		Y	N/A		2					
*	Alder	21	10th	City Limits	0.08		Y	N/A	2	2	OK	1.5			
	Cedar	32	8th	10th	0.11		Y	N/A	1	2	E	2	5 686	10	
*	Elm	29	8th	Mt View	0.64		Y	N/A	2	2	OK	1.5			1993
	Fir Ct	32	Foothills	E. end	0.15		Y	N/A	1	2	E	1.5	7 582	10	
	Foothills	41	Fir Ct	29th	0.07		Y	N/A	1	2	OK	1			
	Foothills	41	29th	E. end	0.11		Y	N/A	1	2	OK	1			
	Harding Ct	32	29th	E. end	0.08		Y	N/A	1	2	OK	1			
	Ironwood	29	3rd	7th	0.19		Y	N/A	1	2	E	2	8 588	9	
	Juniper	18-35	31st Ct	Hawthorne Wy	0.04		N	N		2					
	Juniper		28th	29th	0.04					2					
	Juniper	29	22nd	E. end	0.03		Y	N/A	1	2	OK	1			
@	Long	40	Terrace Lane	22nd	0.61		Y	N/A	3	2	OK	2			1993
	Nandina		Strawberry Ridge	W. end	0.02					2					
	Nandina	33	Straw-berry Ridge	Evergreen	0.19		Y	N/A	1	2	E	1.5	9 773	10	
	Nandina	32-36	12th	15th	0.17		Y	N/A	3	2	E	3	9 062	6	1995
	Strawberry Loop	29	Straw-berry Ridge	Meadowlark	0.23		Y	N/A	1	2	E	1.5	10 650	10	
	Strawberry Ridge		Strawberry Hill Loop	N. end	0.02					2					
Total	28					4.75									
*	10th	30	Elm	Oak Terrace	0.11		Y	N/A	2	3	OK	1.5			
	11th	29	Elm	Cedar	0.11		Y	N/A	1	3	E	2	5 153	10	
Hold Sewer	13th	29	Kalmia	S. end	0.09		Y	N/A	1	3	E	2	4 294	10	
Drainage	13th	36	Hwy 20	N. end	0.08		Y	N/A	2	3	E	2.5	4 265	8	

CODE / Note	STREET NAME	SURFACE WIDTH	FROM	TO	ROAD MILES		CB	SHDR	T. D.	CON / RATE	IMP SCOPE	PRTY	Est COST	CIP YEAR	YEAR COM-PLETED
	15th	27	Kalmia	S. end	0.09		Y	N/A	1	3	OK	1			
@	15th	36	Nandina	Hwy 20	0.04		Y	N/A	3	3	C	3	6 397	7	
	16th	29	Elm	Fir	0.04		Y	N/A	1	3	E	1.5	1 804	10	
	18th	41	RR	Tamarack	0.16		Y	N/A		3					
	18th	29	Elm	Cedar	0.08		Y	N/A	1	3	E	2	3 435	10	
	19th	27	Hwy 20	N. end	0.11		N	N/A	1	3	E	1.5	4 798	10	
	1st	32	Hwy 228	Hawthorne	0.15		Y	N/A	1	3	E	2	7 582	9	
	22nd	41	Long	Hwy 20	0.08		Y	N/A	2	3	E	2.5	4 857	8	1997
	23rd	29	Ironwood	S. end of bulb	0.06		Y	N/A	1	3	OK	1			
	23rd	29	Long	Ironwood	0.27		Y	N/A	1	3	E	1.5	12 024	10	
	24th	28	Long	S. end	0.08		Y	N/A	1	3	E	1.5	3 317	10	
	26th Ct	28	Kalmia	S. end	0.06		Y	N/A	1	3	E	1.5	2 488	10	
Hold Water	2nd	29	Hawthorne	Hwy 228	0.15		Y	N/A	1	3	B	2.5	17 177	8	
	31 Ct	32	Juniper	S. end	0.06		Y	N/A	1	3	OK	1			
Hold Water	3rd	32	Hwy 228	S. end	0.34		Y	N/A	1	3	E	2	17 058	9	
	40th	28	Osage	N. end	0.06		Y	N/A	1	3	OK	1			
	41st	27	Osage	N. end	0.07		Y	N/A	1	3	OK	1			
@	49th	40	Hwy 20	Airport Rd	0.38		Y	N/A	2	3	E	1.5	23 692	9	
Hold Water	4th	32	Hwy 228	S. end	0.334		Y	N/A	1	3	E	2	17 058	9	
Hold Sewer	7th	34	Oak Terrace	Birch	0.32		Y	N/A	1	3	B	3	121 237	2	1996
Hold Sewer	8th	29	Cedar	Oak Terrace	0.38		Y	N/A	1	3	E	2	17 177	9	
	9th	29-37	Poplar	Hwy 20	0.19		Y	N/A	2	3	E	2.5	9 773	8	
	9th	29	Oak Terrace	Cedar	0.34		Y	N/A	1	3	E	2	15 459	9	
	Ames Ck	40	18th	Mt View	0.16		Y	N/A		3					
	Cedar	29	10th	12th	0.09		Y	N/A	1	3	E	2	3 865	10	
	Cedar	29	18th	Mt View	0.09		Y	N/A	1	3	E	2	4 294	10	
Hold Water	Dogwood	29	8th	10th	0.23		Y	N/A	1	3	E	2.5	26 765	8	
	Dogwood	31	7th	8th	0.04		Y	N/A	1	3	E	1.5	1 836	10	
	Elm	33	W. end	5th	0.15		Y	N/A	1	3	E	2.5	19 546	8	
	Fern Ln	29	Straw-berry Loop	N. end	0.04		Y	N/A	1	3	E	1.5	1 708	10	
	Fir	29	16th	18th	0.11		Y	N/A	1	3	E	2	5 153	10	
	Grape	32	18th	20th	0.11		Y	N/A	1	3	E	2	5 686	10	
	Grape Ct	28	18th	W. end	0.05		Y	N/A	1	3	OK	1			
Sewer/St	HawthornE	32	1st	3rd	0.09		Y	N/A	1	3	D	2.5	11 846	8	
	Hawthorne	29	12th	14th	0.06		Y	N.	1	3	E	1.5	2 577	10	
	Juniper	29	3rd	6th	0.15		Y	N/A	1	3	E	1.5	6 871	10	
	Juniper	32	35th	E. end	0.12		N	N/A	1	3	OK	1			
	Juniper	32	29th	31st Ct	0.08		Y	N/A	1	3	E	1.5	3 791	10	
	Kalmia	38	12th	W. end	0.03		Y	N/A	2	3	E	2.5	1 688	8	
	Kalmia	29	18th	E. end	0.12		Y	N/A	1	3	E	1.5	5 582	10	
	Kalmia	26	13th	15th	0.08		Y	N/A	1	3	OK	1			
	Kalmia	21	12th	13th	0.04		Y	G	2	3	OK	1.5			
	Kalmia Ct	36	29th	E. end	0.05		N	N/A		3					
	Kamia	32	Mt View	29th	0.23		Y	N/A	1	3	OK	1	11 372	10	
	Kamia	29	22nd	E. end	0.09		Y	N/A	1	3	OK	1			
	Larch Ct	29	49th	E. end	0.05		Y	N/A	1	3	E	1.5	2 362	10	
	Locust Ct	28	49th	E. end	0.08		Y	N/A	1	3	E	1.5	3 317	10	
	Maple Dr	22	49th	E. end	0.09		Y	N/A	1	3	E	1.5	3 258	10	
Hold Wat/Sew	Nandina	32	Meadowlark	1st	0.21		Y	N/A	1	3	E	2.5	10 425	9	
	Nandina	32	9th	12th	0.15		Y	N/A	2	3	OK	1.5			
	Poplar	28	12th	E. end	0.16		Y	N/A	1	3	E	1.5	7 048	10	
	Strawberry Ridge	29	Nandina	Strawberry Loop	0.08		Y	N/A	1	3	E	1.5	3 607	10	
	Sunset	29	Osage	LCAH	0.14		Y	N/A	1	3	E	1.5	6 441	10	
	West Pine	33	Evergreen	E. end	0.14		Y	N/A	1	3	E	1.5	7 329	10	
	Westwood	34	Osage	S. end	0.14		Y	N/A	1	3	E	2	7 552	10	
Total	59					7.68									
	14th	22	Elm	Kalmia	0.32		N	G	2	4	E	2.5	11 076	7	1997
	16th	13-20	Cedar	Elm	0.09		N	G		4					
	17th	20	Elm	Cedar	0.09		Y	N/A	1	4	E	2			
	17th	8	Grape St	Fir St	0.04		N	G		4					
	26th	12	Long	S. end	0.09		N	G		4					2002
	27th	12	Long	S. end	0.09		N	G	1	4	D	2.5			2002
	35th	29	Juniper	Kalmia	0.06		N	G		4					1998
	35th	20	Long	Kalmia	0.23		N	G	1	4	OK	1	7 108	9	1997
	37th	15	Long	Flanagan	0.2		N	G		4					2000
	37th	13	Long	S. end	0.11		N	G	1	4	D	2.5			2002
	38th	23	Long	S. end	0.23		N	G	1	4	D	2			2002
@	40th	22	Osage	N. end	0.07		Y	N/A	1	4	OK	1			
	43rd	21	Long	City Limits	0.42		N	N/A	1	4	OK	1			
	44TH	20	Airport Rd	Hwy 20	0.27		N	G	1	4	OK	1	8 292	9	1995
	59th	13	Poplar	Nandina	0.09		N	G	1	4	D	2.5			2002
	Birch	30	7th	8th	0.06		Y	N/A	1	4	B	3	18 878	6	
	Catalpa	16	9th	E. end	0.06		N	G	1	4	D	2.5			2002
	Cedar	18	17th	16th	0.09		N	G		4					
	Clark Mill	22	Hwy 20	N. end	0.8		N	N/A	2	4	OK	1.5			
*	Clark Mill	22	Long	Hwy 20	0.23		N	G	2	4	OK	1.5			
	Dogwood	16	16th	18th	0.16		N	G		4					

CODE / Note	STREET NAME	SURFACE WIDTH	FROM	TO	ROAD MILES		CB	SHDR	T. D.	CON / RATE	IMP SCOPE	PRTY	Est COST	CIP YEAR	YEAR COM-PLETED
	Fern Ln	18	Hwy 228	N. end	0.16		N	G	1	4	OK	1			2000
	Flanagan Rd	22	Clark Mill Rd	37th	0.09		N	G	1	4	B	3	15 948	6	2000
	Green River	20	Osage	N. end	0.36		N	N/A	1	4	OK	1			
	Green River	22	Clark Mill Rd	W. end	0.09		N	G	1	4	E	1.5	2 932	10	
	Hawthorne Way	24	Juniper	N. end	0.09		N	G	1	4	D	3			2002
	Juniper	14	Mt View	28th	0.14		N	G	1	4	D	3			2002
	Juniper	20	31st Ct	35th	0.14		N		2	4	D	3			2002
	Kalmia	17	45th	46th	0.13		N	G	1	4	D	2			2002
@*+	Long	27	22nd	Mt View	0.27		N	G	3	4	C	3	34 781	5	
@+*	Long	22	Clark Mill Rd	43rd	0.85		N	G	2	4	OK	1.5			
*+	Mt View	26	Long	22nd	0.45		N	N	2	4	E	2.5	18 095	7	1997
*+	Mt View	24	22nd	Ames Ck	0.17		N	N	2	4	D	3	15 992	6	1995
	Nandina	14	59th	E. end	0.08		N	G	1	4	D	2.5			2002
	Nandina	19	47th	E. end	0.18		Y	G		4					2000
@*	Pleasant Valley	26	Hwy 20	Bridge	0.09		N	AC	3	4	OK	2			2000
	Riggs Hill		Hwy 20	S. end	0.13					4					
	Surrey Ln	15	Ames Ck	S. end	0.09		N	G		4					2003
	Vista Lane	15	Hwy 228	S. end	0.06		N	N/A	1	4	E	3	1 333	10	2003
	W. Pine	19	Evergreen	Fern	0.04		N	G		4					2000
@	Wiley Ck	22	Hwy 20	City Limits	0.44		N	N/A	2	4	OK	1.5			
Total	41					7.85									
	18th	20	Tamarack	N. end	0.07		N	N/A	2	5	D	3	20 731	6	1995
	28th Ct	48	Kalmia	N. end	0.02		Y	N/A	1	5	OK	1			
@	40th	22	Hwy 20	Osage	0.08		N	N/A	1	5	OK	1			
@*	43rd	21	Airport Rd	Long	0.11		N	N/A	1	5	OK	1			
@	47th	21	Hwy 20	Osage	0.19		N	N/A	2	5	OK	1.5			
	49th	22	Airport Rd	Long	0.11		N	G	2	5	OK	1.5			
	8th	20	Alder	Cedar	0.11		N	N/A	1	5	OK	1			
	9th	29	Poplar	N. end	0.08		Y	G		5					
@*	Airport Rd	22	43rd	City Limits	0.64		N	G	1	5	OK	1			
@	Ames Ck	23	Mt View	City Limits	0.46		N	G	2	5	OK	1.5			
	Green River	22	Clark Mill Rd	E. end	0.13		N	G	2	5	OK	1.5			
	Ironwood	32	22nd	23rd	0.13		Y	N/A	1	5	OK	1			
@*+	Long	21	Mt View	Clark Mill	0.27		N	G	3	5	C	3	26 121	6	
+	Long	22	43rd	49th	0.61		N	G	2	5	OK	1.5			
Hold Water	Mt View	22	Cedar	Ames Ck	0.25		N	N	2	5	E	2.5	8 470	8	
	Osage	22	53rd	E. end	0.13		N	G	2	5	OK	1.5			
	Poplar	22	54th	53rd	0.04		N	G	1	5	OK	1			
	Poplar	19	56th	E. end	0.15		N	N/A	1	5	OK	1			
@	Tamarack	18	18th	E. end	0.21		N	G	2	5	A	3.5	54 103	2	
@	Tamarack	20	18th	12th	0.37		N	N/A	2	5	OK	1	11 559	9	
	WagonWheel Dr	23	44th	E. end	0.04		Y	N		5					
Total	21					4.2									
	11th	37	Redwood	Poplar	0.13		N	N/A		6					
	43rd	25	Hwy 20	Osage	0.15		Y	G		6					
	45th	14	Long	Kalmia	0.17		N	G	1	6	D	2			
Hold Water	47th	20	Airport Rd	Hwy 20	0.27		N	G	2	6	C	2.5	24 877	8	
	54th	20	Poplar	N. end	0.15		N	G	1	6	OK	1			
	56th	22	Quince	Poplar	0.06		N	G	1	6	OK	1			
	Airport Ln	14	46th	47th	0.1		Y	G	1	6	D	3			
	Dogwood	21	7th	W. end	0.02		Y	G		6					
Hold 27th Sub	Harding	20	Mt View	E. end	0.15		N	N/A	1	6	E	2	4 738	9	
	Quince	26	54th	56th	0.09		N	G	1	6	OK	1			
Total	10					1.29									
	13th	15	Poplar	Quince	0.09		N	G		7					
	16th	8	Grape St	Fir St	0.09		N	G		7					
	19th	30	Willow	S. end	0.08		N	G	1	7	D	2.5			
	20th	7	Grape St	Fir St	0.03		N	G		7					
	22nd	25	Hwy 20	N. end	0.04		Y	G		7					
	23rd	13	Cedar	City Limits	0.08		N	G		7					
	23rd Ave	12	Harding	S. end	0.08		N	G		7					
	42nd	19	Long	S. end	0.44		N	G	1	7	D	2			
	42nd	18	Hwy 20	Osage	0.13		N	G		7					
	45th	22	Hwy 20	S. end	0.2		N	G		7					
	46th	21	Long	Kalmia	0.17		N	G	1	7	D	2			
	46th	20	Mahogany	Airport Ln	0.1		Y	G		7					
	46th	23	Hwy 20	Mahogany	0.17		Y	G		7					
	46th	15	Kalmia	S. end	0.06		N	G		7					
	47th	18	Long	Kalmia	0.17		N	G	1	7	D	2			
	48th	12	Long	S. end	0.12		N	G		7					
	4th	30	Hwy 228	300' North	0.06		N	G	2	7	D	2.5	$ 6 663	2	
	53rd	24	Hwy 20	N. end	0.36		N	G	2	7	OK	1.5			
	54th	24	Hwy 20	Nandina	0.19		N	N/A	2	7	OK	1.5			
	54th	24	Poplar	Nandina	0.05		N	G	1	7	D	2			
	55th	20	Hwy 20	S. end	0.06		N	G	1	7	D	2			
	56th	19	Hwy 20	Nandina	0.04		N	G		7					
	57th	21	Hwy 20	S. end	0.22		N	G	1	7	D	2			

CODE / Note	STREET NAME	SURFACE WIDTH	FROM	TO	ROAD MILES		CB	SHDR	T. D.	CON / RATE	IMP SCOPE	PRTY	Est COST	CIP YEAR	YEAR COM-PLETED
	9th	14	Alder	N. end	0.1		N	G		7					
	Birch	21	9th	E. end	0.04		N	G		7					
	Cedar	17	Mt View	E. end	0.13		N	G		7					
	Elm	10	Mt View	E. end	0.09		N	G		7	E				
Hold Sewer	Fir	14	12th	14th	0.05		N	G	1	7	D	2.5			
Hold Sewer	Grape	24	12th	14th	0.06		N	G	1	7	D	2.5			
	Grape	16	9th	E. end	0.05		Y	G		7					
	Grape	8	16th	17th	0.05		N	G		7					
	Harding St		Mt View	E. end	0.2					7					
Hold Sewer	Ironwood	17	12th	14th	0.09		Y	G	1	7	D	2.5			
	Jefferson	16	Mt View	E. end	0.07		N	G		7					
Hold Sewer	Juniper	17	12th	14th	0.09		N	G	1	7	D	2.5			
	Kalmia	20	46th	47th	0.14		N	G	1	7	D	2			
	Kalmia	18	35th	E. end	0.09		N	N/A	1	7	E	1.5	2 665	10	
	Larch St	20-25	22nd	W. end	0.03		Y	G		7					
	Larch St	19	22nd	E. end	0.07		N	G		7					
	Locust		53rd	54th	0.04					7					
	Nandina	15	54th	56th	0.09		N	G	1	7	D	2			
	Nandina	20	22nd	E. end	0.06		N	G		7					
	Nandina		53rd	52nd	0.05					7					
	Osage	35	42nd	43rd	0.09		Y	N/A		7					
	Osage	8	12th	E. end	0.1		N	G		7					
	Osage	18	47th	Wiley Ck	0.32		N	G	1	7	OK	1			
	Poplar	23	12th	11th	0.08		N	G		7					
	Poplar	21	9th	W. end	0.1		N	G		7					
	Quince	15	13th	E. end	0.11		N	G		7					
	Redwood	22	12th	11th	0.08		N			7					
	Spruce	17	12th	E. end	0.08		N	G		7					
	Spruce		54th	E. end	0.03					7					
Hold Water	Ulex	19	22nd	E. end	0.09		N	G	1	7	D	2.5			
Hold Water	Vine	16	18th	E. end	0.16		N	G	1	7	D	2			
	Willow	17	18th	E. end	0.15		N	G	1	7	D	2			
	Yucca	17	18th	E. end	0.08		N	G	1	7	D	2			
Total	56					6.09									
	20th	16	Willow	S. end	0.08		N	G	1	8	D	2.5			
Hold Water	22nd	10	Tamarack	N. end	0.11		N	G	1	8	D	2.5			
	35th	20	Juniper	S. end	0.02		N	G		8					
	45th	12	Kalmia	S. end	0.06		N	G		8					
	47th	9	Kalmia	S. end	0.06		N	G		8					
	52nd		S. end	Quince	0.12					8					
	54th		Locust	N. end	0.08					8					
	56th		Quince	RR	0.02					8					
	Juniper	11	6th	E. end	0.04		N	G		8					
	Larch		55th	57th	0.07					8					
	No Name	14	48th	E. end	0.04		N	G		8					
	No Name		Fir	N. end	0.02					8					
	Osage		53rd	52nd	0.04					8					
	Poplar		53rd	52nd	0.04					8					
Total	14					0.80									
	11th	19	Poplar	S. end	0.07		N	G		9					
	13th	9	Osage	Poplar	0.06		N	N		9					
	19th Loop	8	19th	19th	0.09		N	G		9					
	23rd	0	Bulb	Mt View	0.19		N	G		9					
	2nd		59th	E. end	0.04					9					
	44th		Hwy 20	N. end	0.11					9					
	54th		Locust	S. end	0.09					9					
	55th	9	S. end	Locust	0.1		N	G		9					
	56th		Nandina	N. end	0.03					9					
	57th	0	55th	Wiley Ck	0.1		N	N		9					
	7th		Birch	City Limits	0.03					9					
	Alder				0.04					9					
	Cedar	0	18th	17th	0.17		N	N		9					
	Fir	8	20th	Grape	0.08		N	G		9					
	Fir	0	42nd	44th	0.16		N	N		9					
	Locust		54th	55th	0.04					9					
	Nandina		54th	53rd	0.1					9					
	Nandina		56th	E. end	0.01					9					
	Osage	11	43rd	44th	0.06		N	G		9					
	Osage	0	13th	E. end	0.03		N	G		9					
	Quince		53rd	52nd	0.04					9					
	Redwood	0	53rd	W. end	0.09		N	N		9					
	Redwood		54th	E. end	0.08					9					
	W. Pine		Fern	W. end	0.02					9					
Total	24					1.83									

APPENDIX F:

REVIEW OF EXISTING LAND USE REGULATIONS

TABLE F.1

Transportation System Plan Implementation Measures (OAR 660-012-0045(2)) [Comprehensive Plan]				
Required regulations	*Applicable OHP Policies*	*Relevant 2002 Comp Plan Section(s)*	*Recommended Changes*	*Notes*
§(a) Examples include driveway and public road spacing, median control and signal spacing.	OHP Policy 3A: Classification and spacing standards	Chapter 6	Include discussion of access management strategies and policies as presented in the TSP.	Amend access management policy (Policy 6) if needed.
§(b) Requires standards to protect the future operation of roads, transitways and major corridors.	OHP Policy 4D: Transportation Demand Management	Chapter 6	Include discussion of measures and strategies to protect future roads.	Amend future roadway policy (Policy 3) if needed.
§(c) Measures to protect public use airports.	N/A	N/A	N/A	N/A
§(d) Requires a process for coordinated review of future land use decisions affecting transportation facilities, corridors or sites.	OHP Policy 1B: Land Use and Transportation	N/A	N/A	Include policy in comp plan.
§(e) Requires a process to apply transportation related conditions of approval to development proposals.	N/A	N/A	N/A	Land use decision processes are codified in the City's zoning and subdivision ordinances. Add policy in comp plan?
§(f) Requires public agency notification process for land use application activity as specified in §§ (A), (B), (C) and (D)	OHP Policy 1B: Land Use and Transportation	N/A	N/A	Land use notification processes are codified in the City's zoning and subdivision ordinances. Add policy in comp plan?
§(g) Requires that amendments to density, land use designations, and design standards be consistent with the TSP.	OHP Policy 1.F: Highway Mobility Standards	Chapter 2.	Add discussion of Goal 5 under Statewide Planning Goals section and reference TSP.	Amend Policies 2, 3, 10, 12 and 14 as necessary. Propose addition/removal of policies as necessary.

TABLE F.2

Transportation System Plan Implementation Measures (OAR 660-012-0045(2)) [Subdivision Ordinance]				
Required regulations	*Applicable OHP Policies*	*Relevant Subdivision Sections*	*Recommended Changes*	*Notes*
§(a) Examples include driveway and public road spacing, median control and signal spacing.	OHP Policy 3A: Classification and spacing standards	16.12.020	Add discussion of median control and signal spacing.	Ensure consistency with SHZO 17.08.145
§(b) Requires standards to protect the future operation of roads, transitways and major corridors.	OHP Policy 4D: Transportation Demand Management	16.12.020(A)(2)	Update and amend as necessary to reflect changes made to the TSP and/or Comprehensive Plan.	Ensure consistent definition of street with Zoning Code. They are inconsistent at present.
§©) Measures to protect public use airports.	N/A	N/A	N/A	N/A
§(d) Requires a process for coordinated review of future land use decisions affecting transportation facilities, corridors or sites.	OHP Policy 1B: Land Use and Transportation	16.16.030(A)(1)	Update and amend as necessary to reflect changes made to the TSP and/or Comprehensive Plan.	None
§(e) Requires a process to apply transportation related conditions of approval to development proposals.	N/A	16.16.050	N/A	None
§(f) Requires public agency notification process for land use application activity as specified in §§ (A), (B), ©) and (D)	OHP Policy 1B: Land Use and Transportation	16.16.030(A)(1)	Update and amend as necessary to reflect changes made to the TSP and/or Comprehensive Plan.	None
§(g) Requires that amendments to density, land use designations, and design standards be consistent with the TSP.	OHP Policy 1.F: Highway Mobility Standards	16.16.040	Add requirement that subdivisions and partitions must be consistent with the TSP.	Recommend amending criteria D, E, and F as necessary to demonstrate compliance with this standard.

TABLE F.3

Transportation System Plan Implementation Measures (OAR 660-012-0045(2)) [Zoning Ordinance]				
Required regulations	*Applicable OHP Policies*	*Relevant Zoning Sections*	*Recommended Changes*	*Notes*
§(a) Examples include driveway and public road spacing, median control and signal spacing.	OHP Policy 3A: Classification and spacing standards	17.08.145	Add discussion of median control and signal spacing.	None
§(b) Requires standards to protect the future operation of roads, transitways and major corridors.	OHP Policy 4D: Transportation Demand Management	N/A	N/A	Ensure consistent definition of street with Subdivision Code. They are inconsistent at present.
§©) Measures to protect public use airports.	N/A	N/A	N/A	17.76 AO Airport Overlay Zone contains standards related to existing privately owned private use airport
§(d) Requires a process for coordinated review of future land use decisions affecting transportation facilities, corridors or sites.	OHP Policy 1B: Land Use and Transportation	17.16.020 17.100.010	Update Comp Plan Reference Assess adequacy of Public Way Vacation standards; add reference to compliance with TSP.	Will need to reflect 2003 update and any revisions resulting from TSP update.
§(e) Requires a process to apply transportation related conditions of approval to development proposals.	N/A	Per zoning regulations	Update and amend as necessary to reflect changes made to the TSP and/or Comprehensive Plan.	None
§(f) Requires public agency notification process for land use application activity as specified in §§ (A), (B), ©) and (D)	OHP Policy 1B: Land Use and Transportation	Per zoning regulations	Update and amend as necessary to reflect changes made to the TSP and/or Comprehensive Plan.	None
§(g) Requires that amendments to density, land use designations, and design standards be consistent with the TSP.	OHP Policy 1.F: Highway Mobility Standards	Per zoning regulations	Update and amend as necessary to reflect changes made to the TSP and/or Comprehensive Plan.	Need to receive copy of zone change standards from City.

TABLE F.4

Transportation System Plan Implementation Measures (OAR 660-012-0045(3)) [Land Use/Subdivision Regulations]				
Required regulations	*Applicable OHP Policies*	*Relevant Zoning Sections*	*Recommended Changes*	*Notes*
§(a) Requires bicycle parking facilities for new multi-family residential development of four or more units, office/institutional, and transit/park and ride locations.	N/A	17.08	Update and amend SHZO Chapter 17.08 to include on-site bicycle parking regulations	None.
§(b) Requires regulations requiring on-site pedestrian and bicycle facilities to accommodate safe and convenient access within new subdivisions, multi-family development, planned development, shopping centers and commercial districts.	N/A	Title 16 Title 17	Update and amend Titles 16 and 17 to include combinations of building orientation, setback and accessway requirements that provide safe and direct access to building entrances. Also address block length and cul-de-sac provisions.	Amend PUD ordinance if applicable. Utilize OAR 660-012-0045(3)(d) for definition of "safe and convenient" access.
§©) Requires that required off-site road improvements include facilities to accommodate convenient pedestrian an bicycle travel.	OHP Policy 1B: Land Use and Transportation	17.12.020	Update and emend as necessary to reflect changes made to the TSP and/or Comprehensive Plan.	None
§(d) Defines "safe and convenient" for the purposes of interpreting §(b) .	OHP Policy 1B: Land Use and Transportation	Title 16 Title 17	Reduce maximum block length and block perimeter standards in accordance with TPR; reduce cul-de-sac length maximums.	Include variance provisions for unique or unusual situations.
§(e)Requires provision of internal pedestrian circulation within new office parks and commercial developments.	OHP Policy 1B: Land Use and Transportation	17.36 17.40.040	Update and amend relevant commercial development standards to require internal pedestrian circulation.	Strategies may include clustering of buildings, construction of accessways, walkways and similar techniques.

TABLE F.5

Transportation System Plan Implementation Measures (OAR 660-012-0045(6)) [Bicycle and Pedestrian Circulation Plan]				
Requires local governments to identify improvements to facilitate bicycle and pedestrian trips.	OHP Policy 1B: Land Use and Transportation. Also refer to Oregon Bicycle and Pedestrian Plan.	Title 16 Title 17	Adopt improvement requirements to provide direct, convenient and safe bicycle and pedestrian routes within residential areas and neighborhood activity centers.	Strategies may include walkways between cul-de-sacs, walkways between buildings, and direct access between uses. Integrate bike/ped elements into the overall TSP.

TABLE F.6

Transportation System Plan Implementation Measures (OAR 660-012-0045(7)) [Local Street and Accessway Standards]				
Required regulations	*Applicable OHP Policies*	*Relevant Zoning Sections*	*Recommended Changes*	*Notes*
Requires local governments to establish local street and accessway standards that minimize pavement width and total right-of-way consistent with the operational needs of the facility.	N/A	17.12.020	Amend TSP and/or Zoning Ordinance to reconcile existing inconsistencies.	Refer to *An Oregon Guide for Reducing Street Widths*.

APPENDIX G:
FINDINGS OF CONSISTENCY WITH THE OREGON TRANSPORTATION PLANNING RULE

OAR 660-012-000

The City of Sweet Home Planning City Council finds as follows:

1. The Ordinance to which these findings are attached effects an update to the Sweet Home Transportation System Plan (TSP), which is a component of the Sweet Home Comprehensive Plan. In addition to adopting the updated TSP, the Council is amending Title 12 (Streets, Sidewalks and Public Places), Title 16 (Subdivision) and Title 17 (Zoning) and Chapter 6 (Transportation) of the Sweet Home Comprehensive Plan.

2. Pursuant to the Sweet Home Comprehensive Plan to adopt the updated TSP the following criteria shall be followed:

   Policy 1: The City Council may amend the Comprehensive Plan after referral to the Planning Commission for review, revisions, and recommendations.

   The Planning Commission has been consulted throughout the update process of the TSP through a number of workshops on elements of the plan.

   Policy 2: Changes to the Plan shall be made by ordinance after public hearings.

   The City Council passed ordinance [Ordinance number] on [DATE].

   Policy 3: Changes in the Plan shall be incorporated directly into the document at the appropriate place. A list of all amendments with date of passage should be a part of the document.

   Policy 4: An amendment to the Comprehensive Plan shall be considered when one or more of the

following conditions exist:
a. Updated data demonstrates significantly different trends than previous data;
b. New data reflects new or previously undisclosed public needs;
c. New community attitude represents a significant departure from previous attitude as reflected by the Planning Commission or City Council;
d. Statutory changes significantly affect the applicability or appropriateness of existing plan policies.

Policy 5: Property owners, their authorized agents, or the City Council may initiate a Comprehensive Plan amendment. In order to obtain a Comprehensive Plan amendment the applicants have the burden of proof that all of the following conditions exist:

a. There is a need for the proposed change;
b. The identified need can best be served by granting the change requested;
c. The proposed change complies with the Statewide Planning Goals; and ,
d. The proposed change complies with all other elements of the City's Comprehensive Plan.

With regard to these review criteria the City Council finds as follows:

The Transportation System Plan of the City of Sweet Home Comprehensive Plan was last updated in 1999. The TSP update is necessary:

a. to address changed circumstances related to the use and development of the transportation network in Sweet Home, including population growth and new development;
b. to incorporate nationally accepted engineering practices which have evolved and changed since 1999 and which pertain to transportation system planning and development, into local requirements;
c. to address a change in public need as evidenced in part by the needs assessment which is a part of the TSP document and also as a result of changed circumstances as described in a. above; and
d. to comply with the mandate of new statewide planning goal requirements, specifically the Transportation Planning Rule.

Based upon all of the above findings, the Council concludes that the proposed update is consistent with the review criteria listed above.

Statewide Planning Goals Findings

The amendment meets the applicable requirements of local and state law in that it is being processed as a Plan Amendment pursuant to Sweet Home Comprehensive Plan Policy 2 and is subject to the approval criteria of SHCP Policies 4 and 5, all of which were previously found to be in compliance with state law. Findings of consistency with the approval criteria in SHCP are contained herein, including findings of consistency with applicable Statewide Planning Goals and applicable Oregon Administrative Rules, as follows:

Goal 1 - Citizen Involvement. *To develop a citizen involvement program that insures the opportunity for citizens to be involved in all phases of the planning process.*

The preparation of the TSP has provided numerous opportunities for public involvement. Specifically:

- A Technical Advisory Committee (TAC) was formed in 2004. Over the length of the TSP process, TAC meetings were held between September, 2004 and April, 2005. These meetings were open to the public and minutes were taken and made available to anyone requesting them.
- A walking tour occurred in September, 2004.
- Planning Commission workshop was held on September 28, 2004.
- Two open houses were held between September, 2004 and February, 2005.

The TSP is a plan amendment that is subject to the public notification and hearing processes and provisions of the SHMC. As described above, the public involvement requirements of these chapters have been met, and exceeded, and opportunity for public involvement was afforded to all phases of the process. The amendment is therefore consistent with statewide planning Goal 1.

Goal 2 - Land Use Planning: *To establish a land use planning process and policy framework as a basis for all decisions and actions related to use of land and to assure an adequate factual base for such decisions and actions.*

The Sweet Home Comprehensive Plan (SHCP) was acknowledged by the Land Conservation and Development Commission (LCDC) as complying with state planning goals. The SHCP adopted and acknowledged by LCDC specifies the means by which the SHCP may be amended. The TSP update follows the procedures outlined in the Sweet Home Municipal Code and these findings provide an adequate factual basis for action. The amendment therefore conforms to the established land use planning process and framework consistent with Goal 2.

The TSP does not affect **Goal 3, Agricultural Lands** and **Goal 4, Forest Lands**, because these lands are not located within the City of Sweet Home.

Goal 5 - Open Space, Scenic and Historic Areas, and Natural Resources: *To conserve open space and protect natural and scenic resources.*

The treatment of other resources regulated under Goal 5 will not change as a result of the TSP update, and therefore the goal is otherwise not relevant to this amendment. Based upon these findings, the TSP update is consistent with Goal 5.

Goal 6 - Air, Water and Land Resources Quality: *To maintain and improve the quality of the air, water and land resources of the state.*

The TSP update does not include any changes to the treatment of the resources protected under this goal, so the goal is not relevant to this amendment.

Goal 7 - Areas Subject to Natural Disasters and Hazards: *To protect life and property from natural disasters and hazards.*

The TSP update does not include any changes relevant to management of areas subject to natural disasters and hazards so the goal is not relevant to this amendment.

Goal 8 - Recreational Needs: *To satisfy the recreational needs of the citizens of the state and visitors and, where appropriate, to provide for the siting of necessary recreational facilities including destination resorts.*

The TSP update does not include any changes related to management of recreational resources, so this goal is not relevant to the amendment.

Goal 9 - Economic Development: *To provide adequate opportunities throughout the state for a variety of economic activities vital to the health, welfare, and prosperity of Oregon's citizens.*

The TSP is consistent with this goal because it reinforces the City's freight network with transportation projects that will provide access to freight facilities and employment sites. Thus providing for the continued orderly development of the road network which is vital to economic development activity.

Goal 10 - Housing: *To provide for the housing needs of citizens of the state.*

The TSP update will not change any City requirements related to housing, so this goal is not relevant to the amendment.

Goal 11 - Public Facilities and Services: *To plan and develop a timely, orderly and efficient arrangement of public facilities and services to serve as a framework for urban and rural development.*

Transportation facilities are identified as public facilities under this goal. The TSP is consistent with this goal because it updates the Public Facilities Plan for Transportation by updating the project list and cost estimates for each anticipated City road improvement project. Other public facility projects are identified in other long range planning documents adopted separately from the TSP.

Goal 12 - Transportation: *To provide and encourage a safe, convenient and economic transportation system.*

OAR 660-012 is the Transportation Planning Rule (TPR) that implements statewide planning Goal 12. Subsection numbers below are those found within OAR 660-012. The Council finds the TSP update complies with the TPR requirements, including balancing the needs of all users of the transportation system and strengthening each modal network through the identification of projects. Specifically the following findings are made:

660-012-0000: Purpose

Describes the purpose of the TPR as promoting the development of safe, convenient and economic transportation systems. The purpose of the rule is to reduce reliance on the automobile so that the air pollution, traffic and other livability problems faced by urban areas in others parts of the country might be avoided. The TSP is supportive of the purpose because it contains policies, projects, and strategies to reduce reliance on automobiles including improving the pedestrian and bicycle networks, and managing the system to manage congestion.

660-012-0005: Definitions

Provides certain definitions that were adopted, as applicable to Sweet Home, as part of the TSP update.

660-012-0010: Transportation Planning

Provides for the distinction between transportation system planning and transportation project development, noting that the latter implements the former by determining the precise location, alignment, and preliminary design of improvements included in the TSP. This section does not direct local governments to adopt any provisions to comply with the TPR but it is noted that the County's TSP provides for transportation system planning while the Sweet Home Municipal Code provides for project development.

660-012-0015: Preparation and Coordination of Transportation System Plans

Requires local TSPs to meet local transportation needs and to be consistent with adopted elements of the State TSP. The City has consulted and coordinated with the Oregon Department of Transportation to provide for coordination and mutual TSP consistency.

660-012-0020: Elements of Transportation System Plans

(1)Coordinated Network of Transportation Facilities,

The TPR requires the establishment of a coordinated network of transportation facilities adequate to serve state, regional and local transportation needs. The TSP fulfills this requirement as demonstrated in the planned transportation improvements on the state, regional and local road networks that seek to accommodate all travel modes.

(2)(a) Determination of Transportation Needs, of the TPR requires that an inventory of transportation needs be determined as per 660-012-0030. The TSP fulfills this requirement as

provided in the findings for 660-012-0030 below.
(2)(b) Road Plan, of the TPR requires a road system plan including functional classes consistent with state and regional TSPs and standards for the layout of local streets and other important non-collector streets. The TSP fulfills this requirements as demonstrated in Chapter 4 which includes maps and project descriptions for major transportation improvements. Included in this chapter are state, regional and local street improvements in Sweet Home. Future extensions and connections shall accommodate bicycle and pedestrian traffic as described in Chapter 4 and Chapter 6.
(2)(b-c) Public Transportation Plan, of the TPR requires a map and description of planned facilities/services/improvements and a description of the responsible provider. The TSP meets this requirement because Chapter 5 includes a map and descriptions for existing and planned routes and other relevant transit system information.
(2)(d) Bicycle Plan, of the TPR requires a plan for a network of bicycle routs throughout the planning area. The TSP is consistent with this requirement because it includes an inventory of existing conditions and a bicycle plan that includes a map, description of planned improvements and classification of bicycle facilities within Chapter 2 (inventory) and Chapter 6 (planned improvements).
(2)(e) Air, rail, water and pipeline transportation plan, of the TPR requires TSP's to identify where major facilities are located or planned within the planning area. The TSP meets this requirement because the TSP inventory includes a map and discussion of the major facilities within Chapter 7.
(3)(a-c) Pedestrian Plan, of the TPR requires an inventory and assessment of pedestrian facilities. The TSP is consistent with the requirements because it includes an inventory of existing conditions and a pedestrian plan that includes a map, description of planned improvements within Chapter 2 (inventory) and Chapter 6 (planned improvements).

660-012-0025: Complying with the Goals in Preparing Transportation System Plans; Refinement Plans

Requires findings of compliance with applicable statewide planning goals and acknowledged comprehensive plan policies and land use regulations in conjunction with the adoption of the TSP. These findings demonstrate consistency with this requirement.

660-012-0030: Determination of Transportation Needs
(1)(a) Identify transportation needs, of the TPR requires that state, regional and local needs relevant to the planning area and the scale of the transportation network being planned be identified. Transportation needs are discussed in Chapter 3 of the TSP and incorporate projections of future travel demand while avoiding principle reliance upon one mode of transportation.
(1)(b) Needs of the transportation disadvantaged, the TSP meets this requirement because it identifies the available transit services for the transportation disadvantaged and the areas that are not well served (the Linn County Shuttle).
(1)(c) Provide for the movement of goods and services to support industrial and commercial development. The TSP meets this requirement, as discussed in Chapter 2, because the Freight,

Rail and Aviation modes are discussed and the needs are summarized.
(3)(a) Provide for 20-year population and employment forecasts in determining state, regional and local needs. The TSP is consistent with this requirement because it relied on to 20-year forecasts contained in the County Coordinated Population Forecast and Linn County acknowledged 1 percent growth rate.

660-012-0045: Implementation of the Transportation System Plan

Requires amending certain land use regulations and ordinances to implement the TSP. This includes land use regulations specifying transportation uses and services allowed in each land use zone; other regulations specifying access control measures and acceptable road performance levels; other transportation system protection measures consistent with road functional classes; a process for coordinated review of future land use decisions; a process to apply development proposal conditions to minimize impacts and protect transportation facilities; regulations to provide notice to public agencies; and regulations to assure that amendments to land use designations, densities, and design standards are consistent with the functions, capacities and levels of service of facilities identified in the TSP. Regulations to provide safe, convenient and reasonably direct access for bicycles and pedestrians are also required. Finally, this section of the TPR requires that standards for local streets be adopted that minimize pavement width and total right-of-way consistent with the operational needs of the facility.

Many of the above listed requirements have already been in place in Sweet Home's municipal code, including provisions to coordinate the land use review process, provide notice to public agencies, and for assigning conditions to development proposals. Under separate ordinances, changes to the regulations in Sweet Home development code Titles 12, 16 and 17 are being adopted to implement the TSP in compliance with all the other above noted requirements. The TSP is consistent with the requirement because it includes amendments to Titles 12, 16 and 17 to affect the necessary requirements.

660-012-0050: Transportation Project Development

Includes provisions for transportation project development, and specific requirements for public involvement and compliance with the comprehensive plan and land use regulations when a land use decision is involved in project development. Pre-existing requirements provide for the necessary public process if a transportation facility or use requires a land use decision or an amendment. Therefore, the TSP is consistent with this section of the TPR.

660-012-0060: Plan and Land Use Regulation Amendments

Provides that plan and land use regulation amendments that would significantly affect an existing or planned transportation facility shall ensure that land use allowed by the amendment are consistent with road function, capacity, and performance standards. The TPR also specifies under what conditions a plan or land use regulation amendment significantly affects a transportation facility.

Goal 13 - Energy Conservation: *To Conserve Energy.*

Requires that land uses be managed and controlled so as to maximize the conservation of all forms of energy, based upon sound economic principles. The TSP update supports alternative transportation modes and identifies specific pedestrian and bicycling projects that will link areas and provide for a more balanced transportation system that will provide more opportunities for bicycling and walking.

Goal 14 - Urbanization: *To provide for an orderly and transition from rural to urban land use.*

Requires provision of an orderly and efficient transition of rural lands to urban use. The TSP is consistent with this rule because it supports the intensification of development inside Sweet Home through various measures including supporting a multimodal transportation network. The support of multimodal options and supportive land use patterns reduces the potential need to convert rural land uses to urban uses.

Goal 15 (Willamette River Greenway) is not applicable to Sweet Home as it is not adjacent to the Willamette River.

Goals 16 (Estuarine Resources) , 17 (Coastal Shorelines), 18 (Beaches and Dunes) and 19 (Ocean Resources) *are not applicable to Sweet Home as none of these resources are present within the City limits.*

Sweet Home Comprehensive Plan

The City of Sweet Home Comprehensive Plan includes broad Goal statements, followed by more specific Policy statements. The Transportation Goals and Policies are currently found in the Transportation Systems portion of the Comprehensive Plan (Chapter 6). These Goals and Policies will be amended in a separate ordinance at the time of the adoption of the TSP. The TSP provides a sound basis for implementing the necessary code changes needed to meet the TPR.

Chapter 2 - Land Use Element

Community Goal: Sweet Home strives to encourage orderly development of lands for urban uses, such as homes, businesses and streets. At the same time, Sweet Home aims to provide services, including parks and open space, and protect its natural resources.

Chapter 2 includes the following pertinent Policies:

Policy 2: The City of Sweet Home will encourage development contiguous to existing public services and transportation improvements. This type of development pattern shall be promoted as it will maintain public facility costs at the lowest possible level and provide the opportunity to coordinate development with the provision of service.

Policy 3: The City will undertake construction of major public facility improvements in anticipation *of new development if funds are available through grants, System Development Reserves, or other available funding mechanisms. Priority projects will be identified in the Capital Improvement Plan.*

Policy 10: All new subdivisions will be provided with water, City sewer and storm drains, paved streets, curbs, sidewalks and gutters, in advance of, or in conjunction with, new development. Installation of all the above facilities will be a condition of subdivision approval and at the expense of the developer.

Policy 12: Emergency vehicle and equipment access will be provided during any new development.

Policy 14: In designing new subdivisions:

- *Consideration shall be given to connectivity of streets, particularly streets classified as either arterial or collector.*
- *New streets will align with existing streets, avoiding jogs when possible.*
- *Cul-de-sacs and "hammerhead" streets may be allowed where existing development, steep slopes, open space, or natural features prevent connections.*
- *New streets must be designed to City standards, as approved as part of the development plan.*
- *Street grades will not exceed City standards, unless prevented from meeting the standards by topographical constraints.*
- *Creation of parcels not accessible to an existing or potential street should be avoided.*
- *Lots created should meet the minimum City standards for the appropriate designation and be of a usable shape.*

These requirements are to be generally implemented through an analysis of projected growth and its distribution, projected development patterns, types and quantities of needed services and facilities, natural resources, and natural hazards. The Comprehensive Plan encourages orderly development and use of land to meet the projected needs of the community. The TSP is consistent with this element because it incorporates transportation objectives that will support the transition to a more compact urban form that will support a multi-modal transportation system. Many of the transportation projects identified in Chapter 6 and Chapter 8 provide the necessary transportation improvements to accommodate multi-modal transportation. Furthermore, amendments have been made to Title 12, Title 16 and Title 17 that coordinate land use with supportive transportation infrastructure including pedestrian and bicycle facilities.

Chapter 3 - Natural Features, Parks and Open Space

Community Goals: (General) Sweet Home would like to balance the development needs of the community with responsible stewardship of its natural environment. (Parks and Open Space) The City of Sweet Home strives to establish and maintain a city wide park system that provides a variety of recreational opportunities to the citizens of Sweet Home.

The TSP is consistent with this element because it incorporates transportation objectives that will support the development of pedestrian and bicycle paths that will provide connection to the natural features, parks and open spaces of the community.

Chapter 4 - Residential Lands and Housing

Community Goal: Sweet Home strives to establish residential areas that are safe, healthful and attractive places to live, and that will provide a maximum range of residential choices for the people in Sweet Home.

Chapter 4 includes the following pertinent Policies:

Policy 8: Efforts will be made to complete or connect existing sidewalks along routes to schools, parks, or commercial areas.

Policy 9; Development of residential local streets, whenever possible, will increase connectivity within and between neighborhoods.

Policy 14: Efforts will be made to extend trails, pedestrian ways, and bikeways through existing residential areas.

Policy 15: To encourage connectivity and pedestrian access, residential blocks shall meet the development standards, except when topographical constraints make the standards impractical. When existing conditions or topography prevent a cross street, a pedestrian access way to connect streets should be considered as part of the development.

This requirement is to provide for the connection of pedestrian sidewalks and bicycle paths along routes to schools, parks and commercial areas; to provide for street connectivity within and between neighborhoods; provide for the extension of pedestrian and bicycle ways through existing neighborhoods and new development; to provide pedestrian access to connect streets where topography constrains application of block standards. The TSP is consistent with this element because it incorporates transportation objectives that will support the development of pedestrian and bicycle paths with the construction of new development and identifies projects that will link major pedestrian areas.

Chapter 5 - Economic Development and Land for Economic Growth

Community Goal: Sweet Home recognizes its locational advantages and disadvantages and, therefore, residents and policy makers believe that the community should encourage economic development and growth in Sweet Home.

Chapter 5 includes the following pertinent Policies:

Policy 5: The development and redevelopment of the Central Commercial designation should:

- *Maintain the down town character as identified by the community.*
- *Meet off-street parking standards.*

Policy 6: The Highway Commercial designation provides for uses that have large size requirements, or that are oriented to highway access.

Policy 7: Sweet Home will require businesses in the Highway Commercial zone to have plans showing *the design for vehicular traffic, and that address pedestrian and bicycle needs.*

Policy 8: Sweet Home will encourage mixed use commercial developments with limited vehicle access points.

Policy 9: Sweet Home will require off-street parking for each developed site in accordance with the parking standards of the City's zoning ordinance. Existing off-street parking will be required to comply when redevelopment occurs.

This element provides for the provision of adequate off-street parking standards, requires that streets meet appropriate standards to provide for automobiles, pedestrians and bicyclists and ensures that streets are adequately provided to meet the needs of commercial districts. The TSP is consistent with this element because it incorporates transportation objectives that will strengthen the network of bicycle and pedestrian pathways, increase bicycle facilities (bike racks), continue to provide adequate off-street and on-street parking and provide increased attention to the design of the main commercial corridor (Main Street).

Chapter 6 - Transportation Systems
Community Goal: The City of Sweet Home wants a well-planned, comprehensive transportation system that balances the needs of future land development with a system that serves all users.

The TSP will update and replace portions of the Transportation Systems element.

Policy 1: As a general guideline, all streets shall carry volumes and speeds at the appropriate range for all street classifications as described the Functional Classifications Guidelines.

Transportation improvements must show compliance with the adopted Sweet Home Comprehensive Plan including the updated TSP and with adopted land use regulation, demonstrating consistency with the objectives listed above.

Policy 2: To achieve consistency in construction, operation, and maintenance within street classifications, Sweet Home shall classify streets according to their function.

The TSP identifies proposed arterial and collector streets (Chapter 4). Efforts were made to provide a smooth transportation system that works for all travel modes. Coordination with other agencies was important to the process and ODOT was consulted.

(Amended) Policy 3: The roadway design standards in the Transportation System Plan shall be implemented in the land development and land division ordinances for the development of future roadway facilities.

Updates within the Streets, Sidewalks and Public Places (Title 12), Subdivision (Title 16), Zoning (Title

17) implement the language of the TSP.

Policy 4: Private streets must be built to City standards as approved as part of the development plan.

The TSP update does not change current SHMC policy with respect to private streets.

(Amended) Policy 5: The Standards for Pedestrian and Bicycle System improvements as listed in the Transportation System Plan, shall be implemented when reviewing new development.

Updates within the Streets, Sidewalks and Public Places (Title 12), Subdivision (Title 16), Zoning (Title 17) implement the language of the TSP. Standards for pedestrian walkways, and bicycle facilities and paths were strengthened within the ordinances.

Policy 6: The City shall encourage access management actions that:

- *Minimize the number of potential conflicts among all users of the street system.*
- *Minimize local cost for transportation improvements needed to provide additional capacity and/or access improvements along unimproved roadways.*

The project list included in the TSP includes projects specifically designed to improve pedestrian access and bicycle access. The projects intend to minimize conflicts among all users through creating a connected system of roadways that address the needs of all modes of travel.

(Amended) Policy 7: The City seeks to encourage transportation projects that enhance overall system continuity. The City shall require, where ever possible, the street connectivity when reviewing new street development.

The TSP update reinforces current adopted language that encourages street connectivity with new street development, including updates to the language that approves cul-de-sacs. The TSP and the SHMC encourages that use of pedestrian and bicycle ways where block lengths are constrained by topography or other natural feature.

Policy 8: Many existing streets in Sweet Home do not meet the standards and it may not be possible to improve the streets to the maximum extent feasible to meet access conditions and "traffic feature" standards. It may be necessary in some circumstances to prohibit parking on one or both sides of the street, particularly on designated arterials and collectors.

The TSP update does not change current SHMC policy with respect to parking on public streets.

(Added) Policy 9: The City shall study and recommend financing options for needed street improvements.

The TSP provides a list of needed street improvements and provides a list of financing sources (Chapter 8).

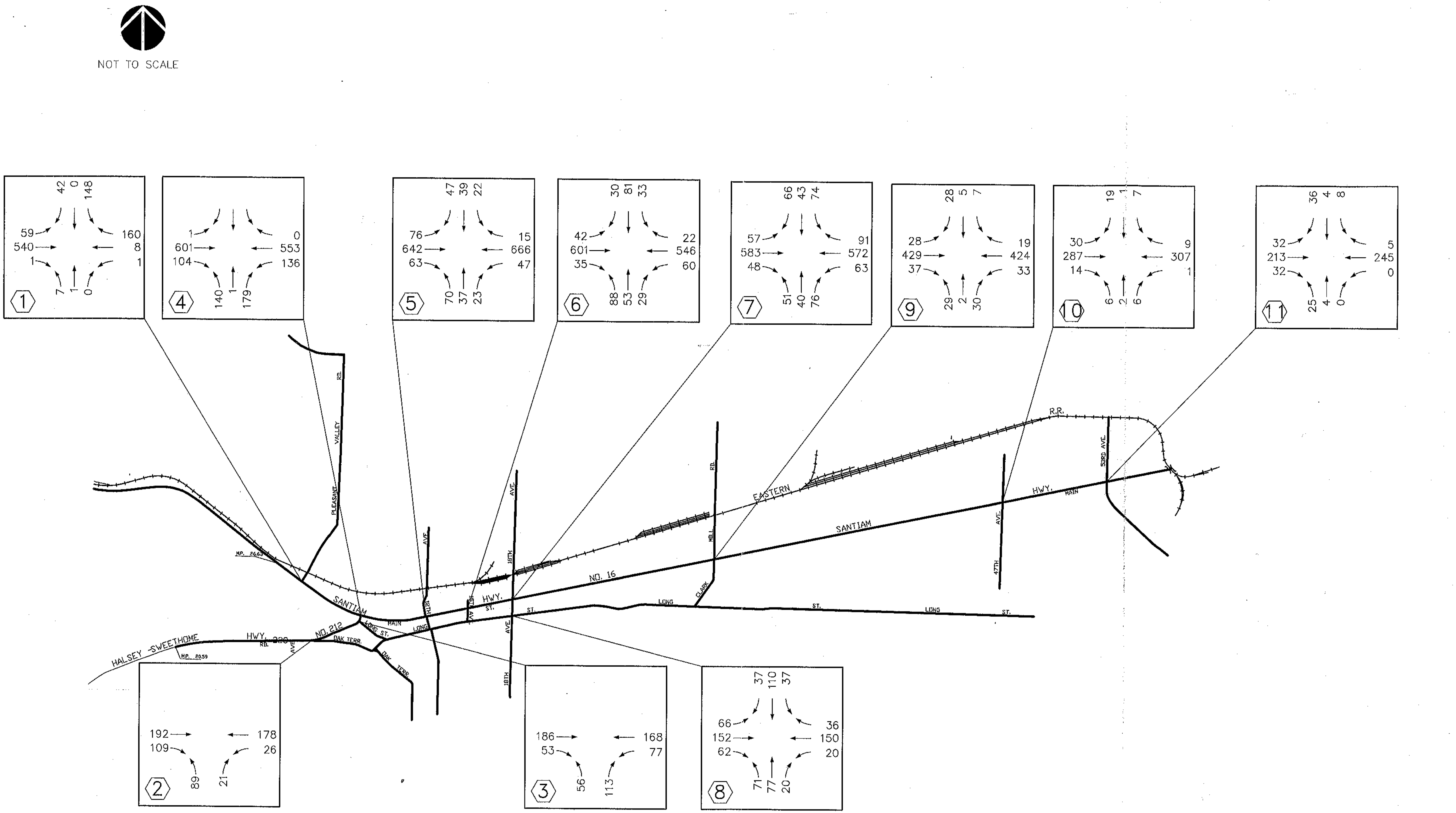
APPENDIX H:
TRAFFIC ANALYSIS
BACKGROUND DOCUMENTATION

This section contains background information regarding the traffic analysis.

1. Figures
2. Traffic Count Summaries
3. Crash Data
4. Capacity Calculations
5. Queuing
6. Signal Warrant Turn Lane Guidelines

Appendix H-1

Figures



GROUP MACKENZIE

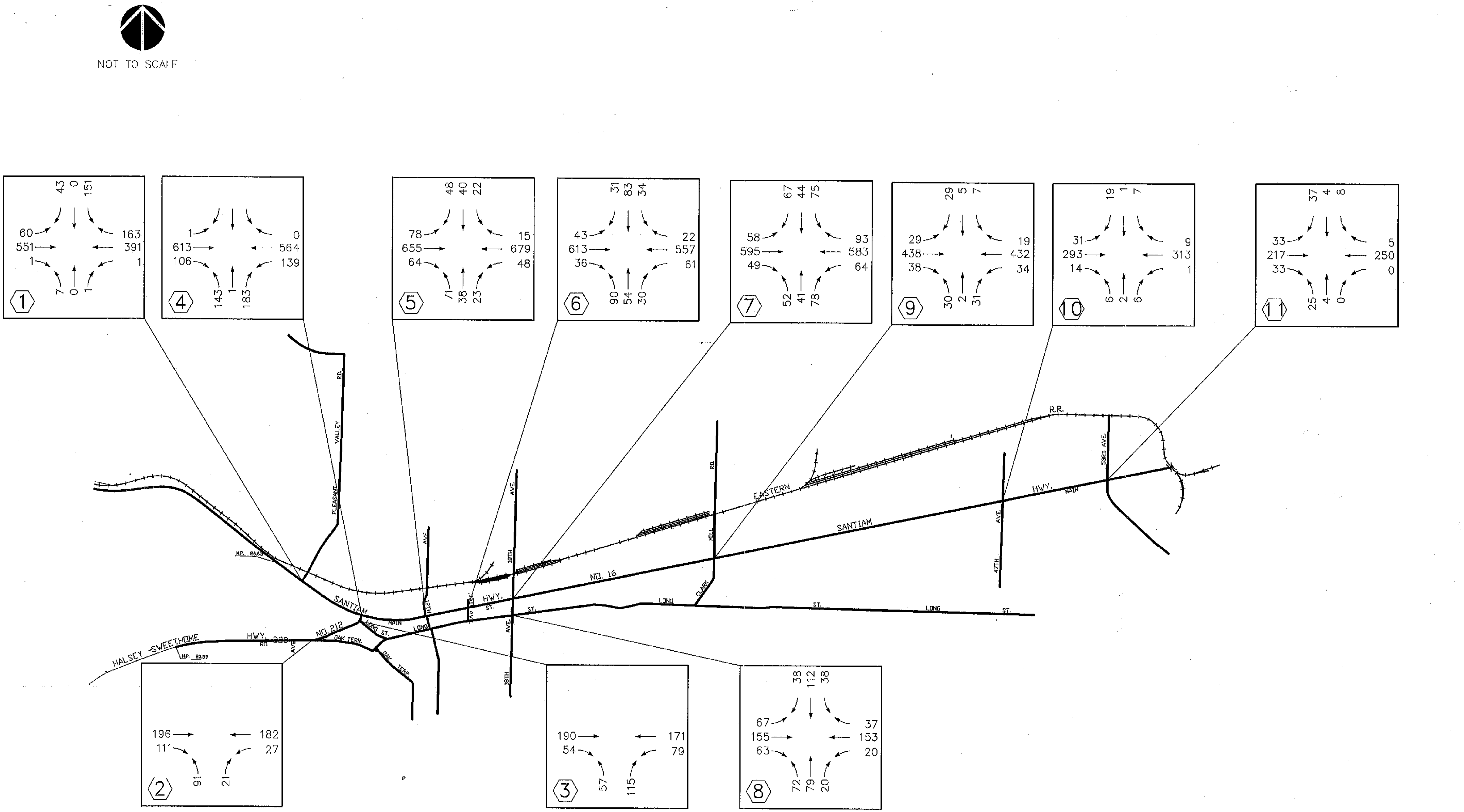
Portland OR 503.224.9560 | Vancouver WA 360.695.7879 | Tacoma WA 253.471.0551 | Seattle WA 206.749.9993

© GROUP MACKENZIE 2004 ALL RIGHTS RESERVED
THESE DRAWINGS ARE THE PROPERTY OF GROUP MACKENZIE AND ARE NOT TO BE USED OR REPRODUCED IN ANY MANNER, WITHOUT PRIOR WRITTEN PERMISSION

DATE: 12.22.04
DRAWN BY: NB
CHECKED BY:
JOB NO: 2040385.00

2004 DESIGN HOUR VOLUMES WEEKDAY PM PEAK

FIGURE 1



GROUP MACKENZIE

Portland OR 503.224.9560 Vancouver WA 360.695.7879 Tacoma WA 253.471.0551 Seattle WA 206.749.9993

© GROUP MACKENZIE 2004 ALL RIGHTS RESERVED
THESE DRAWINGS ARE THE PROPERTY OF GROUP MACKENZIE AND ARE NOT TO BE USED OR REPRODUCED IN ANY MANNER, WITHOUT PRIOR WRITTEN PERMISSION

DATE:

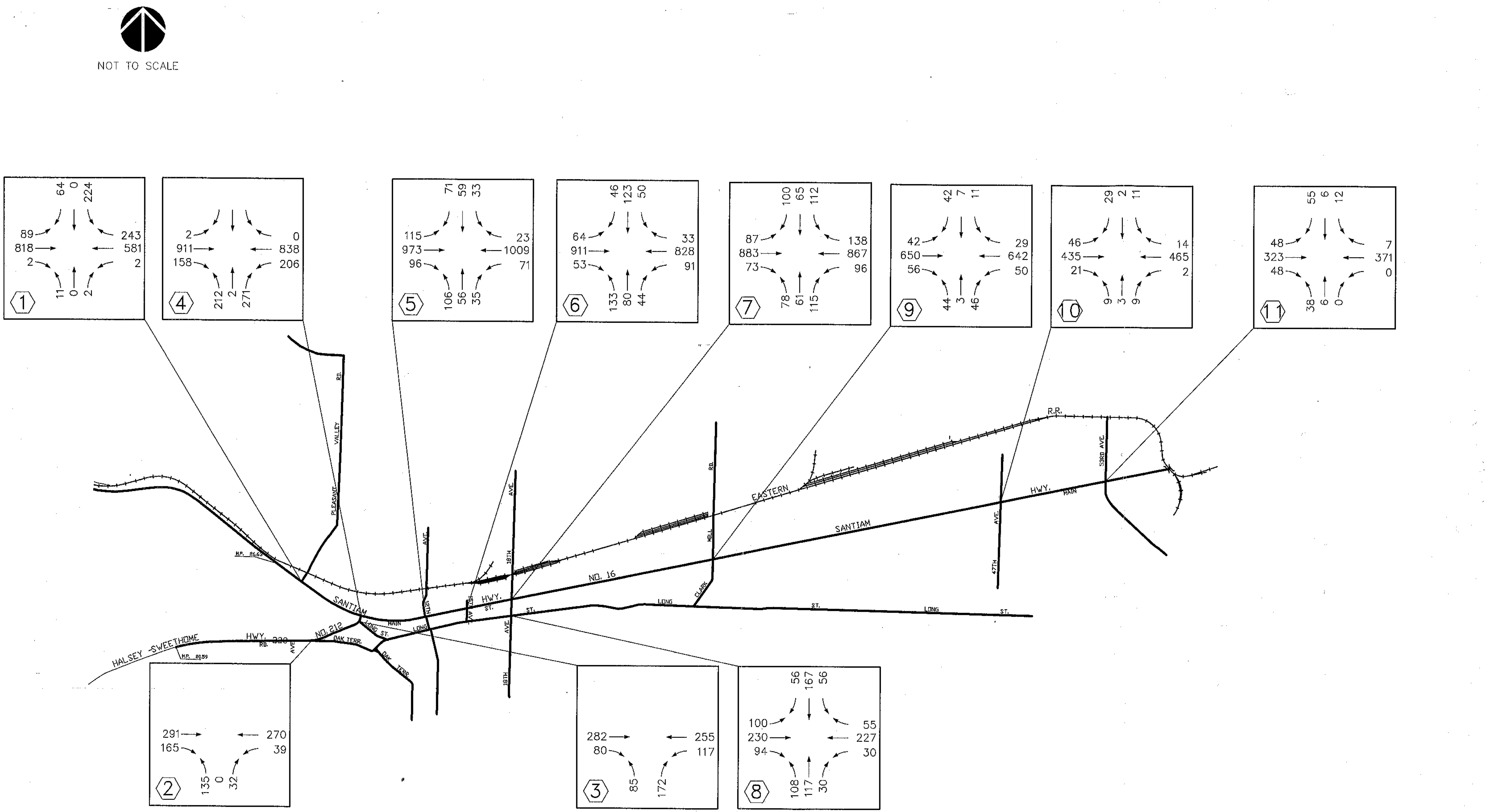
DRAWN BY:

CHECKED BY:

JOB NO: 2040385.00

2005 TRAFFIC VOLUMES WEEKDAY PM PEAK

FIGURE 2



GROUP MACKENZIE

Portland OR 503.224.9560 Vancouver WA 360.695.7879 Tacoma WA 253.471.0551 Seattle WA 206.749.9993

© GROUP MACKENZIE 2004 ALL RIGHTS RESERVED
THESE DRAWINGS ARE THE PROPERTY OF GROUP MACKENZIE AND ARE NOT TO BE USED OR REPRODUCED IN ANY MANNER, WITHOUT PRIOR WRITTEN PERMISSION

DATE:

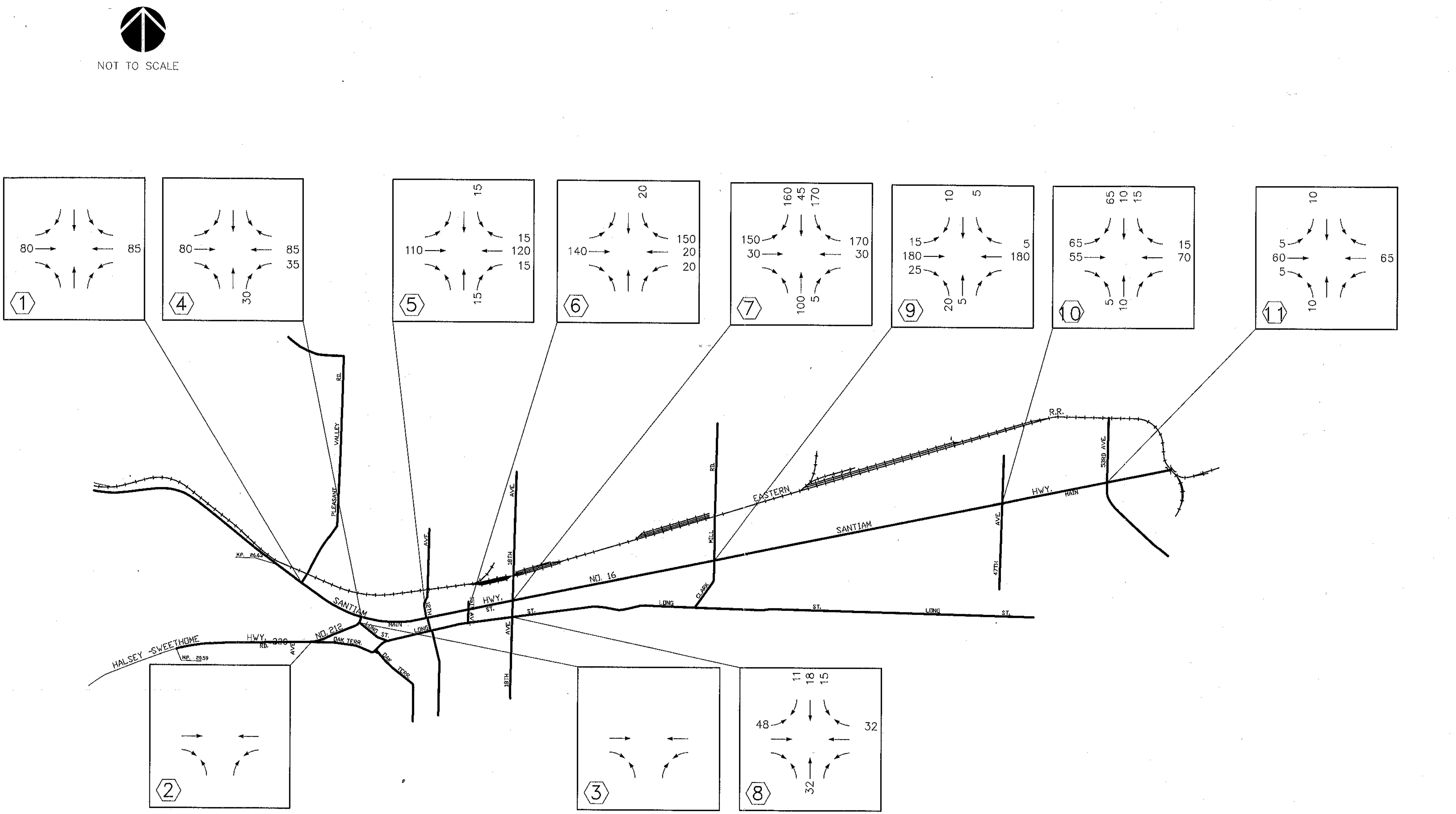
DRAWN BY:

CHECKED BY:

JOB NO: 2040385.00

2025 TRAFFIC VOLUMES
WEEKDAY PM PEAK

FIGURE 3



GROUP MACKENZIE

Portland OR 503.224.9560 Vancouver WA 360.695.7879 Tacoma WA 253.471.0551 Seattle WA 206.749.9993

© GROUP MACKENZIE 2004 ALL RIGHTS RESERVED

THESE DRAWINGS ARE THE PROPERTY OF GROUP MACKENZIE AND ARE NOT TO BE USED OR REPRODUCED IN ANY MANNER, WITHOUT PRIOR WRITTEN PERMISSION

DATE: 12.22.04

DRAWN BY: NB

CHECKED BY:

JOB NO: 2040385.00

SANTIAM DEVELOPMENT IMPACTS
WEEKDAY PM PEAK

FIGURE 4

Appendix H-2

Traffic Count Summaries

SUMMARY OF TRAFFIC COUNT
TRANSPORTATION DEVELOPMENT BRANCH - RESEARCH SECTION

#1

DATE : July 8 & 10, 2003 — DAY : Tues./Thurs. — COUNTY : Linn — CITY: Sweet Home
HOURS : 6AM - 10 PM — WEATHER: clear — INTERSECTION OF: Santiam Hwy #16(US20) @ Pleasant Valley Rd. & driveway
Tab by: — Chk. by: — MILE POST : 26.77

TIME OF DAY	SUMMARY BY MOVEMENTS													NORTH AND SOUTH	PERCENT OF TOTAL	EAST AND WEST	PERCENT OF TOTAL	ENTERING VOLUMES BY LEGS			
	N-E	N-S	N-W	E-N	E-S	E-W	S-N	S-E	S-W	W-N	W-E	W-S	TOTAL					NORTH	EAST	SOUTH	WEST
06:00-07:00A	44		46	56	2	250				36	160	5	599	90	15.0	509	85.0	90	308		201
07:00-08:00A	73		42	44		318		4		20	177	5	683	119	17.4	564	82.6	115	362	4	202
08:00-09:00A	95		22	52	1	270		3	1	24	251	3	722	121	16.8	601	83.2	117	323	4	278
09:00-10:00A	93	1	47	68	3	298			1	23	251	8	793	142	17.9	651	82.1	141	369	1	282
10:00-11:00A	89		39	76	4	360	1	2	1	28	329	2	931	132	14.2	799	85.8	128	440	4	359
11:00-12:00P	110	3	38	105	2	352	1	4		40	410	4	1069	156	14.6	913	85.4	151	459	5	454
12:00-01:00P	142		43	118	8	402		6	2	41	470	1	1233	193	15.7	1040	84.3	185	528	8	512
01:00-02:00P	103		43	112	5	391		3		42	457	1	1157	149	12.9	1008	87.1	146	508	3	500
02:00-03:00P	115		41	107		379		2		42	352		1038	158	15.2	880	84.8	156	486	2	394
03:00-04:00P	181	3	61	109		376		2	7	41	452	1	1233	254	20.6	979	79.4	245	485	9	494
04:00-05:00P	148		42	160	1	383		1	7	59	540	1	1342	198	14.8	1144	85.2	190	544	8	600
05:00-06:00P	111		46	117	1	374		2	5	72	485		1213	164	13.5	1049	86.5	157	492	7	557
06:00-07:00P	96		28	97		290		1		54	398	1	965	125	13.0	840	87.0	124	387	1	453
07:00-08:00P	69		20	87		184				28	302		690	89	12.9	601	87.1	89	271		330
08:00-09:00P	43		32	78		171				35	181		540	75	13.9	465	86.1	75	249		216
09:00-10:00P	70		30	65		187				20	158		530	100	18.9	430	81.1	100	252		178
TOTAL COUNT	1582	7	620	1451	27	4985	2	30	24	605	5373	32	14738	2265	15.4	12473	84.6	2209	6463	56	6010
24HR FACTOR	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10									
24HR VOLUME	1740	8	682	1596	30	5484	2	33	26	666	5910	35	16212	2492	15.4	13720	84.6	2430	7109	62	6611

North and South is: Pleasant Valley Rd.(n) driveway (s)

East and West is: Santiam Hwy #16(US20)

SUM_2202

#2

SUMMARY OF TRAFFIC COUNT
TRANSPORTATION DEVELOPMENT BRANCH - RESEARCH SECTION

DATE : March 16/17, 2004 | DAY : Tue/Wed | COUNTY : Linn | CITY: Sweet Home
HOURS : 6:00am - 8:00pm | WEATHER: Clear | INTERSECTION OF: Halsey-Sweet Home Hwy #212, (OR228/Holly Rd.) @ Oak Terrace

Tab by: | Chk. by: | MILE POST : 21.19

TIME OF DAY	SUMMARY BY MOVEMENTS											ENTERING VOLUMES BY LEGS		
	E-S	E-W	S-E	S-W	W-E	W-S	TOTAL	NORTH AND SOUTH	PERCENT OF TOTAL	EAST AND WEST	PERCENT OF TOTAL	EAST	SOUTH	WEST
06:00-07:00A	4	60	14	42	89	53	262	56	21.4	206	78.6	64	56	142
07:00-08:00A	10	114	18	47	160	127	476	65	13.7	411	86.3	124	65	287
08:00-09:00A	20	80	17	54	148	55	374	71	19.0	303	81.0	100	71	203
09:00-10:00A	10	112	18	33	130	49	352	51	14.5	301	85.5	122	51	179
10:00-11:00A	11	115	10	44	149	51	380	54	14.2	326	85.8	126	54	200
11:00-12:00P	8	141	9	41	135	48	382	50	13.1	332	86.9	149	50	183
12:00-01:00P	13	170	12	48	173	53	469	60	12.8	409	87.2	183	60	226
01:00-02:00P	17	169	7	63	162	56	474	70	14.8	404	85.2	186	70	218
02:00-03:00P	25	174	23	65	161	62	510	88	17.3	422	82.7	199	88	223
03:00-04:00P	27	203	25	92	153	70	570	117	20.5	453	79.5	230	117	223
04:00-05:00P	22	152	18	76	164	93	525	94	17.9	431	82.1	174	94	257
05:00-06:00P	26	212	16	99	164	80	597	115	19.3	482	80.7	238	115	244
06:00-07:00P	13	140	13	44	124	54	388	57	14.7	331	85.3	153	57	178
07:00-08:00P	14	115	11	37	112	59	348	48	13.8	300	86.2	129	48	171
TOTAL COUNT	220	1957	211	785	2024	910	6107	996	16.3	5111	83.7	2177	996	2934
24HR FACTOR	1.18	1.18	1.18	1.18	1.18	1.18								
24HR VOLUME	260	2309	249	926	2388	1074	7206	1175	16.3	6031	83.7	2569	1175	3462

North and South is: Oak Terrace

East and West is: Halsey-Sweet Home Hwy #212, (OR228/Holly Rd.)

SUM_2204

#3

SUMMARY OF TRAFFIC COUNT
TRANSPORTATION DEVELOPMENT BRANCH - RESEARCH SECTION

DATE : Mar. 16/17/2004   DAY : Tues. Wed.   COUNTY : Linn   CITY: Sweet Home

HOURS : 6AM - 8PM   WEATHER: clear   INTERSECTION OF: Halsey-Sweet Home Hwy #212(OR228/Holley Rd.) @ Long St.

Tab by: Chk. by: MILE POST : 21.38

TIME OF DAY	SUMMARY BY MOVEMENTS E-S	E-W	S-E	S-W	W-E	W-S	TOTAL	NORTH AND SOUTH	PERCENT OF TOTAL	EAST AND WEST	PERCENT OF TOTAL	ENTERING VOLUMES BY LEGS EAST	SOUTH	WEST
06:00-07:00A	8	56	79	19	98	2	262	98	37.4	164	62.6	64	98	100
07:00-08:00A	33	98	89	25	166	16	427	114	26.7	313	73.3	131	114	182
08:00-09:00A	30	77	87	35	136	21	386	122	31.6	264	68.4	107	122	157
09:00-10:00A	23	87	68	34	128	27	367	102	27.8	265	72.2	110	102	155
10:00-11:00A	34	94	86	28	122	20	384	114	29.7	270	70.3	128	114	142
11:00-12:00P	45	124	63	46	132	17	427	109	25.5	318	74.5	169	109	149
12:00-01:00P	41	141	80	37	148	44	491	117	23.8	374	76.2	182	117	192
01:00-02:00P	57	142	88	48	171	29	535	136	25.4	399	74.6	199	136	200
02:00-03:00P	50	161	90	47	159	40	547	137	25.0	410	75.0	211	137	199
03:00-04:00P	59	168	109	67	176	44	623	176	28.3	447	71.7	227	176	220
04:00-05:00P	66	144	97	48	159	45	559	145	25.9	414	74.1	210	145	204
05:00-06:00P	59	173	107	57	171	41	608	164	27.0	444	73.0	232	164	212
06:00-07:00P	56	120	75	44	139	24	458	119	26.0	339	74.0	176	119	163
07:00-08:00P	46	92	32	28	96	24	318	60	18.9	258	81.1	138	60	120
TOTAL COUNT	607	1677	1150	563	2001	394	6392	1713	26.8	4679	73.2	2284	1713	2395
24HR FACTOR	1.18	1.18	1.18	1.18	1.18	1.18								
24HR VOLUME	716	1979	1357	664	2361	465	7542	2021	26.8	5521	73.2	2695	2021	2826

North and South is: Long St.   East and West is: Halsey-Sweet Home Hwy #212(OR228/Holley Rd.)   SUM_2205

#4

SUMMARY OF TRAFFIC COUNT
TRANSPORTATION DEVELOPMENT BRANCH - RESEARCH SECTION

DATE : Mar.16/17, 2004 DAY : Tues./Wed. COUNTY : Linn CITY: Sweet Home
HOURS : 6AM - 8PM WEATHER: clear INTERSECTION OF: Santiam Hwy #16(US20/Main St. @
Halsey-Sweet Hwy #212(OR228/Holley Rd.) & driveway
Tab by: Chk. by: MILE POST : hwy 16 = 27.07 hwy 212 = 21.40

TIME OF DAY	SUMMARY BY MOVEMENTS													NORTH AND SOUTH	PERCENT OF TOTAL	EAST AND WEST	PERCENT OF TOTAL	ENTERING VOLUMES BY LEGS			
	N-E	N-S	N-W	E-N	E-S	E-W	S-N	S-E	S-W	W-N	W-E	W-S	TOTAL					NORTH	EAST	SOUTH	WEST
06:00-07:00A			1		44	267	1	119	133		341	71	977	254	26.0	723	74.0	1	311	253	412
07:00-08:00A					64	336		119	138		338	70	1065	257	24.1	808	75.9		400	257	408
08:00-09:00A					42	302		106	127		307	68	952	233	24.5	719	75.5		344	233	375
09:00-10:00A			1		63	337		100	108	1	325	50	985	209	21.2	776	78.8	1	400	208	376
10:00-11:00A					68	377		98	108	1	371	56	1079	206	19.1	873	80.9		445	206	428
11:00-12:00P			2	1	86	385	2	98	98	1	378	82	1133	200	17.7	933	82.3	2	472	198	461
12:00-01:00P					98	385	3	124	117	2	416	69	1214	244	20.1	970	79.9		483	244	487
01:00-02:00P		2			122	399		138	128	1	403	79	1272	268	21.1	1004	78.9	2	521	266	483
02:00-03:00P	3	1	1		121	425		120	134	1	462	86	1354	259	19.1	1095	80.9	5	546	254	549
03:00-04:00P	3		1	1	144	454	1	146	146	1	504	80	1481	297	20.1	1184	79.9	4	599	293	585
04:00-05:00P					116	473	1	153	120	1	514	89	1467	274	18.7	1193	81.3		589	274	604
05:00-06:00P					112	404	2	164	120	1	511	68	1382	286	20.7	1096	79.3		516	286	580
06:00-07:00P	3		4		115	308		122	88	2	409	72	1123	217	19.3	906	80.7	7	423	210	483
07:00-08:00P	2	3	1	1	91	201	1	97	38		276	43	754	142	18.8	612	81.2	6	293	136	319
TOTAL COUNT	11	6	11	3	1286	5053	11	1704	1603	12	5555	983	16238	3346	20.6	12892	79.4	28	6342	3318	6550
24HR FACTOR	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18									
24HR VOLUME	13	7	13	4	1517	5963	13	2011	1892	14	6555	1160	19162	3948	20.6	15213	79.4	33	7484	3915	7729

North and South is: Halsey-Sweet Home Hwy #212(OR228/ Holley Rd.) East and West is: Santiam Hwy #16(US20/Main St.)

SUM_2215

#5

SUMMARY OF TRAFFIC COUNT
TRANSPORTATION DEVELOPMENT BRANCH - RESEARCH SECTION

DATE : Mar. 15/16, 2004 | DAY : Mon./Tues. | COUNTY : Linn | CITY: Sweet Home
HOURS : 6AM - 8PM | WEATHER: clear | INTERSECTION OF: Santaim Hwy #16(US20/Main St.) @ 12th Ave.

Tab by: | Chk. by: | MILE POST : 27.35

TIME OF DAY	N-E	N-S	N-W	E-N	E-S	E-W	S-N	S-E	S-W	W-N	W-E	W-S	TOTAL	NORTH AND SOUTH	PERCENT OF TOTAL	EAST AND WEST	PERCENT OF TOTAL	NORTH	EAST	SOUTH	WEST
	SUMMARY BY MOVEMENTS																	ENTERING VOLUMES BY LEGS			
06:00-07:00A	5	3	19	3	5	271	2	9	15	3	251	14	600	53	8.8	547	91.2	27	279	26	268
07:00-08:00A	18	20	20	3	17	338	15	11	28	18	383	62	933	112	12.0	821	88.0	58	358	54	463
08:00-09:00A	12	13	26	3	20	273	8	17	33	19	310	36	770	109	14.2	661	85.8	51	296	58	365
09:00-10:00A	10	23	25	5	19	304	14	17	40	18	312	28	815	129	15.8	686	84.2	58	328	71	358
10:00-11:00A	13	11	20	11	12	359	21	10	41	25	358	50	931	116	12.5	815	87.5	44	382	72	433
11:00-12:00P	14	15	30	14	18	377	20	35	41	14	387	44	1009	155	15.4	854	84.6	59	409	96	445
12:00-01:00P	20	27	33	11	23	411	15	30	38	36	452	35	1131	163	14.4	968	85.6	80	445	83	523
01:00-02:00P	17	19	28	12	21	462	24	19	48	33	405	44	1132	155	13.7	977	86.3	64	495	91	482
02:00-03:00P	13	16	41	8	16	481	15	30	29	42	462	45	1198	144	12.0	1054	88.0	70	505	74	549
03:00-04:00P	13	18	36	5	23	454	14	21	32	40	490	40	1186	134	11.3	1052	88.7	67	482	67	570
04:00-05:00P	19	33	40	13	40	569	32	20	60	65	549	54	1494	204	13.7	1290	86.3	92	622	112	668
05:00-06:00P	19	33	46	7	31	537	32	26	32	49	533	71	1416	188	13.3	1228	86.7	98	575	90	653
06:00-07:00P	11	16	39	9	11	348	16	25	20	32	448	36	1011	127	12.6	884	87.4	66	368	61	516
07:00-08:00P	8	12	22	9	18	207	14	11	13	20	261	24	619	80	12.9	539	87.1	42	234	38	305
TOTAL COUNT	192	259	425	113	274	5391	242	281	470	414	5601	583	14245	1869	13.1	12376	86.9	876	5778	993	6598
24HR FACTOR	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18									
24HR VOLUME	227	306	502	133	323	6361	286	332	555	489	6609	688	16811	2206	13.1	14604	86.9	1034	6818	1172	7786

North and South is: 12th Ave.

East and West is: Santiam Hwy #16(US20/Main St.)

SUM_2217

#6

SUMMARY OF TRAFFIC COUNT
TRANSPORTATION DEVELOPMENT BRANCH - RESEARCH SECTION

DATE : Mar 15/16, 2004 | DAY : Mon./Tues. | COUNTY : Linn | CITY: Sweet Home
HOURS : 6AM - 8PM | WEATHER: clear | INTERSECTION OF: Santiam Hwy #16(US20/Main St.) @ 15th St.

Tab by: | Chk. by: | MILE POST : 27.53

TIME OF DAY	SUMMARY BY MOVEMENTS													NORTH AND SOUTH	PERCENT OF TOTAL	EAST AND WEST	PERCENT OF TOTAL	ENTERING VOLUMES BY LEGS			
	N-E	N-S	N-W	E-N	E-S	E-W	S-N	S-E	S-W	W-N	W-E	W-S	TOTAL					NORTH	EAST	SOUTH	WEST
06:00-07:00A	5	3	5	8	6	243	3	3	5	6	273	4	564	24	4.3	540	95.7	13	257	11	283
07:00-08:00A	9	8	28	21	13	372	5	4	12	13	337	22	844	66	7.8	778	92.2	45	406	21	372
08:00-09:00A	10	21	12	9	19	312	7	4	16	21	296	10	737	70	9.5	667	90.5	43	340	27	327
09:00-10:00A	12	27	31	12	36	282	18	20	27	22	282	24	793	135	17.0	658	83.0	70	330	65	328
10:00-11:00A	20	43	27	21	42	357	30	32	51	36	358	28	1045	203	19.4	842	80.6	90	420	113	422
11:00-12:00P	24	44	24	12	40	376	18	23	64	55	374	39	1093	197	18.0	896	82.0	92	428	105	468
12:00-01:00P	17	47	32	19	63	402	6	29	57	44	410	32	1158	188	16.2	970	83.8	96	484	92	486
01:00-02:00P	28	35	37	8	34	411	17	22	50	47	400	34	1123	189	16.8	934	83.2	100	453	89	481
02:00-03:00P	14	50	20	11	45	437	27	32	62	33	450	33	1214	205	16.9	1009	83.1	84	493	121	516
03:00-04:00P	22	65	31	20	63	451	27	37	59	34	554	36	1399	241	17.2	1158	82.8	118	534	123	624
04:00-05:00P	28	69	26	19	51	467	45	25	75	36	514	30	1385	268	19.4	1117	80.6	123	537	145	580
05:00-06:00P	9	40	12	22	41	484	33	21	66	20	425	21	1194	181	15.2	1013	84.8	61	547	120	466
06:00-07:00P	11	40	11	30	41	396	28	22	51	16	347	19	1012	163	16.1	849	83.9	62	467	101	382
07:00-08:00P	4	31	14	22	22	238	14	14	43	21	216	13	652	120	18.4	532	81.6	49	282	71	250
TOTAL COUNT	213	523	310	234	516	5228	278	288	638	404	5236	345	14213	2250	15.8	11963	84.2	1046	5978	1204	5985
24HR FACTOR	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18									
24HR VOLUME	251	617	366	276	609	6169	328	340	753	477	6178	407	16771	2655	15.8	14116	84.2	1234	7054	1421	7062

North and South is: 15th St.

East and West is: Santiam Hwy #16(US20/Main St.)

SUM_2220

7

SUMMARY OF TRAFFIC COUNT
TRANSPORTATION DEVELOPMENT BRANCH - RESEARCH SECTION

DATE : Mar. 10/11, 2004 DAY : Wed./Thurs. COUNTY : Linn CITY: Sweet Home
HOURS : 6AM - 8PM WEATHER: clear INTERSECTION OF: Santiam Hwy #16(US20/Main St.) @ 18th Ave.

Tab by: Chk. by: MILE POST : 27.72

TIME OF DAY	SUMMARY BY MOVEMENTS													NORTH AND SOUTH	PERCENT OF TOTAL	EAST AND WEST	PERCENT OF TOTAL	ENTERING VOLUMES BY LEGS			
	N-E	N-S	N-W	E-N	E-S	E-W	S-N	S-E	S-W	W-N	W-E	W-S	TOTAL					NORTH	EAST	SOUTH	WEST
06:00-07:00A	21	5	19	19	20	169	9	16	10	12	221	13	534	80	15.0	454	85.0	45	208	35	246
07:00-08:00A	65	28	37	85	36	263	23	22	25	59	313	27	983	200	20.3	783	79.7	130	384	70	399
08:00-09:00A	36	17	37	45	22	291	20	22	30	36	318	20	894	162	18.1	732	81.9	90	358	72	374
09:00-10:00A	59	13	39	47	35	287	11	27	25	34	320	14	911	174	19.1	737	80.9	111	369	63	368
10:00-11:00A	49	18	35	62	52	308	22	49	43	33	359	38	1068	216	20.2	852	79.8	102	422	114	430
11:00-12:00P	57	29	57	56	30	409	18	43	38	25	408	32	1202	242	20.1	960	79.9	143	495	99	465
12:00-01:00P	47	27	51	68	43	405	22	47	36	59	422	41	1268	230	18.1	1038	81.9	125	516	105	522
01:00-02:00P	73	30	53	56	41	417	29	33	29	35	419	43	1258	247	19.6	1011	80.4	156	514	91	497
02:00-03:00P	51	30	44	58	53	403	29	48	41	43	443	39	1282	243	19.0	1039	81.0	125	514	118	525
03:00-04:00P	89	40	41	83	69	475	23	52	37	35	501	39	1484	282	19.0	1202	81.0	170	627	112	575
04:00-05:00P	63	37	56	78	54	489	34	65	44	49	498	41	1508	299	19.8	1209	80.2	156	621	143	588
05:00-06:00P	83	24	60	94	52	506	21	34	37	22	446	41	1420	259	18.2	1161	81.8	167	652	92	509
06:00-07:00P	61	20	57	96	33	432	25	22	37	22	324	38	1167	222	19.0	945	81.0	138	561	84	384
07:00-08:00P	40	17	20	59	31	257	10	23	24	23	257	25	786	134	17.0	652	83.0	77	347	57	305
TOTAL COUNT	794	335	606	906	571	5111	296	503	456	487	5249	451	15765	2990	19.0	12775	81.0	1735	6588	1255	6187
24HR FACTOR	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18									
24HR VOLUME	937	395	715	1069	674	6031	349	594	538	575	6194	532	18603	3528	19.0	15075	81.0	2047	7774	1481	7301

North and South is: 18th Ave. East and West is: Santiam Hwy #16(US20/Main St.) SUM_2219

8

SUMMARY OF TRAFFIC COUNT
TRANSPORTATION DEVELOPMENT BRANCH - RESEARCH SECTION

DATE : Mar. 10/11, 2004 | DAY : Wed./Thurs. | COUNTY : Linn | CITY: Sweet Home
HOURS : 6AM - 8PM | WEATHER: clear | INTERSECTION OF: Long St. @ 18th Ave.

Tab by: | Chk. by: | MILE POST : n/a

TIME OF DAY	N-E	N-S	N-W	E-N	E-S	E-W	S-N	S-E	S-W	W-N	W-E	W-S	TOTAL	NORTH AND SOUTH	PERCENT OF TOTAL	EAST AND WEST	PERCENT OF TOTAL	NORTH	EAST	SOUTH	WEST
	SUMMARY BY MOVEMENTS																	ENTERING VOLUMES BY LEGS			
06:00-07:00A	7	24	7	5	6	59	27	5	27	11	13	11	202	97	48.0	105	52.0	38	70	59	35
07:00-08:00A	21	105	27	19	39	98	69	21	75	41	101	72	688	318	46.2	370	53.8	153	156	165	214
08:00-09:00A	14	53	20	12	10	90	38	8	31	32	52	15	375	164	43.7	211	56.3	87	112	77	99
09:00-10:00A	14	48	22	20	15	89	52	20	38	35	67	38	458	194	42.4	264	57.6	84	124	110	140
10:00-11:00A	16	58	21	24	8	87	39	14	50	27	69	37	450	198	44.0	252	56.0	95	119	103	133
11:00-12:00P	18	51	26	25	8	95	76	17	60	38	105	45	564	248	44.0	316	56.0	95	128	153	188
12:00-01:00P	30	79	40	18	15	120	50	12	52	44	97	59	616	263	42.7	353	57.3	149	153	114	200
01:00-02:00P	33	57	34	30	19	104	79	16	48	39	88	46	593	267	45.0	326	55.0	124	153	143	173
02:00-03:00P	28	58	20	33	22	121	59	15	44	38	102	44	584	224	38.4	360	61.6	106	176	118	184
03:00-04:00P	41	62	34	33	15	104	90	32	79	52	131	75	748	338	45.2	410	54.8	137	152	201	258
04:00-05:00P	32	94	32	31	17	128	66	17	61	56	130	53	717	302	42.1	415	57.9	158	176	144	239
05:00-06:00P	28	88	23	39	26	113	75	23	63	39	116	82	715	300	42.0	415	58.0	139	178	161	237
06:00-07:00P	26	103	14	25	14	97	188	53	136	36	105	54	851	520	61.1	331	38.9	143	136	377	195
07:00-08:00P	18	53	2	13	9	64	49	12	41	15	80	27	383	175	45.7	208	54.3	73	86	102	122
TOTAL COUNT	326	933	322	327	223	1369	957	265	805	503	1256	658	7944	3608	45.4	4336	54.6	1581	1919	2027	2417
24HR FACTOR	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18									
24HR VOLUME	385	1101	380	386	263	1615	1129	313	950	594	1482	776	9374	4258	45.4	5116	54.6	1866	2264	2392	2852

North and South is: 18th Ave.

East and West is: Long St.

SUM_2216

#9

SUMMARY OF TRAFFIC COUNT
TRANSPORTATION DEVELOPMENT BRANCH - RESEARCH SECTION

DATE : Mar. 9/10, 2004 | DAY : Tues/Wed. | COUNTY : Linn | CITY: Sweet Home
HOURS : 6AM - 8PM | WEATHER: clear | INTERSECTION OF: Santiam Hwy #16(US20/MAin St.) Clark Mill Rd.
Tab by: | Chk. by: | MILE POST : 28.59

TIME OF DAY	N-E	N-S	N-W	E-N	E-S	E-W	S-N	S-E	S-W	W-N	W-E	W-S	TOTAL	NORTH AND SOUTH	PERCENT OF TOTAL	EAST AND WEST	PERCENT OF TOTAL	NORTH	EAST	SOUTH	WEST
	SUMMARY BY MOVEMENTS																	ENTERING VOLUMES BY LEGS			
06:00-07:00A	8	1	8	1	7	172	2	9	16	8	198	6	436	44	10.1	392	89.9	17	180	27	212
07:00-08:00A	1	4	14	2	23	302	1	24	22	18	221	15	647	66	10.2	581	89.8	19	327	47	254
08:00-09:00A	2	1	8	2	16	228		16	21	14	231	19	558	48	8.6	510	91.4	11	246	37	264
09:00-10:00A	4	2	18	6	22	259	2	19	17	18	208	21	596	62	10.4	534	89.6	24	287	38	247
10:00-11:00A	5	5	25	2	20	263	4	21	24	17	251	20	657	84	12.8	573	87.2	35	285	49	288
11:00-12:00P	3	3	23	4	11	279	2	29	21	13	265	34	687	81	11.8	606	88.2	29	294	52	312
12:00-01:00P	2	2	18	6	17	335	4	35	29	14	302	26	790	90	11.4	700	88.6	22	358	68	342
01:00-02:00P	3		29	9	17	344	3	32	34	18	320	15	824	101	12.3	723	87.7	32	370	69	353
02:00-03:00P	4	4	20	4	28	398	4	23	31	22	354	38	930	86	9.2	844	90.8	28	430	58	414
03:00-04:00P	4	4	19	10	22	385	2	18	25	20	385	33	927	72	7.8	855	92.2	27	417	45	438
04:00-05:00P	6	4	24	16	28	362	2	26	25	24	367	32	916	87	9.5	829	90.5	34	406	53	423
05:00-06:00P	4	4	28	4	14	350	1	17	23	16	359	49	869	77	8.9	792	91.1	36	368	41	424
06:00-07:00P	4	2	18	4	13	260	6	21	26	23	286	33	696	77	11.1	619	88.9	24	277	53	342
07:00-08:00P	2	3	9	4	8	167	2	19	12	8	215	23	472	47	10.0	425	90.0	14	179	33	246
TOTAL COUNT	52	39	261	74	246	4104	35	309	326	233	3962	364	10005	1022	10.2	8983	89.8	352	4424	670	4559
24HR FACTOR	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18									
24HR VOLUME	61	46	308	87	290	4843	41	365	385	275	4675	430	11806	1206	10.2	10600	89.8	415	5220	791	5380

North and South is: Clark Mill Rd.

East and West is: Santiam Hwy #16(US20/Main St.)

SUM_2211

10

SUMMARY OF TRAFFIC COUNT
TRANSPORTATION DEVELOPMENT BRANCH - RESEARCH SECTION

DATE : Mar. 16/17, 2004
HOURS : 6AM - 8PM
Tab by:

DAY : Tues./Wed.
WEATHER: clear
Chk. by:

COUNTY : Linn
INTERSECTION OF: Santiam Hwy #16(US20/Main St.)
47th Ave.
MILE POST : 29.84

CITY: Sweet Home

TIME OF DAY	SUMMARY BY MOVEMENTS													NORTH AND SOUTH	PERCENT OF TOTAL	EAST AND WEST	PERCENT OF TOTAL	ENTERING VOLUMES BY LEGS			
	N-E	N-S	N-W	E-N	E-S	E-W	S-N	S-E	S-W	W-N	W-E	W-S	TOTAL					NORTH	EAST	SOUTH	WEST
06:00-07:00A	3		10	1	1	124			4	4	164		311	17	5.5	294	94.5	13	126	4	168
07:00-08:00A			34	4	1	192		1	6	9	174		421	41	9.7	380	90.3	34	197	7	183
08:00-09:00A	2	1	10	4		132	1	1	7	9	166	7	340	22	6.5	318	93.5	13	136	9	182
09:00-10:00A	4		11	2	4	194		4	3	12	162	2	398	22	5.5	376	94.5	15	200	7	176
10:00-11:00A	1	1	9	1	1	183		2	9	13	180	3	403	22	5.5	381	94.5	11	185	11	196
11:00-12:00P	4	1	19	3	4	211	1	1	3	10	228	4	489	29	5.9	460	94.1	24	218	5	242
12:00-01:00P	7	1	16	6	5	211	5	5	9	20	244	5	534	43	8.1	491	91.9	24	222	19	269
01:00-02:00P	4	3	15	5	1	231		4	3	12	199	7	484	29	6.0	455	94.0	22	237	7	218
02:00-03:00P	6	1	15	8	4	296	1	3	8	25	264	5	636	34	5.3	602	94.7	22	308	12	294
03:00-04:00P		2	42	9	1	292	2	2	12	27	246	13	648	60	9.3	588	90.7	44	302	16	286
04:00-05:00P	6	1	16	8	1	262	2	5	5	26	245	12	589	35	5.9	554	94.1	23	271	12	283
05:00-06:00P	7	1	12	4	8	244		2	5	31	232	11	557	27	4.8	530	95.2	20	256	7	274
06:00-07:00P	3	2	9	3	1	169	2	3	7	11	172	17	399	26	6.5	373	93.5	14	173	12	200
07:00-08:00P	6	1	9	8	3	107		1	6	20	157	4	322	23	7.1	299	92.9	16	118	7	181
TOTAL COUNT	53	15	227	66	35	2848	14	34	87	229	2833	90	6531	430	6.6	6101	93.4	295	2949	135	3152
24HR FACTOR	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18									
24HR VOLUME	63	18	268	78	41	3361	17	40	103	270	3343	106	7708	507	6.6	7199	93.4	348	3480	159	3719

North and South is: 47th Ave.

East and West is: Santiam Hwy #16(US20/Main St.)

SUM_2213

SUMMARY OF TRAFFIC COUNT
TRANSPORTATION DEVELOPMENT BRANCH - RESEARCH SECTION

#11

DATE : Mar. 9/10, 2004
HOURS : 6AM - 8PM
Tab by:

DAY : Tues./Wed.
WEATHER: clear
Chk. by:

COUNTY : Linn
INTERSECTION OF: Santiam hwy #16(US20/Main St.)
Wiley Creek Rd. & 53rd St.
MILE POST : 30.21

CITY: Sweet Home

TIME OF DAY	SUMMARY BY MOVEMENTS													NORTH AND SOUTH	PERCENT OF TOTAL	EAST AND WEST	PERCENT OF TOTAL	ENTERING VOLUMES BY LEGS			
	N-E	N-S	N-W	E-N	E-S	E-W	S-N	S-E	S-W	W-N	W-E	W-S	TOTAL					NORTH	EAST	SOUTH	WEST
06:00-07:00A	1		4		2	83		3	18	10	128	17	266	26	9.8	240	90.2	5	85	21	155
07:00-08:00A	1		16		3	127		3	20	8	157	10	345	40	11.6	305	88.4	17	130	23	175
08:00-09:00A	2		17	2	3	112	1	4	21	15	146	14	337	45	13.4	292	86.6	19	117	26	175
09:00-10:00A	3	2	28	9	2	140	1	4	18	27	114	20	368	56	15.2	312	84.8	33	151	23	161
10:00-11:00A	3		31	4	4	133	3	1	18	22	140	19	378	56	14.8	322	85.2	34	141	22	181
11:00-12:00P	3	1	28	5	1	144	2	3	20	21	166	18	412	57	13.8	355	86.2	32	150	25	205
12:00-01:00P		1	19	3	4	149	2	6	26	20	170	30	430	54	12.6	376	87.4	20	156	34	220
01:00-02:00P	3	1	17	6	1	206	2	8	28	14	148	31	465	59	12.7	406	87.3	21	213	38	193
02:00-03:00P	3		29	5	6	244	1	5	27	21	185	22	548	65	11.9	483	88.1	32	255	33	228
03:00-04:00P	2	1	18		6	229		6	35	18	176	31	522	62	11.9	460	88.1	21	235	41	225
04:00-05:00P	7	3	31	4		209	3		21	27	182	27	514	65	12.6	449	87.4	41	213	24	236
05:00-06:00P	3	2	17	3	5	190	1	3	18	19	182	33	476	44	9.2	432	90.8	22	198	22	234
06:00-07:00P	3	1	15	3	4	139	1	5	12	17	121	21	342	37	10.8	305	89.2	19	146	18	159
07:00-08:00P	1	1	13	2	3	80		4	12	12	89	16	233	31	13.3	202	86.7	15	85	16	117
TOTAL COUNT	35	13	283	46	44	2185	17	55	294	251	2104	309	5636	697	12.4	4939	87.6	331	2275	366	2664
24HR FACTOR	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18									
24HR VOLUME	41	15	334	54	52	2578	20	65	347	296	2483	365	6650	823	12.4	5829	87.7	391	2685	432	3144

North and South is: Wiley Creek Rd. (s) 53rd St.(n)

East and West is: Santiam Hwy #16(US20/Main St.)

SUM_2209

Appendix H-3

Crash Data

CALCULATIONS

US 20/Pleasant Valley Rd.

Peak Hour Volume = 1342 veh

Million Entering Vehicles (MEV) =

$$\left(\frac{Peak\ Hour\ Volume * 10 * 365}{1{,}000{,}000}\right) = \left(\frac{1342 * 10 * 365}{1{,}000{,}000}\right) = 4.90 \text{ MEV}$$

Crash Rate per Year =

$$\left(\frac{\left(Total\ number\ of\ crashes \big/ Number\ of\ Years\right)}{MEV}\right) = \left(\frac{11\, crashes \big/ 5\ years}{4.90\, MEV}\right) = \mathbf{0.45}$$

ORE 228/Oak Terrace

Peak Hour Volume = 614 veh

Million Entering Vehicles (MEV) =

$$\left(\frac{Peak\ Hour\ Volume * 10 * 365}{1{,}000{,}000}\right) = \left(\frac{614 * 10 * 365}{1{,}000{,}000}\right) = 2.24 \text{ MEV}$$

Crash Rate per Year =

$$\left(\frac{\left(Total\ number\ of\ crashes \big/ Number\ of\ Years\right)}{MEV}\right) = \left(\frac{1\, crash \big/ 5\ years}{2.24\, MEV}\right) = \mathbf{0.09}$$

US 20/ORE 228.

Peak Hour Volume = 1716 veh

Million Entering Vehicles (MEV) =

$$\left(\frac{Peak\ Hour\ Volume * 10 * 365}{1{,}000{,}000}\right) = \left(\frac{1716 * 10 * 365}{1{,}000{,}000}\right) = 6.26 \text{ MEV}$$

Crash Rate per Year =

$$\left(\frac{\left(Total\ number\ of\ crashes \big/ Number\ of\ Years\right)}{MEV}\right) = \left(\frac{10\, crashes \big/ 5\ years}{6.26\, MEV}\right) = \mathbf{0.32}$$

US 20/12th Avenue

Peak Hour Volume = 1748 veh

Million Entering Vehicles (MEV) =

$$\left(\frac{Peak\ Hour\ Volume * 10 * 365}{1{,}000{,}000}\right) = \left(\frac{1748 * 10 * 365}{1{,}000{,}000}\right) = 6.38 \text{ MEV}$$

Crash Rate per Year =

$$\left(\frac{\left(Total\ number\ of\ crashes \big/ Number\ of\ Years\right)}{MEV}\right) = \left(\frac{5\,crashes \big/ 5\ years}{6.38\,MEV}\right) = \mathbf{0.16}$$

US 20/15th Avenue

Peak Hour Volume = 1620 veh

Million Entering Vehicles (MEV) =

$$\left(\frac{Peak\ Hour\ Volume * 10 * 365}{1{,}000{,}000}\right) = \left(\frac{1620 * 10 * 365}{1{,}000{,}000}\right) = 5.91 \text{ MEV}$$

Crash Rate per Year =

$$\left(\frac{\left(Total\ number\ of\ crashes \big/ Number\ of\ Years\right)}{MEV}\right) = \left(\frac{14\,crashes \big/ 5\ years}{5.91\,MEV}\right) = \mathbf{0.47}$$

US 20/18th Avenue

Peak Hour Volume = 1764 veh

Million Entering Vehicles (MEV) =

$$\left(\frac{Peak\ Hour\ Volume * 10 * 365}{1{,}000{,}000}\right) = \left(\frac{1764 * 10 * 365}{1{,}000{,}000}\right) = 6.44 \text{ MEV}$$

Crash Rate per Year =

$$\left(\frac{\left(Total\ number\ of\ crashes \big/ Number\ of\ Years\right)}{MEV}\right) = \left(\frac{11\,crashes \big/ 5\ years}{6.44\,MEV}\right) = \mathbf{0.34}$$

US 20/Clark Mill Rd.

Peak Hour Volume = 1072 veh

Million Entering Vehicles (MEV) =

$$\left(\frac{Peak\ Hour\ Volume * 10 * 365}{1{,}000{,}000}\right) = \left(\frac{1072 * 10 * 365}{1{,}000{,}000}\right) = 3.91 \text{ MEV}$$

Crash Rate per Year =

$$\left(\frac{\left(Total\ number\ of\ crashes \big/ Number\ of\ Years\right)}{MEV}\right) = \left(\frac{8\,crashes \big/ 5\,years}{3.91\,MEV}\right) = \mathbf{0.41}$$

US 20/47th Avenue

Peak Hour Volume = 689 veh

Million Entering Vehicles (MEV) =

$$\left(\frac{Peak\ Hour\ Volume * 10 * 365}{1{,}000{,}000}\right) = \left(\frac{689 * 10 * 365}{1{,}000{,}000}\right) = 2.51 \text{ MEV}$$

Crash Rate per Year =

$$\left(\frac{\left(Total\ number\ of\ crashes \big/ Number\ of\ Years\right)}{MEV}\right) = \left(\frac{3\,crashes \big/ 5\,years}{2.51\,MEV}\right) = \mathbf{0.24}$$

ORE 228/Oak Terrace

Peak Hour Volume = 614 veh

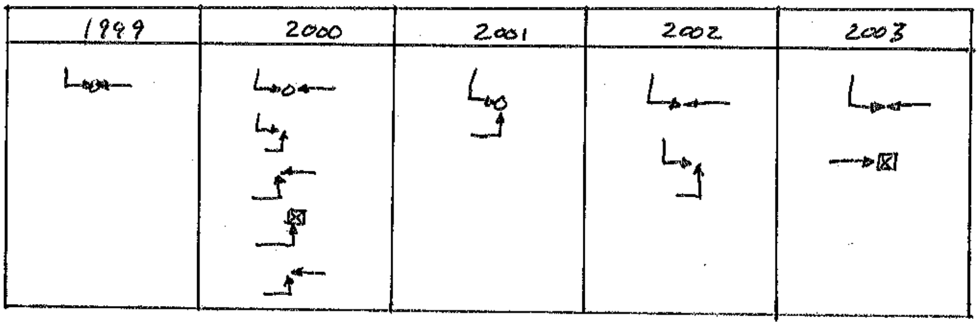
Million Entering Vehicles (MEV) =

$$\left(\frac{Peak\ Hour\ Volume * 10 * 365}{1{,}000{,}000}\right) = \left(\frac{601 * 10 * 365}{1{,}000{,}000}\right) = 2.19 \text{ MEV}$$

Crash Rate per Year =

$$\left(\frac{\left(Total\ number\ of\ crashes \big/ Number\ of\ Years\right)}{MEV}\right) = \left(\frac{6\,crashes \big/ 5\,years}{2.19\,MEV}\right) = \mathbf{0.55}$$

CRASH DATA: US 20/PLEASANT VALLEY RD



SUMMARY

TYPE	REAR-END	ANGLE	TURNING	SIDESWIPE	OTHER
			9		2

ORE 228/OAK TERRACE

1999	2000	2001	2002	2003

SUMMARY

TYPE	REAR-END	ANGLE	TURNING	OTHER
			1	

ORE 228/LONG STREET

NO CRASHES WERE REPORTED AT THIS LOCATION

GROUP MACKENZIE

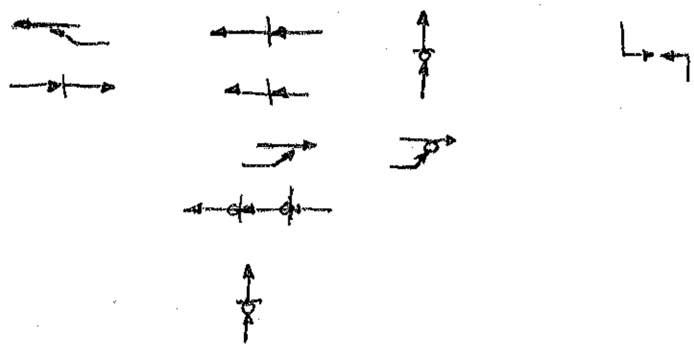
Portland, Oregon | Tacoma, Washington | Vancouver, Washington
www.groupmackenzie.com

By NB
Date 12/17/2004
Job # 2040385.00
Sht. 1 of 4

©2004 GROUP MACKENZIE. ALL RIGHTS RESERVED

US 20 / ORE 228

1999	2000	2001	2002	2003

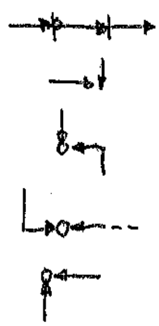


SUMMARY

TYPE	REAR-END	ANGLE	TURNING	OTHER
	6		1	3

US 20 / 12th AVENUE

1999	2000	2001	2002	2003



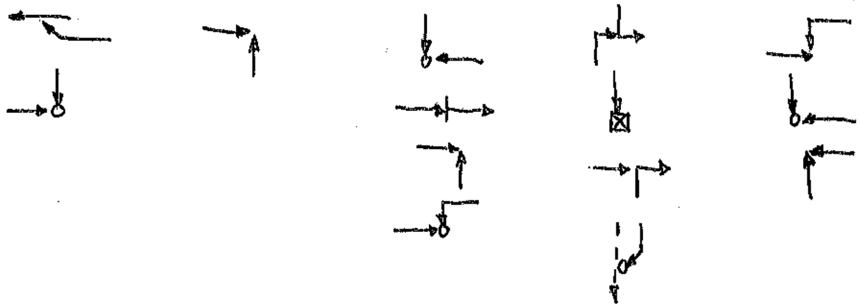
SUMMARY

TYPE	REAR-END	ANGLE	TURNING	OTHER
	1	3	1	

©2004 GROUP MACKENZIE. ALL RIGHTS RESERVED

US 20 / 15th AVENUE

1999	2000	2001	2002	2003

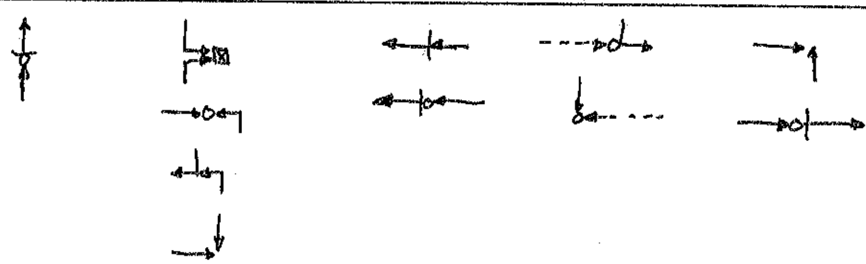


SUMMARY

TYPE	REAR-END	ANGLE	TURNING	OTHER
	1	6	4	3

US 20 / 18TH AVENUE

1999	2000	2001	2002	2003



SUMMARY

TYPE	REAR-END	ANGLE	TURNING	OTHER
	4	3	4	

GROUP MACKENZIE

Portland, Oregon | Tacoma, Washington | Vancouver, Washington
www.groupmackenzie.com

By NB

Date 12/17/2004

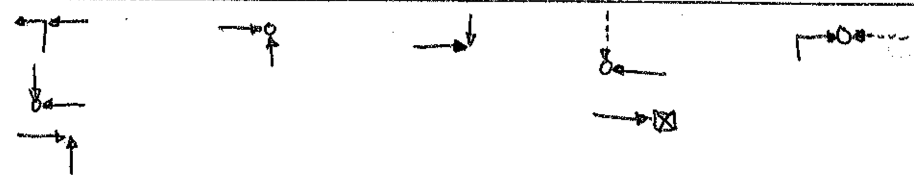
Job # 2040385.00

Sht. 3 of 4

©2004 GROUP MACKENZIE. ALL RIGHTS RESERVED

US 20 / CLARK MILL ROAD

1999	2000	2001	2002	2003

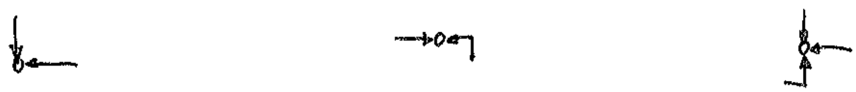


SUMMARY

TYPE	REAR-END	ANGLE	TURNING	OTHER
		5	2	1

US 20 / 47TH AVENUE

1999	2000	2001	2002	2003



SUMMARY

TYPE	REAR-END	ANGLE	TURNING	OTHER
		1	2	

US 20 / 53RD AVENUE

1999	2000	2001	2002	2003

SUMMARY

TYPE	REAR-END	ANGLE	TURNING	OTHER
	1	2	3	

©2004 GROUP MACKENZIE. ALL RIGHTS RESERVED

TABLE II: 1999 – 2003 STATE HIGHWAY SYSTEM CRASHES PER MILLION VMT

Table II presents a five-year comparison of crash rates for the state highway system, for urban and rural areas, by functional classification. Highway mileage is shown for the current data year only.

JURISDICTION AND FUNCTIONAL CLASSIFICATION	MILES	2003 Rate	2002 Rate	2001 Rate	2000 Rate	1999 Rate
TOTAL STATE HWY SYSTEM	**7,483.78**	**0.99**	**0.93**	**0.98**	**0.92**	**1.00**
Interstate Freeways	**729.56**	**0.42**	**0.37**	**0.37**	**0.36**	**0.35**
Other Fwys/Expressways	**49.81**	**0.87**	**0.81**	**0.76**	**0.77**	**0.81**
Non-Freeways (Combined)	**6,704.41**	**1.46**	**1.39**	**1.50**	**1.35**	**1.53**
Other Principal Arterials	3,273.07	1.53	1.48	1.74	1.70	1.79
Minor Arterials	1,966.63	1.20	1.07	0.91	0.86	0.94
Urban Collectors	4.38	2.08	5.66	7.84	0.07	3.57
Rural Major Collectors	1,410.31	1.26	1.09	0.93	0.73	0.85
Rural Minor Collectors	34.71	1.30	3.38	1.67	0.21	1.72
Rural Local	15.31	8.06	-	-	0.67	-
URBAN HWY SYSTEM	**713.46**	**1.47**	**1.37**	**1.49**	**1.34**	**1.55**
Interstate Freeways	**146.89**	**0.61**	**0.50**	**0.52**	**0.48**	**0.48**
Other Fwys/Expressways	**49.81**	**0.87**	**0.81**	**0.76**	**0.77**	**0.81**
Non-Freeways (Combined)	**516.76**	**2.71**	**2.61**	**3.04**	**2.41**	**3.17**
Other Principal Arterials	454.97	2.74	2.64	3.11	3.04	3.33
Minor Arterials	57.41	2.41	2.26	2.22	2.10	1.94
Urban Collectors	4.38	2.08	5.66	7.84	0.07	3.57
Urban Cities	**558.50**	**1.60**	**1.45**	**1.84**	**1.76**	**1.89**
Interstate Freeways	115.65	0.64	0.55	0.66	0.60	0.59
Other Fwys/Expressways	45.68	0.89	0.68	1.01	1.00	1.07
Non-Freeways (Combined)	397.17	3.14	2.86	3.50	3.37	3.61
Other Principal Arterials	356.44	3.15	2.88	3.59	3.46	3.80
Minor Arterials	37.94	2.98	2.55	2.61	2.46	2.15
Urban Collectors	2.79	1.68	7.46	7.81	6.34	7.12
Suburban Areas	**154.96**	**0.90**	**0.96**	**0.60**	**0.48**	**0.66**
Interstate Freeways	31.24	0.48	0.27	0.17	0.17	0.19
Other Fwys/Expressways	4.13	0.66	1.91	0.42	0.45	0.46
Non-Freeways (Combined)	119.59	1.29	1.48	1.42	0.74	1.56
Other Principal Arterials	98.53	1.34	1.51	1.44	1.52	1.64
Minor Arterials	19.47	0.60	1.19	1.11	1.08	1.16
Urban Collectors	1.59	3.10	1.04	7.93	0.02	0.77
RURAL HWY SYSTEM	**6,770.32**	**0.63**	**0.60**	**0.63**	**0.60**	**0.61**
Interstate Freeways	**582.67**	**0.26**	**0.25**	**0.24**	**0.25**	**0.23**
Non-Freeways (Combined)	**6,187.65**	**0.87**	**0.82**	**0.86**	**0.81**	**0.84**
Other Principal Arterials	2,818.10	0.77	0.76	0.92	0.88	0.87
Minor Arterials	1,909.22	1.03	0.90	0.73	0.69	0.78
Rural Major Collectors	1,410.31	1.26	1.09	0.93	0.73	0.85
Rural Minor Collectors	34.71	1.30	3.38	1.67	0.21	1.72
Rural Local	15.31	8.06	-	-	0.67	-
Rural Cities 5 yr	**273.63**	**1.04**	**0.95**	**1.31**	**1.23**	**1.39**
Interstate Freeways AVG	22.95	0.04	0.04	0.12	0.10	0.07
Non-Freeways (Combined)	250.68	1.40	1.23	1.48	1.40	1.58
Other Principal Arterials 1.51	140.20	1.28	1.16	1.70	1.68	1.73
Minor Arterials	62.87	1.67	1.43	1.07	1.06	1.39
Rural Major Collectors	47.36	1.68	1.48	1.27	0.62	1.19
Rural Minor Collectors	0.25	-	-	-	-	4.57
Rural Areas	**6,496.69**	**0.60**	**0.58**	**0.59**	**0.56**	**0.57**
Interstate Freeways	559.72	0.27	0.27	0.25	0.25	0.23
Non-Freeways (Combined)	5,936.97	0.82	0.78	0.81	0.76	0.78
Other Principal Arterials	2,677.90	0.72	0.72	0.85	0.82	0.80
Minor Arterials	1,846.35	0.97	0.86	0.70	0.66	0.73
Rural Major Collectors	1,362.95	1.20	1.04	0.89	0.74	0.81
Rural Minor Collectors	34.46	1.40	3.65	1.80	0.22	1.48
Rural Local	15.31	8.06	-	-	0.67	-

SWEET HOME US 20 CRASH RATE ANALYSIS
(ROADWAY SEGMENT)

FROM MP

SECTION 1

MP 26.64 AADT-2003 → MP 27.83 AADT-2003

11,100 10,200

SECTION 2

MP 31.31 4,400 → MP 30.27 6,200
(30)

SECTION 1

140 CRASHES

AVERAGE AADT = 11,100 + 13,500 + 14,400 + 12,800 + 10,900 + 10,700 + 12,900 + 10,200 ≈ 12,065 (8)

SECTION 2

14 CRASHES 6,200 + 4,400 + 4,000 ≈ 4870 (3)

SECTION 1

3.36 miles

$$\frac{\#\ \text{CRASHES} * 10^6}{5\ \text{YRS} * \text{ADT} * \text{MILES} * 365} = \frac{140 * 10^6}{5 * 12{,}065 * 3.36 * 365} = 1.89$$

SECTION 2

1.31 miles

$$\frac{14 * 10^6}{5 * 4870 * 1.31 * 365} = 1.20$$

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE
US 20 Santiam Hwy (# 16) from mp 26.63 - mp 31.31
1999 - 2003

COLLISION TYPE	FATAL CRASHES	NON-FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION	INTER-SECTION RELATED	OFF-ROAD
YEAR: 1999														
ANGLE	0	4	1	5	0	10	0	3	2	4	1	5	0	0
FIXED / OTHER OBJECT	0	1	1	2	0	1	0	2	0	1	1	2	0	2
PARKING MOVEMENTS	0	0	1	1	0	0	0	1	0	1	0	0	0	0
PEDESTRIAN	0	1	0	1	0	1	1	1	0	1	0	1	0	0
REAR-END	0	3	7	10	0	4	0	5	5	9	1	7	0	0
SIDESWIPE - MEETING	0	0	1	1	0	0	0	0	1	1	0	0	0	0
SIDESWIPE - OVERTAKING	0	0	2	2	0	0	0	1	1	1	1	0	0	0
TURNING MOVEMENTS	0	3	5	8	0	3	1	6	1	6	2	6	0	0
1999 TOTAL	0	12	18	30	0	19	2	19	10	24	6	21	0	2
YEAR: 2000														
ANGLE	0	3	2	5	0	4	0	3	2	5	0	5	0	0
FIXED / OTHER OBJECT	0	1	2	3	0	1	0	3	0	3	0	2	0	3
PEDESTRIAN	0	1	0	1	0	1	0	1	0	0	1	1	0	0
REAR-END	0	2	2	4	0	4	0	4	0	3	1	2	0	0
SIDESWIPE - OVERTAKING	0	0	3	3	0	0	0	1	2	3	0	0	0	1
TURNING MOVEMENTS	0	6	7	13	0	9	0	10	3	11	2	11	0	0
2000 TOTAL	0	13	16	29	0	19	0	22	7	25	4	21	0	4
YEAR: 2001														
ANGLE	0	1	3	4	0	2	0	2	2	4	0	4	0	0
FIXED / OTHER OBJECT	0	2	0	2	0	2	0	1	1	1	1	1	0	2
PARKING MOVEMENTS	0	0	1	1	0	0	1	1	0	0	1	0	0	1
PEDESTRIAN	0	1	0	1	0	1	0	1	0	1	0	0	0	0
REAR-END	0	3	5	8	0	4	0	4	4	5	3	3	0	1
SIDESWIPE - MEETING	0	0	1	1	0	0	1	1	0	1	0	0	0	0
SIDESWIPE - OVERTAKING	0	2	1	3	0	3	1	2	0	2	1	0	0	0
TURNING MOVEMENTS	0	8	4	12	0	11	2	11	1	11	1	7	0	2
2001 TOTAL	0	17	15	32	0	23	5	23	8	25	7	15	0	6
YEAR: 2002														
ANGLE	0	6	1	7	0	10	0	4	3	6	1	4	0	0
FIXED / OTHER OBJECT	0	0	3	3	0	0	0	1	2	2	1	2	0	2
PEDESTRIAN	0	1	0	1	0	1	0	1	0	1	0	0	0	0
REAR-END	0	4	3	7	0	7	0	6	1	5	2	1	0	0
SIDESWIPE - OVERTAKING	0	1	1	2	0	1	0	2	0	2	0	0	0	1
TURNING MOVEMENTS	0	4	8	12	0	4	0	12	0	10	2	6	0	0
2002 TOTAL	0	16	16	32	0	23	0	26	6	26	6	13	0	3

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE
US 20 Santiam Hwy (# 16) from mp 26.63 - mp 31.31
1999 - 2003

COLLISION TYPE	FATAL CRASHES	NON-FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION	INTER-SECTION RELATED	OFF-ROAD
YEAR: 2003														
ANGLE	0	1	2	3	0	3	0	3	0	3	0	3	0	0
FIXED / OTHER OBJECT	0	1	2	3	0	1	0	2	1	3	0	1	0	3
MISCELLANEOUS	0	1	1	2	0	1	0	0	2	1	1	1	1	0
REAR-END	0	7	3	10	0	14	1	8	2	9	1	5	2	0
TURNING MOVEMENTS	0	2	6	8	0	3	2	3	5	7	1	4	1	0
2003 TOTAL	0	12	14	26	0	22	3	16	10	23	3	14	4	3
FINAL TOTAL	0	70	79	149	0	106	10	106	41	123	26	84	4	18

CDS380 12/17/2004

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CONTINUOUS SYSTEM CRASH LISTING
US 20 Santiam Hwy (# 16) from mp 26.63 - mp 31.31
1999 - 2003

016 SANTIAM

SER#. INVEST	S D P R S W E A U C O E L G H R D C S L K	DATE DAY TIME	COUNTY CITY URBAN AREA	CLASS COMPNT MLG TYP MILEPNT	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CNTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH COLL SVRTY	V#	VEHICLE USE-TRLR OWNER TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT EVENT	CAUSE
01059 CITY	N N N N N	06/25/2002 Tue 12	LINN SWEET HOME SWEETHOM UA	14 0 0 26.70	01501 05001	STRGHT E 0	(NONE) 0 (4)	N NONE	N N N	CLR DRY DAY	S-1STOP REAR INJ	1	NONE 0 PRVTE PSNGR CA	STRGHT E W	1	DRV	INJC	29	1	OR-Y OR<25		000	000	02
									N			2	NONE 0 PRVTE PSNGR CA	STOP E W	1	DRV	NONE	23	2	OR-Y OR>25		045	011	02
01217 CITY	N N N N N	07/06/2000 Thu 2P	LINN SWEET HOME SWEETHOM UA	14 0 0 26.71	MAIN ST 1ST AVE	INTER C 0	3-LEG 0	N TRF SIGN	N N N	CLR DRY DAY	ANGL-OT TURN INJ	1	NONE 0 PRVTE PSNGR CA	STRGHT NW SE	1	DRV	NONE	63	1	OR-Y OR>25		000	000	02
									N			2	NONE 0 PRVTE PSNGR CA	TURN-L S NW	1	DRV	INJB	60	2	OR-Y OR<25		028	015	02
01796 CITY	N N N N N	10/17/2002 Thu 2P	LINN SWEET HOME SWEETHOM UA	14 0 0 26.71	MAIN ST 1ST AVE	INTER C 0	3-LEG 0	N NONE	N N N	CLR DRY DAY	O-1TURN TURN INJ	1	NONE 0 PRVTE PSNGR CA	STRGHT NW SE	1	DRV	INJC	59	2	OR-Y OR<25		000	000	02
									N			2	NONE 0 PRVTE PSNGR CA	TURN-L SE S	1	DRV	NONE	73	1	OR-Y OR<25		004	000 038	02
00438 CITY	N N N N N	03/01/2000 Wed 3P	LINN SWEET HOME SWEETHOM UA	14 0 0 26.72	01501 05001	ALLEY S 0	(NONE) 0 (4)	N NONE	N N Y	CLR DRY DAY	ANGL-OT TURN INJ	1	NONE 0 PRVTE PSNGR CA	TURN-R NE NW	1	DRV	NONE	75	1	OR-Y OR<25		001	018	02 02
									N			2	NONE 0 PRVTE PSNGR CA	STRGHT SE NW	1	DRV	INJC	32	2	OR-Y OR<25		000	000	
									N			2	0		2	PSN	INJC	13	2				000	
01382 STATE	N N N	08/26/2003 Tue 8A	LINN SWEET HOME	14 0 0 26.74	01501 01901	STRGHT W 0	(NONE) (4)	N UNKNOWN	Y N N	CLR DRY DAY	FIX OBJ FIX PDO	1	NONE 0 PRVTE PSNGR CA	STRGHT W E	1	DRV	NONE	56	1	OR-Y OR<25		016,080,081	043 088 043 038	27 00 27
01571 CITY	N N N N N	09/15/2001 Sat 12	LINN SWEET HOME SWEETHOM UA	14 0 0 26.77	MAIN ST PLEASANT VALLEY R	INTER C 0	3-LEG 0	N STOP SIG	N N N	CLD DRY DAY	ANGL-OT TURN INJ	1	NONE 0 PRVTE PSNGR CA	TURN-L NE SE	1	DRV	NONE	66	2	OR-Y OR<25		028	001 015	02 02
									N			2	NONE 0 PRVTE MTRCYCLE	TURN-L NW NE	1	DRV	INJC	33	1	OR-Y OR<25		000	000 001	

016 SANTIAM

SER#. INVEST	S P E E D / E A L G C / D R U G S / R S C H L / W O R K	DATE DAY TIME	COUNTY CITY URBAN AREA	CLASS COMPNT MLG TYP MILEPNT	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CNTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH COLL SVRTY	V#	VEHICLE USE-TRLR OWNER TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
00637 CITY	N N N N N	04/08/2000 Sat 3P	LINN SWEET HOME SWEETHOM UA	14 0 0 26.77	MAIN ST PLEASANT VALLEY R	INTER C 0	3-LEG 0	N STOP SIG	N N N	CLR DRY DAY	ANGL-OT TURN INJ	1	NONE 0 PRVTE PSNGR CA	STRGHT SE NW	1	DRV	INJC	90	2	OR-Y OR<25		000	000		02
									N			2	NONE 0 PRVTE PSNGR CA	TURN-L NE SE	1	DRV	INJA	96	1	OR-Y OR<25		028	000		02
00789 NO RPT	N N N N N	05/06/2000 Sat 5P	LINN SWEET HOME SWEETHOM UA	14 0 0 26.77	MAIN ST PLEASANT VALLEY R	INTER C 0	3-LEG 0	N STOP SIG	N N N	CLR DRY DAY	ANGL-OT TURN PDO	1	NONE 0 PRVTE PSNGR CA	TURN-L NE SE	1	DRV	NONE	28	1	OR-Y OR<25		028	015		02 02
									N			2	NONE 0 PRVTE PSNGR CA	TURN-L NW NE	1	DRV	NONE	60	2	OR-Y OR<25		000	000		
00883 CITY	N N N N N	05/27/2000 Sat 12	LINN SWEET HOME SWEETHOM UA	14 0 0 26.77	MAIN ST PLEASANT VALLEY R	INTER C 0	3-LEG 0	N NONE	N N N	RAIN WET DAY	O-1TURN TURN PDO	1	NONE 0 PRVTE PSNGR CA	STRGHT SE NW	1	DRV	NONE	47	2	OR-Y OR>25		000	000		02
									N			2	NONE 0 PRVTE PSNGR CA	TURN-L NW NE	1	DRV	NONE	80	1	OR-Y OR>25		004	000		02
00979 CITY	Y N N N N	06/02/2000 Fri 12	LINN SWEET HOME SWEETHOM UA	14 0 0 26.77	MAIN ST PLEASANT VALLEY R	INTER N 0	3-LEG 0	N NONE	Y N N	CLR DRY DAY	FIX OBJ FIX PDO	1	NONE 0 PRVTE PSNGR CA	TURN-L NW NE	1	DRV	NONE	67	2	OR-Y OR<25		047	017	088 088	01 01 01
01065 CITY	N N N N N	06/21/2000 Wed 1P	LINN SWEET HOME SWEETHOM UA	14 0 0 26.77	MAIN ST PLEASANT VALLEY R	INTER C 0	3-LEG 0	N STOP SIG	N N N	CLR DRY DAY	ANGL-OT TURN PDO	1	NONE 0 PRVTE PSNGR CA	STRGHT SE NW	1	DRV	NONE	43	1	OR-Y OR<25		000	000	082	02
									N			2	NONE 0 PRVTE PSNGR CA	TURN-L NE NW	1	DRV	NONE	16	2	OR-Y OR<25		028	000	082	02
00421 CITY	N N N N N	03/06/1999 Sat 4P	LINN SWEET HOME SWEETHOM UA	14 0 0 26.77	MAIN ST PLEASANT VALLEY R	INTER C 0	3-LEG 0	N STOP SIG	N N N	CLR DRY DAY	ANGL-OT TURN INJ	1	NONE 0 PRVTE MTRCYCLE	STRGHT SE NW	1	DRV	NONE	32	1	OR-Y OR<25		000	001	001 001	02
									N			2	NONE 0 PRVTE PSNGR CA	TURN-L NE SE	1	DRV	INJB	16	2	OR-Y OR<25		028	015		02
00637 CITY	N N N N N	04/18/2002 Thu 1P	LINN SWEET HOME SWEETHOM UA	14 0 0 26.77	MAIN ST PLEASANT VALLEY R	INTER C 0	3-LEG 0	N STOP SIG	N N N	CLD DRY DAY	ANGL-OT TURN PDO	1	NONE 0 PRVTE PSNGR CA	STRGHT SE NW	1	DRV	NONE	43	2	OR-Y		000	000		02

CDS380 12/17/2004

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CONTINUOUS SYSTEM CRASH LISTING
US 20 Santiam Hwy (# 16) from mp 26.63 - mp 31.31
1999 - 2003

016 SANTIAM

SER#. INVEST	S P E E D / A L C G / D R U G / R C S H / S W O R K	DATE DAY TIME	COUNTY CITY URBAN AREA	CLASS COMPNT MLG TYP MILEPNT	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF-CNTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH COLL SVRTY	V#	VEHICLE USE-TRLR OWNER TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACT EVENT	CAUSE
																				OR<25				
									N			1	0										000	
															2	PSN	NO<5	02	1					
									N			2	NONE 0 PRVTE PSNGR CA	TURN-L NE SE	1	DRV	NONE	78	1	OR-Y OR<25		028	000 038	02
91847 CITY	N N N N N	10/30/2002 Wed 4P	LINN SWEET HOME SWEETHOM UA	14 0 0 26.77	MAIN ST PLEASANT VALLEY R	INTER C 0	3-LEG 0	N STOP SIG	N N N	CLR DRY DAY	ANGL-OT TURN PDO	1	NONE 0 PRVTE PSNGR CA	TURN-L NE SE	1	DRV	NONE	32	1	OR-Y OR<25		028	000 038	02 02
									N			2	NONE 0 PRVTE PSNGR CA	TURN-L NW NE	1	DRV	NONE	57	2	OR-Y OR<25		000	000	
01711 CITY	N N N N N	10/17/2003 Fri 12	LINN SWEET HOME SWEETHOM UA	14 0 0 26.77	MAIN ST PLEASANT VALLEY R	INTER C 0	3-LEG 0	N STOP SIG	N N N	CLR DRY DAY	ANGL-OT TURN PDO	1	NONE 0 PRVTE PSNGR CA	TURN-L NE SE	1	DRV	NONE	23	2	OR-Y OR<25		028	082 000 034 082	08,02 00 08,02
									N			2	NONE 0 PRVTE PSNGR CA	STRGHT SE NW	1	DRV	NONE	85	2	OR-Y OR<25		000	000 034	00 00
01751 CITY	N N N N Y	09/24/1999 Fri 5P	LINN SWEET HOME SWEETHOM UA	14 0 0 26.81	MAIN ST 18TH AVE	INTER W 0	CROSS 0	N TRF SIGN	N N N	CLR DRY DAY	S-STRGH REAR PDO	1	NONE 0 PRVTE PSNGR CA	STRGHT E W	1	DRV	NONE	54	1	OTH-Y N-RES		042	000	07,02 07
									N			2	NONE 0 PRVTE PSNGR CA	STOP E W	1	DRV	NONE	21	1	OR-Y OR<25		045	011	02
00587 NO RPT	N N N	04/21/2003 Mon 12	LINN ALBANY ALBANY UA	14 0 0 26.85	01501 05004	STRGHT N 0	(NONE) (4)	N UNKNOWN	N N N	CLD WET DAY	S-1TURN TURN PDO	1	NONE 0 PRVTE PSNGR CA	U-TURN NW NW	1	DRV	NONE	35	1	OR-Y OR<25		008,028,045	088 088	02,08 00 02,08
									N			2	NONE 0 PRVTE PSNGR CA	STRGHT NW SE	1	DRV	NONE	31	1	OR-Y OR>25		000	000 000	00 00
00375 CITY	N N N N N	03/01/2002 Fri 8A	LINN SWEET HOME SWEETHOM UA	14 0 0 26.86	01501 05004	STRGHT W 0	(NONE) 0 (4)	N BUS STPS	N N N	CLR DRY DAY	S-1STOP REAR PDO	1	NONE 0 PRVTE PSNGR CA	STRGHT SE NW	1	DRV	NONE	36	2	OR-Y OR<25		026	000 038	01 01 01
									N			2	NONE 0 PRVTE PSNGR CA	STOP SE NW	1	DRV	NONE	67	2	OR-Y		000	011	

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CONTINUOUS SYSTEM CRASH LISTING
US 20 Santiam Hwy (# 16) from mp 26.63 - mp 31.31
1999 - 2003

016 SANTIAM

SER#. INVEST	S P E E D / D A U C L G C S / R S W C H R O L K	DATE DAY TIME	COUNTY CITY URBAN AREA	CLASS COMPNT MLG TYP MILEPNT	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CNTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH COLL SVRTY	V#	VEHICLE USE-TRLR OWNER TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACT EVENT	CAUSE
																				OR<25				
00663 COUNTY	N N N N N	04/12/2000 Wed 9A	LINN SWEET HOME SWEETHOM UA	14 0 0 26.91	01501 05001	STRGHT S 0	(NONE) 0 (4)	N NONE	Y N N	CLD DRY DAY	FIX OBJ FIX INJ	1	NONE 0 PRVTE PSNGR CA	STRGHT SE NW	1	DRV	INJC	18	2	OR-Y OR<25		000	043 007 043	12 12
00215 NO RPT	N N N	02/03/2003 Mon 3P	LINN SWEET HOME SWEETHOM UA	14 0 0 26.98	01501 01004	STRGHT W 0	(NONE) (5)	Y TRF SIGN	N N N	CLR DRY DAY	S-1STOP REAR PDO	1	NONE PRVTE PSNGR CA	STRGHT W E	1	DRV	NONE	73	1	OR-Y OR<25		042	000 038	07 00 07
									N			2	NONE PRVTE PSNGR CA	STRGHT W E	1	DRV	NONE	24	1	OR-Y OR<25		000	006 000	00 00
01907 NO RPT	N N N N N	10/27/2001 Sat 7P	LINN SWEET HOME SWEETHOM UA	14 0 0 26.99	01501 01004	STRGHT W 0	(NONE) 0 (4)	N UNKNOWN	Y N N	RAIN WET DLIT	FIX OBJ FIX INJ	1	NONE 0 PRVTE PSNGR CA	STRGHT E W	1	DRV	INJA	32	1	OR-Y OR<25		000	079 007 079	12 12
									N			2	NONE 0 PRVTE MOTRHOME	PRKD-P W E									008	
00594 CITY	N N N N N	03/30/1999 Tue 2P	LINN SWEET HOME SWEETHOM UA	14 0 0 27.01	01501 01004	STRGHT W 0	(NONE) 0 (5)	N L-TURN R	N N N	RAIN WET DAY	O-STRGH SS-M PDO	1	NONE 0 PRVTE PSNGR CA	STRGHT W E	1	DRV	NONE	48	1	OR-Y OR<25		044	025	01 01 01
									N			2	NONE 0 PRVTE PSNGR CA	STOP E W	1	DRV	NONE	60	1	OTH-Y N-RES		000	011	
02152	N N N N N	11/18/1999 Thu 5P	LINN SWEET HOME SWEETHOM UA	14 0 0 27.06	01501 01004	STRGHT W 0	(NONE) 0 (4)	N UNKNOWN	N N N	CLR WET DLIT	S-STRGH SS-O PDO	1	NONE 0 PRVTE PSNGR CA	STRGHT W E	1	DRV	NONE	18	1	OR-Y OR<25		044	000	10 10
									N			2	NONE 0 PRVTE PSNGR CA	STRGHT W E	1	DRV	NONE	20	2	OR-Y OR<25		044	000	10
02012	N N N N N	11/22/2000 Wed 5P	LINN SWEET HOME SWEETHOM UA	14 0 0 27.07	HOLLEY RD MAIN ST	INTER E 0	3-LEG 0	N TRF SIGN	N N N	CLR DRY DLIT	S-1STOP REAR PDO	1	NONE 0 PRVTE PSNGR CA	STRGHT E W	1	DRV	NONE	65	1	OR-Y OR>25		026	000	07 07
									N			2	NONE 0 PRVTE PSNGR CA	STOP E W	1	DRV	NONE	70	2	OR-Y OR<25		000	011	
01582	N N N N N	08/30/1999 Mon 1P	LINN SWEET HOME SWEETHOM UA	14 0 0 27.07	HOLLEY RD MAIN ST	INTER W 0	3-LEG 0	N OFCR/FLA	N N N	CLR WET DAY	S-1STOP REAR PDO	1	NONE 0 PRVTE PSNGR CA	STRGHT W E	1	DRV	NONE	61	2	OR-Y		026	001	01 01 01

016 SANTIAM

SER#. INVEST	S P E E D / R A U L C G S H C S O L W R K	DATE DAY TIME	COUNTY CITY URBAN AREA	CLASS COMPNT MLG TYP MILEPNT	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CNTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH COLL SVRTY	V#	VEHICLE USE-TRLR OWNER TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
																				OR<25					
									N			2	NONE 0 PRVTE PSNGR CA	STOP W E	1	DRV	NONE	55	2	OR-Y OR<25		000	011		
00720	N N N N N	04/24/2000 Mon 4P	LINN SWEET HOME SWEETHOM UA	16 0 0 27.08	01501 01004	STRGHT E 0	(NONE) 0 (4)	N UNKNOWN	N N N	CLR DRY DAY	S-1STOP REAR PDO	1	NONE 0 PRVTE PSNGR CA	STRGHT E W	1	DRV	NONE	33	1	OR-Y OR<25		026	001		01 01 01
									N			2	NONE 0 PRVTE PSNGR CA	STOP E W	1	DRV	NONE	33	2	OR-Y OR<25		000	011		
01714 CITY	N N N N N	10/01/2002 Tue 6P	LINN SWEET HOME SWEETHOM UA	14 0 0 27.08	01004 01501	STRGHT E 0	(NONE) 0 (4)	N NONE	N N N	CLR DRY DAY	O-OTHER TURN PDO	1	NONE 0 PRVTE PSNGR CA	TURN-L S W	1	DRV	NONE	68	2	OR-Y OR<25		028	000 038		02 02
									N			2	NONE 0 PRVTE PSNGR CA	TURN-L N E	1	DRV	NONE	26	2	OR-Y OR<25		000	000		
00060 CITY	N N N N N	01/09/2001 Tue 10	LINN SWEET HOME SWEETHOM UA	14 0 0 27.11	01501 01004	STRGHT E 0	(NONE) 0 (4)	N UNKNOWN	N N N	UNK UNK DAY	S-STRGH SS-O INJ	1	NONE 0 PRVTE PSNGR CA	STRGHT W E	1	DRV	INJC	20	2	OR-Y OR<25		045	000		02 02
									N			2	NONE 0 PRVTE PSNGR CA	STRGHT W E	1	DRV	INJC	26	2	OR-Y OR<25		045	000		02
00547 NO RPT	N N N N N	03/19/2000 Sun 4P	LINN SWEET HOME SWEETHOM UA	14 0 0 27.11	01501 01004	STRGHT E 0	(NONE) 0 (4)	N UNKNOWN	N N N	CLR WET DAY	S-STRGH SS-O PDO	1	NONE 0 PRVTE PSNGR CA	STRGHT W E	1	DRV	NONE	53	2	OR-Y OR<25		045	000		02 02
									N			2	NONE 0 PRVTE PSNGR CA	STRGHT W E	1	DRV	NONE	29	1	OR-Y OR<25		000	000		
									N			2	0		2	PSN	NO<5	01	1				000		
01118 CITY	N N N	07/16/2003 Wed 5P	LINN SWEET HOME	14 0 0 27.16	MAIN ST 9TH AVE	INTER C 0	3-LEG 0	N STOP SIG	N N N	CLR DRY DAY	S-1STOP REAR INJ	1	NONE 1 PRVTE PSNGR CA	STRGHT W E	1	DRV	NONE	29	1	UNK OR>25		026,043	001 000	013	01,07 00 07,01
									N			2	NONE 0 PRVTE PSNGR CA	STOP W E	1	DRV	NONE	35	2	UNK		000	011 000		00 00

CDS380 12/17/2004

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CONTINUOUS SYSTEM CRASH LISTING
US 20 Santiam Hwy (# 16) from mp 26.63 - mp 31.31
1999 - 2003

016 SANTIAM

SER#. INVEST	S P E A L D / D R U G C S / R S W C H L / W O R K	DATE DAY TIME	COUNTY CITY URBAN AREA	CLASS COMPNT MLG TYP MILEPNT	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CNTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH COLL SVRTY	V#	VEHICLE USE-TRLR OWNER TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
																				OR<25					
									N			3	NONE 0 PRVTE PSNGR CA	STOP W E	1	DRV	INJA	30	1	UNK OR<25		000	013 000		00 00
00041 NO RPT	N N N N N	01/10/2001 Wed 8A	LINN SWEET HOME SWEETHOM UA	14 0 0 27.17	MAIN ST 9TH AVE	INTER C 0	3-LEG 0	N UNKNOWN	N N N	FOG ICE DAY	S-1STOP REAR PDO	1	NONE 0 PRVTE PSNGR CA	STRGHT W E	1	DRV	NONE	48	1	OR-Y OR<25		026	001		01 01 01
									N			2	NONE 0 PRVTE PSNGR CA	STOP W E	1	DRV	NONE	63	2	OR-Y OR<25		000	011		
00743 NO RPT	N N N N N	04/27/2000 Thu 3P	LINN SWEET HOME SWEETHOM UA	14 0 0 27.17	MAIN ST 9TH AVE	INTER C 0	3-LEG 0	N STOP SIG	N N N	RAIN WET DAY	ANGL-OT TURN PDO	1	NONE 0 PRVTE PSNGR CA	TURN-L N E	1	DRV	NONE	18	2	OR-Y OR<25		028	015		02 02
									N			2	NONE 0 PRVTE PSNGR CA	STRGHT E W	1	DRV	NONE	35	2	OR-Y OR<25		000	000		
01068 CITY	N N N N N	06/22/2000 Thu 3P	LINN SWEET HOME SWEETHOM UA	14 0 0 27.17	MAIN ST 9TH AVE	INTER C 0	3-LEG 0	N STOP SIG	N N N	CLR DRY DAY	ANGL-OT TURN PDO	1	NONE 0 PRVTE PSNGR CA	STRGHT E W	1	DRV	NONE	38	9	OR-Y OR<25		000	001		02
									N			2	NONE 0 PRVTE PSNGR CA	TURN-R N W	1	DRV	NONE	28	2	OR-Y OR<25		028	015		02
01778 CITY	N N N N N	10/25/2000 Wed 6P	LINN SWEET HOME SWEETHOM UA	14 0 0 27.17	MAIN ST 9TH AVE	INTER E 0	3-LEG 0	N OFCR/FLA	N N N	CLD DRY DLIT	PED PED INJ	1	NONE 0 PRVTE PSNGR CA	STRGHT E W	1	DRV	NONE	83	1	OR-Y OR<25		029	038		02 02
									N					STRGHT N S	1	PED	INJA	45	1			000	034		
00098 CITY	N N N N N	01/18/2002 Fri 5P	LINN SWEET HOME SWEETHOM UA	14 0 0 27.17	MAIN ST 9TH AVE	INTER W 0	3-LEG 0	N STOP SIG	N N N	CLD WET DLIT	S-1STOP REAR INJ	1	NONE 0 PRVTE PSNGR CA	STRGHT W E	1	DRV	NONE	41	1	OR-Y OR<25		026	000 038		01,12 01 01
									N			2	NONE 0 PRVTE PSNGR CA	STOP W E	1	DRV	INJC	43	2	OR-Y OR<25		000	011		12
01568 CITY	N N N N N	09/12/2002 Thu 3P	LINN SWEET HOME SWEETHOM UA	14 0 0 27.24	01501 05010	STRGHT W 0	(NONE) 0	N NONE	N N N	CLR DRY DAY	S-1STOP REAR PDO	1	NONE 0 PRVTE PSNGR CA	STRGHT W E	1	DRV	NONE	43	1	OR-Y		026	000 038		01 01 01

016 SANTIAM

SER#. INVEST	S P E E D / R A U C O / D G H R / S S W L K	DATE DAY TIME	COUNTY CITY URBAN AREA	CLASS COMPNT MLG TYP MILEPNT	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CNTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH COLL SVRTY	V#	VEHICLE USE-TRLR OWNER TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
							(4)													OR<25					
									N			2	NONE 0 PRVTE PSNGR CA	STOP W E	1	DRV	NONE	38	2	OR-Y OR<25		000	011		
00015 CITY	N N N N N	01/05/1999 Tue 5P	LINN SWEET HOME SWEETHOM UA	14 0 0 27.25	MAIN ST 10TH AVE	INTER E 0	3-LEG 0	N NONE	Y N N	CLR DRY DLIT	FIX OBJ FIX PDO	1	NONE 0 PRVTE PSNGR CA	STRGHT W E	1	DRV	NONE	80	2	OR-Y OR<25		044	038	050 050	01 01 01
00872 CITY	N N N N N	05/12/1999 Wed 5P	LINN SWEET HOME SWEETHOM UA	14 0 0 27.25	MAIN ST 10TH AVE	INTER E 0	3-LEG 0	N STOP SIG	N N N	RAIN WET DAY	S-STRGH REAR PDO	1	NONE 0 PRVTE PSNGR CA	STRGHT E W	1	DRV	NONE	19	2	OR-Y OR<25		042	000		07 07
									N			2	NONE 0 PRVTE PSNGR CA	STRGHT E W	1	DRV	NONE	18	1	OR-Y OR<25		000	006		
00773 NO RPT	N N N	05/20/2003 Tue 4P	LINN SWEET HOME	14 1 0 27.25	MAIN ST 10TH AVE	INTER C 0	3-LEG 0	N UNKNOWN	N N N	CLR DRY DAY	S-1TURN REAR PDO	1	NONE 0 PRVTE PSNGR CA	STRGHT E W	1	DRV	NONE	55	1	UNK OR<25		019,047,028	001 000		01,07 00 01,07
									N			2	NONE 0 PRVTE PSNGR CA	STOP E W	1	DRV	NONE	17	2	UNK OR<25		000	012 000		00 00
00088 CITY	N N N N N	01/17/2002 Thu 6P	LINN SWEET HOME SWEETHOM UA	14 0 0 27.25	MAIN ST 10TH AVE	INTER E 0	3-LEG 0	N STOP SIG	Y N N	CLD WET DLIT	FIX OBJ FIX PDO	1	NONE 0 PRVTE PSNGR CA	STRGHT W E	1	DRV	NONE	53	1	OR-Y OR>25		044	000 038	050,010 050,010	01 01 01
01310	N N N	08/13/2003 Wed 12	LINN SWEET HOME SWEETHOM UA	14 0 0 27.26	01501 05010	STRGHT E 0	(NONE) (2)	Y UNKNOWN	N N N	CLR DRY DAY	S-1STOP REAR PDO	1	NONE 0 PRVTE PSNGR CA	STRGHT E W	1	DRV	NONE	29	1	OR-Y OR<25		016,026	000 000		07 00 07
									N			2	NONE 0 PRVTE PSNGR CA	STOP E W	1	DRV	NONE	72	1	OR-Y OR<25		000	011 000		00 00
00689 CITY	N N N N N	04/26/2002 Fri 1P	LINN SWEET HOME SWEETHOM UA	14 0 0 27.33	01501 05012	ALLEY W 0	(NONE) 0 (4)	N NONE	N N Y	CLR DRY DAY	ANGL-OT TURN PDO	1	NONE 0 PRVTE PSNGR CA	STRGHT W E	1	DRV	NONE	45	1	OR-Y OR<25		000	000		02
									N			2	NONE 0 PRVTE PSNGR CA	TURN-R S E	1	DRV	NONE	18	2	OR-Y OR<25		001	018		02
00867 NO RPT	N N N N N	05/26/2001 Sat	LINN SWEET HOME	14 0	01501	STRGHT W	(NONE)	N UNKNOWN	Y N	UNK DRY	PRKD MV REAR	1	NONE 0 PRVTE	STRGHT W E											01 01

016 SANTIAM

SER#. INVEST	S P E E L D / D A U C / R U G S / S C H L / W O R K	DATE DAY TIME	COUNTY CITY URBAN AREA	CLASS COMPNT MLG TYP MILEPNT	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CNTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH COLL SVRTY	V#	VEHICLE USE-TRLR OWNER TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACT EVENT	CAUSE
		1A	SWEETHOM UA	0 27.34	05013	0	0 (2)		N	DLIT	PDO		PSNGR CA		1	DRV	NONE	52	1	OR-Y OR<25		044	038	01
									N			2	NONE 0 PRVTE PSNGR CA	PRKD-P W E									008	
01815 NO RPT	N N N N N	10/25/2002 Fri 5A	LINN SWEET HOME SWEETHOM UA	14 0 0 27.34	01501 05012	STRGHT W 0	(NONE) 0 (4)	N UNKNOWN	N N N	RAIN DRY DARK	S-1STOP REAR INJ	1	NONE 0 PRVTE PSNGR CA	STRGHT W E	1	DRV	NONE	17	2	OR-Y OR<25		026	000 038	01 01 01
									N			2	NONE 0 PRVTE PSNGR CA	STOP W E	1	DRV	NONE	29	1	OR-Y OR<25		000	011	
									N			3	NONE 0 PRVTE PSNGR CA	STOP W E	1	DRV	INJC	33	2	OR-Y OR<25		000	011	
									N			3	0		2	PSN	INJC	13	1				011	
									N			3	0		3	PSN	INJC	10	2				011	
									N			3	0		4	PSN	INJC	09	2				011	
									N			3	0		5	PSN	NO<5	01	1				011	
01343 CITY	N N N N N	08/09/2002 Fri 1P	LINN SWEET HOME SWEETHOM UA	14 0 0 27.35	MAIN ST 12TH AVE	INTER C 0	CROSS 0	N TRF SIGN	N N N	CLR DRY DAY	ANGL-OT ANGL PDO	1	NONE 0 PRVTE PSNGR CA	STRGHT N S	1	DRV	NONE	23	2	OR-Y OR<25		000	000	02
									N			2	NONE 0 PRVTE PSNGR CA	STRGHT W E	1	DRV	NONE	19	2	OR-Y OR<25		020	000 038	02
									N			2	0		2	PSN	NO<5	01	2				000	
01440 NO RPT	N N N N N	08/22/2002 Thu 1P	LINN SWEET HOME SWEETHOM UA	14 0 0 27.35	MAIN ST 12TH AVE	INTER C 0	CROSS 0	N UNKNOWN	N N N	CLR DRY DAY	O-1TURN TURN INJ	1	NONE 0 PRVTE PSNGR CA	STRGHT N S	1	DRV	INJC	24	2	OR-Y OR<25		000	000	02
									N			1	0										000	

016 SANTIAM

SER#. INVEST	S P E D / E A L C / D R U G S / R S C H L / W O R K	DATE DAY TIME	COUNTY CITY URBAN AREA	CLASS COMPNT MLG TYP MILEPNT	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF-CNTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH COLL SVRTY	V#	VEHICLE USE-TRLR OWNER TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACT EVENT	CAUSE
															2	PSN	NO<5	01	2					
									N			2	NONE 0 PRVTE PSNGR CA	TURN-L S W	1	DRV	NONE	18	2	OR-Y OR<25		004	000 038	02
01494 NO RPT	N N N N N	08/29/2002 Thu 5P	LINN SWEET HOME SWEETHOM UA	14 0 0 27.35	01501 05010	ALLEY W 0	(NONE) 0 (4)	N UNKNOWN	N N Y	CLR DRY DAY	BIKE ANGL INJ	1	NONE 0 PRVTE PSNGR CA	TURN-L N E	1	DRV	NONE	31	2	OR-Y OR<25		027	019	02 02
									N					STRGHT E W	1	BIK	INJC	00	1			000	000	
01691 CITY	N N N N N	09/30/2002 Mon 5P	LINN SWEET HOME SWEETHOM UA	14 0 0 27.35	MAIN ST 12TH AVE	INTER C 0	CROSS 0	N TRF SIGN	N N N	RAIN WET DAY	ANGL-OT ANGL INJ	1	NONE 0 PRVTE PSNGR CA	STRGHT E W	1	DRV	NONE	56	1	OR-Y OR>25		020	000 038	02 02
									N			2	NONE 0 PRVTE PSNGR CA	STRGHT S N	1	DRV	INJC	16	2	OR-Y OR<25		000	000	
									N			2	0		2	PSN	INJC	16	2				000	
00923 NO RPT	N N N N N	05/25/2000 Thu 11	LINN SWEET HOME SWEETHOM UA	14 0 0 27.41	01501 05013	STRGHT W 0	(NONE) 0 (2)	N UNKNOWN	Y N N	CLR DRY DAY	PRKD MV SS-O PDO	1	NONE 0 PRVTE PSNGR CA	PARKNG W E	1	DRV	NONE	57	2	OR-Y OR<25		018	008	02 02
									N			2	NONE 0 PRVTE PSNGR CA	PRKD-P W E									008	
01290	N N N	08/11/2003 Mon 5P	LINN SWEET HOME	14 0 0 27.41	01501 05013	STRGHT W 0	(NONE) (4)	Y UNKNOWN	N N N	CLR DRY DAY	O-OTHER TURN PDO	1	NONE 0 PRVTE PSNGR CA	TURN-R N W	1	DRV	NONE	42	2	OR-Y OR>25		001,007,080	088 000	08 00 08
									N			2	NONE 0 PRVTE PSNGR CA	TURN-L S W	1	DRV	NONE	31	2	OR-Y OR<25		000	000 000	00 00
00854 CITY	N N N N N	05/23/2001 Wed 3P	LINN SWEET HOME SWEETHOM UA	14 0 0 27.42	MAIN ST 13TH AVE	INTER N 0	CROSS 0	N STOP SIG	N N N	CLR DRY DAY	BIKE TURN INJ	1	NONE 0 PRVTE PSNGR CA	TURN-R E N	1	DRV	NONE	33	2	OR-Y OR<25		000	000	05
									N					STRGHT W E	1	BIK	INJB	09	1			039	000	05
00978 NO RPT	N N N N N	06/01/2001 Fri	LINN SWEET HOME	14 0	MAIN ST	INTER C	CROSS	N STOP SIG	N N	RAIN WET	ANGL-OT ANGL	1	NONE 0 PRVTE	STRGHT W E									000	02

016 SANTIAM

SER#. INVEST	S P E A U C O / D R S W / E L G H R / D C S L K	DATE DAY TIME	COUNTY CITY URBAN AREA	CLASS COMPNT MLG TYP MILEPNT	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CNTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH COLL SVRTY	V#	VEHICLE USE-TRLR OWNER TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT EVENT	CAUSE
		2P	SWEETHOM UA	0 27.42	13TH AVE	0	0		N	DAY	PDO		PSNGR CA		1	DRV	NONE	58	1	OR-Y OR<25		000		
									N			2	NONE 0 PRVTE PSNGR CA	STRGHT N S	1	DRV	NONE	71	1	OR-Y OR<25		028	015	02
90745 CITY	N N N N N	05/23/2001 Wed 3P	LINN ALBANY ALBANY UA	14 0 0 27.42	MADISON ST 13TH AVE	INTER E 0	CROSS 0	N STOP SIG	N N N	CLR DRY DAY	BIKE TURN INJ	1	NONE 0 PRVTE PSNGR CA	TURN-R E N	1	DRV	NONE	32	2	OR-Y OR<25		000	000	02
									N					STRGHT W E	1	BIK	INJB	10	1			028	000	02
00504 CITY	N N N	04/02/2003 Wed 6P	LINN SWEET HOME	14 0 0 27.42	MAIN ST 13TH AVE	INTER C 0	CROSS 0	N STOP SIG	N N N	RAIN WET DUSK	BIKE OTH INJ	1	NONE 0 PRVTE PSNGR CA	STRGHT W E	1	DRV	NONE	75	2	OR-Y OR<25		027	006 000 006 000	02,12 00 02,12
									N					STRGHT S N	1	BIK	INJC	12	2			000	042	00
00894 CITY	N N N N N	06/11/2003 Wed 5P	LINN SWEET HOME SWEETHOM UA	14 0 0 27.42	MAIN ST 13TH AVE	INTER W 0	3-LEG 0	N NONE	Y N N	CLD DRY DAY	FIX OBJ FIX PDO	1	NONE 0 PRVTE PSNGR CA	STRGHT E W	1	DRV	NONE	19	1	SUSP OR<25		081	058 000 058 025	27 00 27
01469 CITY	N N N N N	09/06/2003 Sat 1P	LINN SWEET HOME SWEETHOM UA	14 0 0 27.42	MAIN ST 13TH AVE	INTER W 0	CROSS 0	N NONE	N N N	CLR DRY DAY	S-1STOP REAR INJ	1	NONE 0 PRVTE PSNGR CA	STRGHT W E	1	DRV	NONE	42	2	OR-Y OR<25		043	004 001 000	07 00 07
									N			2	NONE 0 PRVTE PSNGR CA	STOP W E	1	DRV	INJC	53	1	OR-Y OR<25		000	011 000	00 00
									N			2	0		2	PSN	INJC	73	1			000	011 000	00
01707 CITY	N N N N N	10/16/2003 Thu 1P	LINN SWEET HOME SWEETHOM UA	14 0 0 27.42	MAIN ST 13TH AVE	INTER C 0	CROSS 0	N STOP SIG	N N N	CLR DRY DAY	S-1STOP REAR INJ	1	NONE 0 PRVTE PSNGR CA	STRGHT W E	1	DRV	NONE	51	1	OR-Y OR<25		026,043	001 038	01,07 00 01,07,27
									N			2	NONE 0 PRVTE PSNGR CA	STOP W E	1	DRV	INJC	26	2	OR-Y OR<25		000	013 000	00 00
									N			2	0		2	PSN	INJC	03	1			000	013 000	00
												2	0											

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CONTINUOUS SYSTEM CRASH LISTING
US 20 Santiam Hwy (# 16) from mp 26.63 - mp 31.31
1999 - 2003

016 SANTIAM

SER#. INVEST	S P E E D D A L C R U G S S C H L W O R K	DATE DAY TIME	COUNTY CITY URBAN AREA	CLASS COMPNT MLG TYP MILEPNT	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CNTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH COLL SVRTY	V#	VEHICLE USE-TRLR OWNER TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACT EVENT	CAUSE
									N						3	PSN	NO<5	01	1			000	013 000	00
01878 CITY	N N N N N	10/30/2002 Wed 3P	LINN SWEET HOME SWEETHOM UA	14 0 0 27.43	01501 05013	STRGHT E 0	(NONE) 0 (4)	N SP PED S	N N N	CLR DRY DAY	PED PED INJ	1	NONE 0 PRVTE PSNGR CA	STRGHT E W	1	DRV	NONE	35	1	OR-Y OR>25		029	000 038	02 02
									N					STRGHT S N	1	PED	INJB	15	1			000	088	
02052 CITY	N N N N N	11/29/2000 Wed 11	LINN SWEET HOME SWEETHOM UA	14 0 0 27.44	01501 05013	STRGHT W 0	(NONE) 0 (4)	N UNKNOWN	N N N	CLD WET DAY	PRKD MV SS-O PDO	1	NONE 0 PRVTE PSNGR CA	STRGHT W E	1	DRV	NONE	49	1	OR-Y OR<25		000	000	02
									N			2	NONE 0 PRVTE PSNGR CA	PRKD-P W E									008	
01819 CITY	N N N N N	10/21/2002 Mon 11	LINN SWEET HOME SWEETHOM UA	14 0 0 27.44	01501 05013	STRGHT E 0	(NONE) 0 (4)	N NONE	Y N N	CLR DRY DAY	PRKD MV SS-O PDO	1	NONE 0 PRVTE PSNGR CA	PARKNG W E	1	DRV	NONE	53	2	OR-Y OR<25		018	008	02 02
									N			2	NONE 0 PRVTE PSNGR CA	PRKD-P W E									008	
01544 CITY	N N N N N	09/10/2000 Sun 11	LINN SWEET HOME SWEETHOM UA	14 0 0 27.45	MAIN ST 13TH AVE	INTER C 0	CROSS 0	N STOP SIG	N N N	RAIN WET DAY	ANGL-OT ANGL INJ	1	NONE 0 PRVTE PSNGR CA	STRGHT W E	1	DRV	INJB	28	1	OR-Y OR>25		000	000	02
									N			1	0		2	PSN	INJC	26	2				000	
									N			2	NONE 0 PRVTE PSNGR CA	STRGHT N S	1	DRV	NONE	17	1	OR-Y OR<25		028	015	02
01295 CITY	N N N N N	07/23/1999 Fri 11	LINN SWEET HOME SWEETHOM UA	14 0 0 27.45	MAIN ST 13TH AVE	INTER C 0	CROSS 0	N NONE	N N N	CLR DRY DAY	O-1TURN TURN PDO	1	NONE 0 PRVTE PSNGR CA	STRGHT E W	1	DRV	NONE	55	2	OR-Y OR<25		000	000	02
									N			1	0		2	PSN	NO<5	02	1				000	
									N			1	0		3	PSN	NO<5	04	2				000	
									N			2	NONE 0 PRVTE	TURN-L W N									000	

SER#. INVEST	S P E E D / A L C / D R U G S / S C H L / W O R K	DATE DAY TIME	COUNTY CITY URBAN AREA	CLASS COMPNT MLG TYP MILEPNT	CONN # FIRST SECOND / STREET STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF-CNTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH COLL SVRTY	V#	VEHICLE USE-TRLR OWNER TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACT EVENT	CAUSE
									N														013	
															3	PSN	NO<5	01	1			000	000	00
01878	N N N N N	10/30/2002	LINN	14		STRGHT		N	N	CLR	PED	1	NONE 0	STRGHT										02
CITY		Wed	SWEET HOME	0	01501	E	(NONE)	SP PED S	N	DRY	PED		PRVTE	E W									000	
		3P	SWEETHOM UA	0 27.43	05013	0	0		N	DAY	INJ		PSNGR CA		1	DRV	NONE	35	1	OR-Y		029	038	02
							(4)													OR>25				
									N															
														STRGHT	1	PED	INJB	15	1			000	088	
														S N										
02052	N N N N N	11/29/2000	LINN	14		STRGHT		N	N	CLD	PRKD MV	1	NONE 0	STRGHT										02
CITY		Wed	SWEET HOME	0	01501	W	(NONE)	UNKNOWN	N	WET	SS-O		PRVTE	W E									000	
		11	SWEETHOM UA	0 27.44	05013	0	0		N	DAY	PDO		PSNGR CA		1	DRV	NONE	49	1	OR-Y		000		
							(4)													OR<25				
												2	NONE 0	PRKD-P										
									N				PRVTE	W E									008	
													PSNGR CA											
01819	N N N N N	10/21/2002	LINN	14		STRGHT		N	Y	CLR	PRKD MV	1	NONE 0	PARKNG										02
CITY		Mon	SWEET HOME	0	01501	E	(NONE)	NONE	N	DRY	SS-O		PRVTE	W E									008	
		11	SWEETHOM UA	0 27.44	05013	0	0		N	DAY	PDO		PSNGR CA		1	DRV	NONE	53	2	OR-Y		018		02
							(4)													OR<25				
												2	NONE 0	PRKD-P										
									N				PRVTE	W E									008	
													PSNGR CA											
01544	N N N N N	09/10/2000	LINN	14		INTER	CROSS	N	N	RAIN	ANGL-OT	1	NONE 0	STRGHT										02
CITY		Sun	SWEET HOME	0	MAIN ST	C		STOP SIG	N	WET	ANGL		PRVTE	W E									000	
		11	SWEETHOM UA	0 27.45	13TH AVE	0	0		N	DAY	INJ		PSNGR CA		1	DRV	INJB	28	1	OR-Y		000		
																				OR>25				
												1	0											
									N														000	
															2	PSN	INJC	26	2					
												2	NONE 0	STRGHT										
									N				PRVTE	N S									015	
													PSNGR CA		1	DRV	NONE	17	1	OR-Y		028		02
																				OR<25				
01295	N N N N N	07/23/1999	LINN	14		INTER	CROSS	N	N	CLR	O-1TURN	1	NONE 0	STRGHT										02
CITY		Fri	SWEET HOME	0	MAIN ST	C		NONE	N	DRY	TURN		PRVTE	E W									000	
		11	SWEETHOM UA	0 27.45	13TH AVE	0	0		N	DAY	PDO		PSNGR CA		1	DRV	NONE	55	2	OR-Y		000		
																				OR<25				
												1	0											
									N														000	
															2	PSN	NO<5	02	1					
												1	0											
									N														000	
															3	PSN	NO<5	04	2					
												2	NONE 0	TURN-L										
									N				PRVTE	W N									000	

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CONTINUOUS SYSTEM CRASH LISTING
US 20 Santiam Hwy (# 16) from mp 26.63 - mp 31.31
1999 - 2003

016 SANTIAM

SER#. INVEST	S P E D E A U C L G H S D R S W C O R L K	DATE DAY TIME	COUNTY CITY URBAN AREA	CLASS COMPNT MLG TYP MILEPNT	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CNTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH COLL SVRTY	V#	VEHICLE USE-TRLR OWNER TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT EVENT	CAUSE
													MOTRHOME		1	DRV	NONE	63	1	OR-Y OR<25		004		02
00121 CITY	N N N N N	01/16/2001 Tue 3P	LINN SWEET HOME SWEETHOM UA	14 0 0 27.53	MAIN ST 15TH AVE	INTER C 0	CROSS 0	N TRF SIGN	N N N	CLR DRY DAY	O-1TURN TURN INJ	1	NONE 0 PRVTE PSNGR CA	STRGHT W E									000	02
															1	DRV	INJC	20	2	OR-Y OR<25		000		
									N			1	0										000	
															2	PSN	INJC	19	2					
									N			2	NONE 0 PRVTE PSNGR CA	TURN-L E S									000	
															1	DRV	NONE	22	1	OR-Y OR<25		004		02
									N			2	0										000	
															2	PSN	INJB	15	2					
00668	N N N N N	04/21/2001 Sat 1P	LINN SWEET HOME SWEETHOM UA	14 0 0 27.53	MAIN ST 15TH AVE	INTER C 0	CROSS 0	N TRF SIGN	N N N	CLR DRY DAY	ANGL-OT ANGL PDO	1	NONE 0 PRVTE PSNGR CA	STRGHT W E									001	04
															1	DRV	NONE	20	1	OR-Y OR<25		020		04
									N			2	NONE 0 PRVTE PSNGR CA	STRGHT N S									000	
															1	DRV	NONE	30	2	OR-Y OR<25		000		
01084 NO RPT	N N N N N	06/26/2001 Tue 10	LINN SWEET HOME SWEETHOM UA	14 0 0 27.53	MAIN ST 15TH AVE	INTER E 0	3-LEG 0	N TRF SIGN	N N N	CLR WET DLIT	S-1STOP REAR PDO	1	NONE 0 PRVTE PSNGR CA	STRGHT W E									001	07
															1	DRV	NONE	18	2	OR-Y OR<25		042		07
									N			2	NONE 0 PRVTE PSNGR CA	STRGHT W E									006	
															1	DRV	NONE	33	1	OR-Y OR<25		000		
01659 CITY	N N N N N	09/25/2001 Tue 9A	LINN SWEET HOME SWEETHOM UA	14 0 0 27.53	MAIN ST 15TH AVE	INTER C 0	CROSS 0	N TRF SIGN	N N N	RAIN WET DAY	ANGL-OT ANGL INJ	1	NONE 0 PRVTE PSNGR CA	STRGHT N S									000	04
															1	DRV	INJC	30	2	OR-Y OR<25		000		
									N			2	NONE 0 PRVTE PSNGR CA	STRGHT E W									000	
															1	DRV	INJB	54	2	OR-Y OR<25		020		04
00210 CITY	N N N N N	02/03/2002 Sun 8P	LINN SWEET HOME SWEETHOM UA	14 0 0 27.53	MAIN ST 15TH AVE	INTER C 0	CROSS 0	N TRF SIGN	N N N	CLR DRY DLIT	O-OTHER TURN PDO	1	NONE 0 PRVTE PSNGR CA	TURN-L N E									000	08
															1	DRV	NONE	40	2	OR-Y OR<25		007	038	08
									N			2	NONE 0 PRVTE PSNGR CA	TURN-R S E									000	
															1	DRV	NONE	21	2	OR-Y		000		

016 SANTIAM

SER#. INVEST	S P E E D / D R A U C O L G H R S W D C S L K	DATE DAY TIME	COUNTY CITY URBAN AREA	CLASS COMPNT MLG TYP MILEPNT	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CNTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH COLL SVRTY	V#	VEHICLE USE-TRLR OWNER TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACT EVENT	CAUSE
																				OR<25				
00436 CITY	N N N N N	03/11/2002 Mon 2P	LINN SWEET HOME SWEETHOM UA	14 0 0 27.53	 MAIN ST 15TH AVE	INTER N 0	CROSS 4	N TRF SIGN	N N N	RAIN WET DAY	FIX OBJ FIX PDO	1	NONE 0 PRVTE PSNGR CA	STRGHT NE SW	1	DRV	NONE	32	1	OR-Y OR<25		017	055 000 055 017	01 01 01
02047 CITY	N N N N N	11/27/2002 Wed 7P	LINN SWEET HOME SWEETHOM UA	14 0 0 27.53	 MAIN ST 15TH AVE	INTER C 0	CROSS 0	N TRF SIGN	N N N	CLR DRY DARK	ANGL-OT TURN PDO	1	NONE 0 PRVTE PSNGR CA	TURN-R S E	1	DRV	NONE	73	2	OR-Y OR<25		000	000	02
									N			2	NONE 0 PRVTE PSNGR CA	STRGHT W E	1	DRV	NONE	45	1	OR-Y OR<25		020	000 038	02
01370 CITY	N N N	08/23/2003 Sat 12	LINN SWEET HOME SWEETHOM UA	14 0 0 27.53	 MAIN ST 15TH AVE	INTER C 0	CROSS 0	N TRF SIGN	N N N	CLR DRY DAY	ANGL-OT ANGL PDO	1	NONE 0 PRVTE PSNGR CA	STRGHT S N	1	DRV	NONE	51	2	OR-Y OR<25		016,020,028	000 000	04 00 04
									N			2	NONE 0 PRVTE PSNGR CA	STRGHT E W	1	DRV	NONE	66	1	OR-Y OR<25		000	000 000	00 00
01554 CITY	N N N N N	09/22/2003 Mon 6P	LINN SWEET HOME SWEETHOM UA	14 0 0 27.53	 MAIN ST 15TH AVE	INTER C 0	CROSS 0	N TRF SIGN	N N N	CLR DRY DAY	ANGL-OT ANGL INJ	1	NONE 0 PRVTE PSNGR CA	STRGHT E W	1	DRV	INJB	92	1	OR-Y OR<25		020	000 026	04 00 04
									N			1	0		2	PSN	INJB	84	2			000	000 000	00
									N			2	NONE 0 PRVTE PSNGR CA	STRGHT N S	1	DRV	INJC	22	1	OR-Y OR<25		000	000 000	00 00
01993 CITY	N N N	11/30/2003 Sun 2P	LINN SWEET HOME SWEETHOM UA	14 0 0 27.53	 MAIN ST 15TH AVE	INTER C 0	CROSS 0	N TRF SIGN	N N N	RAIN WET DAY	O-1TURN TURN PDO	1	NONE 0 PRVTE PSNGR CA	TURN-L E S	1	DRV	NONE	22	2	OR-Y OR<25		016,020,028	040 000 000	02 00 02
									N			1	0		2	PSN	NONE	04	1			000	000 000	00
									N			1	0		3	PSN	NONE	01	1			000	000 000	00
									N			2	NONE 0 PRVTE PSNGR CA	STRGHT W E	1	DRV	NONE	82	2	OR-Y OR<25		000	000 000	00 00

016 SANTIAM

SER#. INVEST	S D P R S W E A U C O E L G H R D C S L K	DATE DAY TIME	COUNTY CITY URBAN AREA	CLASS COMPNT MLG TYP MILEPNT	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CNTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH COLL SVRTY	V#	VEHICLE USE-TRLR OWNER TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT EVENT	CAUSE
00627 NO RPT	N N N N N	04/15/2002 Mon 6P	LINN SWEET HOME SWEETHOM UA	14 0 0 27.54	01501 05015	STRGHT N 0	(NONE) 0 (4)	N UNKNOWN	N N N	CLR DRY DAY	BIKE SS-O INJ													02
														STRGHT NE SW	1	BIK	INJB	54	1			028	038	02
									N			1	NONE 0 PRVTE PSNGR CA	STRGHT NE SW									000	
															1	DRV	NONE	21	1	OR-Y OR>25		000		
01575 CITY	N N N N Y	08/27/1999 Fri 6P	LINN ALBANY ALBANY UA	14 0 0 27.55	01501 05015	STRGHT W 0	(RSDMD) 0 (4)	N REG-SIGN	N N N	CLR DRY DAY	PRKD MV SS-O PDO	1	NONE 0 PRVTE MOTRHOME	STRGHT E W									000	10
															1	DRV	NONE	62	2	OR-Y OR<25		000		
									N			2	NONE 0 PRVTE PSNGR CA	PRKD-I E W									008	
00507 NO RPT	N N N N N	03/21/2000 Tue 5P	LINN SWEET HOME SWEETHOM UA	14 0 0 27.56	MAIN ST 15TH AVE	INTER C 0	CROSS 0	N TRF SIGN	N N N	CLR DRY DAY	ANGL-OT ANGL PDO	1	NONE 0 PRVTE PSNGR CA	STRGHT S N									000	04
															1	DRV	NONE	38	2	OR-Y OR<25		000		
									N			2	NONE 0 PRVTE PSNGR CA	STRGHT W E									000	
															1	DRV	NONE	20	2	OR-Y OR<25		032		04
00168 CITY	N N N N N	01/20/1999 Wed 12	LINN SWEET HOME SWEETHOM UA	14 0 0 27.56	MAIN ST 15TH AVE	INTER C 0	CROSS 0	N TRF SIGN	N N N	RAIN WET DAY	ANGL-OT ANGL INJ	1	NONE 0 PRVTE PSNGR CA	STRGHT W E										04
															1	DRV	NONE	55	1	OR-Y OR<25		020	038	04
									N			2	NONE 0 PRVTE PSNGR CA	STRGHT N S									000	
															1	DRV	INJB	19	2	OR-Y OR<25		000		
									N			2	0										000	
															2	PSN	INJB	74	2					
00137 CITY	N N N N N	01/22/2001 Mon 3P	LINN SWEET HOME SWEETHOM UA	14 0 0 27.66	01501 05018	STRGHT W 0	(RSDMD) 0 (4)	N NONE	N N N	CLD DRY DAY	PRKD MV SS-O INJ	1	NONE 1 PRVTE SEMI TOW	STRGHT W E									000	10
															1	DRV	INJA	39	1	OR-Y OR<25		000		
									N			2	NONE 0 PRVTE PSNGR CA	PRKD-P W E									008	
01988 NO RPT	N N N N N	11/10/2001 Sat 6P	LINN SWEET HOME SWEETHOM UA	14 0 0 27.67	01501 05018	ALLEY W 0	(RSDMD) 0 (4)	N UNKNOWN	N N Y	CLR DRY DLIT	S-STRGH SS-O PDO	1	NONE 0 PRVTE PSNGR CA	TURN-R E N									040 019	08,10
															1	DRV	NONE	58	1	OR-Y OR<25		001		08
												2	NONE 0	STRGHT										

016 SANTIAM

SER#. INVEST	S P E E L D / A U C / D R S W U C O C H R S L K	DATE DAY TIME	COUNTY CITY URBAN AREA	CLASS COMPNT MLG TYP MILEPNT	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF-CNTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH COLL SVRTY	V#	VEHICLE USE-TRLR OWNER TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACT EVENT	CAUSE
									N				PRVTE PSNGR CA	E W	1	DRV	NONE	46	1	OR-Y OR<25		044	000	10
01153 CITY	N N N	07/22/2003 Tue 11	LINN SWEET HOME	14 0 0 27.71	01501 05018	STRGHT U 0	(NONE) (2)	N TRF SIGN	N N N	CLR DRY DAY	S-1STOP REAR INJ	1	NONE 1 PRVTE SEMI TOW	STRGHT W E	1	DRV	NONE	60	1	OR-Y N-RES		026,042	001 000	07,01 00 07,01
									N			2	NONE 0 PRVTE PSNGR CA	STOP W E	1	DRV	INJC	18	2	OR-Y OR<25		000	011 000	00 00
00423 CITY	N N N N N	03/15/2001 Thu 10	LINN SWEET HOME SWEETHOM UA	14 0 0 27.72	MAIN ST 18TH AVE	INTER E 0	CROSS 0	N TRF SIGN	N N N	RAIN WET DAY	S-1STOP REAR PDO	1	NONE 0 PRVTE PSNGR CA	STRGHT E W	1	DRV	NONE	32	2	OR-Y OR<25		026	000	01 01 01
									N			2	NONE 0 PRVTE PSNGR CA	STOP E W	1	DRV	NONE	59	2	OR-Y OR<25		000	011	
00575 NO RPT	N N N N N	03/28/2000 Tue 8A	LINN SWEET HOME SWEETHOM UA	14 0 0 27.72	MAIN ST 18TH AVE	INTER C 0	CROSS 0	N STOP SIG	N N N	CLR DRY DAY	ANGL-OT ANGL PDO	1	NONE 0 PRVTE PSNGR CA	STRGHT N S	1	DRV	NONE	51	1	OR-Y OR<25		020	000	04 04
									N			2	NONE 0 PRVTE PSNGR CA	STRGHT W E	1	DRV	NONE	43	2	OR-Y OR<25		000	000	
00796	N N N N N	05/10/2000 Wed 4P	LINN SWEET HOME SWEETHOM UA	14 0 0 27.72	MAIN ST 18TH AVE	INTER W 0	CROSS 0	N TRF SIGN	N N N	RAIN WET DAY	O-OTHER TURN PDO	1	NONE 0 PRVTE PSNGR CA	TURN-R N W	1	DRV	NONE	58	1	OR-Y OR<25		007	000	08 08
									N			2	NONE 0 PRVTE PSNGR CA	TURN-L S W	1	DRV	NONE	18	1	OR-Y OR<25		000	000	
02009 CITY	N N N N N	11/22/2000 Wed 6P	LINN SWEET HOME SWEETHOM UA	14 0 0 27.72	MAIN ST 18TH AVE	INTER C 0	CROSS 0	N TRF SIGN	N N N	CLR DRY DLIT	ANGL-OT TURN INJ	1	NONE 0 PRVTE PSNGR CA	STRGHT W E	1	DRV	NONE	84	1	OR-Y OR<25		020	000	04 04
									N			2	NONE 0 PRVTE PSNGR CA	TURN-L S W	1	DRV	NONE	36	2	OR-Y OR<25		000	000	
									N			2	0		2	PSN	INJB	14	1				000	
01407	N N N N N	08/01/1999	LINN	14		INTER	CROSS	N	N	CLR	S-1STOP	1	NONE 0	STRGHT										10

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CONTINUOUS SYSTEM CRASH LISTING
US 20 Santiam Hwy (# 16) from mp 26.63 - mp 31.31
1999 - 2003

016 SANTIAM

SER#. INVEST	S P E D / E L G C / D C S / R U H L / S C R K / W O	DATE DAY TIME	COUNTY CITY URBAN AREA	CLASS COMPNT MLG TYP MILEPNT	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CNTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH COLL SVRTY	V#	VEHICLE USE-TRLR OWNER TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACT EVENT	CAUSE
NO RPT		Sun 4P	SWEET HOME SWEETHOM UA	0 0 27.72	MAIN ST 18TH AVE	C 0	0	TRF SIGN	N N	DRY DAY	REAR INJ		PRVTE PSNGR CA	S N	1	DRV	NONE	51	2	OR-Y OR<25		014	000	10
									N			2	NONE 0 PRVTE PSNGR CA	STOP S N	1	DRV	INJC	44	1	OR-Y OR<25		000	011	
00880 CITY	N N N N N	06/06/2003 Fri 8A	LINN SWEET HOME SWEETHOM UA	14 0 0 27.72	MAIN ST 18TH AVE	INTER C 0	CROSS 0	N TRF SIGN	N N N	CLR DRY DAY	ANGL-OT ANGL PDO	1	NONE 0 PRVTE PSNGR CA	STRGHT W E	1	DRV	NONE	47	2	OR-Y OR<25		097	000 000	04 00 04
									N			2	NONE 0 PRVTE PSNGR CA	STRGHT S N	1	DRV	NONE	26	1	OR-Y OR<25		097	000 000	00 00
00568 CITY	N N N N N	04/05/2002 Fri 11	LINN SWEET HOME SWEETHOM UA	14 0 0 27.72	MAIN ST 18TH AVE	INTER S 0	CROSS 0	N TRF SIGN	N N N	CLR DRY DAY	BIKE ANGL INJ	1	NONE 0 PRVTE PSNGR CA	STRGHT N S	1	DRV	NONE	55	2	OR-Y OR<25		000	000	02
									N					STRGHT E W	1	BIK	INJB	23	1			039	038	02
00313 CITY	N N N N N	02/18/2002 Mon 7P	LINN SWEET HOME SWEETHOM UA	14 0 0 27.73	01501 05018	ALLEY E 0	(NONE) 0 (4)	N UNKNOWN	N N Y	RAIN WET DLIT	BIKE ANGL INJ			STRGHT W E	1	BIK	INJB	39	1			039	000	02 02
									N			1	NONE 0 PRVTE PSNGR CA	TURN-L N E	1	DRV	NONE	27	2	OR-Y OR<25		000	019	
00337	N N N N N	02/26/2001 Mon 3P	LINN SWEET HOME SWEETHOM UA	14 0 0 27.74	01501 05018	STRGHT E 0	(RSDMD) 0 (4)	N OFCR/FLA	N N N	CLR DRY DAY	S-1STOP REAR INJ	1	NONE 0 PRVTE PSNGR CA	STRGHT E W	1	DRV	NONE	41	2	OR-Y OR<25		026	038	07 07
									N			2	NONE 0 PRVTE PSNGR CA	STOP E W	1	DRV	INJC	36	2	OR-Y OR<25		000	011	
									N			2	0		2	PSN	INJC	13	2				011	
00514 CITY	N N N N N	03/23/2000 Thu 2P	LINN SWEET HOME SWEETHOM UA	14 0 0 27.74	MAIN ST 18TH AVE	INTER E 0	CROSS 0	N TRF SIGN	Y N N	CLR DRY DAY	FIX OBJ FIX PDO	1	NONE 0 PRVTE PSNGR CA	TURN-L N E	1	DRV	NONE	16	1	OR-Y OR<25		016	050,013 000 050,013	08 08
									N			2	NONE 0 PRVTE	TURN-R S E									000	

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CONTINUOUS SYSTEM CRASH LISTING
US 20 Santiam Hwy (# 16) from mp 26.63 - mp 31.31
1999 - 2003

016 SANTIAM

SER#. INVEST	S P E C D / E A L C D / D R U G S / R S C H L / W O R K	DATE DAY TIME	COUNTY CITY URBAN AREA	CLASS COMPNT MLG TYP MILEPNT	CONN # FIRST SECOND STREET STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF-CNTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH COLL SVRTY	V#	VEHICLE USE-TRLR OWNER TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACT EVENT	CAUSE
													PSNGR CA		1	DRV	NONE	37	1	OR-Y OR<25		000		
01266 CITY	Y N N N N	07/30/2001 Mon 4P	LINN SWEET HOME SWEETHOM UA	14 0 0 27.76	01501 05018	STRGHT E 0	(RSDMD) 0 (4)	N NONE	N N N	CLR DRY DAY	S-1TURN REAR INJ	1	NONE 0 PRVTE PSNGR CA	STRGHT W E	1	DRV	NONE	45	1	OR-Y OR<25		047	000	01,08 01 01
									N			2	NONE 0 PRVTE PSNGR CA	U-TURN W W	1	DRV	INJC	67	1	OR-Y OR<25		008	000	08
00405 NO RPT	N N N N N	03/13/2001 Tue 2P	LINN SWEET HOME SWEETHOM UA	14 0 0 27.77	01501 05019	ALLEY W 0	(NONE) 0 (4)	N UNKNOWN	N N Y	CLR WET DAY	ANGL-OT TURN PDO	1	NONE 0 PRVTE PSNGR CA	TURN-R N W	1	DRV	NONE	26	2	OR-Y OR<25		007	018	02 02
									N			1	0		2	PSN	NO<5	04	2				018	
									N			1	0		3	PSN	NO<5	00	1				018	
									N			2	NONE 0 PRVTE PSNGR CA	STRGHT E W	1	DRV	NONE	50	1	OR-Y OR<25		000	000	
01298 CITY	N N N N N	08/09/2001 Thu 4P	LINN SWEET HOME SWEETHOM UA	14 0 0 27.77	01501 05019	ALLEY W 0	(NONE) 0 (4)	N NONE	N N Y	CLR DRY DAY	S-1TURN REAR INJ	1	NONE 0 PRVTE PSNGR CA	STRGHT E W	1	DRV	NONE	16	2	OR-Y OR<25		042	000	07 07
									N			2	NONE 0 PRVTE PSNGR CA	TURN-R E S	1	DRV	NONE	28	1	OR-Y OR<25		000	019	
									N			2	0		2	PSN	INJC	12	2				019	
01336 NO RPT	N N N N N	08/04/2001 Sat 12	LINN SWEET HOME SWEETHOM UA	14 0 0 27.78	01501 05018	ALLEY E 0	(NONE) 0 (2)	N UNKNOWN	Y N Y	CLR DRY DAY	PRKD MV TURN PDO	1	NONE 0 PRVTE MOTRHOME	TURN-R W S	1	DRV	NONE	65	1	OR-Y OR>25		002	019	08 08
91336 NO RPT	N N N N N	08/04/2001 Sat 12	LINN SWEET HOME SWEETHOM UA	14 0 0 27.78	01501 08018	ALLEY E 0	(NONE) 0 (2)	N UNKNOWN	Y N Y	CLR DRY DAY	PRKD MV TURN PDO	1	NONE 0 PRVTE MOTRHOME	TURN-R W S	1	DRV	NONE	65	1	OR-Y OR>25		002	019	08 08
									N			2	NONE 0 PRVTE PSNGR CA	PRKD-P S N									008	

SER#. INVEST	SPEED ALC DRUGS SCHL WORK	DATE DAY TIME	COUNTY CITY URBAN AREA	CLASS COMPNT MLG TYP MILEPNT	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF-CNTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH COLL SVRTY	V#	VEHICLE USE-TRLR OWNER TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACT EVENT	CAUSE
00989 NO RPT	N N N N N	05/30/1999 Sun 2P	LINN SWEET HOME SWEETHOM UA	14 0 0 27.78	01501 05019	ALLEY E 0	(NONE) 0 (4)	N UNKNOWN	N N Y	CLR DRY DAY	ANGL-OT TURN INJ	1	NONE 0 PRVTE PSNGR CA	STRGHT E W	1	DRV	NONE	21	1	OR-Y OR>25		000	000	02
									N			2	NONE 0 PRVTE PSNGR CA	TURN-L N E	1	DRV	NONE	44	2	OR-Y OR<25		028	018	02
									N			2	0		2	PSN	INJC	18	2				018	
01849 CITY	N N N	11/11/2003 Tue 7A	LINN SWEET HOME SWEETHOM UA	14 0 0 27.78	01501 05019	STRGHT W 0	(NONE) (4)	N NONE	Y N N	CLD WET DAY	FIX OBJ FIX INJ	1	NONE 0 PRVTE PSNGR CA	STRGHT W E	1	DRV	INJA	63	2	OR-Y OR<25		080,081	040,054 088 040,054 028	12 00 12
01321 CITY	N N N N N	08/03/2000 Thu 5P	LINN SWEET HOME SWEETHOM UA	14 0 0 27.93	MAIN ST 22ND AVE	INTER E 0	CROSS 0	N STOP SIG	N N N	CLR DRY DAY	S-1STOP REAR INJ	1	NONE 0 PRVTE PSNGR CA	STRGHT E W	1	DRV	NONE	36	1	N-VAL OR<25		026	004 000	07 07
									N			2	NONE 0 PRVTE PSNGR CA	STOP E W	1	DRV	INJB	68	1	OR-Y OR<25		000	011	
									N			2	0		2	PSN	INJB	62	2				011	
01890 NO RPT	N N N N Y	10/13/1999 Wed 4P	LINN SWEET HOME SWEETHOM UA	14 0 0 27.93	MAIN ST 22ND AVE	INTER W 0	CROSS 0	N STOP SIG	N N N	CLR DRY DAY	ANGL-OT TURN PDO	1	NONE 0 PRVTE PSNGR CA	TURN-L S W	1	DRV	NONE	40	1	OR-Y OR<25		028	015	02 02
									N			2	NONE 0 PRVTE PSNGR CA	STRGHT W E	1	DRV	NONE	45	1	OR-Y OR<25		000	000	
02112 CITY	N N N N Y	11/13/1999 Sat 11	LINN SWEET HOME SWEETHOM UA	14 0 0 27.93	MAPLE ST 22ND AVE	INTER C 0	CROSS 0	N STOP SIG	N N N	CLR DRY DAY	ANGL-OT ANGL INJ	1	NONE 0 PRVTE MTRCYCLE	STRGHT W E	1	DRV	INJA	47	1	OR-Y OR<25		000	000	02
									N			2	NONE 0 PRVTE PSNGR CA	TURN-L S W	1	DRV	NONE	77	1	OR-Y OR<25		028	015	02
00613 NO RPT	N N N N N	04/11/1999 Sun 6P	LINN SWEET HOME SWEETHOM UA	14 0 0 28.06	01501 05023	STRGHT W 0	(NONE) 0 (4)	N UNKNOWN	N N N	CLR DRY DAY	S-OTHER PARK PDO	1	NONE 0 PRVTE PSNGR CA	PARKNG E W	1	DRV	NONE	84	1	OR-Y OR<25		018	008	02 02

016 SANTIAM

SER#. INVEST	S P E D / D R A U E L G C / R S C H S L / W O R K	DATE DAY TIME	COUNTY CITY URBAN AREA	CLASS COMPNT MLG TYP MILEPNT	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CNTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH COLL SVRTY	V#	VEHICLE USE-TRLR OWNER TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACT EVENT	CAUSE
									N			2	NONE 0 PRVTE PSNGR CA	STRGHT E W	1	DRV	NONE	17	2	OR-Y OR<25		000	000	
02032 CITY	N N N N N	11/03/1999 Wed 1P	LINN SWEET HOME SWEETHOM UA	14 0 0 28.09	MAIN ST 23RD AVE	INTER C 0	3-LEG 0	N STOP SIG	N N N	CLD DRY DAY	BIKE TURN INJ	1	NONE 0 PRVTE PSNGR CA	TURN-R S E	1	DRV	NONE	24	2	OR-Y OR<25		000	015 001	05
									N					STRGHT E W	1	BIK	INJB	35	2			039	000 001	05
00626 CITY	N N N N N	04/14/2002 Sun 4P	LINN SWEET HOME SWEETHOM UA	14 0 0 28.10	01501 05023	ALLEY N 0	(NONE) 0 (4)	N NONE	N N Y	CLR DRY DAY	ANGL-OT TURN PDO	1	NONE 0 PRVTE PSNGR CA	TURN-R N SW	1	DRV	NONE	58	2	OR-Y OR<25		028	018	02 02
									N			2	NONE 0 PRVTE PSNGR CA	STRGHT NE SW	1	DRV	NONE	44	1	OR-Y OR>25		000	000	
02453 CITY	N N N N N	12/26/1999 Sun 2P	LINN SWEET HOME SWEETHOM UA	14 0 0 28.12	01501 05023	ALLEY E 0	(NONE) 0 (4)	N NONE	N N Y	CLR DRY DAY	S-1TURN REAR INJ	1	NONE 0 PRVTE PSNGR CA	STRGHT W E	1	DRV	NONE	56	2	OR-Y OR<25		019	001	07 07
									N			2	NONE 0 PRVTE PSNGR CA	TURN-R W S	1	DRV	INJC	35	2	OR-Y OR<25		000	019	
									N			2	0		2	PSN	INJA	36	1				019	
00253 CITY	N N N N N	02/09/2002 Sat 11	LINN SWEET HOME SWEETHOM UA	14 0 0 28.17	01501 05024	ALLEY W 0	(NONE) 0 (4)	N NONE	N N Y	CLR DRY DAY	S-1STOP REAR INJ	1	NONE 0 PRVTE PSNGR CA	STRGHT W E	1	DRV	NONE	88	1	OR-Y OR<25		026	000 038	01 01 01
									N			2	NONE 0 PRVTE PSNGR CA	STOP W E	1	DRV	INJC	16	2	OR-Y OR<25		000	012	
90258 CITY	N N N N N	02/11/2002 Mon 12	LINN SWEET HOME SWEETHOM UA	14 0 0 28.17	01501 05024	ALLEY W 0	(NONE) 0 (2)	N NONE	N N Y	CLR DRY DAY	S-1TURN TURN INJ	1	NONE 0 PRVTE PSNGR CA	STRGHT W E	1	DRV	NONE	26	1	OR-Y OR<25		042	013 000 038	01 01 01
									N			2	NONE 0 PRVTE PSNGR CA	TURN-R W S	1	DRV	INJB	47	1	OR-Y OR<25		000	019	
												3	NONE 0	PRKD-P										

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CONTINUOUS SYSTEM CRASH LISTING
US 20 Santiam Hwy (# 16) from mp 26.63 - mp 31.31
1999 - 2003

016 SANTIAM

SER#. INVEST	S P E E D C / D R A L C U G S / R C H L / S O R K / W (flags)	DATE DAY TIME	COUNTY CITY URBAN AREA	CLASS COMPNT MLG TYP MILEPNT	CONN # FIRST SECOND	STREET STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CNTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH COLL SVRTY	V#	VEHICLE USE-TRLR OWNER TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACT EVENT	CAUSE
										N				PRVTE PSNGR CA	S N									008	
01990 NO RPT	N N N N N	10/27/1999 Wed 8P	LINN SWEET HOME SWEETHOM UA	14 0 0 28.28	01501 05023		STRGHT E 0	(NONE) 0 (4)	N UNKNOWN	N N N	CLR WET DARK	S-STRGH REAR PDO	1	NONE 0 PRVTE PSNGR CA	STRGHT W E	1	DRV	NONE	19	2	OR-Y OR<25		042	038	01 01 01
										N			2	NONE 0 PRVTE PSNGR CA	STRGHT W E	1	DRV	NONE	49	1	OR-Y OR<25		000	000	
00221 CITY	N N N N N	02/01/2001 Thu 7A	LINN SWEET HOME SWEETHOM UA	14 0 0 28.31	01501 00403		ALLEY W 0	(NONE) 0 (4)	N NONE	N N Y	CLR DRY DAWN	O-1TURN TURN INJ	1	NONE 0 PRVTE PSNGR CA	STRGHT E W	1	DRV	INJA	45	2	OR-Y OR>25		000	000	02
										N			2	NONE 0 PRVTE PSNGR CA	TURN-L W N	1	DRV	NONE	35	1	OR-Y OR<25		004	019	02
00556 CITY	N N N N N	04/03/2002 Wed 12	LINN SWEET HOME SWEETHOM UA	14 0 0 28.34	01501 00403		ALLEY W 0	(NONE) 0 (4)	N NONE	N N Y	CLR DRY DAY	ANGL-OT TURN PDO	1	NONE 0 PRVTE PSNGR CA	TURN-L S W	1	DRV	NONE	72	2	OR-Y OR<25		028	018	02,12 02
										N			2	NONE 0 PRVTE PSNGR CA	STRGHT E W	1	DRV	NONE	18	1	OR-Y OR<25		000	000	12
00160 CITY	N N N N N	01/21/2000 Fri 10	LINN SWEET HOME SWEETHOM UA	14 0 0 28.55	01501 00403		ALLEY W 0	(NONE) 0 (4)	N NONE	N N Y	CLR DRY DAY	ANGL-OT TURN INJ	1	NONE 0 PRVTE PSNGR CA	STRGHT W E	1	DRV	INJB	48	2	OR-Y OR<25		000	000	02
										N			2	NONE 0 PRVTE PSNGR CA	TURN-L S W	1	DRV	INJB	59	2	OR-Y OR<25		028	018	02
00529 CITY	N N N N N	03/28/2002 Thu 2P	LINN SWEET HOME SWEETHOM UA	14 0 0 28.58	01501 00403		STRGHT E 0	(NONE) 0 (4)	N NONE	N N N	CLR DRY DAY	BIKE ANGL INJ			STRGHT N S	1	BIK	INJB	10	1			028	038	02 02
										N			1	NONE 0 PRVTE PSNGR CA	STRGHT E W	1	DRV	NONE	65	1	OR-Y OR<25		000	000	
02331 CITY	N N N N N	12/24/2001 Mon 4P	LINN SWEET HOME SWEETHOM UA	14 0 0 28.59		CLARK MILL RD MAIN ST	INTER C 0	CROSS 0	N NONE	N N N	CLR DRY DAY	ANGL-OT ANGL PDO	1	NONE 0 PRVTE PSNGR CA	STRGHT W E	1	DRV	NONE	27	1	OR-Y OR<25		000	000	02
													2	NONE 0	STRGHT										

SER#. INVEST	SPEED ALC DRUGS SCHL WORK	DATE DAY TIME	COUNTY CITY URBAN AREA	CLASS COMPNT MLG TYP MILEPNT	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CNTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH COLL SVRTY	V#	VEHICLE USE-TRLR OWNER TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACT EVENT	CAUSE
									N				PRVTE PSNGR CA	N S	1	DRV	NONE	69	1	OR-Y OR<25		028	026	02
00820 CITY	N N N N N	05/11/2000 Thu 10	LINN SWEET HOME SWEETHOM UA	14 0 0 28.59	CLARK MILL RD MAIN ST	INTER C 0	CROSS 0	N STOP SIG	N N N	RAIN WET DAY	ANGL-OT ANGL INJ	1	NONE 0 PRVTE PSNGR CA	STRGHT S N	1	DRV	INJB	66	2	OR-Y OR<25		028	015	02 02
									N			2	NONE 0 PRVTE PSNGR CA	STRGHT W E	1	DRV	NONE	19	1	OR-Y OR<25		000	000	
00363 CITY	N N N N N	02/18/1999 Thu 4P	LINN SWEET HOME SWEETHOM UA	14 0 0 28.59	CLARK MILL RD MAIN ST	INTER C 0	CROSS 0	N STOP SIG	N N N	RAIN WET DAY	ANGL-OT ANGL PDO	1	NONE 0 PRVTE PSNGR CA	STRGHT W E	1	DRV	NONE	50	1	OR-Y OR<25		000	000	02
									N			2	NONE 0 PRVTE PSNGR CA	STRGHT S N	1	DRV	NONE	58	1	OR-Y OR<25		028	015	02
01514 CITY	N N N N Y	08/18/1999 Wed 5P	LINN SWEET HOME SWEETHOM UA	14 0 0 28.59	CLARK MILL RD MAIN ST	INTER C 0	CROSS 0	N STOP SIG	N N N	CLR DRY DAY	ANGL-OT ANGL INJ	1	NONE 0 PRVTE PSNGR CA	STRGHT E W	1	DRV	NONE	20	2	OR-Y OR<25		000	000	02
									N			1	0		2	PSN	INJB	26	1				000	
									N			1	0		3	PSN	INJA	04	1				000	
									N			1	0		4	PSN	INJB	42	2				000	
									N			2	NONE 1 PRVTE PSNGR CA	STRGHT N S	1	DRV	NONE	56	1	OR-Y OR<25		028	015	02
02079 NO RPT	N N N N N	11/10/1999 Wed 2P	LINN SWEET HOME SWEETHOM UA	14 0 0 28.59	CLARK MILL RD MAIN ST	INTER C 0	CROSS 0	N UNKNOWN	N N N	UNK UNK DAY	ANGL-OT TURN PDO	1	NONE 0 PRVTE PSNGR CA	STRGHT E W	1	DRV	NONE	24	2	OR-Y OR<25		000	000	08
									N			2	NONE 0 PRVTE PSNGR CA	TURN-L S W	1	DRV	NONE	16	2	OR-Y OR<25		007	000	08
01194 CITY	Y N N N N	07/17/2002 Wed 3P	LINN ALBANY ALBANY UA	17 0 0 28.59	00403 01501	STRGHT W 0	(NONE) 0	N UNKNOWN	Y N N	CLR DRY DAY	FIX OBJ FIX PDO	1	NONE 0 PRVTE PSNGR CA	STRGHT W E	1	DRV	NONE	61	2	OR-Y		047	100 000 100 025	01 01 01

016 SANTIAM

SER#. INVEST	S P E E L D A U G C S D R U C H S L S W C O R K	DATE DAY TIME	COUNTY CITY URBAN AREA	CLASS COMPNT MLG TYP MILEPNT	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CNTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH COLL SVRTY	V#	VEHICLE USE-TRLR OWNER TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACT EVENT	CAUSE
							(2)													OR<25				
02142 CITY	N Y N	12/27/2003 Sat 8P	LINN SWEET HOME SWEETHOM UA	14 0 0 28.59	CLARK MILL RD MAIN ST	INTER C 0	CROSS 0	N STOP SIG	N N N	RAIN WET DARK	BIKE TURN INJ	1	NONE 0 PRVTE PSNGR CA	TURN-R S E	1	DRV	NONE	49	1	OR-Y OR<25		016	015 006 000	27,12 00 27
									N					STRGHT E W	1	BIK	INJC	45	1			015,016	040	27
01007 CITY	N N N N N	06/13/2001 Wed 12	LINN SWEET HOME SWEETHOM UA	14 0 0 28.69	01501 00403	ALLEY E 0	(NONE) 0 (4)	N STOP SIG	N N Y	CLR DRY DAY	ANGL-OT TURN INJ	1	NONE 0 PRVTE PSNGR CA	STRGHT W E	1	DRV	INJB	20	1	OR-Y OR<25		000	082 000 082	02
									N			2	NONE 0 PRVTE PSNGR CA	TURN-L S W	1	DRV	INJA	87	1	OR-Y OR<25		028	018 082	02
00636	N N N N N	04/02/1999 Fri 9P	LINN SWEET HOME SWEETHOM UA	14 0 0 28.70	01501 00403	ALLEY E 0	(NONE) 0 (4)	N UNKNOWN	N N Y	RAIN WET DLIT	ANGL-OT TURN PDO	1	NONE 0 PRVTE PSNGR CA	TURN-L S W	1	DRV	NONE	41	1	OR-Y OR<25		028	018	02 02
									N			2	NONE 0 PRVTE PSNGR CA	STRGHT E W	1	DRV	NONE	39	2	OR-Y OR<25		000	000	
									N			2	0		2	PSN	NO<5	00	1				000	
01488 CITY	N N N N N	09/06/2001 Thu 3P	LINN SWEET HOME SWEETHOM UA	14 0 0 28.80	01501 02304	STRGHT E 0	(NONE) 0 (4)	N NONE	N N N	CLR DRY DAY	PED PED INJ	1	NONE 0 PRVTE PSNGR CA	STRGHT E W	1	DRV	NONE	52	2	OR-Y OR<25		000	000	02
									N					STRGHT S N	1	PED	INJA	06	2			057	037	02
01979 CITY	N N N N N	11/20/2000 Mon 3P	LINN SWEET HOME SWEETHOM UA	14 0 0 28.93	01501 05040	STRGHT W 0	(NONE) 0 (4)	N OFCR/FLA	N N N	CLR DRY DAY	S-1STOP REAR INJ	1	NONE 0 PRVTE PSNGR CA	STRGHT E W	1	DRV	INJB	84	2	OR-Y OR<25		026	000	01 01 01
									N			2	NONE 0 PRVTE PSNGR CA	STOP E W	1	DRV	INJB	18	2	OR-Y OR<25		000	011	
00424 NO RPT	N N N N N	03/15/2001 Thu 9P	LINN SWEET HOME SWEETHOM UA	14 0 0 28.99	01501 05040	STRGHT W 0	(NONE) 0 (5)	N L-TURN R	N N N	RAIN WET DARK	S-1STOP REAR PDO	1	NONE 0 PRVTE PSNGR CA	STRGHT W E	1	DRV	NONE	25	2	OR-Y OR<25		026	000	01 01 01
												2	NONE 0	STOP										

016 SANTIAM

SER#. INVEST	S P E E D / D R A U L G C S / R S W U C O G H R S L K	DATE DAY TIME	COUNTY CITY URBAN AREA	CLASS COMPNT MLG TYP MILEPNT	CONN # FIRST SECOND	STREET STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CNTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH COLL SVRTY	V#	VEHICLE USE-TRLR OWNER TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
										N				PRVTE PSNGR CA	W E	1	DRV	NONE	40	2	OR-Y OR<25		000	011		
01605 CITY	N N N N N	09/19/2002 Thu 10	LINN SWEET HOME SWEETHOM UA	14 0 0 29.01	01501 05040		ALLEY W 0	(NONE) 0 (4)	N UNKNOWN	N N Y	CLR DRY DAY	ANGL-OT TURN INJ	1	NONE 0 PRVTE PSNGR CA	TURN-L S W	1	DRV	NONE	63	1	OR-Y OR<25		028	018		02 02
										N			2	NONE 0 PRVTE PSNGR CA	STRGHT W E	1	DRV	INJC	28	2	OR-Y OR<25		000	000		
										N			2	0		2	PSN	NO<5	03	2				.000		
01126 CITY	N N N N N	07/18/2003 Fri 2P	LINN SWEET HOME	14 0 0 29.04	01501 05040		ALLEY U 0	(NONE) (4)	N NONE	N N Y	CLR DRY DAY	S-1TURN REAR INJ	1	NONE 0 PRVTE PSNGR CA	STRGHT W E	1	DRV	INJB	23	1	UNK OR<25		016,042,043	000 038		07,01,27 00 01,07
										N			2	NONE 0 PRVTE PSNGR CA	TURN-R W S	1	DRV	INJC	55	2	UNK OR<25		000	019 000		00 00
01827 CITY	N N N	11/10/2003 Mon 7A	LINN SWEET HOME SWEETHOM UA	14 0 0 29.09	01501 00403		STRGHT E 0	(NONE) (4)	N NONE	N N Y	RAIN WET DAY	S-OTHER REAR INJ	1	NONE 0 PRVTE PSNGR CA	STRGHT W E	1	DRV	INJC	54	2	OR-Y OR<25		042	000 025	040,053,06	27 00 27
										N			2	NONE 0 PRVTE PSNGR CA	TURN-R W S	1	DRV	INJB	54	2	OR-Y OR<25		000	019 000		00 00
02392	N N N N N	12/17/1999 Fri 3P	LINN SWEET HOME SWEETHOM UA	14 0 0 29.17	01501 00903		STRGHT E 0	(NONE) 0 (4)	N UNKNOWN	N N N	RAIN WET DAY	S-1STOP REAR PDO	1	NONE 0 PRVTE PSNGR CA	STRGHT E W	1	DRV	NONE	20	1	OR-Y OR<25		021	001		07 07
										N			2	NONE 0 PRVTE PSNGR CA	STOP E W	1	DRV	NONE	00	9	UNK UNK		000	011		
01956	N N N	11/25/2003 Tue 9A	LINN SWEET HOME SWEETHOM UA	14 0 0 29.39	01501 05043		ALLEY W 0	(NONE) (4)	N L-TURN R	N N Y	RAIN WET DAY	ANGL-OT TURN PDO	1	NONE 1 PRVTE SEMI TOW	TURN-L N E	1	DRV	NONE	64	1	OR-Y OR<25		007,016,028	018 000		02,27 00 02,27
										N			2	NONE 1 PRVTE SEMI TOW	STRGHT W E	1	DRV	NONE	62	1	OR-Y OR>25		000	000 000		00 00
01564	N Y N N Y	08/29/1999	LINN	14			INTER	CROSS	N	Y	CLD	FIX OBJ	1	NONE 0	STRGHT										053	09

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CONTINUOUS SYSTEM CRASH LISTING
US 20 Santiam Hwy (# 16) from mp 26.63 - mp 31.31
1999 - 2003

016 SANTIAM

SER#. INVEST	SPEED ALC DRUGS SCHL WORK	DATE DAY TIME	COUNTY CITY URBAN AREA	CLASS COMPNT MLG TYP MILEPNT	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF-CNTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH COLL SVRTY	V#	VEHICLE USE-TRLR OWNER TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACT EVENT	CAUSE
CITY		Sun 6P	SWEET HOME SWEETHOM UA	0 0 29.48	MAIN ST 44TH AVE	E 0	0	NONE	N N	DRY DAY	FIX INJ		PRVTE PSNGR CA	W E	1	DRV	INJA	67	2	OR-Y OR<25		044	053 017	09
02414 CITY	N N N N N	12/21/1999 Tue 4P	LINN SWEET HOME SWEETHOM UA	14 0 0 29.48	MAIN ST 44TH AVE	INTER C 0	CROSS 0	N NONE	N N N	CLD DRY DUSK	S-1TURN TURN PDO	1	NONE 1 PUBLC SEMI TOW	TURN-R W N	1	DRV	NONE	49	1	OR-Y OR<25		000	000	06
									N			2	NONE 0 PRVTE PSNGR CA	STRGHT W E	1	DRV	NONE	18	1	OR-Y OR<25		031	000	06
01684 CITY	N N N N N	09/27/2001 Thu 8A	LINN SWEET HOME SWEETHOM UA	14 0 0 29.50	01501 02602	GRADE W 0	(NONE) 0 (4)	N UNKNOWN	N N N	CLR DRY DAY	O-STRGH SS-M PDO	1	NONE 1 PRVTE PSNGR CA	STRGHT W E	1	DRV	NONE	59	1	OR-Y OR<25		039	021,020 021,020 017	05 05
									N			2	LOG 1 PRVTE SEMI TOW	STRGHT E W	1	DRV	NONE	66	1	OR-Y OR>25		000	000	
01689 CITY	N N N N N	10/15/2003 Wed 12	LINN SWEET HOME SWEETHOM UA	14 0 0 29.74	01501 05046	ALLEY U 0	(NONE) (4)	N NONE	N N Y	RAIN WET DAY	ANGL-OT TURN PDO	1	NONE 0 PRVTE PSNGR CA	TURN-L S W	1	DRV	NONE	23	2	OR-Y OR<25		028,014	082 018 000 082	02 00 02
									N			2	NONE 0 PRVTE PSNGR CA	STRGHT W E	1	DRV	NONE	58	1	OR-Y OR<25		000	000 000	00 00
01290 CITY	N N N N N	08/07/2001 Tue 11	LINN SWEET HOME SWEETHOM UA	14 0 0 29.84	MAIN ST 47TH AVE	INTER C 0	CROSS 0	N STOP SIG	N N N	CLR DRY DAY	ANGL-OT TURN INJ	1	NONE 0 PRVTE PSNGR CA	STRGHT W E	1	DRV	NONE	74	1	OR-Y OR<25		000	000	02
									N			2	NONE 0 PRVTE PSNGR CA	TURN-L S W	1	DRV	INJB	18	2	OR-Y OR>25		028	015	02
02154 CITY	Y N N N N	11/18/1999 Thu 5P	LINN SWEET HOME SWEETHOM UA	14 0 0 29.84	MAIN ST 47TH AVE	INTER C 0	CROSS 0	N STOP SIG	N N N	CLR DRY DLIT	ANGL-OT ANGL INJ	1	NONE 0 PRVTE PSNGR CA	STRGHT N S	1	DRV	INJB	19	2	OR-Y OR<25		047	013,059 013,059 028	01 01 01
									N			1	0		2	PSN	INJC	16	1					
									N			2	NONE 0 PRVTE PSNGR CA	STRGHT E W	1	DRV	INJB	42	2	OR-Y OR<25		000	000	
												2	0											

016 SANTIAM

SER#. INVEST	S D / P R S W / E A U C O / E L G H R / D C S L K	DATE DAY TIME	COUNTY CITY URBAN AREA	CLASS COMPNT MLG TYP MILEPNT	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CNTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH COLL SVRTY	V#	VEHICLE USE-TRLR OWNER TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
									N						2	PSN	INJC	37	2				000		
									N			3	NONE 0 PRVTE PSNGR CA	PRKD-P N S									008		
00910 CITY	N N N	06/14/2003 Sat 12	LINN SWEET HOME	14 0 0 29.84	MAIN ST 47TH AVE	INTER C 0	CROSS 0	N STOP SIG	N N N	CLR DRY DAY	ANGL-OT TURN INJ	1	NONE 0 PRVTE PSNGR CA	STRGHT E W	1	DRV	NONE	60	1	OR-Y OR<25		000	000 000	013	08 00 00
									N			2	NONE 0 PRVTE PSNGR CA	TURN-L W N	1	DRV	INJC	73	2	OR-Y OR<25		004,028	000 038		00 08
									N			3	NONE 0 PRVTE PSNGR CA	STOP N S	1	DRV	NONE	35	1	OR-Y OR<25		000	011 000		00 00
									N			3	0		2	PSN	INJC	31	2			000	011 000		00
02125	N N N N N	12/08/2000 Fri 4P	LINN SWEET HOME SWEETHOM UA	14 0 0 30.00	MAIN ST 49TH AVE	INTER C 0	3-LEG 0	N UNKNOWN	N N N	CLD DRY DAWN	ANGL-OT TURN PDO	1	NONE 0 PRVTE PSNGR CA	STRGHT S W	1	DRV	NONE	43	1	OR-Y OR<25		000	000		02
									N			2	NONE 0 PRVTE PSNGR CA	TURN-L N E	1	DRV	NONE	38	2	OR-Y OR<25		028	015		02
00109	N N N N N	01/18/2001 Thu 4P	LINN SWEET HOME SWEETHOM UA	14 0 0 30.28	01501 02602	STRGHT W 0	(NONE) 0 (2)	N UNKNOWN	Y N N	CLR DRY DUSK	S-OTHER PARK PDO	1	LOG 1 PRVTE SEMI TOW	PARKNG W E	1	DRV	NONE	42	2	OR-Y OR<25		018	008		02 02
									N			2	NONE 0 PRVTE PSNGR CA	PRKD-P W E									008		
00353 CITY	N N N N N	03/02/2001 Fri 10	LINN SWEET HOME SWEETHOM UA	14 0 0 30.29	MAIN ST WILEY CREEK RD	INTER C 0	3-LEG 0	N STOP SIG	N N N	CLR DRY DAY	ANGL-OT TURN PDO	1	LOG 1 PRVTE SEMI TOW	STRGHT E W	1	DRV	NONE	46	1	OR-Y OR<25		000	000	084	02
									N			2	NONE 1 PRVTE SEMI TOW	TURN-L S W	1	DRV	NONE	50	1	OR-Y OR<25		028	015	084	02
01153 CITY	N N N N N	07/09/2001 Mon 6A	LINN SWEET HOME SWEETHOM UA	14 0 0 30.29	MAIN ST WILEY CREEK RD	INTER C 0	CROSS 0	N UNKNOWN	N N N	CLR DRY DAY	O-1TURN TURN INJ	1	NONE 0 PRVTE PSNGR CA	TURN-L E S	1	DRV	NONE	18	1	OR-Y OR<25		004	026	053	02 02

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CONTINUOUS SYSTEM CRASH LISTING
US 20 Santiam Hwy (# 16) from mp 26.63 - mp 31.31
1999 - 2003

016 SANTIAM

SER#. INVEST	SPEED	ALC	DRUGS	SCHL	WORK	DATE DAY TIME	COUNTY CITY URBAN AREA	CLASS COMPNT MLG TYP MILEPNT	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CNTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH COLL SVRTY	V#	VEHICLE USE-TRLR OWNER TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACT EVENT	CAUSE
													N			2	NONE 0 PRVTE PSNGR CA	STRGHT E W	1	DRV	INJB	46	2	OR-Y OR<25		000	000	
00838 CITY	N	N	N	N	N	05/15/2000 Mon 7A	LINN SWEET HOME SWEETHOM UA	14 0 0 30.29	MAIN ST WILEY CREEK RD	INTER C 0	CROSS 0	N STOP SIG	N N N	CLR DRY DAY	ANGL-OT ANGL INJ	1	NONE 0 PRVTE PSNGR CA	STRGHT W E	1	DRV	INJB	53	1	OR-Y OR<25		000	000	02
													N			2	NONE 0 PRVTE PSNGR CA	STRGHT S N	1	DRV	NONE	35	1	OR-Y OR<25		028	015	02
02273 CITY	N	N	N	N	N	12/31/2000 Sun 2P	LINN SWEET HOME SWEETHOM UA	14 0 0 30.29	MAIN ST WILEY CREEK RD	INTER C 0	CROSS 0	N STOP SIG	N N N	CLR DRY DAY	O-1TURN TURN INJ	1	NONE 0 PRVTE PSNGR CA	STRGHT E W	1	DRV	NONE	38	1	OR-Y OR<25		000	000	02
													N			2	NONE 0 PRVTE PSNGR CA	TURN-L W N	1	DRV	INJA	21	1	OR-Y OR<25		004	000	02
01262 NO RPT	N	N	N	N	N	07/10/1999 Sat 2P	LINN SWEET HOME SWEETHOM UA	14 0 0 30.29	MAIN ST WILEY CREEK RD	INTER W 0	CROSS 0	N STOP SIG	N N N	CLR DRY DAY	S-1STOP REAR INJ	1	NONE 0 PRVTE PSNGR CA	STRGHT W E	1	DRV	NONE	17	2	OR-Y OR<25		016	038	01 01 01
													N			2	NONE 0 PRVTE PSNGR CA	STOP W E	1	DRV	INJC	27	1	OR-Y OR>25		000	011	
02143 CITY	N	N	N	N	N	12/10/2002 Tue 9A	LINN SWEET HOME SWEETHOM UA	14 0 0 30.29	MAIN ST MAIN ST	INTER C 0	CROSS 0	N STOP SIG	N N N	RAIN WET DAY	ANGL-OT ANGL INJ	1	NONE 0 PRVTE PSNGR CA	STRGHT E W	1	DRV	INJC	24	2	OR-Y OR<25		000	000	02
													N			1	0		2	PSN	INJC	22	2				000	
													N			1	0		3	PSN	INJB	03	1				000	
													N			1	0		4	PSN	INJC	02	1				000	
													N			1	0		5	PSN	NO<5	01	1				000	
													N			1	0										000	

016 SANTIAM

SER#. INVEST	S P E E D	D A L U C G S H R S L W O R K	DATE DAY TIME	COUNTY CITY URBAN AREA	CLASS COMPNT MLG TYP MILEPNT	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CNTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH COLL SVRTY	V#	VEHICLE USE-TRLR OWNER TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACT EVENT	CAUSE
																6	PSN	NO<5	01	2					
										N			2	NONE 0 PRVTE PSNGR CA	STRGHT S N	1	DRV	NONE	80	1	OR-Y OR<25		028	000 038	02
01357 CITY	N	N N N N	07/11/1999 Sun 11	LINN SWEET HOME SWEETHOM UA	14 0 0 30.34	MAIN ST 54TH AVE	INTER E 0	3-LEG	N STOP SIG	N N Y	CLR DRY DAY	S-STRGH REAR PDO	1	NONE 0 PRVTE PSNGR CA	STRGHT E W	1	DRV	NONE	19	1	OR-Y OR<25		042	000	07 07
										N			2	NONE 1 PRVTE PSNGR CA	STRGHT E W	1	DRV	NONE	36	1	OR-Y OR<25		000	000	
01745 CITY	N	N N N N	09/23/1999 Thu 3P	LINN SWEET HOME SWEETHOM UA	14 0 0 30.34	MAIN ST 54TH AVE	INTER E 0	3-LEG 0	N NONE	N N N	CLD DRY DAY	PED PED INJ	1	NONE 8 PRVTE TRUCK	TURN-L N E	1	DRV	NONE	63	1	OR-Y OR>25		000	000	02
										N					STRGHT N S	1	PED	INJB	54	1			054	034	02
00603 CITY	Y	N N N N	04/12/2001 Thu 12	LINN SWEET HOME SWEETHOM UA	14 0 0 30.80	FOSTER DAM RD MAPLE ST	INTER E 0	3-LEG 0	N NONE	Y N N	CLR DRY DAY	FIX OBJ FIX INJ	1	NONE 0 PRVTE PSNGR CA	STRGHT E W	1	DRV	INJB	57	2	OR-Y OR<25		047	058,043 058,043 025	01 01 01
01840 NO RPT	N	N N	11/08/2003 Sat 11	LINN SWEET HOME SWEETHOM UA	14 0 0 30.81		STRGHT E 0	(NONE) (2)	Y UNKNOWN	N N N	CLD WET DAY	OVERTUR OTH PDO	1	NONE 0 PRVTE MOPED	STRGHT E W	1	DRV	NONE	29	1	OR-Y OR<25		000	010 007 010 088	26 26 26
00984 CITY	N	N N N N	06/12/2002 Wed 4P	LINN SWEET HOME SWEETHOM UA	14 0 0 30.83	01501 00815	STRGHT E 0	(NONE) 0 (4)	N NONE	N N N	CLR DRY DAY	S-1STOP REAR PDO	1	NONE 0 PRVTE PSNGR CA	STRGHT W E	1	DRV	NONE	16	2	OR-Y OR<25		026	034 000 038	01 01 01
										N			2	NONE 0 PRVTE PSNGR CA	STRGHT W E	1	DRV	NONE	16	1	OR-Y OR<25		000	007	
										N			3	NONE 0 PRVTE PSNGR CA	STOP W E	1	DRV	NONE	45	1	OR-Y OR<25		000	011	
00320	N	N N N N	02/22/1999 Mon 11	LINN SWEET HOME SWEETHOM UA	14 0 0 31.16	MAIN ST RIGGS HILL RD	INTER E 0	CROSS 0	N STOP SIG	N N N	RAIN WET DAY	S-1STOP REAR PDO	1	NONE 0 PRVTE PSNGR CA	STRGHT E W	1	DRV	NONE	48	2	OR-Y OR<25		026	001	01 01 01
										N			2	NONE 0 PRVTE PSNGR CA	STOP E W	1	DRV	NONE	51	1	OR-Y		000	011	

SER#. INVEST	S P E E D	A L C	D R U G	S C H L	W O R K	DATE DAY TIME	COUNTY CITY URBAN AREA	CLASS COMPNT MLG TYP MILEPNT	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CNTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH COLL SVRTY	V#	VEHICLE USE-TRLR OWNER TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACT EVENT	CAUSE
																								OR<25				
00011 CITY	N	N	N	N	N	01/02/2003 Thu 8P	LINN SWEET HOME SWEETHOM UA	14 0 0 31.18	 MAIN ST RIGGS HILL RD	INTER C 0	3-LEG 0	N STOP SIG	N N N	CLD WET DLIT	S-1TURN REAR INJ	1	NONE 0 PRVTE PSNGR CA	STRGHT W E	1	DRV	INJC	47	1	OR-Y OR>25		043	000 000	07 00 07
													N			1	0		2	PSN	INJC	17	1			000	000 000	00
													N			2	NONE 0 PRVTE PSNGR CA	TURN-R W S	1	DRV	INJB	35	1	OR-Y OR<25		000	000 000	00 00
													N			2	0		2	PSN	INJB	06	1			000	000 000	00

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE
OR 228 Halsey-Sweet Home (#212) from mp 20.59 to intersection at US 20 Santiam Hwy.
1999 - 2003

COLLISION TYPE	FATAL CRASHES	NON-FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION	INTER-SECTION RELATED	OFF-ROAD
YEAR: 1999														
ANGLE	0	0	1	1	0	0	0	1	0	1	0	1	0	0
TURNING MOVEMENTS	0	1	0	1	0	2	0	0	1	1	0	1	0	0
1999 TOTAL	0	1	1	2	0	2	0	1	1	2	0	2	0	0
YEAR: 2000														
REAR-END	0	2	1	3	0	3	0	2	1	2	1	2	0	0
TURNING MOVEMENTS	0	4	1	5	0	6	1	4	1	4	1	5	0	0
2000 TOTAL	0	6	2	8	0	9	1	6	2	6	2	7	0	0
YEAR: 2001														
BACKING	0	0	1	1	0	0	0	1	0	1	0	0	0	0
REAR-END	0	1	0	1	0	2	0	1	0	1	0	0	0	0
TURNING MOVEMENTS	0	1	0	1	0	1	0	1	0	1	0	1	0	0
2001 TOTAL	0	2	1	3	0	3	0	3	0	3	0	1	0	0
YEAR: 2002														
REAR-END	0	0	1	1	0	0	0	1	0	1	0	1	0	0
2002 TOTAL	0	0	1	1	0	0	0	1	0	1	0	1	0	0
YEAR: 2003														
BACKING	0	0	1	1	0	0	0	1	0	0	1	0	0	0
REAR-END	0	2	0	2	0	2	0	2	0	2	0	1	0	0
TURNING MOVEMENTS	0	1	0	1	0	1	0	1	0	1	0	1	0	0
2003 TOTAL	0	3	1	4	0	3	0	4	0	3	1	2	0	0
FINAL TOTAL	0	12	6	18	0	17	1	15	3	15	3	13	0	0

OR 228 Halsey-Sweet Home (#212) from mp 20.59 to intersection at US 20 Santiam Hwy.
1999 - 2003

212 HALSEY-SWEET HOME

SER#. INVEST	S P E D / E A L C / D R U G C S / R S W C H O R L K	DATE DAY TIME	COUNTY CITY URBAN AREA	CLASS COMPNT MLG TYP MILEPNT	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CNTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH COLL SVRTY	V#	VEHICLE USE-TRLR OWNER TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACT EVENT	CAUSE
01167	N N N N N	07/15/2000 Sat 2P	LINN	06 0 0 20.59		INTER C 0	CROSS 0	N UNKNOWN	N N N	CLR DRY DAY	ANGL-OT TURN INJ	1	NONE 0 PRVTE PSNGR CA	STRGHT S N	1	DRV	NONE	40	2	OR-Y OR<25		000	000	02
									N			2	NONE 0 PRVTE PSNGR CA	TURN-R E N	1	DRV	INJC	73	1	OR-Y OR<25		028	015	02
02015 STATE	N N N N N	11/22/2000 Wed 9A	LINN SWEET HOME SWEETHOM UA	16 0 0 20.59	HOLLEY RD HOLLEY RD	INTER C 0	3-LEG 0	N NONE	N N N	CLR DRY DAY	O-1TURN TURN INJ	1	NONE 0 PRVTE PSNGR CA	TURN-L W N	1	DRV	INJB	79	1	OR-Y OR<25		004	000	02 02
									N			2	NONE 0 PRVTE PSNGR CA	STRGHT E W	1	DRV	INJB	72	1	OR-Y OR<25		000	000	
01224 COUNTY	N N N N N	07/05/1999 Mon 7P	LINN SWEET HOME SWEETHOM UA	14 0 0 20.59	HOLLEY RD HOLLEY RD	INTER C 0	3-LEG 0	N STOP SIG	N N N	CLR DRY DAY	ANGL-OT ANGL PDO	1	NONE 0 PRVTE PSNGR CA	STRGHT SW NE	1	DRV	NONE	38	1	OR-Y OR<25		000	000	02
									N			2	NONE 0 PRVTE PSNGR CA	STRGHT SE NW	1	DRV	NONE	79	2	OR-Y OR<25		028	015	02
01577 CITY	N N N	09/28/2003 Sun 2P	LINN	06 0 0 20.59		INTER C 0	CROSS 0	N STOP SIG	N N N	CLR DRY DAY	ANGL-OT TURN INJ	1	NONE 0 PRVTE PSNGR CA	STRGHT W E	1	DRV	INJC	50	2	OR-Y OR>25		000	000 000	02,03 00 00
									N			2	NONE 0 PRVTE PSNGR CA	TURN-R S E	1	DRV	NONE	82	1	OR-Y OR<25		016,021,028	015 000	00 02,03
01543 NO RPT	N N N	09/22/2003 Mon 4P	LINN SWEET HOME SWEETHOM UA	14 0 0 20.75	FERN LN HOLLEY RD	INTER E 0	3-LEG 0	N UNKNOWN	N N N	CLR DRY DAY	S-1TURN REAR INJ	1	NONE 0 PRVTE PSNGR CA	STRGHT E W	1	DRV	NONE	49	1	OR-Y OR<25		042	000 000	07 00 07
									N			2	NONE 0 PRVTE PSNGR CA	TURN-L W N	1	DRV	NONE	55	1	OR-Y OR<25		000	000 000	00 00
									N			2	0		2	PSN	INJB	69	2			000	000 000	00
00515 CITY	N N N N N	03/23/2000 Thu 4P	LINN SWEET HOME SWEETHOM UA	14 0 0 20.80	EVERGREEN LN HOLLEY RD	INTER C 0	3-LEG 0	N STOP SIG	N N N	CLR DRY DAY	ANGL-OT TURN PDO	1	NONE 0 PRVTE PSNGR CA	STRGHT E W	1	DRV	NONE	16	1	OR-Y OR<25		000	000	02

SER#. INVEST	SPEED	ALC	DRUGS	SCHL	WORK	DATE DAY TIME	COUNTY CITY URBAN AREA	CLASS COMPNT MLG TYP MILEPNT	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CNTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH COLL SVRTY	V#	VEHICLE USE-TRLR OWNER TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACT EVENT	CAUSE
													N			2	NONE 0 PRVTE PSNGR CA	TURN-L N E	1	DRV	NONE	25	1	OR-Y OR<25		028	015	02
01295	Y	N	N			08/12/2003 Tue 4P	LINN SWEET HOME	14 0 0 20.90		STRGHT W 0	(NONE) (2)	N UNKNOWN	N N N	CLR DRY DAY	S-1STOP REAR INJ	1	NONE 0 PRVTE PSNGR CA	STRGHT W E	1	DRV	INJB	37	2	OR-Y OR<25		016,026	000 000	01 00 01
													N			2	NONE 0 PRVTE PSNGR CA	STOP W E	1	DRV	NONE	72	2	OR-Y OR<25		000	012 000	00 00
02003	N	N	N		Y	12/05/2003 Fri 7A	LINN SWEET HOME SWEETHOM UA	14 0 0 21.03		STRGHT U 0	(NONE) (2)	N OFCR/FLA	N N N	CLR DRY DLIT	O-1STOP BACK PDO	1	NONE 0 PRVTE PSNGR CA	BACK E W	1	DRV	NONE	52	1	UNK OR>25		011	000 000	10 00 10
													N			2	NONE 0 PRVTE PSNGR CA	STOP W E	1	DRV	NONE	18	2	UNK OR>25		000	011 000	00 00
00825 NO RPT	N	N	N	N	N	05/19/2001 Sat 3P	LINN SWEET HOME SWEETHOM UA	14 0 0 21.04	HOLLEY RD 1ST AVE	INTER C 0	CROSS 0	N STOP SIG	N N N	CLR DRY DAY	S-1TURN TURN INJ	1	NONE 0 PRVTE MTRCYCLE	STRGHT E W	1	DRV	INJB	53	1	OR-Y OR<25		000	000	08
													N			2	NONE 0 PRVTE PSNGR CA	TURN-L E S	1	DRV	NONE	46	2	OR-Y OR<25		003	000	08
00890 CITY	N	N	N	N	N	05/29/2000 Mon 9P	LINN SWEET HOME SWEETHOM UA	14 0 0 21.04	HOLLEY RD 1ST AVE	INTER C 0	CROSS 0	N STOP SIG	N N N	RAIN WET DLIT	S-1TURN TURN INJ	1	NONE 0 PRVTE PSNGR CA	STRGHT W E	1	DRV	INJA	21	1	OR-Y OR<25		034	010 000 010	06 06
													N			2	NONE 0 PRVTE PSNGR CA	TURN-L W N	1	DRV	NONE	54	2	OR-Y OR<25		000	000	
01064 CITY	N	N	N	N	N	06/21/2000 Wed 12	LINN SWEET HOME SWEETHOM UA	14 0 0 21.04	HOLLEY RD 1ST AVE	INTER C 0	CROSS 0	N STOP SIG	N N N	CLR DRY DAY	O-1TURN TURN INJ	1	NONE 0 PRVTE PSNGR CA	STRGHT E W	1	DRV	INJB	45	1	OR-Y OR<25		000	000	02
													N			1	0		2	PSN	INJB	09	2				000	
													N			2	NONE 0 PRVTE TRUCK	TURN-L W N	1	DRV	NONE	20	1	OR-Y OR<25		004	000	02

CDS380 12/17/2004

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CONTINUOUS SYSTEM CRASH LISTING
OR 228 Halsey-Sweet Home (#212) from mp 20.59 to intersection at US 20 Santiam Hwy.
1999 - 2003

212 HALSEY-SWEET HOME

SER#. INVEST	S P E D / E A L C / R U G S / S C H L / W O R K	DATE DAY TIME	COUNTY CITY URBAN AREA	CLASS COMPNT MLG TYP MILEPNT	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF- CNTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH COLL SVRTY	V#	VEHICLE USE-TRLR OWNER TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACT EVENT	CAUSE
00749 NO RPT	N N N N N	05/02/2001 Wed 4P	LINN SWEET HOME SWEETHOM UA	14 0 0 21.13	01004 05001	ALLEY E 0	(NONE) 0 (2)	N UNKNOWN	N N Y	CLR DRY DAY	ANGL-OT BACK PDO	1	NONE 0 PRVTE PSNGR CA	BACK N S	1	DRV	NONE	68	2	OR-Y OR<25		011	018	02 02
									N			2	NONE 0 PRVTE PSNGR CA	STRGHT W E	1	DRV	NONE	70	1	OR-Y OR<25		000	000	
01887 CITY	N N N N N	11/05/2000 Sun 6P	LINN SWEET HOME SWEETHOM UA	14 0 0 21.14	HOLLEY RD 3RD AVE	INTER W 0	3-LEG 0	N NONE	N N N	CLD WET DLIT	PRKD MV REAR PDO	1	NONE 0 PRVTE PSNGR CA	TURN-L S W	1	DRV	NONE	50	2	OR-Y OR<25		001	000	08 08
									N			2	NONE 0 PRVTE PSNGR CA	PRKD-P E W									008	
01991 CITY	N N N N N	10/28/1999 Thu 4P	LINN SWEET HOME SWEETHOM UA	14 0 0 21.19	HOLLEY RD OAK TER	INTER C 0	4-LEG 0	N STOP SIG	N N N	RAIN WET DAY	ANGL-OT TURN INJ	1	NONE 0 PRVTE PSNGR CA	TURN-L E SW	1	DRV	NONE	54	1	OR-Y OR<25		028	015	02 02
									N			2	NONE 0 PRVTE PSNGR CA	TURN-L NE E	1	DRV	INJC	46	2	OR-Y OR<25		000	000	
									N			2	0		2	PSN	INJC	17	2				000	
00558 CITY	N N N N N	04/30/2002 Tue 3P	LINN SWEET HOME SWEETHOM UA	14 0 0 21.24	HOLLEY RD	INTER S 0	4-LEG 0	N NONE	N N N	CLR DRY DAY	S-1STOP REAR PDO	1	NONE 0 PRVTE PSNGR CA	STRGHT SW NE	1	DRV	NONE	16	1	OR-Y OR<25		026	000	01,12 01 01
									N			2	NONE 0 PRVTE PSNGR CA	STOP SW NE	1	DRV	NONE	38	2	OR-Y OR<25		000	011	12
01839 CITY	N N N N N	10/19/2001 Fri 9A	LINN SWEET HOME SWEETHOM UA	14 0 0 21.39	01004 01403	STRGHT N 0	(NONE) 0 (2)	N NONE	N N N	CLR DRY DAY	S-STRGH REAR INJ	1	NONE 0 PRVTE PSNGR CA	STRGHT SW NE	1	DRV	NONE	20	1	OR-Y OR<25		042	000	07 07
									N			2	NONE 0 PRVTE PSNGR CA	STRGHT SW NE	1	DRV	INJC	86	1	OR-Y OR<25		000	000	
									N			2	0		2	PSN	INJC	78	2				000	
00628	N N N N N	04/06/2000	LINN	14		ALLEY		N	N	CLR	S-1TURN	1	NONE 0	STRGHT										07

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CONTINUOUS SYSTEM CRASH LISTING
OR 228 Halsey-Sweet Home (#212) from mp 20.59 to intersection at US 20 Santiam Hwy.
1999 - 2003

212 HALSEY-SWEET HOME

SER#. INVEST	S P E D / E A U C O / D R S W / E L G H R / D C S L K	DATE DAY TIME	COUNTY CITY URBAN AREA	CLASS COMPNT MLG TYP MILEPNT	CONN # FIRST STREET SECOND STREET	RD CHAR DIRECT LOCTN	INT-TYP (MEDIAN) LEGS (#LANES)	INT-REL TRAF-CNTL	OFFRD RNDBT DRVWY	WTHR SURF LIGHT	CRASH COLL SVRTY	V#	VEHICLE USE-TRLR OWNER TYPE	MOVE FROM TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACT EVENT	CAUSE
CITY		Thu	SWEET HOME	0	01004	S	(NONE)	NONE	N	DRY	REAR		PRVTE	SW NE									001	
		3P	SWEETHOM UA	0 21.39	01403	0	0		Y	DAY	INJ		PSNGR CA		1	DRV	NONE	53	1	OR-Y		026		07
							(4)													OR<25				
												2	NONE 0	TURN-L										
									N				PRVTE	SW NW									019	
													PSNGR CA		1	DRV	INJC	17	1	OR-Y		000		
																				OR<25				
01574	N N N N N	09/15/2000	LINN	14		INTER	3-LEG	N	N	CLR	S-1STOP	1	NONE 0	STRGHT										07
NO RPT		Fri	SWEET HOME	0	HOLLEY RD	S		TRF SIGN	N	DRY	REAR		PRVTE	NE SW									000	
		12	SWEETHOM UA	0 21.40	MAIN ST	0	0		N	DAY	INJ		PSNGR CA		1	DRV	INJC	25	2	OR-Y		026		07
																				OR<25				
												1	0											
									N														000	
															2	PSN	INJC	01	1					
												2	NONE 0	STOP										
									N				PRVTE	NE SW									011	
													PSNGR CA		1	DRV	NONE	57	1	OR-Y		000		
																				OR>25				
												3	NONE 0	STRGHT										
									N				PRVTE	NE SW									022	
													PSNGR CA		1	DRV	NONE	26	2	OR-Y		026		07
																				OR<25				

ACTION CODES

Code	Short Description	Medium Description	Long Description
000	NONE	NO ACTION	No action or non-warranted
001	SKIDDED	SKIDDED	Skidded
002	ON/OFF V	ON/OFF STOP VEH	Getting on or off stopped or parked vehicle
003	LOAD OVR	OVRHNG STR OBJ	Overhanging load struck another vehicle, etc.
006	SLOW DN	SLOWED DOWN	Slowed down
007	AVOIDING	AVOIDING MANV	Avoiding maneuver
008	PAR PARK	PARALLEL PKNG	Parallel parking
009	ANG PARK	ANGLE PKNG	Angle parking
010	INTERFER	PSNGR INTERFERED	Passenger interfering with driver
011	STOPPED	STP IN TRAF/ NO LFT	Stopped in traffic not waiting to make a left turn
012	STP/L TRN	STP FOR LFT TURN	Stopped because of left turn signal or waiting, etc.
013	STP TURN	STP WHILE TURNING	Stopped while executing a turn
015	GO A/STOP	PROCEED A/ STOPPING	Proceed after stopping for a stop sign/flashing red.
016	TRN A/RED	STOP/TURN ON RED	Turned on red after stopping
017	LOSTCTRL	LOST CONTROL	Lost control of vehicle
018	EXIT DWY	ENT FRM ALLEY/DRWY	Entering street or highway from alley or driveway
019	ENTR DWY	ENT ALLEY FROM RD	Entering alley or driveway from street or highway
020	STR ENTR	STR OBJ BF/ENT	Before entering roadway, struck pedestrian, etc. on sidewalk or shoulder
021	NO DRVR	DRIVERLESS VEHICLE	Car ran away - no driver
022	PREV COL	STK OBJ PRIOR COL	Struck, or was struck by, vehicle or pedestrian in prior collision before acc. stabiliz
023	STALLED	VEHICLE STALLED	Vehicle stalled
024	DRVR DEA	DRVR DEAD BF CRASH	Dead by unassociated cause
025	FATIGUE	DRIVER ASLEEP	Fatigued, sleepy, asleep
026	SUN	BLINDED BY SUN	Driver blinded by sun
027	HDLGHTS	BLINDED / HEADLIGHTS	Driver blinded by headlights
028	ILLNESS	PHYSICAL ILLNESS	Physically ill
029	THRU MED	PLUNGED OVER MEDIAN	Vehicle crossed, plunged over, or through median barrier
030	PURSUIT	PURSUING OTHER VEH	Pursuing or attempting to stop another vehicle
031	PASSING	PASSING	Passing situation
032	PRKOFFRD	PARKED OFF RD	Vehicle parked beyond curb or shoulder
033	CROS MED	VEH CROSSED MED	Vehicle crossed earth or grass median
034	X N/SGNL	X-INTER NO SIGNAL	Crossing at intersection - no traffic signal present
035	X W/ SGNL	X-INTER W/ SIGNAL	Crossing at intersection - traffic signal present
036	DIAGONAL	X-INTER DIAGONAL	Crossing at intersection - diagonally
037	BTWN INT	X-BTWN INTER	Crossing between intersections
038	DISTRACT	DISTRACTED	Driver's attention distracted
039	W/TRAF-S	WALK SHLDR W/TRAFF	Walking, running, riding, etc., on shoulder WITH traffic
040	A/TRAF-S	WALK SHLDR A/TRAFF	Walking, running, riding, etc., on shoulder FACING traffic
041	W/TRAF-P	WALK PAVE W/TRAFF	Walking, running, riding, etc., on pavement WITH traffic
042	A/TRAF-P	WALK PAVE A/TRAFF	Walking, running, riding, etc., on pavement FACING traffic
043	PLAYINRD	PLAYING IN RDWY	Playing in street or road
044	PUSH MV	PUSH/WORK MV IN RD	Pushing or working on vehicle in road or on shoulder
045	WORK ON	WORK ON ROAD	Working in roadway or along shoulder
050	LAY ON RD	STAND/LYING IN RD	Standing or lying in roadway
051	ENT OFFR	ENTER FROM OFF ROAD	Entering / starting in traffic lane from off-road
088	OTHER	OTHER	Other action
099	UNK	UNKNOWN	Unknown action

CAUSE CODES

Code	Short Description	Medium Description	Long Description
00	NO CODE	NO CODE APPLICABLE	No cause associated at this level
01	TOO-FAST	TOO FAST FOR COND	Speed too fast for conditions
02	NO-YIELD	FAILED YIELD ROW	Did not yield right-of-way
03	PAS-STOP	PASSED STOP SIGN	Passed stop sign or red flasher
04	DIS--RAG	DISREGARD R-A-G	Disregarded R-A-G traffic signal.
05	LEFT-CTR	DROVE WRONG SIDE	Drove left of center on two-way road
06	IMP-OVER	IMPROPER PASSING	Improper overtaking
07	TOO-CLO	FOLLOW TOO CLOSE	Followed too closely
08	IMP-TURN	IMPROPER TURN	Made improper turn
09	DRINKING	ALC OR DRUGS	Alcohol or Drug Involved
10	OTHR-IMP	OTHER DRIVE ERR	Other improper driving
11	MECH-DE	MECH DEFECT	Mechanical defect
12	OTHER	OTHER	Other (not improper driving)
13	IMP LN C	IMP LANE CHANGE	Improper change of traffic lanes
20	IMP PKNG	IMPROPER PARKING	Vehicle improperly parked
21	DEF STER	DEFECTIVE STEERING	Defective steering mechanism
22	DEF BRKE	DEFECTIVE BRAKES	Inadequate or no brakes
24	LOADSHF	LOAD SHIFTED	Vehicle lost load or load shifted
25	TIREFAIL	TIRE FAILURE	Tire Failure
26	PHANTOM	PHANTOM VEHICLE	Phantom / Non-contact Vehicle
27	INATTENT	INATTENTION	Inattention

ERR CODES

Code	Short Description	Medium Description	Long Description
000	NONE	NO ERROR	No error
001	WIDE TRN	WIDE TURN	Wide turn
002	CUT CORN	CUT CORNER	Cut corner on turn
003	FAIL TRN	F OBEY TRN	Failed to obey mandatory traffic turn signal, sign or lane markings
004	L IN TRF	LTRN FNT TRAF	Left turn in front of oncoming traffic
005	L PROHIB	LTRN PROHIB	Left turn where prohibited
006	FRM WRNG	T FRM WRNG LN	Turned from wrong lane
007	TO WRONG	T TO WRONG LN	Turned into wrong lane
008	ILLEG U	ILLEG U-TURN	U-turned illegally
009	IMP STOP	IMP STOP	Improperly stopped in traffic lane
010	IMP SIG	IMP/FAIL SIG	Improper signal or failure to signal
011	IMP BACK	IMP BACKING	Backing improperly (Not parking)
012	IMP PARK	IMP PARKED	Improperly parked
013	UNPARK	IMP STRT PARK	Improper start leaving parked position
014	IMP STRT	IMP STRT STOP	Improper start from stopped position
015	IMP LGHT	IMP/NO LIGHTS	Improper or no lights (vehicle in traffic)
016	NO DIM	NO DIM LIGHTS	Failed to dim lights (until 4/1/97) / Inattention (after 4/1/97)
017	UNSF VEH	DR UNSAFE VEH	Driving unsafe vehicle (no other error apparent)
018	OTH PARK	PRK MAN N/CLR	Entering, exiting parked position with insufficient clearance or other improper parking maneuve
019	DIS DRIV	DISRG DR SIG	Disregarded other driver's signal
020	DIS SGNL	DISRG TRF SIG	Disregarded traffic signal
021	RAN STOP	DISRG STP SGN	Disregarded stop sign or flashing red
022	DIS SIGN	DISRG WRN SGN	Disregarded warning sign, flares or flashing amber
023	DIS OFCR	DISRG POL/FLG	Disregarded police officer or flagman
024	DIS EMER	DISRG SIR/EMR	Disregarded siren or warning of emergency vehicle
025	DIS RR	DISRG RR SIG	Disregarded RR signal, RR sign, or RR flagman
026	REAR-END	F AVOID STP V	Failed to avoid stopped or parked vehicle ahead other than school bus
027	BIKE ROW	F/YLD ROW BIK	Did not have right-of-way over pedalcyclist
028	NO ROW	NO R-O-W	Did not have right-of-way
029	PED ROW	F/YLD ROW PED	Failed to yield right-of-way to pedestrian
030	PAS CURV	PASS ON CURVE	Passing on a curve
031	PAS WRNG	PASS WRNG SID	Passing on the wrong side
032	PAS TANG	PASS TANGENT	Passing on straight road under unsafe conditions
033	PAS X-WK	PASS STP4PED	Passed vehicle stopped at crosswalk for pedestrian
034	PAS INTR	PASS AT INTER	Passing at intersection
035	PAS HILL	PASS ON HILL	Passing on crest of hill
036	N/PAS ZN	PASS N/PASSNG	Passing in "No Passing" zone
037	PAS TRAF	PASS ONC TRAF	Passing in front of oncoming traffic
038	CUT-IN	CUTTING IN	Cutting in (two lanes - two way only)
039	WRNGSIDE	DR WRONG SIDE	Driving on wrong side of the road
040	THRU MED	DR THRU MEDN	Driving through safety zone or over island
041	F/ST BUS	F/STP SCHLBUS	Failed to stop for school bus

042	F/SLO MV	F/SLO SLO VEH	Failed to decrease speed for slower moving vehicle
043	TO CLOSE	FOLLW TO CLOS	Following too closely (Must be on Officer's Report)
044	STRDL LN	STRD/DR WRNG	Straddling or driving on wrong lanes
045	IMP CHG	IMP LANE CHG	Improper change of traffic lanes
046	WRNG WAY	WRNG WY/1 WA	Wrong way on one-way roadway (Vehicle is deliberately traveling on wrong side)
047	BASCRULE	V BASIC RULE	Driving too fast for conditions (Not excessive speed)
048	OPN DOOR	OPN DOOR TRAF	Opened door into adjacent traffic lane
049	F/MT SPD	F MAINT SPEED	Citation issued for "Failure to maintain reasonable speed"
050	SPEED	SPEED	Excessive Speed
051	RECKLESS	RECKLSS DRVN	Reckless driving
052	CARELESS	CARELSS DRVN	Careless driving
054	X N/SGNL	X-INT NO SGNL	Crossing at intersection – no traffic signal present
055	X W/SGNL	X-INT W/ SGNL	Crossing at intersection – traffic signal present
056	DIAGONAL	X-INT DIAGNL	Crossing at intersection - diagonally
057	BTWN INT	X-BTWN INTER	Crossing between intersections
059	W/TRAF-S	W SHLD W/TRAF	Walking, running, riding, etc., on shoulder WITH traffic
060	A/TRAF-S	W SHLD A/TRAF	Walking, running, riding, etc., on shoulder FACING traffic
061	W/TRAF-P	W PAVE W/TRAF	Walking, running, riding, etc., on pavement WITH traffic
062	A/TRAF-P	W PAVE A/TRAF	Walking, running, riding, etc., on pavement FACING traffic
063	PLAYINRD	PLAY IN RDWY	Playing in street or road
064	PUSH MV	PUSH MV IN RD	Pushing or working on vehicle in road or on shoulder
065	WK IN RD	WORK IN RD	Working in roadway or along shoulder
070	LAYON RD	LYING IN RD	Standing or lying in roadway
073	DIS POL	DISRG POL/FLG	Disregarding Police (eluding)
080	FAIL LN	F MAINT LANE	Failed to maintain lane
081	OFF RD	RAN OFF RD	Ran off road
082	NO CLEAR	MISJUDGE CLR	Driver misjudged clearance
083	OVRSTEER	OVERSTEER	Over Correcting
084	INATTENT	INATTENTION	Inattention (4/1/1997)
085	OVRLOAD	OVERLOAD	Overloading or improper loading of vehicle with cargo or passengers
097	UNA DIS TC	UNA DISRG TCD	Unable to determine which driver disregarded traffic control device

EVENT CODES

Code	Short Description	Medium Description	Long Description
001	FEL/JUMP	FELL/JUMPED MV	Occupant fell, jumped or was ejected from moving vehicle
002	INTERFER	PSNGR INTERFERED	Passenger interfered with driver
003	BUG INTF	ANML INTERFERED	Animal or insect in vehicle interfered with driver
004	PED INV	PED INVOLVED	Pedestrian involved (Non-pedestrian accident)
005	SUB-PED	SUBSEQUENT PED	"Sub-Ped": pedestrian injured subsequent to collision, etc.
006	BIKE INV	PEDALCYCLE INV	Tricycle-Bicycle involved
007	HITCHIKR	HITCHHIKER	Hitchhiker (soliciting a ride)
008	PSNGR TOW	PSNGR TOWED	Passenger being towed or pushed on conveyance
009	ON/OFF V	ON/OFF STOP VEH	Getting on or off stopped or parked vehicle (occupants only)
010	SUB OTRN	SUBSEQ OVERTURN	Overturned after first harmful event
011	MV PUSHD	VEH BEING PUSHED	Vehicle being pushed
012	MV TOWED	VEH TOWED/TOWING	Vehicle towed or had been towing another vehicle
013	FORCED	FORCED BY IMPACT	Vehicle forced by impact into another vehicle, pedalcyclist or pedestrian
014	SET MOTN	MV SET IN MOTION	Vehicle set in motion by non-driver (child released brakes, etc.)
015	RR ROW	RAILROAD ROW	At or on railroad right-of-way (not Light Rail)
016	LT RL ROW	LIGHT RAIL ROW	At or on Light-Rail right-of-way
017	RR HIT V	TRAIN HIT VEH	Train struck vehicle
018	V HIT RR	VEH HIT TRAIN	Vehicle struck train
019	HIT RR CAR	VEH HIT RR CAR	Vehicle struck railroad car on roadway
020	JACKNIFE	JACKKNIFE	Jackknife; trailer or towed vehicle struck towing vehicle
021	TRL OTRN	TRAILER O'TURN	Trailer or towed vehicle overturned
022	CN BROKE	TRLR CONN BROKE	Trailer connection broke
023	DETACH TRL	DETCHD TRLR STRKNG	Detached trailing object struck other vehicle, non-motorist, or object
024	V DOOR OPN	V DOOR OPN IN TRAF	Vehicle door opened into adjacent traffic lane
025	WHEELOFF	WHEEL CAME OFF	Wheel came off
026	HOOD UP	HOOD FLEW UP	Hood flew up
028	LOAD SHIFT	LOAD SHIFTED	Lost load, load moved or shifted
029	TIREFAIL	TIRE FAILURE	Tire Failure
030	PET	PET	Pet: cat, dog and similar
031	LVSTOCK	LIVESTOCK	Stock: cow, calf, bull, steer, sheep, etc.
032	HORSE	HORSE	Horse, mule, or donkey
033	HRSE&RID	HORSE & RIDER	Horse and rider
034	GAME	GAME NO DEER/ELK	Wild animal, game (includes birds; not deer or elk)
035	DEER ELK	DEER OR ELK	Deer or elk, wapiti
036	ANML VEH	ANIMAL-DRAWN VEH	Animal-drawn vehicle
037	CULVERT	CULVERT/MANHOLE	Culvert, open low or high manhole
038	ATENUATN	IMPACT CUSHION	Impact attenuator
039	PK METER	PARKING METER	Parking meter
040	CURB	CURB	Curb (also narrow sidewalks on bridges)
041	JIGGLE	JIGGLE BAR N/MED	Jiggle bars or traffic snake for channelization

042	GDRL END	GUARDRAIL END	Leading edge of guardrail
043	GARDRAIL	GUARDRAIL	Guard rail (not metal median barrier)
044	BARRIER	MEDIAN BARRIER	Median barrier (raised or metal)
045	WALL	WALL	Retailing wall or tunnel wall
046	BR RAIL	BRIDGE RAIL	Bridge railing (on bridge and approach)
047	BR ABUT	BRIDGE ABUTMENT	Bridge abutment (approach ends)
048	BR COLMN	BRIDGE COLUMN	Bridge pillar or column (even though struck protective guard rail first)
049	BR GIRDR	BRIDGE GIRDER	Bridge girder (horizontal structure overhead)
050	ISLAND	TRAFFIC ISLAND	Traffic raised island
051	GORE	GORE	Gore
052	POLE UNK	POLE-UNKNOWN	Pole – type unknown
053	POLE UTL	POLE-UTILITY	Pole – power or telephone
054	ST LIGHT	POLE-ST LIGHT	Pole – street light only
055	TRF SGNL	POLE-TRAF SIGNAL	Pole – traffic signal and ped signal only
056	SGN BRDG	POLE-SIGN BRIDGE	Pole – sign bridge
057	STOPSIGN	STOP/YIELD SIGN	Stop or yield sign
058	OTH SIGN	OTHER SIGN	Other sign, including street signs
059	HYDRANT	HYDRANT	Hydrant
060	MARKER	DELINEATOR	Delineator or marker (reflector posts)
061	MAILBOX	MAILBOX	Mailbox
062	TREE	TREE/STUMP	Tree, stump or shrubs
063	VEG OHED	VEGTN OVER RDWY	Tree branch or other vegetation overhead, etc.
064	WIRE/CBL	CABLE ACROSS RD	Wire or cable across or over the road
065	TEMP SGN	TEMP SIGN/BARR	Temporary sign or barricade in road, etc.
066	PERM SGN	PERM SIGN/BARR	Permanent sign or barricade in/off road
067	SLIDE	SLIDE/ROCKS	Slides, rocks off or on road, falling rocks
068	FRGN OBJ	FOREIGN OBJECT	Foreign obstruction/debris in road (not gravel)
069	EQP WORK	EQUIP WORKING	Equipment working in/off road
070	OTH EQP	OTHER EQUIPMENT	Other equipment in or off road (includes parked trailer, boat)
071	MAIN EQP	MAINTNCE EQUIP	Wrecker, street sweeper, snow plow or sanding equipment
072	OTHER WAL	OTHER WALL	Rock, brick or other solid wall
073	IRRGL PVMT	IRREGULAR PAVEMENT	Speed bump, other bump, pothold or pavement irregularity
075	CAVE IN	CAVE IN	Bridge or road cave in
076	HI WATER	HIGH WATER	High Water
077	SNO BANK	SNOW BANK	Snow Bank
078	HOLE	HOLE/RDWY EDGE	Chuckhole in road, low or high shoulder at pavement edge
079	DITCH	CUT SLOPE/DITCH	Cut slope or ditch embankment
080	OBJ F MV	OBJ FRM OTHR VEH	Struck by rock or other object set in motion by other vehicle (incl. lost loads)
081	FLY-OBJ	OTHER MOVING OBJ	Struck by other moving or flying object
082	VEH HID	VEH OBSCURE VIEW	Vehicle obscured view
083	VEG HID	VEG OBSCURE VIEW	Vegetation obscured view
084	BLDG HID	BLD OBSCURE VIEW	View obscured by fence, sign, phone booth, etc.
085	WIND GUST	WIND GUST	Wind Gust
086	IMMERSED	IMMERSION	Vehicle immersed in body of water
087	FIRE/EXP	FIRE/EXPLOSION	Fire or Explosion

088	FENC/BLD	FENCE/BUILDING	Fence or building, etc.
089	OTH ACDT	REFER OTHER ACDT	Accident related to another separate accident
090	TO 1 SIDE	TWO WAY ONE SIDE	Two-way traffic on divided roadway all routed to one side
092	PHANTOM	PHANTOM VEH	Other (phantom) non-contact vehicle (on PAR or report)
093	CELL-POL	CELLPHONE-POLICE	Cell phone (on PAR or driver in use)
094	VIOL GDL	VIOL GRAD DR LIC	Teenage driver in violation of graduated license pgm
095	GUY WIRE	GUY WIRE	Guy wire
096	BERM	BERM	Berm (earthen or gravel mound)
097	GRAVEL	GRAVEL IN RDWY	Gravel in roadway
098	ABR EDGE	ABRUPT EDGE	Abrupt edge
099	CELL-WTN	CELLPHONE-WITNSS	Cell Phone use witnessed by other participant
100	UNK FIXD	UNK FIX OBJ	Unknown type of fixed object
101	OTHER OBJ	OTHER OBJ NOT FIXED	Other or unknown object, not fixed
104	OUTSIDE V	PSGR OUTSIDE VEHICLE	Passenger riding on vehicle exterior
105	PEDAL PSGR	PSNGR ON PEDALCYCLE	Passenger riding on pedalcycle
106	MAN WHLCH	NONMOTOR WHEELCHAI	Pedestrian in non-motorized wheelchair
107	MTR WHLCH	MOTORIZED WHEELCHAI	Pedestrian in motorized wheelchair
110	N-MTR	NM STR VEH	Non-motorist struck vehicle
111	S CAR VS V	ST CAR STRUCK VEH	Street Car/Trolley (on rails and/or overhead wire system) struck vehicle
112	V VS S CAR	VEH STRUCK ST CAR	Vehicle struck Street Car/Trolley (on rails and/or overhead wire system)
113	S CAR ROW	STREET CAR ROW	At or on Street Car/Trolley right-of-way
125	SHLDR	SHLDR GAVE	Shoulder gave way

APPENDIX D
Capacity Calculations

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱			↰↑↱			↰↑↱			↰↓↱	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	60	551	1	1	391	163	7	0	1	151	0	43
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	63	580	1	1	412	172	7	0	1	159	0	45
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	583			581			960	1292	291	917	1207	292
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	583			581			960	1292	291	917	1207	292
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	94			100			96	100	100	26	100	94
cM capacity (veh/h)	987			989			188	151	706	215	170	705

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1
Volume Total	63	387	194	207	377	8	204
Volume Left	63	0	0	1	0	7	159
Volume Right	0	0	1	0	172	1	45
cSH	987	1700	1700	989	1700	207	255
Volume to Capacity	0.06	0.23	0.11	0.00	0.22	0.04	0.80
Queue Length 95th (ft)	5	0	0	0	0	3	154
Control Delay (s)	8.9	0.0	0.0	0.1	0.0	23.2	58.8
Lane LOS	A			A		C	F
Approach Delay (s)	0.9			0.0		23.2	58.8
Approach LOS						C	F

Intersection Summary			
Average Delay	8.9		
Intersection Capacity Utilization	54.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱			↰↑↱			↰↑↱		↰	↱	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	60	551	1	1	391	163	7	0	1	151	0	43
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	64	592	1	1	420	175	8	0	1	162	0	46
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	595			593			979	1318	296	935	1231	297
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	595			593			979	1318	296	935	1231	297
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	93			100			96	100	100	22	100	93
cM capacity (veh/h)	977			979			181	146	700	209	164	699

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	64	394	198	211	385	9	162	46
Volume Left	64	0	0	1	0	8	162	0
Volume Right	0	0	1	0	175	1	0	46
cSH	977	1700	1700	979	1700	200	209	699
Volume to Capacity	0.07	0.23	0.12	0.00	0.23	0.04	0.78	0.07
Queue Length 95th (ft)	5	0	0	0	0	3	135	5
Control Delay (s)	8.9	0.0	0.0	0.1	0.0	23.8	64.6	10.5
Lane LOS	A			A		C	F	B
Approach Delay (s)	0.9			0.0		23.8	52.6	
Approach LOS						C	F	

Intersection Summary			
Average Delay	8.0		
Intersection Capacity Utilization	53.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱			↰↑↱			↰↑↱		↰	↱	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	60	551	1	1	391	163	7	0	1	151	0	43
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	66	603	1	1	428	178	8	0	1	165	0	47
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	606			604			998	1344	302	954	1255	303
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	606			604			998	1344	302	954	1255	303
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	93			100			96	100	100	18	100	93
cM capacity (veh/h)	968			970			175	140	694	202	159	693

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	66	402	202	215	392	9	165	47
Volume Left	66	0	0	1	0	8	165	0
Volume Right	0	0	1	0	178	1	0	47
cSH	968	1700	1700	970	1700	193	202	693
Volume to Capacity	0.07	0.24	0.12	0.00	0.23	0.05	0.82	0.07
Queue Length 95th (ft)	5	0	0	0	0	4	148	5
Control Delay (s)	9.0	0.0	0.0	0.1	0.0	24.6	72.8	10.6
Lane LOS	A			A		C	F	B
Approach Delay (s)	0.9			0.0		24.6	59.0	
Approach LOS						C	F	

Intersection Summary			
Average Delay	8.9		
Intersection Capacity Utilization	54.1%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix H-4

Capacity Calculations

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱			↰↑↱			✥			✥	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	60	551	1	1	391	163	7	0	1	151	0	43
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	63	580	1	1	412	172	7	0	1	159	0	45
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	583			581			960	1292	291	917	1207	292
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	583			581			960	1292	291	917	1207	292
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	94			100			96	100	100	26	100	94
cM capacity (veh/h)	987			989			188	151	706	215	170	705

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1
Volume Total	63	387	194	207	377	8	204
Volume Left	63	0	0	1	0	7	159
Volume Right	0	0	1	0	172	1	45
cSH	987	1700	1700	989	1700	207	255
Volume to Capacity	0.06	0.23	0.11	0.00	0.22	0.04	0.80
Queue Length 95th (ft)	5	0	0	0	0	3	154
Control Delay (s)	8.9	0.0	0.0	0.1	0.0	23.2	58.8
Lane LOS	A			A		C	F
Approach Delay (s)	0.9			0.0		23.2	58.8
Approach LOS						C	F

Intersection Summary			
Average Delay	8.9		
Intersection Capacity Utilization	54.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	60	551	1	1	391	163	7	0	1	151	0	43
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	64	592	1	1	420	175	8	0	1	162	0	46
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	595			593			979	1318	296	935	1231	297
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	595			593			979	1318	296	935	1231	297
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	93			100			96	100	100	22	100	93
cM capacity (veh/h)	977			979			181	146	700	209	164	699

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	64	394	198	211	385	9	162	46
Volume Left	64	0	0	1	0	8	162	0
Volume Right	0	0	1	0	175	1	0	46
cSH	977	1700	1700	979	1700	200	209	699
Volume to Capacity	0.07	0.23	0.12	0.00	0.23	0.04	0.78	0.07
Queue Length 95th (ft)	5	0	0	0	0	3	135	5
Control Delay (s)	8.9	0.0	0.0	0.1	0.0	23.8	64.6	10.5
Lane LOS	A			A		C	F	B
Approach Delay (s)	0.9			0.0		23.8	52.6	
Approach LOS						C	F	

Intersection Summary				
Average Delay	8.0			
Intersection Capacity Utilization	53.3%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱			↰↑↱			✥		↰	↱	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	60	551	1	1	391	163	7	0	1	151	0	43
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	66	603	1	1	428	178	8	0	1	165	0	47
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	606			604			998	1344	302	954	1255	303
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	606			604			998	1344	302	954	1255	303
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	93			100			96	100	100	18	100	93
cM capacity (veh/h)	968			970			175	140	694	202	159	693

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	66	402	202	215	392	9	165	47
Volume Left	66	0	0	1	0	8	165	0
Volume Right	0	0	1	0	178	1	0	47
cSH	968	1700	1700	970	1700	193	202	693
Volume to Capacity	0.07	0.24	0.12	0.00	0.23	0.05	0.82	0.07
Queue Length 95th (ft)	5	0	0	0	0	4	148	5
Control Delay (s)	9.0	0.0	0.0	0.1	0.0	24.6	72.8	10.6
Lane LOS	A			A		C	F	B
Approach Delay (s)	0.9			0.0		24.6	59.0	
Approach LOS						C	F	

Intersection Summary			
Average Delay	8.9		
Intersection Capacity Utilization	54.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	4.0			4.0			4.0			4.0	
Lane Util. Factor	1.00	0.95			0.95			1.00			1.00	
Frt	1.00	1.00			0.96			0.98			0.97	
Flt Protected	0.95	1.00			1.00			0.96			0.96	
Satd. Flow (prot)	1676	3352			3218			1658			1648	
Flt Permitted	0.24	1.00			0.95			0.78			0.77	
Satd. Flow (perm)	430	3352			3069			1348			1310	
Volume (vph)	89	898	2	2	666	243	11	0	2	224	0	64
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	89	898	2	2	666	243	11	0	2	224	0	64
RTOR Reduction (vph)	0	0	0	0	64	0	0	1	0	0	19	0
Lane Group Flow (vph)	89	900	0	0	847	0	0	12	0	0	269	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	17.2	17.2			17.2			13.3			13.3	
Effective Green, g (s)	17.7	17.7			17.7			13.8			13.8	
Actuated g/C Ratio	0.45	0.45			0.45			0.35			0.35	
Clearance Time (s)	4.5	4.5			4.5			4.5			4.5	
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)	193	1502			1375			471			458	
v/s Ratio Prot		0.27										
v/s Ratio Perm	0.21				c0.28			0.01			c0.21	
v/c Ratio	0.46	0.60			0.62			0.02			0.59	
Uniform Delay, d1	7.6	8.2			8.3			8.4			10.5	
Progression Factor	1.00	1.00			1.00			1.00			1.00	
Incremental Delay, d2	1.7	0.6			0.8			0.0			1.9	
Delay (s)	9.3	8.9			9.1			8.5			12.4	
Level of Service	A	A			A			A			B	
Approach Delay (s)		8.9			9.1			8.5			12.4	
Approach LOS		A			A			A			B	

Intersection Summary			
HCM Average Control Delay	9.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	39.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	81.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	196	111	27	182	91	21
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	206	117	28	192	96	22
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			323		455	206
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			323		455	206
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		83	97
cM capacity (veh/h)			1237		550	834

Direction, Lane #	EB 1	EB 2	WB 1	NB 1
Volume Total	206	117	220	118
Volume Left	0	0	28	96
Volume Right	0	117	0	22
cSH	1700	1700	1237	588
Volume to Capacity	0.12	0.07	0.02	0.20
Queue Length 95th (ft)	0	0	2	19
Control Delay (s)	0.0	0.0	1.2	12.7
Lane LOS			A	B
Approach Delay (s)	0.0		1.2	12.7
Approach LOS				B

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	39.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	291	165	39	270	135	32
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	291	165	39	270	135	32
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			456		639	291
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			456		639	291
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			96		68	96
cM capacity (veh/h)			1105		425	748

Direction, Lane #	EB 1	EB 2	WB 1	NB 1
Volume Total	291	165	309	167
Volume Left	0	0	39	135
Volume Right	0	165	0	32
cSH	1700	1700	1105	463
Volume to Capacity	0.17	0.10	0.04	0.36
Queue Length 95th (ft)	0	0	3	41
Control Delay (s)	0.0	0.0	1.4	17.1
Lane LOS			A	C
Approach Delay (s)	0.0		1.4	17.1
Approach LOS				C

Intersection Summary			
Average Delay	3.5		
Intersection Capacity Utilization	53.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	190	54	79	171	57	115
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	200	57	83	180	60	121

Direction, Lane #	EB 1	WB 1	NB 1	NB 2
Volume Total (vph)	257	263	100	81
Volume Left (vph)	0	83	60	0
Volume Right (vph)	57	0	40	81
Hadj (s)	-0.10	0.10	0.05	-0.67
Departure Headway (s)	4.6	4.8	5.8	5.1
Degree Utilization, x	0.33	0.35	0.16	0.11
Capacity (veh/h)	742	719	579	655
Control Delay (s)	9.9	10.3	8.7	7.5
Approach Delay (s)	9.9	10.3	8.2	
Approach LOS	A	B	A	

Intersection Summary			
Delay	9.6		
HCM Level of Service	A		
Intersection Capacity Utilization	43.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Volume (vph)	282	80	117	255	85	172
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	282	80	117	255	85	172

Direction, Lane #	EB 1	WB 1	NB 1	NB 2
Volume Total (vph)	362	372	142	115
Volume Left (vph)	0	117	85	0
Volume Right (vph)	80	0	57	115
Hadj (s)	-0.10	0.10	0.05	-0.67
Departure Headway (s)	5.1	5.3	6.4	5.7
Degree Utilization, x	0.51	0.54	0.25	0.18
Capacity (veh/h)	679	662	511	582
Control Delay (s)	13.3	14.3	10.4	8.7
Approach Delay (s)	13.3	14.3	9.6	
Approach LOS	B	B	A	

Intersection Summary			
Delay	12.7		
HCM Level of Service	B		
Intersection Capacity Utilization	60.5%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0			
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95			1.00	1.00			
Frt	1.00	1.00	0.85	1.00	1.00			1.00	0.85			
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00			
Satd. Flow (prot)	1676	3353	1500	1676	3353			1681	1500			
Flt Permitted	0.43	1.00	1.00	0.95	1.00			0.73	1.00			
Satd. Flow (perm)	755	3353	1500	1676	3353			1284	1500			
Volume (vph)	1	613	106	139	564	0	143	1	183	0	0	0
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	1	645	112	146	594	0	151	1	193	0	0	0
RTOR Reduction (vph)	0	0	52	0	0	0	0	0	157	0	0	0
Lane Group Flow (vph)	1	645	60	146	594	0	0	152	36	0	0	0
Turn Type	Perm		Perm	Prot			Perm		Perm	Perm		
Protected Phases		2		1	6			8			4	
Permitted Phases	2		2				8		8	4		
Actuated Green, G (s)	43.3	43.3	43.3	10.7	58.5			14.5	14.5			
Effective Green, g (s)	43.8	43.8	43.8	10.7	58.5			15.0	15.0			
Actuated g/C Ratio	0.54	0.54	0.54	0.13	0.72			0.18	0.18			
Clearance Time (s)	4.5	4.5	4.5	4.0	4.0			4.5	4.5			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0			
Lane Grp Cap (vph)	406	1802	806	220	2407			236	276			
v/s Ratio Prot		c0.19		c0.09	0.18							
v/s Ratio Perm	0.00		0.04					c0.12	0.02			
v/c Ratio	0.00	0.36	0.07	0.66	0.25			0.64	0.13			
Uniform Delay, d1	8.7	10.8	9.1	33.7	3.9			30.8	27.8			
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00			
Incremental Delay, d2	0.0	0.6	0.2	7.3	0.2			5.9	0.2			
Delay (s)	8.7	11.4	9.3	41.0	4.2			36.7	28.0			
Level of Service	A	B	A	D	A			D	C			
Approach Delay (s)		11.0			11.5			31.8			0.0	
Approach LOS		B			B			C			A	

Intersection Summary			
HCM Average Control Delay	15.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	81.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	44.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0			4.0	4.0			
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95			1.00	1.00			
Frt	1.00	1.00	0.85	1.00	1.00			1.00	0.85			
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00			
Satd. Flow (prot)	1676	3353	1500	1676	3353			1681	1500			
Flt Permitted	0.31	1.00	1.00	0.95	1.00			0.73	1.00			
Satd. Flow (perm)	546	3353	1500	1676	3353			1285	1500			
Volume (vph)	2	991	158	241	923	0	212	2	301	0	0	0
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	2	991	158	241	923	0	212	2	301	0	0	0
RTOR Reduction (vph)	0	0	100	0	0	0	0	0	213	0	0	0
Lane Group Flow (vph)	2	991	58	241	923	0	0	214	88	0	0	0
Turn Type	Perm		Perm	Prot			Perm		Perm	Perm		
Protected Phases		2		1	6			8			4	
Permitted Phases	2		2				8		8	4		
Actuated Green, G (s)	28.8	28.8	28.8	15.5	48.8			23.4	23.4			
Effective Green, g (s)	29.3	29.3	29.3	15.5	48.8			23.4	23.4			
Actuated g/C Ratio	0.37	0.37	0.37	0.19	0.61			0.29	0.29			
Clearance Time (s)	4.5	4.5	4.5	4.0	4.0			4.0	4.0			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0			
Lane Grp Cap (vph)	199	1225	548	324	2040			375	438			
v/s Ratio Prot		c0.30		c0.14	0.28							
v/s Ratio Perm	0.00		0.04					c0.17	0.06			
v/c Ratio	0.01	0.81	0.11	0.74	0.45			0.57	0.20			
Uniform Delay, d1	16.2	22.9	16.8	30.5	8.5			24.1	21.4			
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00			
Incremental Delay, d2	0.0	4.0	0.1	8.9	0.2			6.2	1.0			
Delay (s)	16.2	27.0	16.9	39.4	8.6			30.3	22.4			
Level of Service	B	C	B	D	A			C	C			
Approach Delay (s)		25.6			15.0			25.7			0.0	
Approach LOS		C			B			C			A	

Intersection Summary			
HCM Average Control Delay	21.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	80.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	65.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frt		0.99			1.00			0.98			0.94	
Flt Protected		1.00			1.00			0.97			0.99	
Satd. Flow (prot)		3297			3332			1678			1644	
Flt Permitted		0.81			0.86			0.78			0.94	
Satd. Flow (perm)		2696			2891			1353			1560	
Volume (vph)	78	655	64	48	679	15	71	38	23	22	40	48
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	82	689	67	51	715	16	75	40	24	23	42	51
RTOR Reduction (vph)	0	7	0	0	1	0	0	16	0	0	42	0
Lane Group Flow (vph)	0	831	0	0	781	0	0	123	0	0	74	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		43.9			43.9			10.5			10.5	
Effective Green, g (s)		43.9			43.9			10.5			10.5	
Actuated g/C Ratio		0.70			0.70			0.17			0.17	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		1897			2034			228			263	
v/s Ratio Prot												
v/s Ratio Perm		c0.31			0.27			c0.09			0.05	
v/c Ratio		0.44			0.38			0.54			0.28	
Uniform Delay, d1		4.0			3.8			23.7			22.6	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.7			0.5			2.6			0.6	
Delay (s)		4.7			4.3			26.3			23.2	
Level of Service		A			A			C			C	
Approach Delay (s)		4.7			4.3			26.3			23.2	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM Average Control Delay	7.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	62.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	69.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰↑↱			↰↑↱			✥			✥	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frt		0.99			1.00			0.97			0.95	
Flt Protected		1.00			1.00			0.98			0.99	
Satd. Flow (prot)		3484			3511			1759			1739	
Flt Permitted		0.65			0.71			0.75			0.89	
Satd. Flow (perm)		2267			2489			1358			1568	
Volume (vph)	115	1083	96	86	1129	38	106	56	50	48	59	71
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	115	1083	96	86	1129	38	106	56	50	48	59	71
RTOR Reduction (vph)	0	7	0	0	3	0	0	14	0	0	30	0
Lane Group Flow (vph)	0	1287	0	0	1250	0	0	198	0	0	148	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		49.0			49.0			23.0			23.0	
Effective Green, g (s)		49.0			49.0			23.0			23.0	
Actuated g/C Ratio		0.61			0.61			0.29			0.29	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Lane Grp Cap (vph)		1389			1525			390			451	
v/s Ratio Prot												
v/s Ratio Perm		c0.57			0.50			c0.15			0.09	
v/c Ratio		0.93			0.82			0.51			0.33	
Uniform Delay, d1		13.9			12.1			23.8			22.4	
Progression Factor		1.00			1.12			1.00			1.00	
Incremental Delay, d2		12.0			2.7			4.7			1.9	
Delay (s)		25.9			16.2			28.5			24.4	
Level of Service		C			B			C			C	
Approach Delay (s)		25.9			16.2			28.5			24.4	
Approach LOS		C			B			C			C	

Intersection Summary			
HCM Average Control Delay	21.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	102.5%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑↱		↰	↑↑↱			✢			✢	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	0.99		1.00	1.00			0.97			0.95	
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.99	
Satd. Flow (prot)	1676	3312		1676	3337			1667			1647	
Flt Permitted	0.16	1.00		0.16	1.00			0.81			0.88	
Satd. Flow (perm)	278	3312		276	3337			1377			1473	
Volume (vph)	115	1083	96	86	1129	38	106	56	50	48	59	71
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	115	1083	96	86	1129	38	106	56	50	48	59	71
RTOR Reduction (vph)	0	13	0	0	5	0	0	17	0	0	37	0
Lane Group Flow (vph)	115	1166	0	86	1162	0	0	195	0	0	141	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	25.6	25.6		25.6	25.6			17.0			17.0	
Effective Green, g (s)	25.6	25.6		25.6	25.6			17.0			17.0	
Actuated g/C Ratio	0.51	0.51		0.51	0.51			0.34			0.34	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	141	1676		140	1688			463			495	
v/s Ratio Prot		0.35			0.35							
v/s Ratio Perm	c0.41			0.31				c0.14			0.10	
v/c Ratio	0.82	0.70		0.61	0.69			0.42			0.29	
Uniform Delay, d1	10.5	9.5		9.0	9.5			13.0			12.3	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	29.1	1.3		7.8	1.2			2.8			1.4	
Delay (s)	39.6	10.8		16.7	10.7			15.8			13.8	
Level of Service	D	B		B	B			B			B	
Approach Delay (s)		13.4			11.1			15.8			13.8	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	12.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	50.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	73.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰↑↑↱			↰↑↑↱			↰↑↱			↰↑↱	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frt		0.99			0.99			0.98			0.97	
Flt Protected		1.00			1.00			0.97			0.99	
Satd. Flow (prot)		3316			3320			1680			1695	
Flt Permitted		0.89			0.85			0.77			0.91	
Satd. Flow (perm)		2970			2821			1323			1567	
Volume (vph)	43	613	36	61	557	22	90	54	30	34	83	31
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	45	645	38	64	586	23	95	57	32	36	87	33
RTOR Reduction (vph)	0	5	0	0	3	0	0	17	0	0	21	0
Lane Group Flow (vph)	0	723	0	0	670	0	0	167	0	0	135	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		33.7			33.7			10.2			10.2	
Effective Green, g (s)		33.7			33.7			10.2			10.2	
Actuated g/C Ratio		0.65			0.65			0.20			0.20	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		1928			1832			260			308	
v/s Ratio Prot												
v/s Ratio Perm		c0.24			0.24			c0.13			0.09	
v/c Ratio		0.38			0.37			0.64			0.44	
Uniform Delay, d1		4.2			4.2			19.2			18.3	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.6			0.6			5.4			1.0	
Delay (s)		4.8			4.8			24.5			19.3	
Level of Service		A			A			C			B	
Approach Delay (s)		4.8			4.8			24.5			19.3	
Approach LOS		A			A			C			B	

Intersection Summary			
HCM Average Control Delay	8.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	51.9	Sum of lost time (s)	8.0
Intersection Capacity Utilization	66.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰↑↱			↰↑↱			↰↑↱			↰↑↱	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frt		0.99			0.99			0.97			0.97	
Flt Protected		1.00			1.00			0.98			0.99	
Satd. Flow (prot)		3506			3498			1762			1788	
Flt Permitted		0.77			0.63			0.73			0.85	
Satd. Flow (perm)		2700			2209			1323			1547	
Volume (vph)	64	1051	53	111	978	53	133	80	64	70	123	46
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	64	1051	53	111	978	53	133	80	64	70	123	46
RTOR Reduction (vph)	0	4	0	0	4	0	0	14	0	0	11	0
Lane Group Flow (vph)	0	1164	0	0	1138	0	0	263	0	0	228	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		42.0			42.0			30.0			30.0	
Effective Green, g (s)		42.0			42.0			30.0			30.0	
Actuated g/C Ratio		0.52			0.52			0.38			0.38	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Lane Grp Cap (vph)		1418			1160			496			580	
v/s Ratio Prot												
v/s Ratio Perm		0.43			c0.52			c0.20			0.15	
v/c Ratio		0.82			0.98			0.53			0.39	
Uniform Delay, d1		15.9			18.6			19.5			18.3	
Progression Factor		0.88			1.00			1.00			1.00	
Incremental Delay, d2		2.5			22.2			4.0			2.0	
Delay (s)		16.4			40.8			23.5			20.3	
Level of Service		B			D			C			C	
Approach Delay (s)		16.4			40.8			23.5			20.3	
Approach LOS		B			D			C			C	

Intersection Summary			
HCM Average Control Delay	27.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	100.3%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
6: US 20 & 15th Ave 12/22/2004

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	0.99		1.00	0.99			0.97			0.97	
Flt Protected	0.95	1.00		0.95	1.00			0.98			0.99	
Satd. Flow (prot)	1676	3329		1676	3327			1670			1694	
Flt Permitted	0.19	1.00		0.17	1.00			0.77			0.86	
Satd. Flow (perm)	339	3329		293	3327			1320			1477	
Volume (vph)	64	1051	53	111	978	53	133	80	64	70	123	46
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	64	1051	53	111	978	53	133	80	64	70	123	46
RTOR Reduction (vph)	0	7	0	0	8	0	0	16	0	0	13	0
Lane Group Flow (vph)	64	1097	0	111	1023	0	0	261	0	0	226	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	24.1	24.1		24.1	24.1			18.5			18.5	
Effective Green, g (s)	24.1	24.1		24.1	24.1			18.5			18.5	
Actuated g/C Ratio	0.48	0.48		0.48	0.48			0.37			0.37	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	161	1586		140	1585			483			540	
v/s Ratio Prot		0.33			0.31							
v/s Ratio Perm	0.19			c0.38				c0.20			0.15	
v/c Ratio	0.40	0.69		0.79	0.65			0.54			0.42	
Uniform Delay, d1	8.6	10.3		11.1	10.0			12.7			12.0	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	1.6	1.3		25.7	0.9			4.3			2.4	
Delay (s)	10.2	11.7		36.8	10.9			17.0			14.4	
Level of Service	B	B		D	B			B			B	
Approach Delay (s)		11.6			13.5			17.0			14.4	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM Average Control Delay	13.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	50.6	Sum of lost time (s)	8.0
Intersection Capacity Utilization	76.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor		0.95		1.00	0.95			1.00			1.00	
Frt		0.99		1.00	0.98			0.94			0.95	
Flt Protected		1.00		0.95	1.00			0.98			0.98	
Satd. Flow (prot)		3304		1676	3284			1631			1645	
Flt Permitted		0.85		0.28	1.00			0.88			0.84	
Satd. Flow (perm)		2824		493	3284			1458			1406	
Volume (vph)	58	595	49	64	583	93	52	41	78	75	44	67
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	61	626	52	67	614	98	55	43	82	79	46	71
RTOR Reduction (vph)	0	11	0	0	26	0	0	43	0	0	29	0
Lane Group Flow (vph)	0	728	0	67	686	0	0	137	0	0	167	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		17.9		17.4	17.4			22.5			22.5	
Effective Green, g (s)		17.9		17.9	17.9			22.5			22.5	
Actuated g/C Ratio		0.37		0.37	0.37			0.46			0.46	
Clearance Time (s)		4.0		4.5	4.5			4.0			4.0	
Vehicle Extension (s)		3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)		1044		182	1215			678			654	
v/s Ratio Prot					0.21							
v/s Ratio Perm		c0.26		0.14				0.09			c0.12	
v/c Ratio		0.70		0.37	0.56			0.20			0.26	
Uniform Delay, d1		12.9		11.1	12.1			7.6			7.9	
Progression Factor		1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2		2.0		1.3	0.6			0.7			0.9	
Delay (s)		15.0		12.4	12.7			8.3			8.8	
Level of Service		B		B	B			A			A	
Approach Delay (s)		15.0			12.7			8.3			8.8	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	12.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	48.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	67.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑↱		↰	↑↑	↱	↰	↱		↰	↱	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.94		1.00	0.89	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1676	3316		1676	3353	1500	1676	1652		1676	1579	
Flt Permitted	0.10	1.00		0.17	1.00	1.00	0.49	1.00		0.31	1.00	
Satd. Flow (perm)	179	3316		304	3353	1500	866	1652		540	1579	
Volume (vph)	237	913	73	96	897	308	78	161	120	282	110	260
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	237	913	73	96	897	308	78	161	120	282	110	260
RTOR Reduction (vph)	0	5	0	0	0	79	0	22	0	0	68	0
Lane Group Flow (vph)	237	981	0	96	897	229	78	259	0	282	302	0
Turn Type	pm+pt			pm+pt		Perm	pm+pt			pm+pt		
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6		6	8			4		
Actuated Green, G (s)	55.4	44.6		41.3	35.0	35.0	33.2	28.5		49.2	40.5	
Effective Green, g (s)	55.4	44.6		42.3	35.5	35.5	33.2	28.5		49.2	40.5	
Actuated g/C Ratio	0.49	0.40		0.38	0.32	0.32	0.29	0.25		0.44	0.36	
Clearance Time (s)	4.0	4.0		4.5	4.5	4.5	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	299	1313		197	1057	473	289	418		404	568	
v/s Ratio Prot	c0.11	0.30		0.03	c0.27		0.01	0.16		c0.10	0.19	
v/s Ratio Perm	0.28			0.15		0.15	0.07			c0.20		
v/c Ratio	0.79	0.75		0.49	0.85	0.48	0.27	0.62		0.70	0.53	
Uniform Delay, d1	28.1	29.2		24.4	36.0	31.1	29.4	37.3		22.9	28.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	13.4	2.4		1.9	6.5	0.8	0.5	6.8		5.2	3.5	
Delay (s)	41.5	31.5		26.3	42.5	31.9	29.9	44.0		28.1	32.1	
Level of Service	D	C		C	D	C	C	D		C	C	
Approach Delay (s)		33.5			38.8			41.0			30.4	
Approach LOS		C			D			D			C	

Intersection Summary			
HCM Average Control Delay	35.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	112.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	86.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	67	155	63	20	153	37	72	79	20	38	112	38
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	74	172	70	22	170	41	80	88	22	42	124	42

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	317	233	190	209
Volume Left (vph)	74	22	80	42
Volume Right (vph)	70	41	22	42
Hadj (s)	-0.05	-0.05	0.05	-0.05
Departure Headway (s)	5.5	5.6	5.9	5.8
Degree Utilization, x	0.48	0.36	0.31	0.34
Capacity (veh/h)	616	587	541	559
Control Delay (s)	13.4	11.7	11.6	11.7
Approach Delay (s)	13.4	11.7	11.6	11.7
Approach LOS	B	B	B	B

Intersection Summary			
Delay	12.2		
HCM Level of Service	B		
Intersection Capacity Utilization	57.3%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	148	230	94	30	227	87	108	149	30	71	185	67
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	148	230	94	30	227	87	108	149	30	71	185	67

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	472	344	287	323
Volume Left (vph)	148	30	108	71
Volume Right (vph)	94	87	30	67
Hadj (s)	-0.02	-0.10	0.05	-0.05
Departure Headway (s)	7.8	8.0	8.4	8.2
Degree Utilization, x	1.02	0.76	0.67	0.73
Capacity (veh/h)	462	434	406	419
Control Delay (s)	75.2	32.6	27.0	30.7
Approach Delay (s)	75.2	32.6	27.0	30.7
Approach LOS	F	D	D	D

Intersection Summary			
Delay	45.1		
HCM Level of Service	E		
Intersection Capacity Utilization	81.5%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↱		↰	↱			✥			✥	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	148	230	94	30	227	87	108	149	30	71	185	67
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	148	230	94	30	227	87	108	149	30	71	185	67

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	148	324	30	314	287	323
Volume Left (vph)	148	0	30	0	108	71
Volume Right (vph)	0	94	0	87	30	67
Hadj (s)	0.53	-0.17	0.53	-0.16	0.05	-0.05
Departure Headway (s)	8.4	7.7	8.6	7.9	7.7	7.5
Degree Utilization, x	0.35	0.69	0.07	0.69	0.61	0.67
Capacity (veh/h)	408	447	393	430	423	446
Control Delay (s)	14.6	24.8	11.0	25.1	22.1	24.4
Approach Delay (s)	21.6		23.9		22.1	24.4
Approach LOS	C		C		C	C

Intersection Summary			
Delay	22.9		
HCM Level of Service	C		
Intersection Capacity Utilization	64.9%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱			✥			✥	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	29	438	38	34	432	19	30	2	31	7	5	29
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	31	461	40	36	455	20	32	2	33	7	5	31
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	475			501			874	1088	251	862	1098	237
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	475			501			874	1088	251	862	1098	237
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			97			86	99	96	97	97	96
cM capacity (veh/h)	1084			1059			219	201	749	225	198	764

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	31	307	194	36	303	172	66	43
Volume Left	31	0	0	36	0	0	32	7
Volume Right	0	0	40	0	0	20	33	31
cSH	1084	1700	1700	1059	1700	1700	334	435
Volume to Capacity	0.03	0.18	0.11	0.03	0.18	0.10	0.20	0.10
Queue Length 95th (ft)	2	0	0	3	0	0	18	8
Control Delay (s)	8.4	0.0	0.0	8.5	0.0	0.0	18.4	14.2
Lane LOS	A			A			C	B
Approach Delay (s)	0.5			0.6			18.4	14.2
Approach LOS							C	B

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	36.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱			✥			✥	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	57	830	81	50	822	34	64	8	46	16	7	52
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	57	830	81	50	822	34	64	8	46	16	7	52
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	856			911			1551	1940	456	1518	1964	428
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	856			911			1551	1940	456	1518	1964	428
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	93			93			0	86	92	73	87	91
cM capacity (veh/h)	780			743			57	56	552	60	54	575

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	57	553	358	50	548	308	118	75
Volume Left	57	0	0	50	0	0	64	16
Volume Right	0	0	81	0	0	34	46	52
cSH	780	1700	1700	743	1700	1700	87	154
Volume to Capacity	0.07	0.33	0.21	0.07	0.32	0.18	1.35	0.49
Queue Length 95th (ft)	6	0	0	5	0	0	221	58
Control Delay (s)	10.0	0.0	0.0	10.2	0.0	0.0	303.4	48.8
Lane LOS	A			B			F	E
Approach Delay (s)	0.6			0.6			303.4	48.8
Approach LOS							F	E

Intersection Summary			
Average Delay	19.6		
Intersection Capacity Utilization	52.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑↱		↰	↑↑↱		↰	↱		↰	↱	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	57	830	81	50	822	34	64	8	46	16	7	52
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	57	830	81	50	822	34	64	8	46	16	7	52
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	856			911			1551	1940	456	1518	1964	428
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	856			911			1551	1940	456	1518	1964	428
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	93			93			0	86	92	73	87	91
cM capacity (veh/h)	780			743			57	56	552	60	54	575

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1	SB 2
Volume Total	57	553	358	50	548	308	64	54	16	59
Volume Left	57	0	0	50	0	0	64	0	16	0
Volume Right	0	0	81	0	0	34	0	46	0	52
cSH	780	1700	1700	743	1700	1700	57	238	60	268
Volume to Capacity	0.07	0.33	0.21	0.07	0.32	0.18	1.13	0.23	0.27	0.22
Queue Length 95th (ft)	6	0	0	5	0	0	134	21	23	21
Control Delay (s)	10.0	0.0	0.0	10.2	0.0	0.0	278.6	24.5	85.8	22.2
Lane LOS	A			B			F	C	F	C
Approach Delay (s)	0.6			0.6			162.3		35.8	
Approach LOS							F		E	

Intersection Summary			
Average Delay	11.1		
Intersection Capacity Utilization	50.7%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
10: US 20 & 47th Ave 12/22/2004

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	31	293	14	1	313	9	6	2	6	7	1	19
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	33	308	15	1	329	9	6	2	6	7	1	20
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	339			323			568	722	162	563	725	169
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	339			323			568	722	162	563	725	169
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			100			98	99	99	98	100	98
cM capacity (veh/h)	1217			1233			386	342	855	395	340	845

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	33	206	118	1	220	119	15	28
Volume Left	33	0	0	1	0	0	6	7
Volume Right	0	0	15	0	0	9	6	20
cSH	1217	1700	1700	1233	1700	1700	493	626
Volume to Capacity	0.03	0.12	0.07	0.00	0.13	0.07	0.03	0.05
Queue Length 95th (ft)	2	0	0	0	0	0	2	4
Control Delay (s)	8.0	0.0	0.0	7.9	0.0	0.0	12.5	11.0
Lane LOS	A			A			B	B
Approach Delay (s)	0.7			0.0			12.5	11.0
Approach LOS							B	B

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	26.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱			✣			✣	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	111	490	21	2	535	29	40	5	20	26	12	94
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	111	490	21	2	535	29	40	5	20	26	12	94
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	564			511			1094	1290	256	1043	1286	282
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	564			511			1094	1290	256	1043	1286	282
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	89			100			68	97	97	84	92	87
cM capacity (veh/h)	1004			1050			125	144	744	159	145	715

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	111	327	184	2	357	207	65	132
Volume Left	111	0	0	2	0	0	40	26
Volume Right	0	0	21	0	0	29	20	94
cSH	1004	1700	1700	1050	1700	1700	171	349
Volume to Capacity	0.11	0.19	0.11	0.00	0.21	0.12	0.38	0.38
Queue Length 95th (ft)	9	0	0	0	0	0	41	43
Control Delay (s)	9.0	0.0	0.0	8.4	0.0	0.0	38.5	21.4
Lane LOS	A			A			E	C
Approach Delay (s)	1.6			0.0			38.5	21.4
Approach LOS							E	C

Intersection Summary			
Average Delay	4.6		
Intersection Capacity Utilization	43.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	33	217	33	0	250	5	25	4	0	8	4	37
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	35	228	35	0	263	5	26	4	0	8	4	39
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	268			263			488	584	132	452	598	134
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	268			263			488	584	132	452	598	134
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			100			94	99	100	98	99	96
cM capacity (veh/h)	1292			1298			430	411	893	477	403	890

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	149	149	132	137	31	52
Volume Left	35	0	0	0	26	8
Volume Right	0	35	0	5	0	39
cSH	1292	1700	1298	1700	427	718
Volume to Capacity	0.03	0.09	0.00	0.08	0.07	0.07
Queue Length 95th (ft)	2	0	0	0	6	6
Control Delay (s)	2.0	0.0	0.0	0.0	14.1	10.4
Lane LOS	A				B	B
Approach Delay (s)	1.0		0.0		14.1	10.4
Approach LOS					B	B

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	32.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰↑↑↱			↰↑↑↱			↰↑↱			↰↑↱	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	53	383	53	0	436	7	48	6	0	12	6	65
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	53	383	53	0	436	7	48	6	0	12	6	65
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	443			436			802	958	218	740	982	222
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	443			436			802	958	218	740	982	222
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	95			100			80	98	100	96	97	92
cM capacity (veh/h)	1113			1120			239	244	786	288	236	782

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	244	244	218	225	54	83
Volume Left	53	0	0	0	48	12
Volume Right	0	53	0	7	0	65
cSH	1113	1700	1120	1700	239	553
Volume to Capacity	0.05	0.14	0.00	0.13	0.23	0.15
Queue Length 95th (ft)	4	0	0	0	21	13
Control Delay (s)	2.2	0.0	0.0	0.0	24.4	12.7
Lane LOS	A				C	B
Approach Delay (s)	1.1		0.0		24.4	12.7
Approach LOS					C	B

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	45.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	53	383	53	0	436	7	48	6	0	12	6	65
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	53	383	53	0	436	7	48	6	0	12	6	65
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	443			436			802	958	218	740	982	222
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	443			436			802	958	218	740	982	222
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	95			100			80	98	100	96	97	92
cM capacity (veh/h)	1113			1120			239	244	786	288	236	782

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1
Volume Total	53	255	181	218	225	54	83
Volume Left	53	0	0	0	0	48	12
Volume Right	0	0	53	0	7	0	65
cSH	1113	1700	1700	1120	1700	239	553
Volume to Capacity	0.05	0.15	0.11	0.00	0.13	0.23	0.15
Queue Length 95th (ft)	4	0	0	0	0	21	13
Control Delay (s)	8.4	0.0	0.0	0.0	0.0	24.4	12.7
Lane LOS	A					C	B
Approach Delay (s)	0.9			0.0		24.4	12.7
Approach LOS						C	B

Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	45.7%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix H-5

Queuing

Intersection: 1: US 20 & Pleasant Valley, Interval #1

Movement	EB	WB	WB	NB	SB
Directions Served	L	LT	TR	LR	LR
Maximum Queue (ft)	35	11	3	29	132
Average Queue (ft)	15	2	0	11	81
95th Queue (ft)	39	11	0	32	142
Link Distance (ft)		1665	1665	199	563
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	150				
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 1: US 20 & Pleasant Valley, Interval #2

Movement	EB	WB	NB	SB
Directions Served	L	TR	LR	LR
Maximum Queue (ft)	36	5	30	177
Average Queue (ft)	14	0	6	74
95th Queue (ft)	36	3	26	151
Link Distance (ft)		1665	199	563
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	150			
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 1: US 20 & Pleasant Valley, All Intervals

Movement	EB	WB	WB	NB	SB
Directions Served	L	LT	TR	LR	LR
Maximum Queue (ft)	40	11	8	30	202
Average Queue (ft)	14	0	0	7	76
95th Queue (ft)	37	5	3	27	150
Link Distance (ft)		1665	1665	199	563
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	150				
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 2: ORE 228 & Oak Terrace, Interval #1

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	23	83
Average Queue (ft)	6	53
95th Queue (ft)	28	97
Link Distance (ft)	861	1085
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: ORE 228 & Oak Terrace, Interval #2

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	60	104
Average Queue (ft)	9	47
95th Queue (ft)	39	80
Link Distance (ft)	861	1085
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: ORE 228 & Oak Terrace, All Intervals

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	60	113
Average Queue (ft)	9	48
95th Queue (ft)	37	85
Link Distance (ft)	861	1085
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: ORE 228 & Long St, Interval #1

Movement	EB	WB	NB	NB
Directions Served	TR	LT	LR	R
Maximum Queue (ft)	112	99	46	42
Average Queue (ft)	61	72	27	28
95th Queue (ft)	106	99	48	46
Link Distance (ft)	861	111	3424	3424
Upstream Blk Time (%)		0.00		
Queuing Penalty (veh)		1		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: ORE 228 & Long St, Interval #2

Movement	EB	WB	NB	NB
Directions Served	TR	LT	LR	R
Maximum Queue (ft)	95	108	58	54
Average Queue (ft)	50	66	25	28
95th Queue (ft)	77	98	48	50
Link Distance (ft)	861	111	3424	3424
Upstream Blk Time (%)		0.00		
Queuing Penalty (veh)		0		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: ORE 228 & Long St, All Intervals

Movement	EB	WB	NB	NB
Directions Served	TR	LT	LR	R
Maximum Queue (ft)	124	112	58	54
Average Queue (ft)	53	68	26	28
95th Queue (ft)	86	99	48	49
Link Distance (ft)	861	111	3424	3424
Upstream Blk Time (%)		0.00		
Queuing Penalty (veh)		1		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 4: US 20 & ORE 228, Interval #1

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	T	L	T	TR	LT	R
Maximum Queue (ft)	118	118	128	102	112	113	58
Average Queue (ft)	76	68	78	50	48	64	22
95th Queue (ft)	127	127	136	104	107	118	63
Link Distance (ft)	1665	1665		1123	1123	111	111
Upstream Blk Time (%)						0.02	0.00
Queuing Penalty (veh)						3	0
Storage Bay Dist (ft)			150				
Storage Blk Time (%)	0.07		0.00	0.00			
Queuing Penalty (veh)	0		1	0			

Intersection: 4: US 20 & ORE 228, Interval #2

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	T	L	T	TR	LT	R
Maximum Queue (ft)	139	142	158	102	104	119	53
Average Queue (ft)	68	63	75	40	46	61	16
95th Queue (ft)	123	120	133	85	92	110	46
Link Distance (ft)	1665	1665		1123	1123	111	111
Upstream Blk Time (%)						0.01	
Queuing Penalty (veh)						2	
Storage Bay Dist (ft)			150				
Storage Blk Time (%)	0.06		0.00				
Queuing Penalty (veh)	0		1				

Intersection: 4: US 20 & ORE 228, All Intervals

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	T	L	T	TR	LT	R
Maximum Queue (ft)	143	145	162	118	117	120	74
Average Queue (ft)	70	64	76	42	47	62	18
95th Queue (ft)	124	121	134	90	96	112	51
Link Distance (ft)	1665	1665		1123	1123	111	111
Upstream Blk Time (%)						0.02	0.00
Queuing Penalty (veh)						2	0
Storage Bay Dist (ft)			150				
Storage Blk Time (%)	0.06		0.00	0.00			
Queuing Penalty (veh)	0		1	0			

Intersection: 5: US 20 & 12th Ave, Interval #1

Movement	EB	EB	WB	WB	NB	SB
Directions Served	LT	TR	LT	TR	LTR	LTR
Maximum Queue (ft)	151	138	115	85	92	79
Average Queue (ft)	91	72	62	37	50	48
95th Queue (ft)	163	145	127	91	97	86
Link Distance (ft)	1123	1123	834	834	426	216
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 5: US 20 & 12th Ave, Interval #2

Movement	EB	EB	WB	WB	NB	SB
Directions Served	LT	TR	LT	TR	LTR	LTR
Maximum Queue (ft)	185	175	124	104	110	91
Average Queue (ft)	90	65	51	32	48	43
95th Queue (ft)	167	142	105	86	92	80
Link Distance (ft)	1123	1123	834	834	426	216
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 5: US 20 & 12th Ave, All Intervals

Movement	EB	EB	WB	WB	NB	SB
Directions Served	LT	TR	LT	TR	LTR	LTR
Maximum Queue (ft)	190	179	133	108	110	100
Average Queue (ft)	90	67	54	33	49	44
95th Queue (ft)	166	143	111	87	93	82
Link Distance (ft)	1123	1123	834	834	426	216
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 6: US 20 & 15th Ave, Interval #1

Movement	EB	EB	WB	WB	NB	SB
Directions Served	LT	TR	LT	TR	LTR	LTR
Maximum Queue (ft)	138	130	138	113	113	103
Average Queue (ft)	78	70	80	60	66	50
95th Queue (ft)	143	142	136	118	121	98
Link Distance (ft)	834	834	942	942	231	429
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 6: US 20 & 15th Ave, Interval #2

Movement	EB	EB	WB	WB	NB	SB
Directions Served	LT	TR	LT	TR	LTR	LTR
Maximum Queue (ft)	167	151	155	140	132	107
Average Queue (ft)	67	61	76	54	62	50
95th Queue (ft)	137	121	139	116	110	93
Link Distance (ft)	834	834	942	942	231	429
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 6: US 20 & 15th Ave, All Intervals

Movement	EB	EB	WB	WB	NB	SB
Directions Served	LT	TR	LT	TR	LTR	LTR
Maximum Queue (ft)	182	170	156	140	146	115
Average Queue (ft)	70	63	77	56	63	50
95th Queue (ft)	139	127	138	116	113	94
Link Distance (ft)	834	834	942	942	231	429
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 7: US 20 & 18th Ave, Interval #1

Movement	EB	EB	WB	WB	WB	NB	SB
Directions Served	LT	TR	L	T	TR	LTR	LTR
Maximum Queue (ft)	157	166	58	132	130	96	97
Average Queue (ft)	106	106	35	83	76	55	51
95th Queue (ft)	165	165	67	134	126	98	95
Link Distance (ft)	942	942		2590	2590	266	555
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			150				
Storage Blk Time (%)				0.00			
Queuing Penalty (veh)				0			

Intersection: 7: US 20 & 18th Ave, Interval #2

Movement	EB	EB	WB	WB	WB	NB	SB
Directions Served	LT	TR	L	T	TR	LTR	LTR
Maximum Queue (ft)	185	187	99	158	142	134	105
Average Queue (ft)	107	100	30	79	69	50	49
95th Queue (ft)	175	177	70	130	116	101	93
Link Distance (ft)	942	942		2590	2590	266	555
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			150				
Storage Blk Time (%)				0.00			
Queuing Penalty (veh)				0			

Intersection: 7: US 20 & 18th Ave, All Intervals

Movement	EB	EB	WB	WB	WB	NB	SB
Directions Served	LT	TR	L	T	TR	LTR	LTR
Maximum Queue (ft)	187	192	103	162	158	134	109
Average Queue (ft)	106	102	32	80	71	51	49
95th Queue (ft)	173	175	70	131	118	100	93
Link Distance (ft)	942	942		2590	2590	266	555
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			150				
Storage Blk Time (%)				0.00			
Queuing Penalty (veh)				0			

Intersection: 8: Long St & 18th Ave, Interval #1

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	109	68	62	79
Average Queue (ft)	71	51	45	49
95th Queue (ft)	114	70	69	76
Link Distance (ft)	3424	875	169	266
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Long St & 18th Ave, Interval #2

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	118	77	75	77
Average Queue (ft)	62	47	44	44
95th Queue (ft)	99	74	68	69
Link Distance (ft)	3424	875	169	266
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Long St & 18th Ave, All Intervals

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	130	81	76	83
Average Queue (ft)	65	48	44	45
95th Queue (ft)	103	73	68	71
Link Distance (ft)	3424	875	169	266
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 9: US 20 & Clark Mill Rd, Interval #1

Movement	EB	EB	WB	NB	SB
Directions Served	L	TR	L	LTR	LTR
Maximum Queue (ft)	18	4	22	41	29
Average Queue (ft)	4	1	8	24	16
95th Queue (ft)	17	6	23	44	35
Link Distance (ft)		1740		426	1176
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	150		150		
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 9: US 20 & Clark Mill Rd, Interval #2

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	LTR	LTR
Maximum Queue (ft)	26	4	28	4	54	38
Average Queue (ft)	4	0	6	0	24	15
95th Queue (ft)	18	3	21	3	48	33
Link Distance (ft)		1740		6381	426	1176
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	150		150			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 9: US 20 & Clark Mill Rd, All Intervals

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	LTR	LTR
Maximum Queue (ft)	26	8	31	4	56	38
Average Queue (ft)	4	0	7	0	24	15
95th Queue (ft)	18	4	22	3	47	34
Link Distance (ft)		1740		6381	426	1176
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	150		150			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 10: US 20 & 47th Ave, Interval #1

Movement	EB	NB	SB
Directions Served	L	LTR	LTR
Maximum Queue (ft)	23	21	23
Average Queue (ft)	7	6	13
95th Queue (ft)	22	21	29
Link Distance (ft)		473	427
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	150		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: US 20 & 47th Ave, Interval #2

Movement	EB	NB	SB
Directions Served	L	LTR	LTR
Maximum Queue (ft)	30	24	28
Average Queue (ft)	4	8	11
95th Queue (ft)	20	24	28
Link Distance (ft)		473	427
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	150		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: US 20 & 47th Ave, All Intervals

Movement	EB	NB	SB
Directions Served	L	LTR	LTR
Maximum Queue (ft)	31	24	28
Average Queue (ft)	5	7	12
95th Queue (ft)	20	24	29
Link Distance (ft)		473	427
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	150		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 11: US 20 & 53rd Ave, Interval #1

Movement	EB	NB	SB
Directions Served	LT	LTR	LTR
Maximum Queue (ft)	17	22	33
Average Queue (ft)	4	8	21
95th Queue (ft)	16	23	36
Link Distance (ft)	2253	1008	569
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 11: US 20 & 53rd Ave, Interval #2

Movement	EB	NB	SB
Directions Served	LT	LTR	LTR
Maximum Queue (ft)	29	29	34
Average Queue (ft)	6	8	17
95th Queue (ft)	21	23	34
Link Distance (ft)	2253	1008	569
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 11: US 20 & 53rd Ave, All Intervals

Movement	EB	NB	SB
Directions Served	LT	LTR	LTR
Maximum Queue (ft)	29	34	42
Average Queue (ft)	5	8	18
95th Queue (ft)	20	23	35
Link Distance (ft)	2253	1008	569
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Nework Summary

Network wide Queuing Penalty, Interval #1: 5
Network wide Queuing Penalty, Interval #2: 4
Network wide Queuing Penalty, All Intervals: 4

Intersection: 1: US 20 & Pleasant Valley, Interval #1

Movement	EB	WB	WB	NB	SB
Directions Served	L	LT	TR	LR	LR
Maximum Queue (ft)	46	16	7	33	588
Average Queue (ft)	25	2	2	14	582
95th Queue (ft)	50	19	12	39	592
Link Distance (ft)		1665	1665	199	563
Upstream Blk Time (%)					0.91
Queuing Penalty (veh)					0
Storage Bay Dist (ft)	150				
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 1: US 20 & Pleasant Valley, Interval #2

Movement	EB	EB	EB	WB	WB	NB	SB
Directions Served	L	T	TR	LT	TR	LR	LR
Maximum Queue (ft)	91	136	136	6	18	54	592
Average Queue (ft)	33	30	30	0	2	16	582
95th Queue (ft)	73	256	254	5	12	51	590
Link Distance (ft)		662	662	1665	1665	199	563
Upstream Blk Time (%)		0.02	0.02				0.96
Queuing Penalty (veh)		0	0				0
Storage Bay Dist (ft)	150						
Storage Blk Time (%)		0.03					
Queuing Penalty (veh)		3					

Intersection: 1: US 20 & Pleasant Valley, All Intervals

Movement	EB	EB	EB	WB	WB	NB	SB
Directions Served	L	T	TR	LT	TR	LR	LR
Maximum Queue (ft)	95	136	136	17	18	54	592
Average Queue (ft)	31	23	23	1	2	16	582
95th Queue (ft)	69	221	219	10	12	49	591
Link Distance (ft)		662	662	1665	1665	199	563
Upstream Blk Time (%)		0.02	0.01				0.95
Queuing Penalty (veh)		0	0				0
Storage Bay Dist (ft)	150						
Storage Blk Time (%)		0.03					
Queuing Penalty (veh)		2					

Intersection: 2: ORE 228 & Oak Terrace, Interval #1

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	67	160
Average Queue (ft)	23	89
95th Queue (ft)	63	177
Link Distance (ft)	861	1085
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: ORE 228 & Oak Terrace, Interval #2

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	105	219
Average Queue (ft)	20	98
95th Queue (ft)	83	186
Link Distance (ft)	861	1085
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: ORE 228 & Oak Terrace, All Intervals

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	117	232
Average Queue (ft)	21	95
95th Queue (ft)	79	184
Link Distance (ft)	861	1085
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: ORE 228 & Long St, Interval #1

Movement	EB	WB	NB	NB
Directions Served	TR	LT	LR	R
Maximum Queue (ft)	231	124	89	62
Average Queue (ft)	108	92	47	40
95th Queue (ft)	224	136	88	70
Link Distance (ft)	861	111	3416	
Upstream Blk Time (%)		0.02		
Queuing Penalty (veh)		7		
Storage Bay Dist (ft)				300
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: ORE 228 & Long St, Interval #2

Movement	EB	WB	NB	NB
Directions Served	TR	LT	LR	R
Maximum Queue (ft)	408	146	115	93
Average Queue (ft)	165	103	56	43
95th Queue (ft)	401	144	104	81
Link Distance (ft)	861	111	3416	
Upstream Blk Time (%)		0.03		
Queuing Penalty (veh)		13		
Storage Bay Dist (ft)				300
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: ORE 228 & Long St, All Intervals

Movement	EB	WB	NB	NB
Directions Served	TR	LT	LR	R
Maximum Queue (ft)	411	146	116	96
Average Queue (ft)	151	100	53	42
95th Queue (ft)	368	143	101	78
Link Distance (ft)	861	111	3416	
Upstream Blk Time (%)		0.03		
Queuing Penalty (veh)		12		
Storage Bay Dist (ft)				300
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 4: US 20 & ORE 228, Interval #1

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	T	L	T	TR	LT	R
Maximum Queue (ft)	275	250	174	369	334	121	112
Average Queue (ft)	205	176	135	221	171	101	59
95th Queue (ft)	274	248	226	501	384	138	117
Link Distance (ft)	1665	1665		1123	1123	111	111
Upstream Blk Time (%)						0.13	0.01
Queuing Penalty (veh)						29	2
Storage Bay Dist (ft)			150				
Storage Blk Time (%)	0.38		0.30	0.01			
Queuing Penalty (veh)	1		139	1			

Intersection: 4: US 20 & ORE 228, Interval #2

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB
Directions Served	L	T	T	R	L	T	TR	LT	R
Maximum Queue (ft)	1	649	618	189	181	688	630	123	127
Average Queue (ft)	0	333	314	23	150	269	221	97	67
95th Queue (ft)	1	929	909	161	221	618	519	142	133
Link Distance (ft)		1665	1665			1123	1123	111	111
Upstream Blk Time (%)		0.04	0.03					0.13	0.05
Queuing Penalty (veh)		20	20					30	11
Storage Bay Dist (ft)	75			300	150				
Storage Blk Time (%)		0.45	0.08	0.00	0.43	0.00			
Queuing Penalty (veh)		1	13	0	200	1			

Intersection: 4: US 20 & ORE 228, All Intervals

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB
Directions Served	L	T	T	R	L	T	TR	LT	R
Maximum Queue (ft)	1	649	618	189	181	688	630	124	127
Average Queue (ft)	0	302	281	18	146	257	209	98	65
95th Queue (ft)	0	831	810	138	224	593	491	141	129
Link Distance (ft)		1665	1665			1123	1123	111	111
Upstream Blk Time (%)		0.03	0.03					0.13	0.04
Queuing Penalty (veh)		15	15					30	9
Storage Bay Dist (ft)	75			300	150				
Storage Blk Time (%)		0.43	0.06	0.00	0.40	0.00			
Queuing Penalty (veh)		1	10	0	185	1			

Intersection: 5: US 20 & 12th Ave, Interval #1

Movement	EB	EB	WB	WB	NB	SB
Directions Served	LT	TR	LT	TR	LTR	LTR
Maximum Queue (ft)	606	565	622	620	197	182
Average Queue (ft)	426	394	479	465	116	108
95th Queue (ft)	677	657	764	765	190	198
Link Distance (ft)	1123	1123	856	856	425	216
Upstream Blk Time (%)			0.01	0.02		0.02
Queuing Penalty (veh)			7	10		0
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 5: US 20 & 12th Ave, Interval #2

Movement	EB	EB	WB	WB	NB	SB
Directions Served	LT	TR	LT	TR	LTR	LTR
Maximum Queue (ft)	917	934	801	801	281	205
Average Queue (ft)	596	574	552	538	140	107
95th Queue (ft)	1082	1084	938	941	242	184
Link Distance (ft)	1123	1123	856	856	425	216
Upstream Blk Time (%)	0.04	0.04	0.03	0.03		0.01
Queuing Penalty (veh)	23	25	17	18		0
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 5: US 20 & 12th Ave, All Intervals

Movement	EB	EB	WB	WB	NB	SB
Directions Served	LT	TR	LT	TR	LTR	LTR
Maximum Queue (ft)	946	959	811	803	293	222
Average Queue (ft)	555	530	534	520	135	107
95th Queue (ft)	1012	1011	902	905	232	187
Link Distance (ft)	1123	1123	856	856	425	216
Upstream Blk Time (%)	0.03	0.03	0.03	0.03		0.01
Queuing Penalty (veh)	17	18	15	16		0
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 6: US 20 & 15th Ave, Interval #1

Movement	EB	EB	WB	WB	NB	SB
Directions Served	LT	TR	LT	TR	LTR	LTR
Maximum Queue (ft)	594	606	641	625	236	170
Average Queue (ft)	361	345	473	455	163	118
95th Queue (ft)	629	611	708	703	257	197
Link Distance (ft)	856	856	901	901	226	423
Upstream Blk Time (%)			0.00	0.00	0.05	
Queuing Penalty (veh)			2	0	0	
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 6: US 20 & 15th Ave, Interval #2

Movement	EB	EB	WB	WB	NB	SB
Directions Served	LT	TR	LT	TR	LTR	LTR
Maximum Queue (ft)	650	626	887	883	247	250
Average Queue (ft)	368	355	724	709	162	128
95th Queue (ft)	703	698	1138	1140	269	216
Link Distance (ft)	856	856	901	901	226	423
Upstream Blk Time (%)	0.00	0.01	0.12	0.09	0.08	
Queuing Penalty (veh)	1	3	74	55	0	
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 6: US 20 & 15th Ave, All Intervals

Movement	EB	EB	WB	WB	NB	SB
Directions Served	LT	TR	LT	TR	LTR	LTR
Maximum Queue (ft)	662	656	902	900	247	258
Average Queue (ft)	366	353	663	648	162	125
95th Queue (ft)	686	678	1081	1081	266	212
Link Distance (ft)	856	856	901	901	226	423
Upstream Blk Time (%)	0.00	0.00	0.09	0.07	0.08	
Queuing Penalty (veh)	1	2	56	41	0	
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 7: US 20 & 18th Ave, Interval #1

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	TR
Maximum Queue (ft)	226	296	312	156	1019	986	77	234	81	376
Average Queue (ft)	136	186	214	69	742	733	36	121	79	372
95th Queue (ft)	239	292	329	157	1155	1147	77	225	82	377
Link Distance (ft)		901	901		2597	2597		270		353
Upstream Blk Time (%)								0.00		0.61
Queuing Penalty (veh)								1		0
Storage Bay Dist (ft)	200			150			50		50	
Storage Blk Time (%)	0.05	0.05			0.57		0.08	0.30	0.69	0.41
Queuing Penalty (veh)	22	12			55		21	24	256	115

Intersection: 7: US 20 & 18th Ave, Interval #2

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	TR
Maximum Queue (ft)	231	617	596	179	1793	1799	79	265	87	376
Average Queue (ft)	167	281	267	76	1418	1410	46	128	78	372
95th Queue (ft)	277	612	535	176	1906	1891	87	227	88	376
Link Distance (ft)		901	901		2597	2597		270		353
Upstream Blk Time (%)		0.00	0.00					0.01		0.64
Queuing Penalty (veh)		1	0					4		0
Storage Bay Dist (ft)	200			150			50		50	
Storage Blk Time (%)	0.29	0.04		0.01	0.65		0.12	0.32	0.64	0.38
Queuing Penalty (veh)	132	10		3	62		33	25	236	108

Intersection: 7: US 20 & 18th Ave, All Intervals

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	TR
Maximum Queue (ft)	231	617	596	179	1793	1799	79	266	87	377
Average Queue (ft)	160	258	255	74	1255	1247	43	126	78	372
95th Queue (ft)	270	559	498	171	1926	1914	85	227	87	376
Link Distance (ft)		901	901		2597	2597		270		353
Upstream Blk Time (%)		0.00	0.00					0.01		0.63
Queuing Penalty (veh)		1	0					3		0
Storage Bay Dist (ft)	200			150			50		50	
Storage Blk Time (%)	0.23	0.04		0.00	0.63		0.11	0.31	0.65	0.39
Queuing Penalty (veh)	104	10		2	60		30	24	241	110

Intersection: 8: Long St & 18th Ave, Interval #1

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	269	234	141	110
Average Queue (ft)	170	135	90	76
95th Queue (ft)	285	251	151	122
Link Distance (ft)	3416	870	169	270
Upstream Blk Time (%)			0.03	
Queuing Penalty (veh)			0	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Long St & 18th Ave, Interval #2

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	756	297	190	200
Average Queue (ft)	345	156	105	83
95th Queue (ft)	809	346	187	162
Link Distance (ft)	3416	870	169	270
Upstream Blk Time (%)			0.05	
Queuing Penalty (veh)			0	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 8: Long St & 18th Ave, All Intervals

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	756	316	192	200
Average Queue (ft)	303	151	101	81
95th Queue (ft)	729	327	179	154
Link Distance (ft)	3416	870	169	270
Upstream Blk Time (%)			0.04	
Queuing Penalty (veh)			0	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 9: US 20 & Clark Mill Rd, Interval #1

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	LTR	LTR
Maximum Queue (ft)	45	5	36	5	137	69
Average Queue (ft)	16	0	17	1	71	34
95th Queue (ft)	47	0	40	7	137	67
Link Distance (ft)		1740		6381	426	1176
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	150		150			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 9: US 20 & Clark Mill Rd, Interval #2

Movement	EB	EB	WB	NB	SB
Directions Served	L	TR	L	LTR	LTR
Maximum Queue (ft)	51	5	51	163	110
Average Queue (ft)	17	0	14	69	38
95th Queue (ft)	42	5	37	135	81
Link Distance (ft)		1740		426	1176
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	150		150		
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 9: US 20 & Clark Mill Rd, All Intervals

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	LTR	LTR
Maximum Queue (ft)	58	10	51	5	176	118
Average Queue (ft)	17	0	15	0	70	37
95th Queue (ft)	44	5	38	3	136	78
Link Distance (ft)		1740		6381	426	1176
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	150		150			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 10: US 20 & 47th Ave, Interval #1

Movement	EB	WB	NB	SB
Directions Served	L	TR	LTR	LTR
Maximum Queue (ft)	45	5	47	94
Average Queue (ft)	20	1	27	47
95th Queue (ft)	45	7	53	99
Link Distance (ft)		2253	473	427
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	150			
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 10: US 20 & 47th Ave, Interval #2

Movement	EB	EB	NB	SB
Directions Served	L	TR	LTR	LTR
Maximum Queue (ft)	67	5	60	114
Average Queue (ft)	23	0	27	46
95th Queue (ft)	52	4	50	87
Link Distance (ft)		6381	473	427
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	150			
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 10: US 20 & 47th Ave, All Intervals

Movement	EB	EB	WB	NB	SB
Directions Served	L	TR	TR	LTR	LTR
Maximum Queue (ft)	67	5	5	61	115
Average Queue (ft)	22	0	0	27	46
95th Queue (ft)	51	4	3	51	90
Link Distance (ft)		6381	2253	473	427
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	150				
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 11: US 20 & 53rd Ave, Interval #1

Movement	EB	NB	SB
Directions Served	LT	LTR	LTR
Maximum Queue (ft)	34	48	40
Average Queue (ft)	12	20	27
95th Queue (ft)	38	43	47
Link Distance (ft)	2253	1008	569
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 11: US 20 & 53rd Ave, Interval #2

Movement	EB	NB	SB
Directions Served	LT	LTR	LTR
Maximum Queue (ft)	73	61	67
Average Queue (ft)	17	17	29
95th Queue (ft)	51	43	51
Link Distance (ft)	2253	1008	569
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 11: US 20 & 53rd Ave, All Intervals

Movement	EB	NB	SB
Directions Served	LT	LTR	LTR
Maximum Queue (ft)	73	62	67
Average Queue (ft)	16	18	29
95th Queue (ft)	48	43	50
Link Distance (ft)	2253	1008	569
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Nework Summary

Network wide Queuing Penalty, Interval #1: 705
Network wide Queuing Penalty, Interval #2: 1140
Network wide Queuing Penalty, All Intervals: 1031

Intersection: 1: US 20 & Pleasant Valley, Interval #1

Movement	EB	EB	EB	WB	WB	NB	SB
Directions Served	L	T	TR	LT	TR	LR	LR
Maximum Queue (ft)	83	119	135	149	168	29	170
Average Queue (ft)	44	76	78	78	92	10	99
95th Queue (ft)	86	119	133	153	170	33	161
Link Distance (ft)		662	662	1665	1665	199	563
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	150						
Storage Blk Time (%)		0.00					
Queuing Penalty (veh)		0					

Intersection: 1: US 20 & Pleasant Valley, Interval #2

Movement	EB	EB	EB	WB	WB	NB	SB
Directions Served	L	T	TR	LT	TR	LR	LR
Maximum Queue (ft)	104	153	154	215	242	38	207
Average Queue (ft)	49	81	69	84	105	8	101
95th Queue (ft)	92	137	124	170	200	30	177
Link Distance (ft)		662	662	1665	1665	199	563
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	150						
Storage Blk Time (%)	0.00	0.00					
Queuing Penalty (veh)	0	0					

Intersection: 1: US 20 & Pleasant Valley, All Intervals

Movement	EB	EB	EB	WB	WB	NB	SB
Directions Served	L	T	TR	LT	TR	LR	LR
Maximum Queue (ft)	105	160	172	217	242	38	215
Average Queue (ft)	48	79	71	83	102	9	100
95th Queue (ft)	91	133	127	166	194	30	173
Link Distance (ft)		662	662	1665	1665	199	563
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	150						
Storage Blk Time (%)	0.00	0.00					
Queuing Penalty (veh)	0	0					

Intersection: 2: ORE 228 & Oak Terrace, Interval #1

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	64	182
Average Queue (ft)	20	106
95th Queue (ft)	64	194
Link Distance (ft)	854	1085
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: ORE 228 & Oak Terrace, Interval #2

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	137	159
Average Queue (ft)	29	80
95th Queue (ft)	90	137
Link Distance (ft)	854	1085
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: ORE 228 & Oak Terrace, All Intervals

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	137	198
Average Queue (ft)	27	86
95th Queue (ft)	85	155
Link Distance (ft)	854	1085
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: ORE 228 & Long St, Interval #1

Movement	EB	WB	NB	NB
Directions Served	TR	LT	LR	R
Maximum Queue (ft)	148	129	55	62
Average Queue (ft)	95	96	39	42
95th Queue (ft)	164	130	60	69
Link Distance (ft)	854	105	3412	
Upstream Blk Time (%)		0.03		
Queuing Penalty (veh)		11		
Storage Bay Dist (ft)				300
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: ORE 228 & Long St, Interval #2

Movement	EB	WB	NB	NB
Directions Served	TR	LT	LR	R
Maximum Queue (ft)	233	133	109	63
Average Queue (ft)	87	97	44	37
95th Queue (ft)	171	135	87	61
Link Distance (ft)	854	105	3412	
Upstream Blk Time (%)		0.03		
Queuing Penalty (veh)		12		
Storage Bay Dist (ft)				300
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: ORE 228 & Long St, All Intervals

Movement	EB	WB	NB	NB
Directions Served	TR	LT	LR	R
Maximum Queue (ft)	252	137	109	66
Average Queue (ft)	89	97	43	38
95th Queue (ft)	170	134	81	63
Link Distance (ft)	854	105	3412	
Upstream Blk Time (%)		0.03		
Queuing Penalty (veh)		12		
Storage Bay Dist (ft)				300
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 4: US 20 & ORE 228, Interval #1

Movement	EB	EB	WB	WB	WB	NB	NB
Directions Served	T	T	L	T	TR	LT	R
Maximum Queue (ft)	306	288	167	288	275	111	109
Average Queue (ft)	210	190	138	174	149	84	69
95th Queue (ft)	331	299	204	339	292	126	136
Link Distance (ft)	1665	1665		1123	1123	105	105
Upstream Blk Time (%)						0.03	0.04
Queuing Penalty (veh)						8	8
Storage Bay Dist (ft)			150				
Storage Blk Time (%)	0.38	0.00	0.20	0.02			
Queuing Penalty (veh)	1	1	91	5			

Intersection: 4: US 20 & ORE 228, Interval #2

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB
Directions Served	L	T	T	R	L	T	TR	LT	R
Maximum Queue (ft)	40	361	328	65	179	401	379	120	107
Average Queue (ft)	2	211	193	3	145	183	170	88	56
95th Queue (ft)	24	314	289	54	211	377	344	136	108
Link Distance (ft)		1665	1665			1123	1123	105	105
Upstream Blk Time (%)								0.08	0.01
Queuing Penalty (veh)								17	2
Storage Bay Dist (ft)	75			300	150				
Storage Blk Time (%)		0.37	0.00		0.26	0.02			
Queuing Penalty (veh)		1	0		122	5			

Intersection: 4: US 20 & ORE 228, All Intervals

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB
Directions Served	L	T	T	R	L	T	TR	LT	R
Maximum Queue (ft)	40	361	328	65	179	401	379	120	109
Average Queue (ft)	1	211	192	2	143	180	165	87	60
95th Queue (ft)	20	319	292	47	210	368	333	134	116
Link Distance (ft)		1665	1665			1123	1123	105	105
Upstream Blk Time (%)								0.07	0.02
Queuing Penalty (veh)								15	4
Storage Bay Dist (ft)	75			300	150				
Storage Blk Time (%)		0.37	0.00		0.25	0.02			
Queuing Penalty (veh)		1	0		114	5			

Intersection: 5: US 20 & 12th Ave, Interval #1

Movement	EB	EB	EB	WB	WB	WB	NB	SB
Directions Served	L	T	TR	L	T	TR	LTR	LTR
Maximum Queue (ft)	108	307	301	79	249	224	126	110
Average Queue (ft)	65	173	165	37	118	107	74	70
95th Queue (ft)	121	301	292	87	249	227	130	113
Link Distance (ft)		1123	1123		856	856	425	216
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	100			100				
Storage Blk Time (%)	0.01	0.09			0.05			
Queuing Penalty (veh)	7	11			4			

Intersection: 5: US 20 & 12th Ave, Interval #2

Movement	EB	EB	EB	WB	WB	WB	NB	SB
Directions Served	L	T	TR	L	T	TR	LTR	LTR
Maximum Queue (ft)	129	337	349	118	296	271	154	145
Average Queue (ft)	64	175	167	45	112	96	79	73
95th Queue (ft)	121	328	314	98	248	219	137	131
Link Distance (ft)		1123	1123		856	856	425	216
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	100			100				
Storage Blk Time (%)	0.03	0.08		0.00	0.05			
Queuing Penalty (veh)	17	9		2	4			

Intersection: 5: US 20 & 12th Ave, All Intervals

Movement	EB	EB	EB	WB	WB	WB	NB	SB
Directions Served	L	T	TR	L	T	TR	LTR	LTR
Maximum Queue (ft)	129	339	357	118	300	282	158	149
Average Queue (ft)	64	174	167	43	113	99	78	72
95th Queue (ft)	121	322	309	96	248	221	135	127
Link Distance (ft)		1123	1123		856	856	425	216
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	100			100				
Storage Blk Time (%)	0.03	0.08		0.00	0.05			
Queuing Penalty (veh)	15	10		1	4			

Intersection: 6: US 20 & 15th Ave, Interval #1

Movement	EB	EB	EB	WB	WB	WB	NB	SB
Directions Served	L	T	TR	L	T	TR	LTR	LTR
Maximum Queue (ft)	78	190	186	105	273	275	207	154
Average Queue (ft)	26	110	103	62	168	159	148	88
95th Queue (ft)	58	210	205	123	321	305	250	156
Link Distance (ft)		856	856		901	901	226	423
Upstream Blk Time (%)							0.13	
Queuing Penalty (veh)							0	
Storage Bay Dist (ft)	100			100				
Storage Blk Time (%)		0.07		0.02	0.08			
Queuing Penalty (veh)		5		9	9			

Intersection: 6: US 20 & 15th Ave, Interval #2

Movement	EB	EB	EB	WB	WB	WB	NB	SB
Directions Served	L	T	TR	L	T	TR	LTR	LTR
Maximum Queue (ft)	119	323	311	129	314	292	220	190
Average Queue (ft)	44	153	145	61	137	135	127	92
95th Queue (ft)	101	295	277	125	274	265	223	162
Link Distance (ft)		856	856		901	901	226	423
Upstream Blk Time (%)							0.03	
Queuing Penalty (veh)							0	
Storage Bay Dist (ft)	100			100				
Storage Blk Time (%)	0.00	0.09		0.02	0.06			
Queuing Penalty (veh)	1	6		11	7			

Intersection: 6: US 20 & 15th Ave, All Intervals

Movement	EB	EB	EB	WB	WB	WB	NB	SB
Directions Served	L	T	TR	L	T	TR	LTR	LTR
Maximum Queue (ft)	119	323	317	131	314	299	235	190
Average Queue (ft)	40	142	135	62	144	141	132	91
95th Queue (ft)	93	279	264	125	287	276	231	161
Link Distance (ft)		856	856		901	901	226	423
Upstream Blk Time (%)							0.05	
Queuing Penalty (veh)							0	
Storage Bay Dist (ft)	100			100				
Storage Blk Time (%)	0.00	0.09		0.02	0.06			
Queuing Penalty (veh)	0	5		11	7			

Intersection: 7: US 20 & 18th Ave, Interval #1

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	T	R	L	TR	L	TR
Maximum Queue (ft)	219	417	417	146	506	502	104	137	260	150	462
Average Queue (ft)	168	282	283	72	348	344	88	61	176	122	242
95th Queue (ft)	254	446	435	164	575	575	122	137	284	184	421
Link Distance (ft)		901	901		2592	2592			264		512
Upstream Blk Time (%)									0.02		0.01
Queuing Penalty (veh)									9		0
Storage Bay Dist (ft)	200			150			75	150		125	
Storage Blk Time (%)	0.04	0.17		0.01	0.38	0.44	0.05		0.15	0.13	0.16
Queuing Penalty (veh)	16	40		3	36	135	22		12	49	45

Intersection: 7: US 20 & 18th Ave, Interval #2

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	T	R	L	TR	L	TR
Maximum Queue (ft)	226	470	457	176	652	668	114	179	282	155	529
Average Queue (ft)	145	251	254	67	429	426	84	62	190	135	338
95th Queue (ft)	238	417	417	164	646	656	131	152	314	183	611
Link Distance (ft)		901	901		2592	2592			264		512
Upstream Blk Time (%)									0.07		0.11
Queuing Penalty (veh)									27		0
Storage Bay Dist (ft)	200			150			75	150		125	
Storage Blk Time (%)	0.03	0.14		0.00	0.44	0.49	0.05		0.24	0.30	0.17
Queuing Penalty (veh)	15	33		1	42	149	21		19	111	47

Intersection: 7: US 20 & 18th Ave, All Intervals

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	T	R	L	TR	L	TR
Maximum Queue (ft)	226	487	469	176	652	668	114	179	282	155	533
Average Queue (ft)	151	259	261	68	410	406	85	62	187	132	315
95th Queue (ft)	243	425	422	164	636	643	129	148	307	184	577
Link Distance (ft)		901	901		2592	2592			264		512
Upstream Blk Time (%)									0.06		0.08
Queuing Penalty (veh)									23		0
Storage Bay Dist (ft)	200			150			75	150		125	
Storage Blk Time (%)	0.03	0.15		0.00	0.43	0.47	0.05		0.22	0.26	0.16
Queuing Penalty (veh)	15	35		1	41	146	21		17	95	46

Intersection: 8: Long St & 18th Ave, Interval #1

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	LTR	LTR
Maximum Queue (ft)	101	135	55	141	177	161
Average Queue (ft)	50	89	21	90	103	92
95th Queue (ft)	96	153	67	156	225	157
Link Distance (ft)		3412		870	953	264
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	150		150			
Storage Blk Time (%)		0.02		0.02		
Queuing Penalty (veh)		3		0		

Intersection: 8: Long St & 18th Ave, Interval #2

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	LTR	LTR
Maximum Queue (ft)	137	163	175	340	259	173
Average Queue (ft)	57	87	36	139	114	89
95th Queue (ft)	104	141	126	297	248	155
Link Distance (ft)		3412		870	953	264
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	150		150			
Storage Blk Time (%)	0.00	0.00		0.16		
Queuing Penalty (veh)	0	1		5		

Intersection: 8: Long St & 18th Ave, All Intervals

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	LTR	LTR
Maximum Queue (ft)	140	177	175	340	275	181
Average Queue (ft)	55	88	32	127	111	89
95th Queue (ft)	102	144	115	273	242	156
Link Distance (ft)		3412		870	953	264
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	150		150			
Storage Blk Time (%)	0.00	0.01		0.13		
Queuing Penalty (veh)	0	1		4		

Intersection: 9: US 20 & Clark Mill Rd, Interval #1

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	31	4	42	4	51	43	29	42
Average Queue (ft)	14	1	17	1	28	23	10	21
95th Queue (ft)	35	6	45	6	60	44	29	42
Link Distance (ft)		1734		6374		425		1175
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	150		150		125		75	
Storage Blk Time (%)								0.00
Queuing Penalty (veh)								0

Intersection: 9: US 20 & Clark Mill Rd, Interval #2

Movement	EB	EB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	L	TR	L	TR
Maximum Queue (ft)	32	4	48	92	59	46	51
Average Queue (ft)	12	0	11	38	21	8	18
95th Queue (ft)	29	5	31	81	42	32	38
Link Distance (ft)		1734			425		1175
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	150		150	125		75	
Storage Blk Time (%)				0.00		0.00	0.00
Queuing Penalty (veh)				0		0	0

Intersection: 9: US 20 & Clark Mill Rd, All Intervals

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR
Maximum Queue (ft)	41	8	61	4	96	60	50	58
Average Queue (ft)	12	0	13	0	35	22	8	19
95th Queue (ft)	31	5	35	3	77	42	32	39
Link Distance (ft)		1734		6374		425		1175
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	150		150		125		75	
Storage Blk Time (%)					0.00		0.00	0.00
Queuing Penalty (veh)					0		0	0

Intersection: 10: US 20 & 47th Ave, Interval #1

Movement	EB	WB	NB	SB
Directions Served	L	L	LTR	LTR
Maximum Queue (ft)	43	6	53	80
Average Queue (ft)	22	0	33	39
95th Queue (ft)	45	5	59	83
Link Distance (ft)			472	427
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	150	150		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 10: US 20 & 47th Ave, Interval #2

Movement	EB	WB	WB	NB	SB
Directions Served	L	L	TR	LTR	LTR
Maximum Queue (ft)	64	3	4	77	105
Average Queue (ft)	18	0	0	31	37
95th Queue (ft)	46	3	3	59	77
Link Distance (ft)			2251	472	427
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	150	150			
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 10: US 20 & 47th Ave, All Intervals

Movement	EB	WB	WB	NB	SB
Directions Served	L	L	TR	LTR	LTR
Maximum Queue (ft)	64	9	4	77	106
Average Queue (ft)	19	0	0	31	37
95th Queue (ft)	46	3	3	59	79
Link Distance (ft)			2251	472	427
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	150	150			
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 11: US 20 & 53rd Ave, Interval #1

Movement	EB	NB	SB
Directions Served	L	LTR	LTR
Maximum Queue (ft)	25	44	30
Average Queue (ft)	9	19	21
95th Queue (ft)	25	45	35
Link Distance (ft)	2251	1002	563
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 11: US 20 & 53rd Ave, Interval #2

Movement	EB	WB	NB	SB
Directions Served	L	TR	LTR	LTR
Maximum Queue (ft)	30	4	45	57
Average Queue (ft)	7	0	15	27
95th Queue (ft)	23	3	37	47
Link Distance (ft)	2251	1660	1002	563
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 11: US 20 & 53rd Ave, All Intervals

Movement	EB	WB	NB	SB
Directions Served	L	TR	LTR	LTR
Maximum Queue (ft)	38	4	48	57
Average Queue (ft)	8	0	16	25
95th Queue (ft)	24	3	39	45
Link Distance (ft)	2251	1660	1002	563
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Nework Summary

Network wide Queuing Penalty, Interval #1: 538
Network wide Queuing Penalty, Interval #2: 688
Network wide Queuing Penalty, All Intervals: 650

Appendix H-6

Signal Warrant/
Turn Lane
Guidelines

INTERSECTION US 20 / PLEASANT VALLEY YEAR 2004

LANE CONFIGURATION 1 x 1 2 x 1 2 x 2 other ________

Traffic Volumes	Major Street (both approaches)	Minor Street (high volume approach)	Minor Street (50% Right Turn Reduction?)
AM Peak Hour (Traffic Count)			
PM Peak Hour (Traffic Count)	1144	190	
8th Hour Volumes (0.7*PM Peak)	840	124	
4th Hour Volumes (0.8*PM Peak)	1049	157	

Warrant 1,Eight-Hour Vehicular Volume

Lane Configuration (Major x Minor)	Condition A 100%		Condition A 80%		Condition B 100%		Condition B 80%	
	Major	Minor	Major	Minor	Major	Minor	Major	Minor
1 x 1	500	150	400	120	750	75	600	60
2 (or more) x 1	600	150	480	120	900	75	720	60
2 (or more) x 2 (or more)	600	200	480	120	900	100	720	80
1 x 2 (or more)	500	200	400	120	750	100	600	80

Warrant 1: Condition A or Condition B met at 100% for 8th hour volumes? YES

Warrant 1: Condition A and Condition B met at 80% for 8th hour volumes? YES

Warrant 2, Four-Hour Vehicular Volume

Figure 4C-1 (four hour volumes)

Warrant 2 met for 4th hour volumes? YES

Warrant 3, Peak Hour

Figure 4C-3 (peak hour volumes)

Warrant 3 met for AM peak volumes? ________

Warrant 3 met for PM peak volumes? YES

Warrant 4, Pedestrian Volume

Description Page 4C-10

Warrant 4 Met? ________

Warrant 5, School Crossing

Number of adequate gaps in traffic during the period children are using the crossing is less than the number of minutes in the same period?

Warrant 5 Met? ________

Warrant 6, Coordinated Signal System

Description Page 4C-12 Warrant 6 Met? ________

Warrant 7, Crash Experience

A. Adequate trials with satisfactory observance and enforcement has failed to reduce the crash frequency; and

B. Five or more reported crashes, of types susceptible to correction by a traffic control signal, within a 12-month period, each crash involving personal injury or property damage; and

C. For each of 8 hours of an average day, the vph given in both of the 80% columns of Condition A (Table 4C-1), or the vph in both of the 80% columns of Condition B (Table 4C-1) exists on the major-street and the higher-volume minor -street approach, or the volume of pedestrian traffic is not less than 80% of the requirements specified in the Pedestrian Volume warrant.

Warrant 7 Met? ________

Warrant 8, Roadway Network

A. The intersection has a total existing, or immediately projected, entering volume of at least 1,000 vph during the peak hour of a typical weekday and has 5-year projected traffic volumes, based on an engineering study, that meet one or more of Warrants 1, 2, and 3 during an average weekday? or

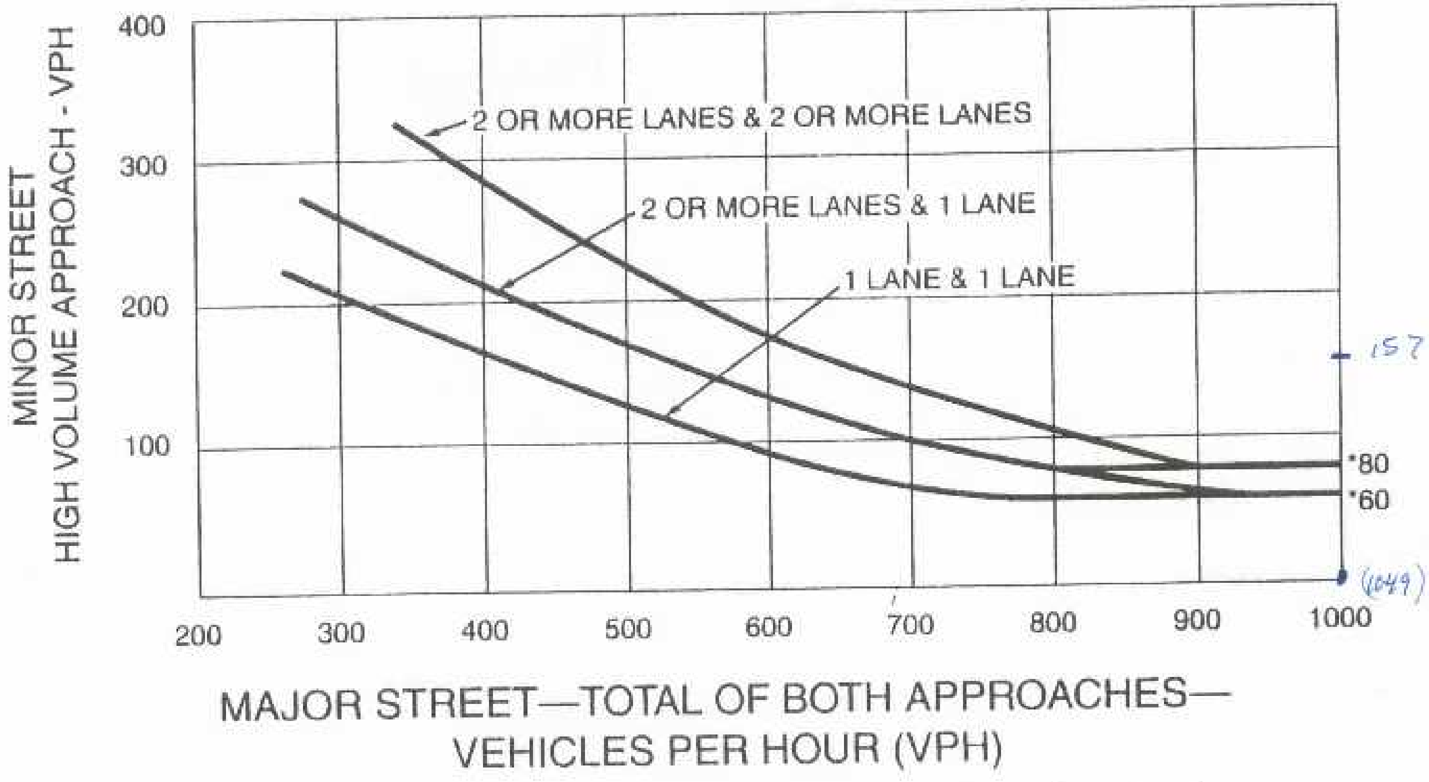
B. The intersection has a total existing or immediately projected entering volume of at least 1,000 vph for each of any 5 hours of a non-normal business day (Saturday or Sunday)?

Warrant 8 Met? ________

2004 VS / PLEASANT VALLEY

Figure 4C-2. Warrant 2, Four-Hour Vehicular Volume (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)

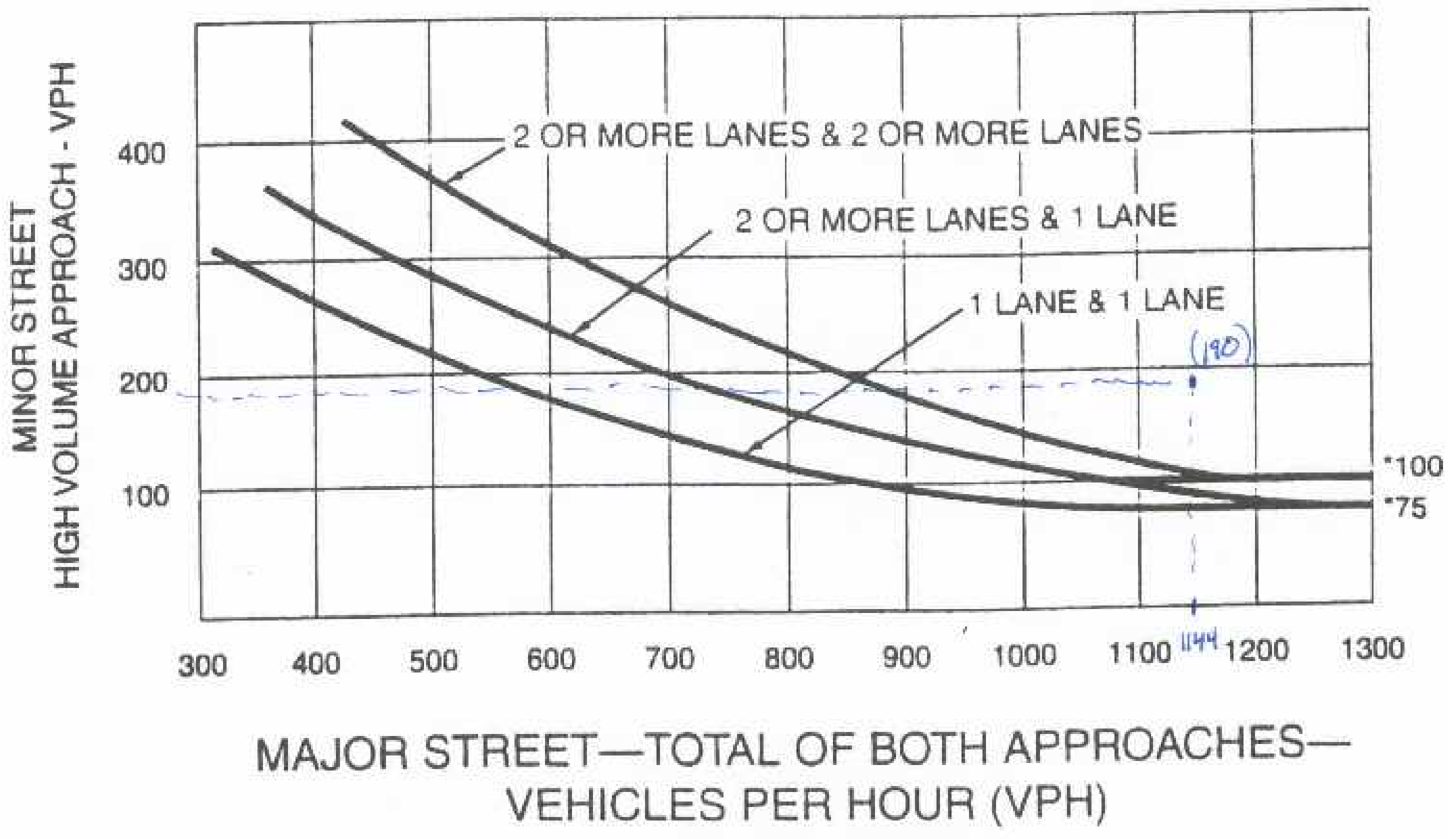


*Note: 80 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor-street approach with one lane.

PM PEAK US 20 / PLEASANT VALLEY 2004

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h (40 mph) ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Oregon Department of Transportation

Transportation Development Branch

Transportation Planning Analysis Unit

Preliminary Traffic Signal Warrant Analysis[1]

Major Street: US 20	**Minor Street:** PLEASANT VALLEY
Project: SWEET HOME TSP	**City/County:** SWEET HOME
Year: 2005 DHV	**Alternative:**

Preliminary Signal Warrant Volumes

Number of Approach lanes		ADT on major street approaching from both directions		ADT on minor street, highest approaching volume	
Major Street	Minor Street	Percent of standard warrants 100	70	percent of standard warrants 100	70
Case A: Minimum Vehicular Traffic					
1	1	8,850	6,200	2,650	1,850
2 or more	1	10,600	7,400	2,650	1,850
2 or more	2 or more	10,600	7,400	3,550	2,500
1	2 or more	8,850	6,200	3,550	2,500
Case B: Interruption of Continuous Traffic					
1	1	13,300	9,300	1,350	950
2 or more	1	15,900	11,100	1,350	950
2 or more	2 or more	15,900	11,100	1,750	1,250
1	2 or more	13,300	9,300	1,750	1,250

5.65% of the above ADT volumes is equal to the MUTCD vehicles per hour (vph)

	100 percent of standard warrants
✓	70 percent of standard warrants[2]

Preliminary Signal Warrant Calculation

	Street	Number of Lanes	Warrant Volumes	Approach Volumes	Warrant Met
Case A	Major	2	7400	11,670	
	Minor	1	1850	1,510	
Case B	Major	2	11,100	11,670	YES
	Minor	1	950	1510	
Analyst and Date: NB / 12-14-04			Reviewer and Date:		

MINOR STREET LANE CAPACITY: 234

$234 * 0.85 = 199$

$43 - 199 = -156 \Rightarrow 0$

$\left(\frac{151}{0.10}\right) = 1510$

[1] Meeting preliminary signal warrants does **not** guarantee that a signal will be installed. Before a signal can be installed a traffic signal investigation must be conducted or reviewed by the Region Traffic Manager. Traffic signal warrants must be met and the State Traffic Engineer's approval obtained before a traffic signal can be installed on a state highway.

[2] Used due to 85th percentile speed in excess of 40 mph or isolated community with population of less than 10,000.

Oregon Department of Transportation
Transportation Development Branch
Transportation Planning Analysis Unit

Preliminary Traffic Signal Warrant Analysis[1]

Major Street: US 20	**Minor Street:** CLARK MILL ROAD
Project: SWEET HOME TSP	**City/County:** SWEET HOME
Year: 2025	**Alternative:**

Preliminary Signal Warrant Volumes

Number of Approach lanes		ADT on major street approaching from both directions		ADT on minor street, highest approaching volume	
Major Street	Minor Street	Percent of standard warrants 100	70	percent of standard warrants 100	70
Case A: Minimum Vehicular Traffic					
1	1	8,850	6,200	2,650	1,850
2 or more	1	10,600	7,400	2,650	1,850
2 or more	2 or more	10,600	7,400	3,550	2,500
1	2 or more	8,850	6,200	3,550	2,500
Case B: Interruption of Continuous Traffic					
1	1	13,300	9,300	1,350	950
2 or more	1	15,900	11,100	1,350	950
2 or more	2 or more	15,900	11,100	1,750	1,250
1	2 or more	13,300	9,300	1,750	1,250

5.65% of the above ADT volumes is equal to the MUTCD vehicles per hour (vph)

	100 percent of standard warrants
✓	70 percent of standard warrants[2]

Preliminary Signal Warrant Calculation

	Street	Number of Lanes	Warrant Volumes	Approach Volumes	Warrant Met
Case A	Major	2	7,400	18,740	No
	Minor	1	1,850	640	
Case B	Major	2	11,100	18,740	No
	Minor	1	950	640	

Analyst and Date: NB 12-14-04 | Reviewer and Date:

MINOR STREET LANE CAPACITY: 87 * 0.85 = 74

46 - 74 = -28 ⇒ 0

$\left(\frac{64}{.10}\right) = 640$

[1] Meeting preliminary signal warrants does **not** guarantee that a signal will be installed. Before a signal can be installed a traffic signal investigation must be conducted or reviewed by the Region Traffic Manager. Traffic signal warrants must be met and the State Traffic Engineer's approval obtained before a traffic signal can be installed on a state highway.

[2] Used due to 85th percentile speed in excess of 40 mph or isolated community with population of less than 10,000.

025 EB

DV = 2461 ÷ 2 = 1230

EFTS = 115

BOTH OFF CHART

WB

DV = 2451 ÷ 2 = 1225

EFTS = 86

BOTH OFF CHART

EXISTING EB

DV = 1250 ÷ 2 = ~~[illegible]~~ 625

EFTS = 65

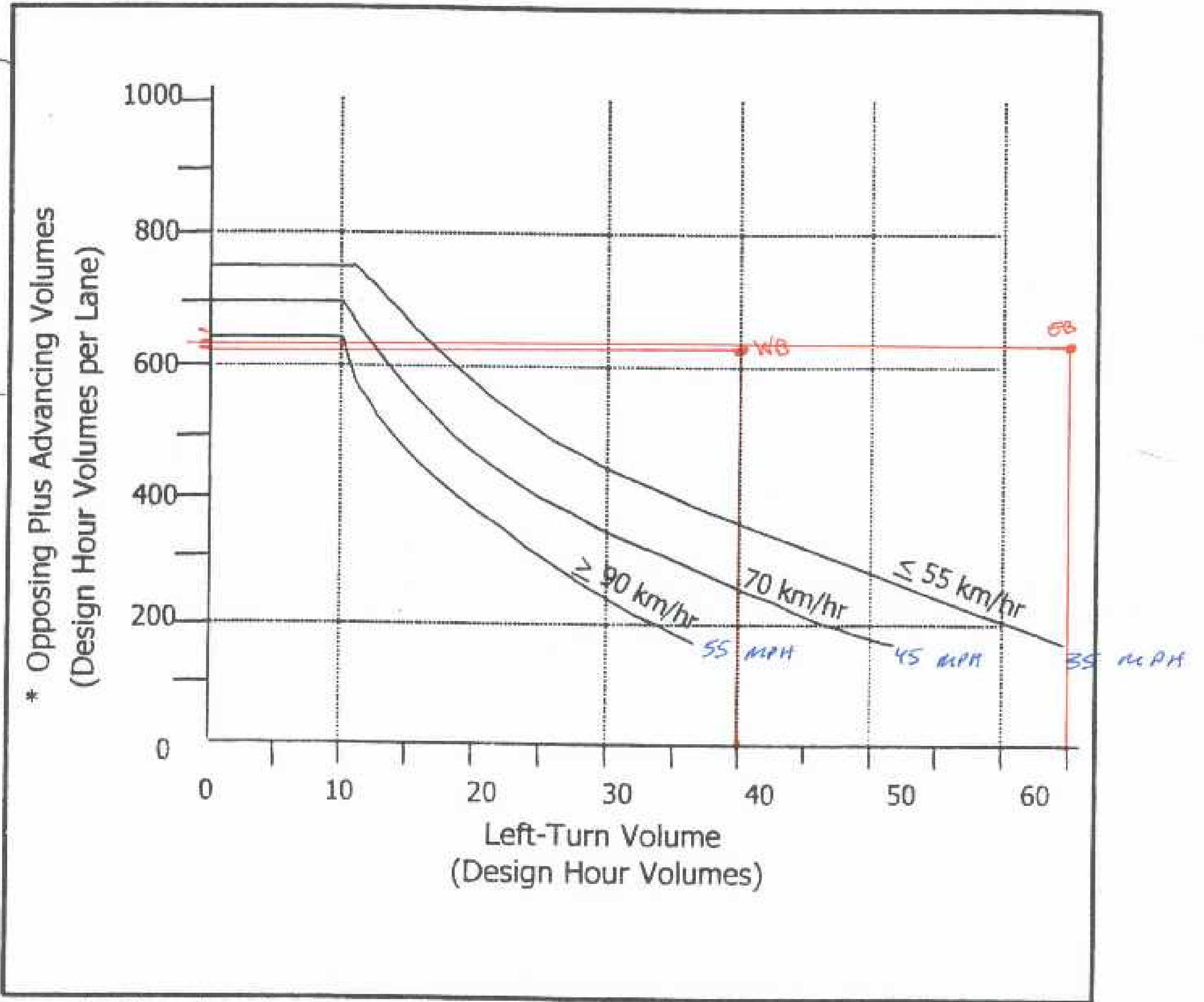
WB

DV. = 1225 ÷ 2 = 612

EFTS = 40

MEETS WARRANT

Hwy 20 / 12AVG



* (Advancing volume + opposing volume)/(2 x number of through lanes in each direction)

FIGURE 1

Hwy 20 / 15[th]

2025 EB

DV= 2199/2 = 1099

EFT= 64

ADVANCING OFF CHART

EFTS AT END.

2025 WB

DV= 2246/2 = 1123

EFTS = 111

OFF CHART

EB EXISTING

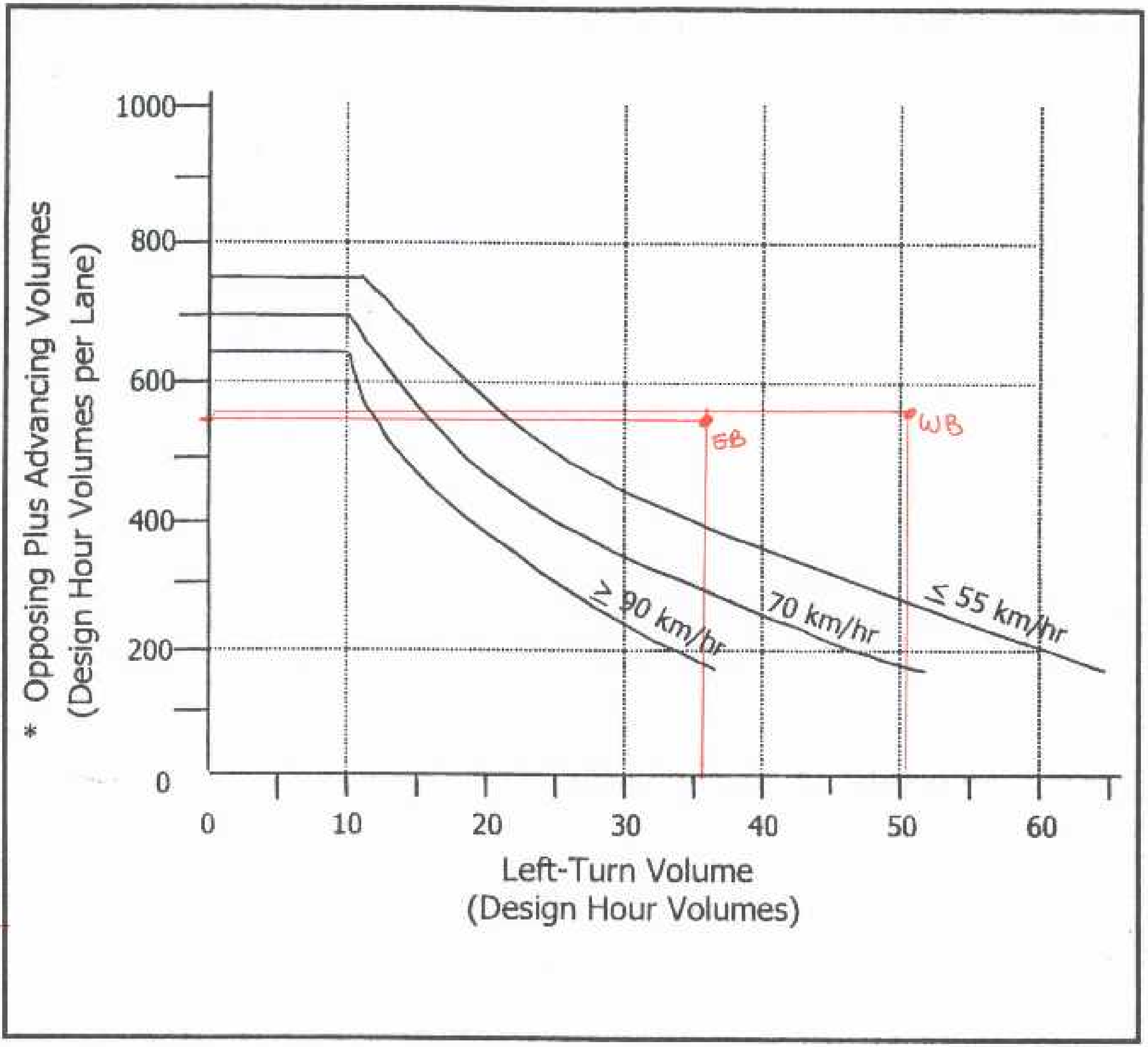
DV= 1096/2 = 548

EFTS = 36

WB EXISTING

DV= 1111/2 = 555

EFTS = 51



* ((Advancing volume/number of advancing through lanes) + (opposing volume/ number of opposing through lanes))

FIGURE 1

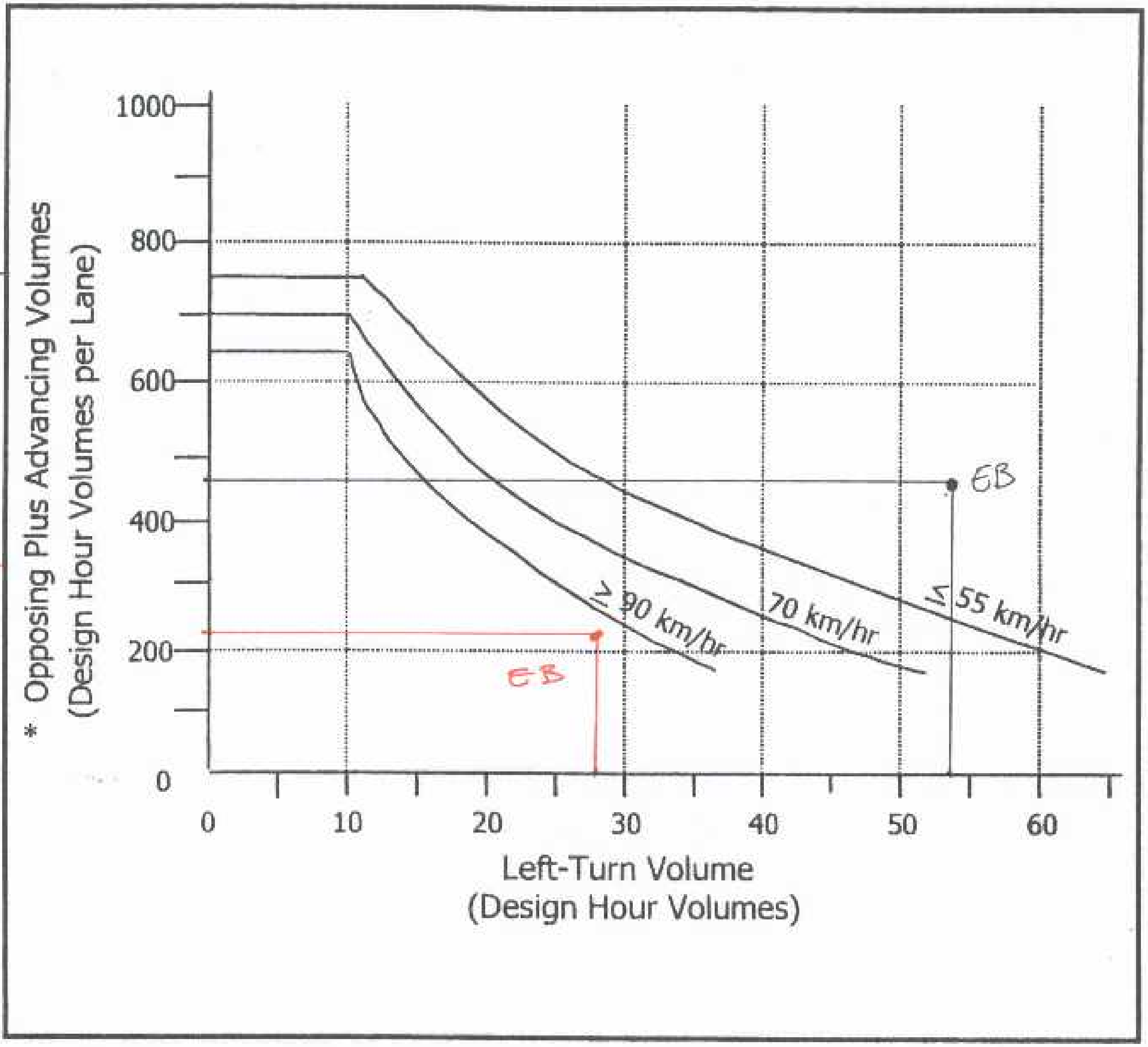
Hwy 20 / 53 Ave

2025 EB
DV
932/2 = 466
LT = 53

2025 WB
NO LEFTS

EXISTING EB
DV
449/2 = 224.5
LT = 27

EXISTING WB
NO LEFTS



* ((Advancing volume/number of advancing through lanes) + (opposing volume/ number of opposing through lanes))

FIGURE 1

US 20 / 12TH AVE

EB

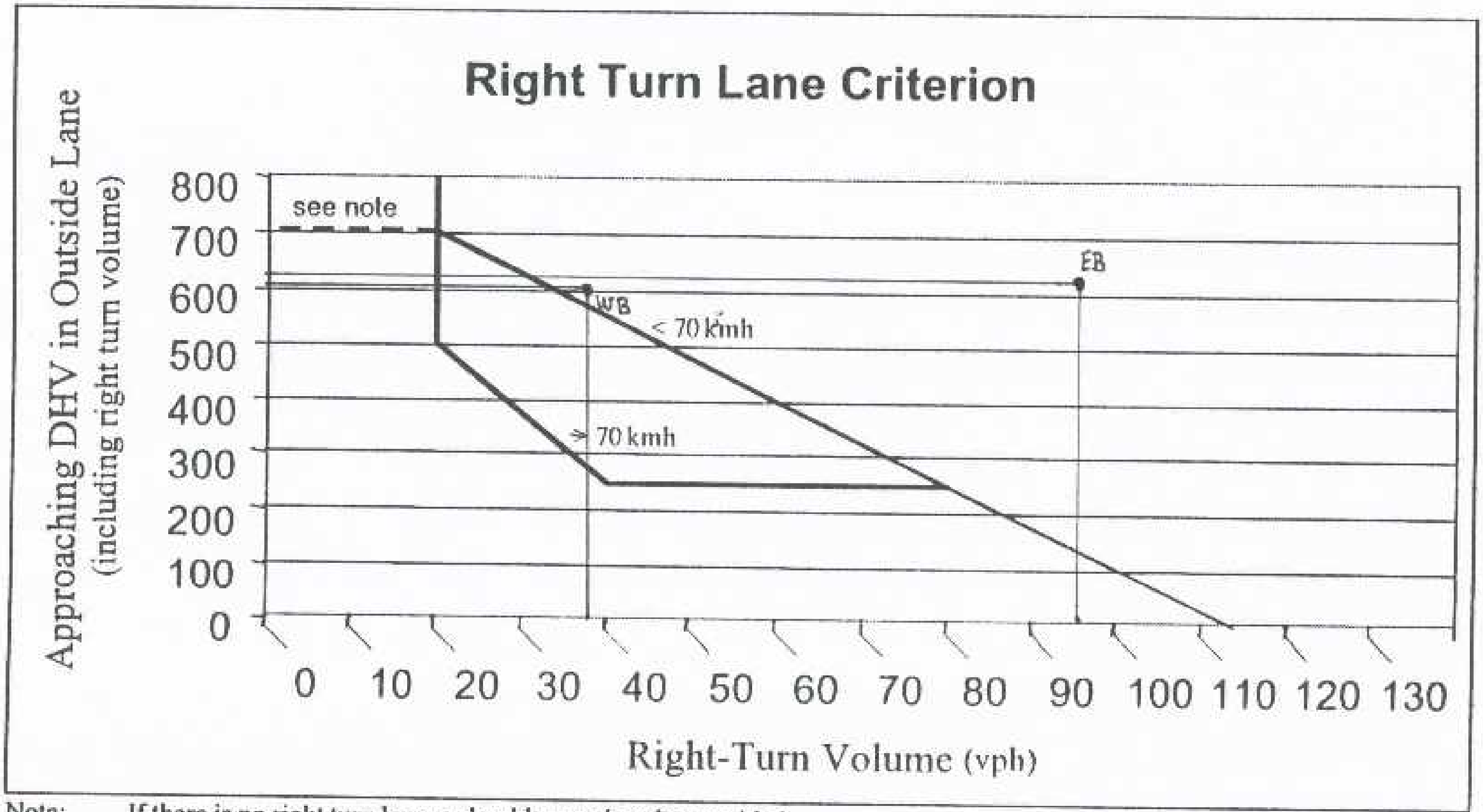
1083/2 + 96 = 637

RIGHT TURNS = 96

WB

1129/2 + 38 = 602

RIGHT TURNS = 38

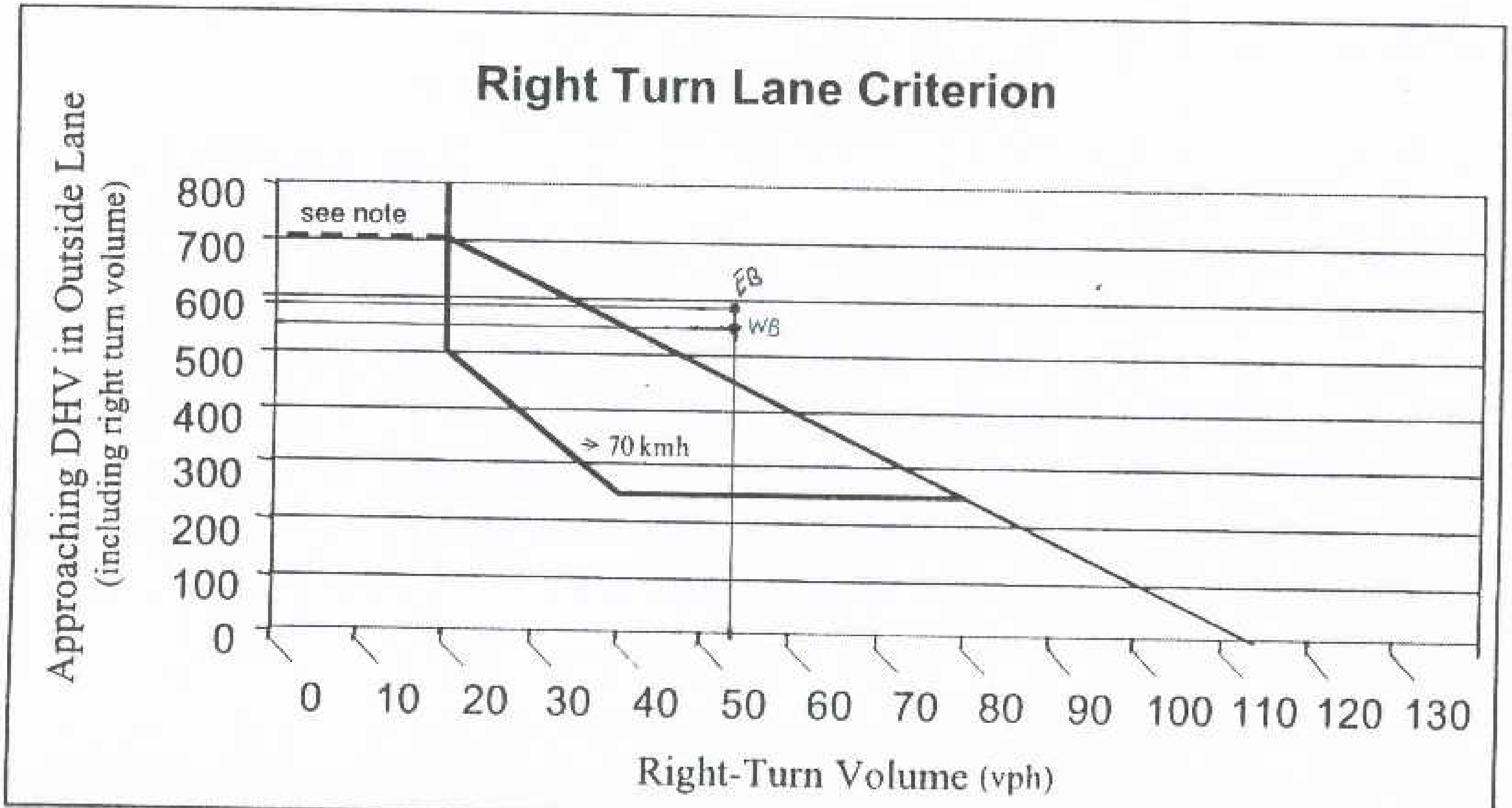


Note: If there is no right turn lane, a shoulder needs to be provided.
If this intersection is in a rural area and is a connection to a public street, a right turn lane is needed.

Figure 1

US 20/15TH AVE

EB	WB
$1051/2 + 53 = 578$	$978/2 + 53 = 542$
RIGHT TURNS = 53	RIGHT TURNS = 53



Note: If there is no right turn lane, a shoulder needs to be provided.
If this intersection is in a rural area and is a connection to a public street, a right turn lane is needed.

Figure 1

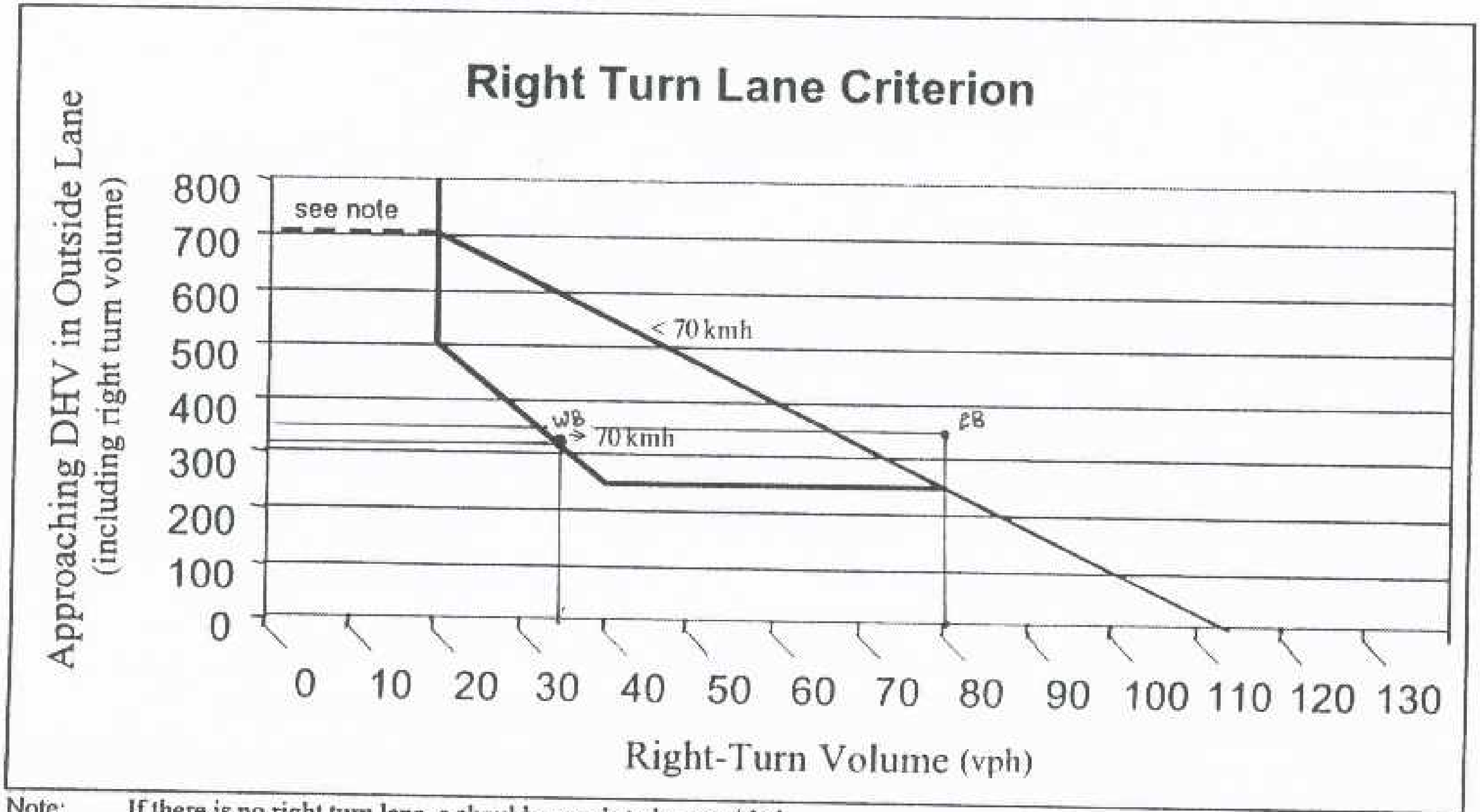
US 20/53RD AVE

EB
358

RIGHT TURNS = 81

WB
308

RIGHT TURNS = 34



Note: If there is no right turn lane, a shoulder needs to be provided.
If this intersection is in a rural area and is a connection to a public street, a right turn lane is needed.

Figure 1