

# City of Sweet Home Transportation System Plan

Prepared by:  
W&H Pacific,  
Kittelson and Associates  
SRI/Shapiro

## ACKNOWLEDGMENTS

This project is partially funded by grants from the U.S. Forest Service and the Transportation Growth Management (TGM) Program of the Oregon Department of Transportation and the Oregon Department of Land Conservation and Development. TGM grants rely on federal Intermodal Surface Transportation Efficiency Act (ISTEA) and Oregon Lottery funds. The contents of this document do not necessarily reflect the views of policies of the State of Oregon and the U.S. Forest Service.

Further, W&H Pacific would like to acknowledge all of the work performed by City of Sweet Home staff in providing base data, providing review and advice to the project team. We would also like to thank Phil Worth and Matt Lorenz of Kittelson & Associates, and Denny Egner and Cindy Hahn of SRI/Shapiro/AGCO for their ideas and analysis while completing this project.

## TABLE OF CONTENTS

1.	INTRODUCTION .....	1
2.	EXISTING CONDITIONS .....	4
3.	DESIGN STANDARDS .....	43
4.	FUTURE CONDITIONS .....	50
5.	PEDESTRIAN AND BICYCLE SYSTEM RECOMMENDATIONS .....	67
6.	ACCESS MANAGEMENT .....	73
7.	FUTURE IMPROVEMENTS .....	85
8.	EVALUATION OF ALTERNATIVES .....	93
9.	RECOMMENDED TSP AND FUNDING STRATEGY .....	97
10.	TPR COMPLIANCE SUMMARY .....	110

## LIST OF FIGURES

Figure 1	Study Area and Road Classification	5
Figure 2	Posted Speeds	6
Figure 3	Generalized Zoning	7
Figure 4	Sidewalk Inventory	11
Figure 5	Truck Routes	13
Figure 6	Traffic Volume Growth	14
Figure 7	1995 Average Daily Traffic	15
Figure 8	Fixed Counter Annual 1995 Volume	17
Figure 9	Lane Configuration and Traffic Control	18
Figure 10	Calculated 1997 Peak Hour Volumes	20
Figure 11	Relationship Between Access Control and Movement	44
Figure 12	Traffic Analysis Zones	53
Figure 13	Future Average Daily Traffic	60
Figure 14	2017 Link Level of Service	61
Figure 15	2017 Turning Movements	62
Figure 16	Future Bike Lanes and Sidewalks	72
Figure 17	Access Management Example	75
Figure 18	Future Truck Routes	88
Figure 19	New Street Connections	89

## LIST OF TABLES

Table 1	Existing Level of Service	21
Table 2	Road Segment Accident Rates	24
Table 3	Intersection Accident Rates	25
Table 4	State LOS Standards	32
Table 5	Access Management Classification System	34
Table 6	Functional Classification Volumes and Speeds	45
Table 7	Proposed Functional Classification System	47
Table 8	Proposed Street Design Standards	49
Table 9	2017 Population Estimates	52
Table 10	Commercial and Industrial Estimates	54
Table 11	Future Level of Service	63
Table 12	2017 Signal Warrant Analysis	65
Table 13	Draft Pedestrian and Bicycle Plan Recommendations	67
Table 14	Access Management Example	76
Table 15	Projects Identified for 20-Year Timeframe	90
Table 16	Alternative 2 Projects	94
Table 17	Transportation Revenues and Expenditures	98
Table 18	Summary of Transportation Improvement Costs	103
Table 19	Total Revenue Generated by a Transportation SDC	106
Table 20	Annual Revenue from a Range of Property Tax Levy Rates	108

# CHAPTER 1:

## Introduction to the Sweet Home TSP

### INTRODUCTION

The City of Sweet Home has committed to developing a well planned comprehensive transportation system that 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), 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 state Rule also 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. The quality of life and the location of the city make it an ideal place for telecommuters or retirees to locate. The road system is in fairly good condition, however there are a number of identified safety problems. There is a need to develop some "missing links" in the road system to improve continuity and connectivity. Finally, some policies in the various titles of the City Code are inconsistent with one another.

The City, as a part of the development of the TSP has indicated a desire to review existing pavement and the development of a pavement management system. The Forest Service has provided funding to support a downtown parking study and recommendations on improving parking for downtown businesses. Separate study documents are being provided to the City for these two areas.

## *Project Guidance*

The TSP development has been guided by two committees. Technical guidance has been provided by a Technical Advisory Committee. Key participants have included the City Planner and Public Works Director, and representatives from Oregon Department of Transportation (ODOT). Representatives of other public agencies and city departments were invited, but have participated at a minimal level.

Community input has been provided by a Citizens Advisory Committee, made up of members of the planning commission, traffic safety committee, neighborhood groups, and the business community.

## **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** of this report describes existing conditions in the city and sets the stage for the development of the Sweet Home Transportation System Plan by beginning with a review of relevant city, county, state, and federal plans and policies. This chapter also lists the requirements of the Transportation Planning Rule (OAR 660 Division 12) and how the city, through the TSP, will address those requirements. The existing conditions inventory, which 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.

Based on information summarized in preceding sections, **Chapter 3** discusses the development of recommended design standards that will guide the direction of new facility construction (pedestrian, bicycle, and auto) in the City of Sweet Home. **Chapter 4** presents population and employment forecasts for 2017 and identifies future transportation system problems. **Chapter 5** identifies pedestrian/bicycle generators and corridors and details suggested pedestrian/bicycle amenities for the transportation system.

Existing State access management standards are reviewed in **Chapter 6**, which contains an access management plan for Sweet Home arterial and collector streets. Future transportation system improvement needs are defined and recommended in **Chapter 7**, including alternative scenarios.

An evaluation of alternatives and the prioritization of projects is presented in **Chapter 8**. The culmination of these efforts is packaged into the recommended TSP and financial plan in **Chapter 9**. **Chapter 10** presents a summary of TPR compliance.

The TSP document concludes with a series of technical appendices that supplement supporting information to the analysis and findings included in Chapters 1 - 9.

## **PUBLIC PARTICIPATION PROCESS**

This section describes the TSP project and meeting schedules. The overall study began in September 1996 and concluded in June 1997.

The TSP project held five Technical Advisory Committee (TAC) meetings, five Citizen's Advisory Committee (CAC) meetings and three public open houses at major milestones of the project:

### MEETING SCHEDULE

### PURPOSE

- |                       |   |
|-----------------------|---|
| 1. September 19, 1996 | Open House to discuss Highway 20 and parking issues                       |
| 2. October 10, 1996   | TAC Kick-Off Meeting/Coordination   |
| 3. October 29, 1996   | TAC and CAC to discuss existing conditions                                |
| 4. January 21, 1997   | TAC and CAC to discuss existing conditions and future growth projections. |
| 5. February 18, 1997  | Open House to present existing conditions and Highway 20 recommendations  |
| 6. March 18, 1997     | TAC and CAC to present future conditions and needs                        |
| 7. May 21, 1997       | TAC and CAC to present alternatives and gain recommendation               |
| 8. May 28, 1997       | Open House to present alternatives and gain recommendation                |

## CHAPTER 2: EXISTING CONDITIONS

### LAND USE

Sweet Home is in Linn County, about 80 miles south of Portland and 45 miles west of Santiam Pass. The surrounding area is primarily rural, with an agricultural and timber-based economy. The city lies south of the Santiam River, at an elevation of about 537 feet. The city is generally flat, with ridges surrounding the city.

U.S. 20 (Santiam Highway) runs east-west through the City along Main Street and forms the major transportation link through the community. Highway 228 (Holley Street) enters Sweet Home from the west and curves north to terminate at U.S. 20 near the west end of the City. The recognized study area boundary for this study coincides with the Urban Growth Boundary (UGB), which is shown in Figure 1 together with the City limits and street system. Figure 1 also illustrates existing roadway classifications. Figure 2 illustrates the posted speeds on the study area roadways.

The city stretches about 5 miles along U.S. 20, and occupies about 6.4 square miles. Based on 1995 population estimates, the population density is about 1,140 people per square mile, including rural areas that were annexed to the original town. The initial town covered 2.3 square miles and currently has about 1,650 people per square mile. The relatively small size of the city puts most urban destinations within easy walking or bicycling distance of most residents.

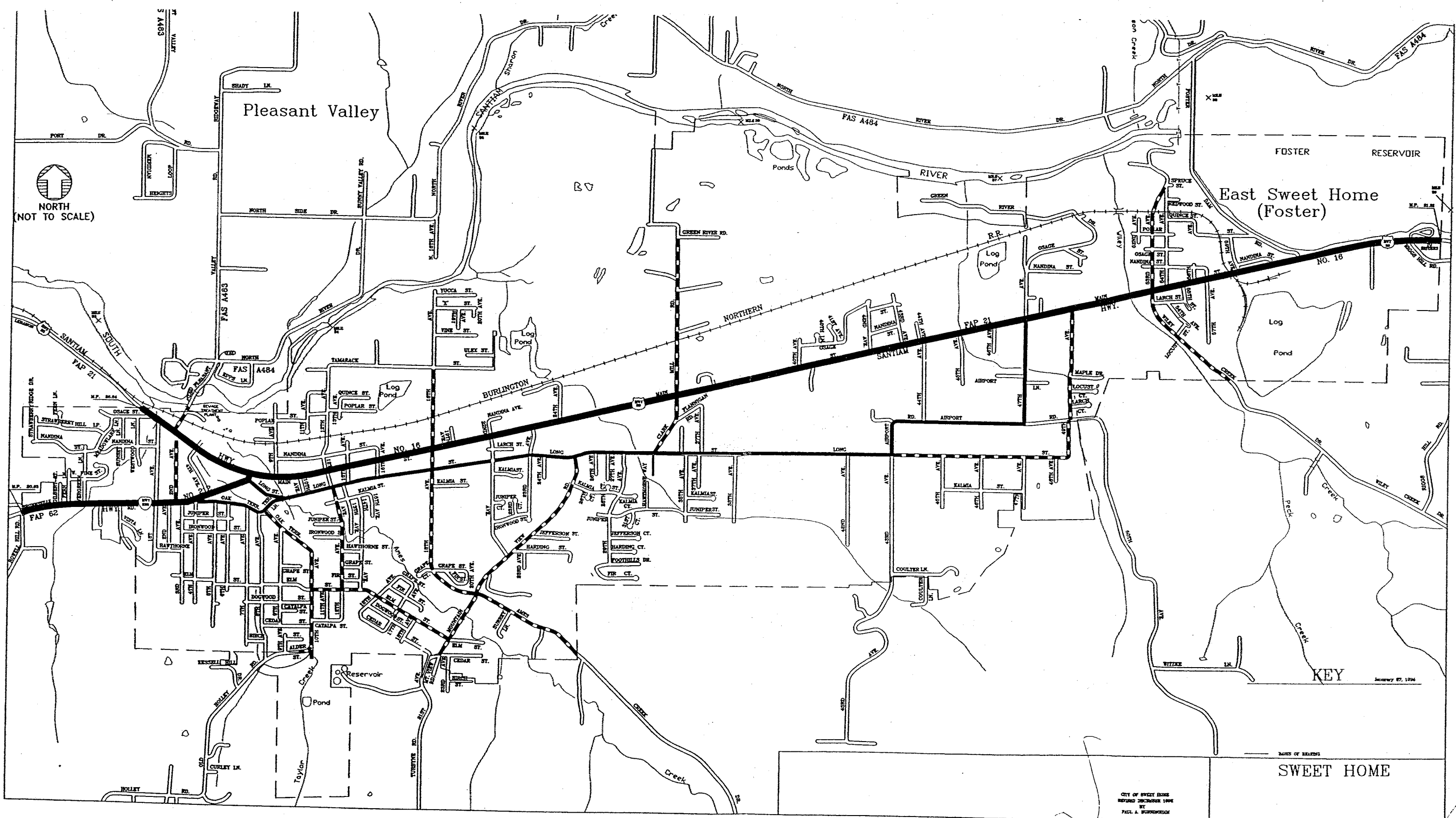
The City of Sweet Home Comprehensive Land Use Plan was most recently updated in 1989. This Plan was adopted by the City in 1981 and acknowledged by the Land Conservation and Development Commission (LCDC) in 1982. Figure 3 shows generalized current land use designations under the City's zoning code.

U.S. Census information showed Sweet Home's 1990 population at 6,850, with 1,831 families and 2,651 households. Between 1980 and 1990, Sweet Home decreased just over 1% in population, from 6,921 to 6,850. The number of households decreased during this time from 2,660 to 2,651, or about 0.4%. The 1995 population estimate for Sweet Home was 7,350, representing an increase of 7.3% between 1990 and 1995. In 1995, Sweet Home was the 46th largest city in Oregon.

Linn County population as a whole increased by about 2% between 1980 and 1990. It is Oregon's 22nd largest county. Linn County also grew about 5.6% between 1990 and 1994, from 91,227 to 96,300. The estimated population for 1996 was 100,000.

The City provides a mix of residential, commercial and industrial land use opportunities. The community's industrial base used to be wood processing. It is still the dominant industry, however, the employment base is declining. Other fabrication industries and secondary wood users are developing facilities in Sweet Home.





DATE	BY	REVISION	CK'D	APPR.

**LEGEND**

- MAJOR ARTERIAL
- MINOR ARTERIAL
- COLLECTOR
- CITY LIMITS

**W&HPACIFIC**  
 8405 SW NIMBUS AVE.  
 BEAVERTON, OR 97008  
 (503) 626-0455



DESIGNED BY: LAJ  
 DRAWN BY: HLG  
 CHECKED BY:  
 APPROVED BY:

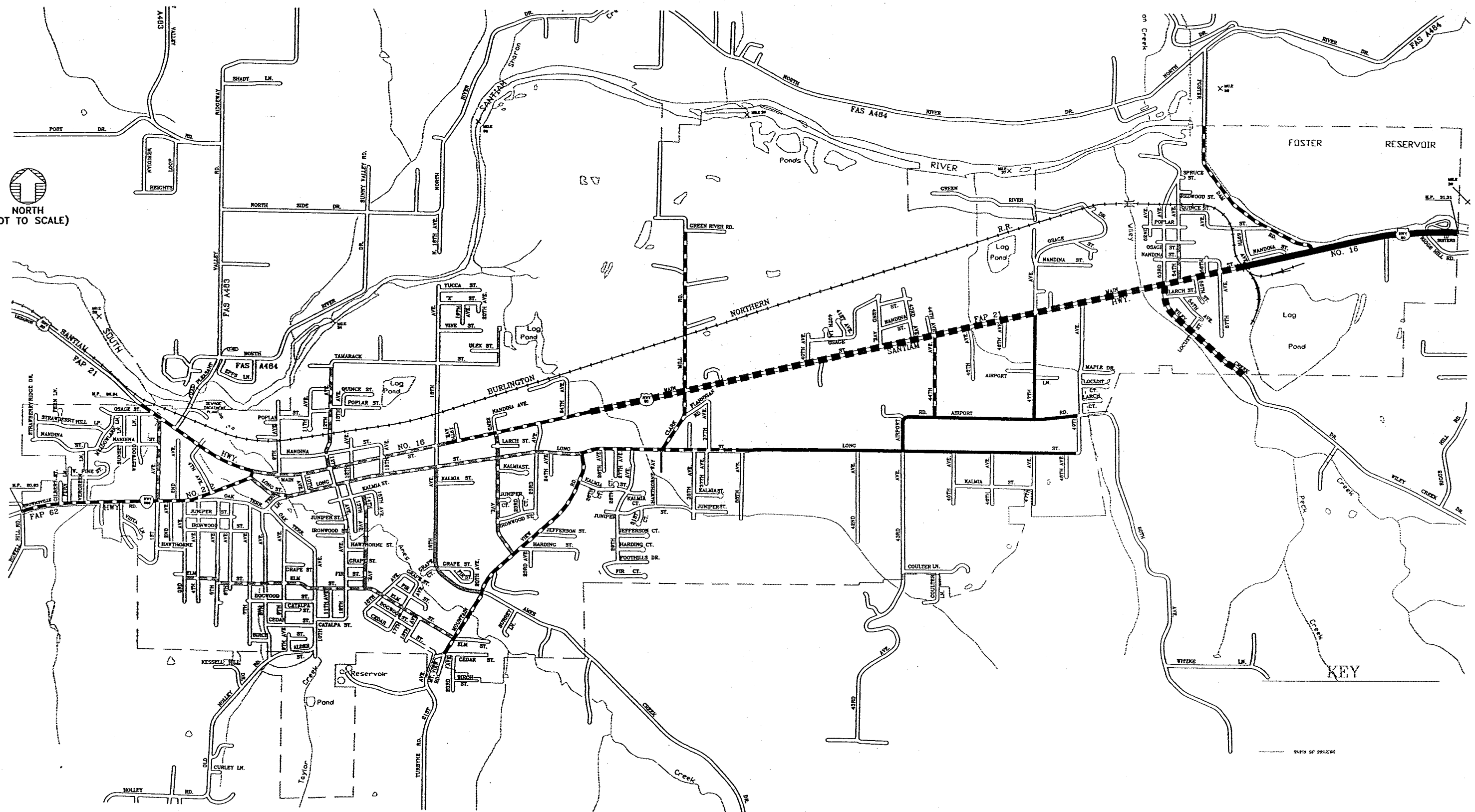
**W&H Pacific**  
**SWEET HOME TSP**  
**EXIST. FUNCTIONAL CLASSIFICATION**

SWEET HOME OREGON

SCALE: AS SHOWN	PROJECT NO. 4-2658-6001	DRAWING FILE NAME: 1965FUNC.DWG	SHEET 1
--------------------	----------------------------	------------------------------------	------------

SECTION, TOWNSHIP

PLOT DATE: 7-7-97  
 LAST EDIT: HLG 7-7-97



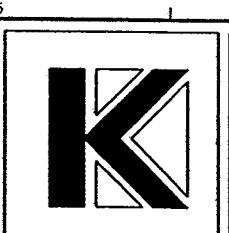
SECTION, TOWNSHIP, RANGE:

DATE	BY	REVISION	CK'D	APPR.

**LEGEND**

- 55 MPH
- 45 MPH
- 40 MPH
- 35 MPH
- 30 MPH
- 25 MPH

**W&HPACIFIC**  
 8405 SW NIMBUS AVE.  
 BEAVERTON, OR 97008  
 (503) 626-0455



DESIGNED BY: LAJ  
 DRAWN BY: HLG  
 CHECKED BY: \_\_\_\_\_  
 APPROVED BY: \_\_\_\_\_

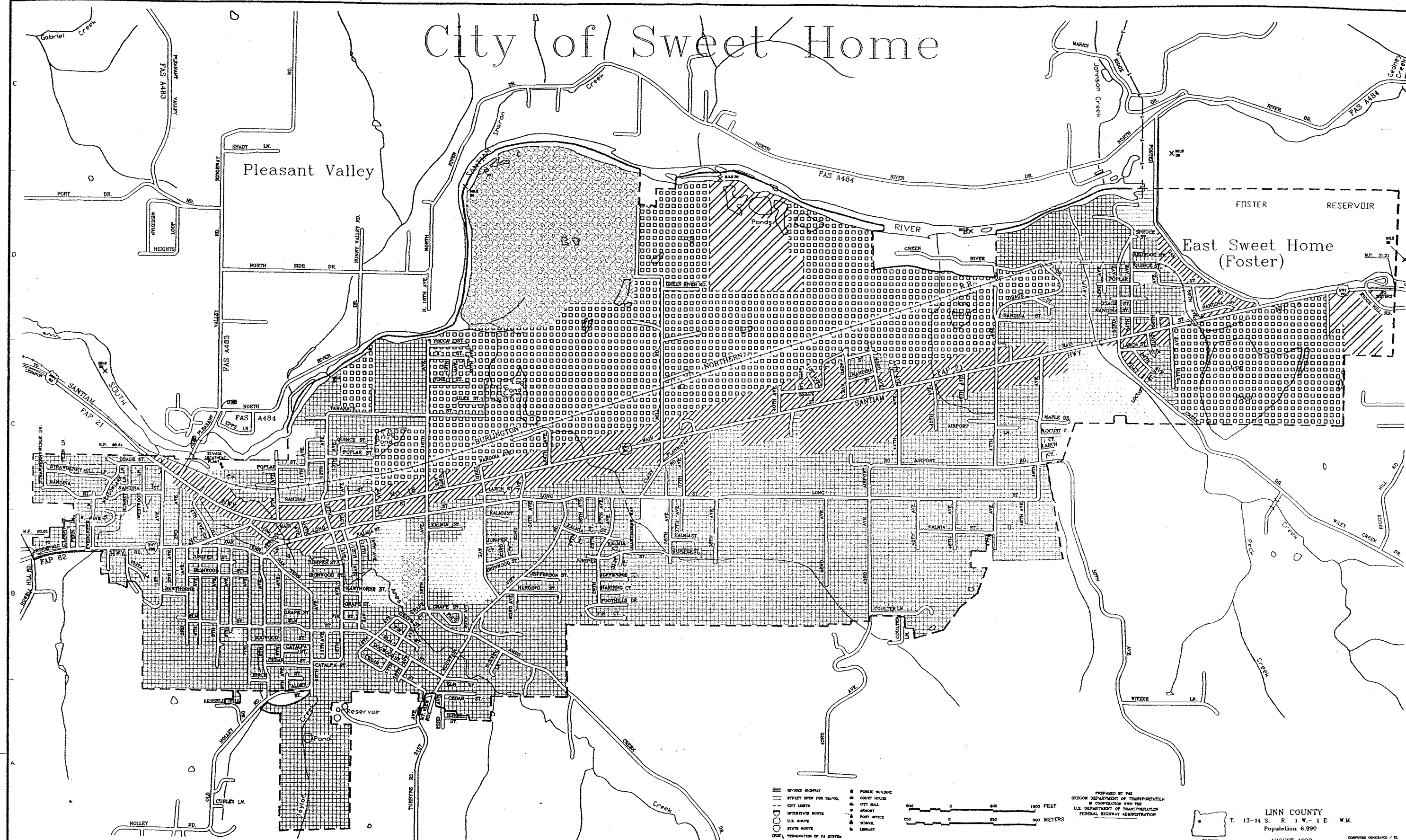
**W&H Pacific**  
**SWEET HOME TSP**  
**POSTED SPEEDS**

SWEET HOME OREGON

SCALE: AS SHOWN	PROJECT NO. 4-2658-6001	DRAWING FILE NAME: 1965SPED.DWG	SHEET <b>2</b>
--------------------	----------------------------	------------------------------------	-------------------

PLOT DATE: 7-7-97  
 LAST EDIT: HLG 7-7-97

# City of Sweet Home



0 500 1000 1500 FEET  
 0 500 1000 METERS

PREPARED BY THE  
 OREGON DEPARTMENT OF TRANSPORTATION  
 IN COOPERATION WITH THE  
 U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION

LINN COUNTY  
 T. 13-14 S. R. 1 W. - 1 E. W.M.  
 Population 6,990  
 AUGUST 1989  
 COMPUTER GENERATED / DL

DATE	BY	REVISION	CK'D	APPR.

**LEGEND**

	RESIDENTIAL		INDUSTRIAL
	COMMERCIAL		OPEN LAND USE
	PLANNED RECREATION COMMERCIAL		PARK, OPEN SPACE & PUBLIC

**WHPACIFIC**  
 8405 SW NIMBUS AVENUE  
 BEAVERTON, OR 97008-7120  
 WWW.WHPACIFIC.COM  
 TEL: (503) 826-0456 FAX: (503) 526-0776  
 Planning • Engineering • Surveying  
 Landscape Architecture • Environmental Services

DESIGNED BY: LAJ  
 DRAWN BY: HLC  
 CHECKED BY: \_\_\_\_\_  
 APPROVED BY: \_\_\_\_\_

W&H Pacific  
 SWEET HOME TSP  
 LAND USE MAP

SWEET HOME SCALE: AS SHOWN	PROJECT NO. 4-2658-6001	DRAWING FILE NAME: PCSHZNO1.DWG	SHEET 3
----------------------------------	----------------------------	------------------------------------	------------

SECTION, TOWNSHIP, RANGE:

## FACILITY INVENTORY

### *Roadway Facilities*

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

### State Facilities

U.S. Highway 20, also known as the Santiam Highway, or Main Street through Sweet Home, is a four- to five-lane highway of Regional Importance according to the Oregon Highway Plan (OHP). This roadway facility falls under ODOT jurisdiction. The highway, 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 to Ontario, Idaho. It serves as a commuter route, experiences significant truck volumes, and in the summer experiences significant recreational traffic. In addition to its function as a state route, the highway provides access to the many businesses located along Main Street in Sweet Home.

Four traffic signals are located along the highway in downtown Sweet Home at the intersections with Highway 228, 12th Avenue, 15th Avenue, and 18th Avenue. All traffic signals operate under fixed timing with an approximate 80-second cycle length during the weekday p.m. peak hour. Westbound left turns are protected through a separate phase at the Highway 228/U.S. 20 intersection. All other signalized intersections operate under two-phase control with permitted left turns.

A center-lane median exists through the downtown section of the highway from 10th Avenue to 18th Avenue, with breaks at the signalized intersections. The median prohibits left turn movements from some private accesses along the highway in this downtown section. According to the Bicycle Plan, a designated bike lane is provided along the highway from 18th Avenue east to the Wiley Creek Bridge. Sidewalks are provided along the roadway throughout downtown Sweet Home from Osage Street east to 23rd Avenue. On-street parking is permitted on both sides of the roadway throughout the downtown, as well. The posted speed ranges from 25 mph in downtown Sweet Home (U.S. 228 to 18th Avenue) to 55 mph at the east end of the City (east of 57th Avenue).

Highway 228, also known as Highway 212 or Holley Road in Sweet Home, is a two-lane facility designated as an Oregon highway of District importance, according to the OHP. This facility also falls under ODOT jurisdiction. Highway 228 enters Sweet Home from the west and curves north to terminate at U.S. 20 forming the first signalized intersection at the west end of the City. No designated bike lanes or on-street parking are provided along the roadway. 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. The posted speed along Highway 228 is 35 mph within the Sweet Home city limits.

## City Facilities

The remainder of the streets in Sweet Home are owned and maintained by the City. City streets are generally two-lane facilities, and traffic control is limited to two-way or all-way stop-control intersections; the intersections of 12th Avenue, 15th Avenue, and 18th Avenue with Main Street are signalized, as noted above. Currently, pavement conditions on most of the local City streets in Sweet Home are rated "fair" to "very good". The section of Elm Street west from 5th Avenue is rated as "very poor". A pavement management program is currently being developed for the City of Sweet Home. The existing pavement conditions are addressed in a separate technical memorandum.

Long Street is the only City street that provides any continuous east-west connection through the City. Long Street functions as a Minor Arterial facility from U.S. 228 to 43rd Avenue-Airport Road, and as a Collector facility from 43rd Avenue-Airport Road to 49th Avenue. All-way stop-controlled (AWSC) intersections are located at 12th Avenue, 18th Avenue, and 43rd Avenue-Airport Road; all other intersections are two-way stop-controlled (TWSC) at the minor street approaches to Long Street. Sidewalks are provided along Long Street from Highway 228 to 23rd Avenue, but are intermittent east of 23rd Avenue. A bike lane is provided from Mountain View to Clark Mill. Pavement conditions on Long Street vary from "good" to "very good."

### *Pedestrian Facilities and Activity*

Of the 15.9 miles of arterials and collectors in Sweet Home, 9.2 miles have at least one sidewalk. The eastern part of the city has fewer sidewalks than the western and central areas. An extensive sidewalk system is provided throughout the downtown and residential areas. Good sidewalks with minimum eight-foot widths exist in the commercial areas along Main Street. General condition of sidewalks is poor to fair, with many areas where cracks and tree-heaving have created hazardous conditions. The City is making reasonable accommodations to comply with the ADA requirements on City sidewalks.

Mountain View Road provides access to the Junior High School, and has no sidewalks. Students walking to school must either walk in the street or trespass onto private yards. This presents a number of key safety and legal issues.

Pedestrian crossings along Main Street are located at each of the signalized intersections: U.S. 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 U.S. 20 at 9th, 13th, and 19th 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 15th Avenue provides a crossing refuge for pedestrians half-way across the roadway and encourages mid-block pedestrian crossings.

Semi-rural roads generally lack sidewalks or safe shoulders for walking, even though they serve schools and other pedestrian destinations. Highway 228 lacks usable sidewalks west of First Avenue and east of Oak Terrace. Foster Lake and Foster Dam Road lack pedestrian facilities, even though

the lake is a significant destination. Beyond the downtown area and residential neighborhoods, sidewalks are not interconnected or are not provided. Field observations revealed a significant amount of pedestrian travel in the downtown area, centered primarily around the commercial areas and the schools. Away from the downtown core area, pedestrian activity is very low. The existing sidewalk system is shown in Figure 4.

### ***Bicycle Facilities and Activity***

Designated bicycle facilities in Sweet Home are limited to the bike lanes along U.S. 20 from 18th Avenue to the Wiley Creek Bridge, and a 0.4 mile section of Long Street from Mountain View to 35th Avenue. There is a 2.5 mile section of an abandoned railroad right of way which serves as an unpaved trail in the southwest area of the city. 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 were protected from the weather.

### ***Public Transportation***

There is no formal public transportation service in Sweet Home. A shuttle is provided in association with the Senior Center and the Sweet Home branch of Linn-Benton Community College. Service links Lebanon and Sweet Home for Senior activities and student transport on a limited schedule basis.

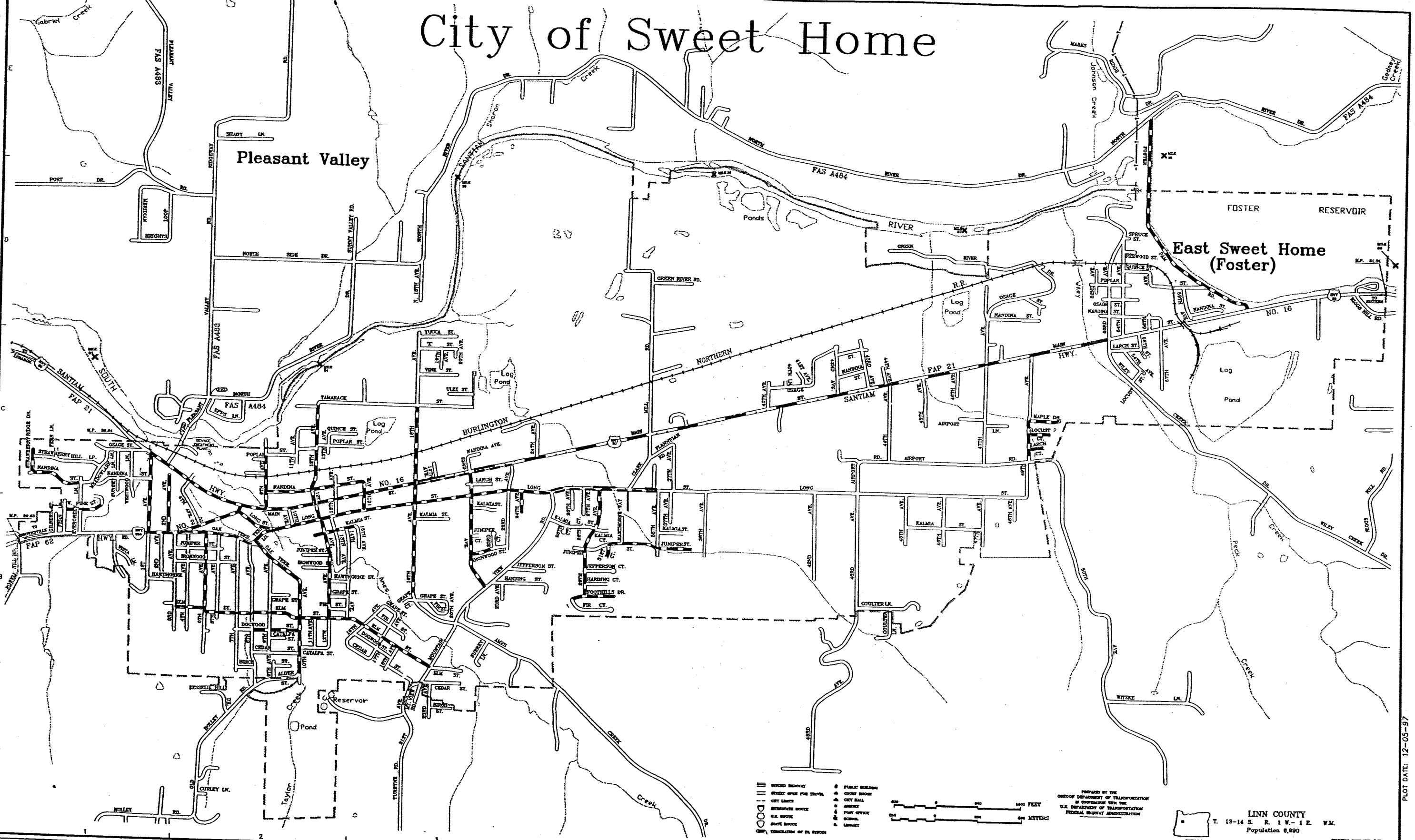
### ***Rail and Aviation***

One rail line serves Sweet Home. The line is operated by Burlington Northern and connects Sweet Home to Albany. Service is provided to Willamette Industries on the east end of town and to other industrial users on the west side. On the average, one to three trains per day use the tracks.

Sweet Home has two airports, Langmack and Stock/Tomco; both are privately owned. Langmack is located south of Airport Road, between 43rd and 47th Avenues, and is designated by the City as a private airport. It has a 2,200 foot runway, but would be difficult to expand due to encroachment of residential and street uses in the vicinity. The airport it would be difficult to upgrade the airport to current public use standards. Langmack is the airport recognized by the State Airport Plan. It is currently not protected with any form of airport overlay zoning, which would bring it into compliance with current Oregon laws.

Stock-Tomco airport is in an industrially zoned area between Clark Mill and 47th Avenue, south of the Santiam River. It offers greater opportunity for expansion. It was built in 1979 under a conditional use permit. The airport currently has 4,000 feet of clear area which could be developed into runway. The City zoning code provides an Airport Overlay Zone for Stock-Tomco.

# City of Sweet Home



DATE	BY	REVISION	CK'D	APPR.

**LEGEND**

- BIKEWAY
- - - SIDEWALK

**W&HPACIFIC**  
 8405 SW NIMBUS AVENUE  
 BEAVERTON, OR 97008-7120  
 WWW.W&HPACIFIC.COM  
 TEL: (503) 626-0455 FAX: (503) 626-0776  
 Planning • Engineering • Surveying  
 Landscape Architecture • Environmental Services

DESIGNED BY: LAJ  
 DRAWN BY: HLG  
 CHECKED BY: \_\_\_\_\_  
 APPROVED BY: \_\_\_\_\_

**W&H Pacific**  
 SWEET HOME TSP  
**BIKE LANE & SIDEWALK INVENTORY**  
 SOURCE: BICYCLE 7 PEDESTRIAN PLAN; AERIAL PHOTO  
 SWEET HOME OREGON  
 SCALE: AS SHOWN PROJECT NO. 4-2658-6001 DRAWING FILE NAME: PCSH5W01.DWG SHEET 4

PREPARED BY THE  
 OREGON DEPARTMENT OF TRANSPORTATION  
 IN COOPERATION WITH THE  
 U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION

LINN COUNTY  
 T. 13-14 S. R. 1 W.-1 E. W.M.  
 Population 6,890  
 AUGUST 1989

PLOT DATE: 12-05-97  
 LAST EDIT: HLG 12-05-97

### ***Truck Routes***

The city has few designated truck routes as shown in Figure 5. This network adequately serves the existing industrial base and provides a through route off of Main Street for through truck trips.

### ***Pipelines and Other Networks***

Other than commercial natural gas, city water, and sewer systems, there are no significant pipe systems in Sweet Home.

### ***Existing Traffic Operations and Demand***

The existing traffic demand on Sweet Home's transportation system was analyzed using daily and peak hour traffic volumes on the study area roadways. An analysis of the historical daily traffic volumes along U.S. 20 and Highway 228, and of the average daily traffic (ADT) demand on the study area roadways were conducted. In addition, the average daily traffic volumes experienced during a one-year time period on U.S. 20 were analyzed to determine the peak seasonal traffic demand along this facility. Finally, peak hour traffic operations at key study area intersections were evaluated.

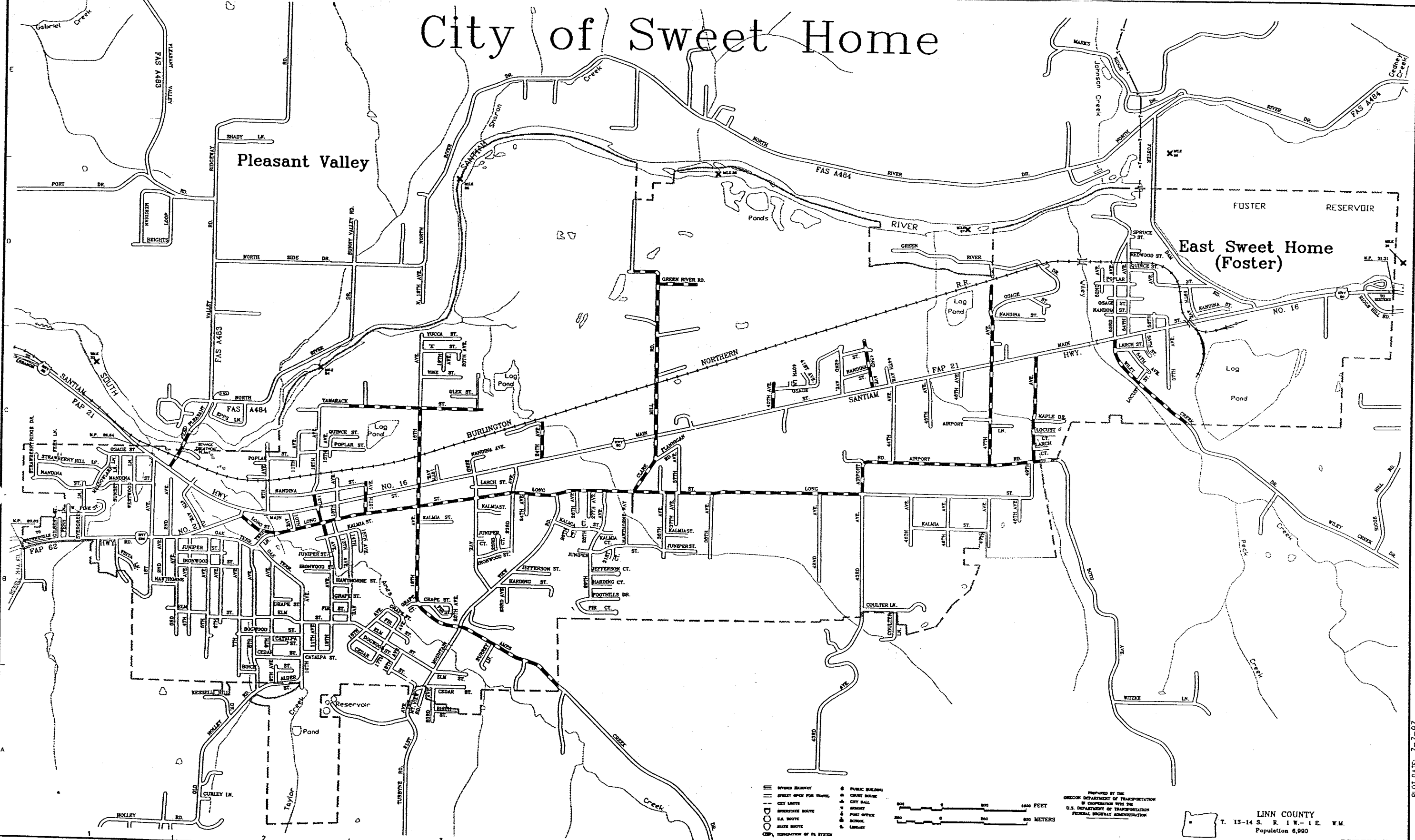
### ***Average Daily Traffic Volumes***

Figure 6 illustrates the annual ADT trends through Sweet Home from 1984 to 1995, based on historical traffic counts collected by ODOT at specified milepost locations through the City. Traffic volumes increased rapidly at the west City limits between 1984 and 1995, reaching a peak in 1988. Coupled with the slow growth of traffic volumes at the east City limits, this suggests that a majority of the new trips entering the City from the west were destined for Sweet Home. However, the recent (1992 to 1995) increase in traffic volume at the east City limits suggests an increase in regional trips through the City, partly as a result of residential growth in rural Linn County. Conversely, Highway 228 experienced a noticeable drop in traffic volumes between 1984 and 1996. This is likely due to poor conditions on the roadway which were corrected through reconstruction in 1996, and the decline of the logging industry. The highway has experienced moderate traffic growth since that time. Overall, the increase in traffic volume in the City was moderate during the study time period, corresponding to a rate of approximately two percent (2%) annually.

Figure 7 illustrates ranges of ADT volumes experienced on the study area roadways in 1995. The most frequently traveled section of roadway within the study area is the segment of U.S. 20 from 1st Avenue to 23rd Avenue, which carries over 15,000 vehicles on an average day. This is primarily due to local traffic along this section, as a result of its proximity to the downtown core area and to other streets providing routes to the residential areas on either side of the highway. In combination, Highway 228 and Long Street act as a parallel facility to Highway 20/Main Street. Highway 228 carries the highest traffic volumes between Evergreen Lane and the intersection with Long Street; similar high volumes are found on Long between the intersection with Highway 228 and 22nd Avenue. This indicates a heavy reliance on both facilities for east-west travel, and a possible need for an additional east-west roadway facility.



# City of Sweet Home



DATE	BY	REVISION	CK'D	APPR.

**LEGEND**

--- ADOPTED TRUCK ROUTES

**W&HPACIFIC**  
 8405 SW NIMBUS AVENUE  
 BEAVERTON, OR 97008-7120  
 WWW.WHPACIFIC.COM  
 TEL: (503) 626-0455 FAX: (503) 626-0775  
 Planning • Engineering • Surveying  
 Landscape Architecture • Environmental Services

DESIGNED BY: LAJ  
 DRAWN BY: HLG  
 CHECKED BY: \_\_\_\_\_  
 APPROVED BY: \_\_\_\_\_

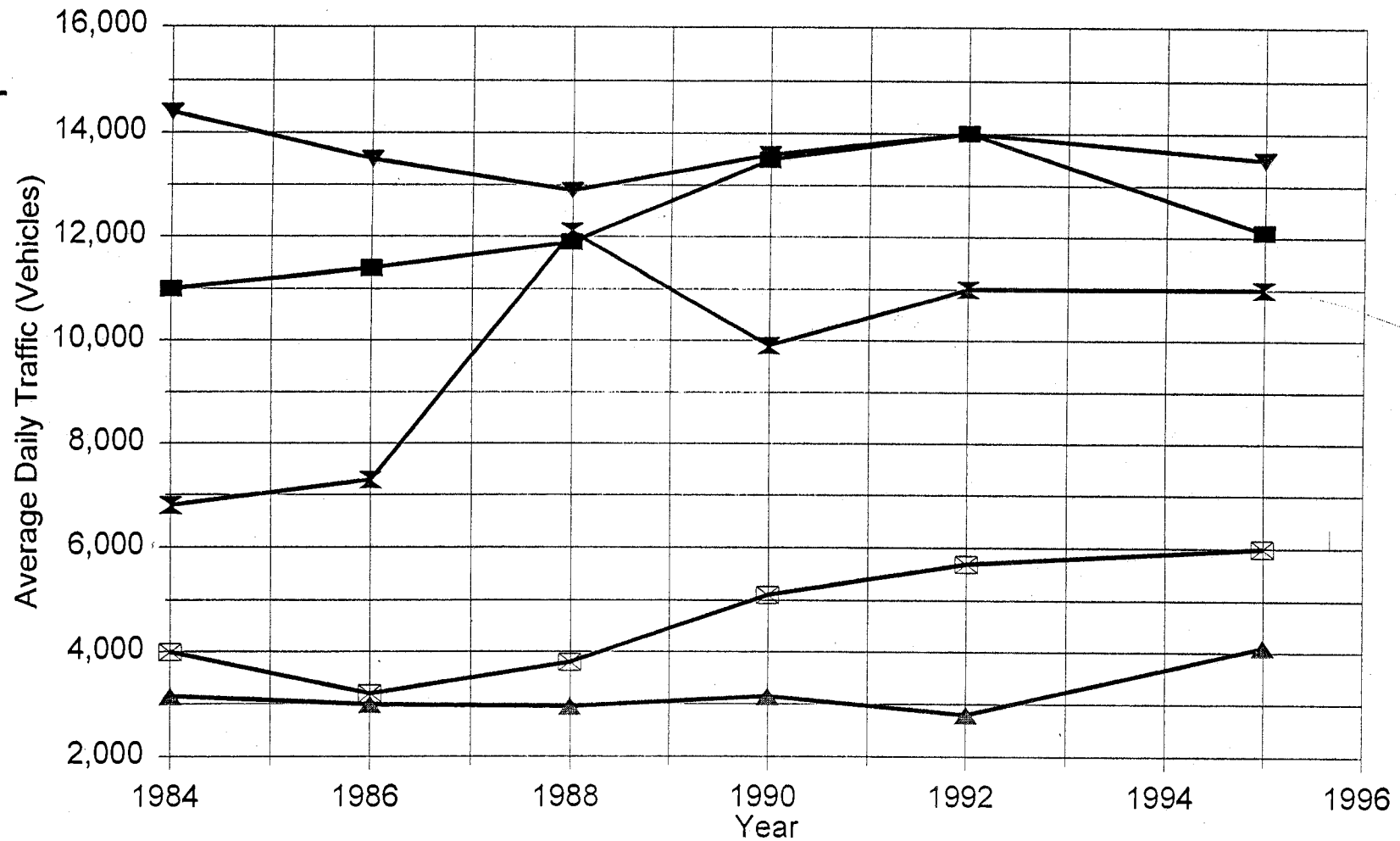
**W&H Pacific**  
**SWEET HOME TSP**  
**ADOPTED TRUCK ROUTES**

SWEET HOME OREGON  
 SCALE: AS SHOWN PROJECT NO. 4-2658-6001 DRAWING FILE NAME: PCSHT01.DWG SHEET 5

PREPARED BY THE  
 OREGON DEPARTMENT OF TRANSPORTATION  
 IN COOPERATION WITH THE  
 U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION

LINN COUNTY  
 T. 13-14 S. R. 1 W. - 1 E. W.M.  
 Population 6,990  
 AUGUST 1989

PLOT DATE: 7-7-97  
 LAST EDIT: HLG 7-7-97



—▲— U.S. 20 at East City Limits    —▼— U.S. 20 at 13th Avenue    —■— U.S. 20 at 18th Avenue  
 —×— U.S. 20 at West City Limits    —⊠— Highway 228 at U.S. 20

DATE	BY	REVISION	CHK'D	APPR.

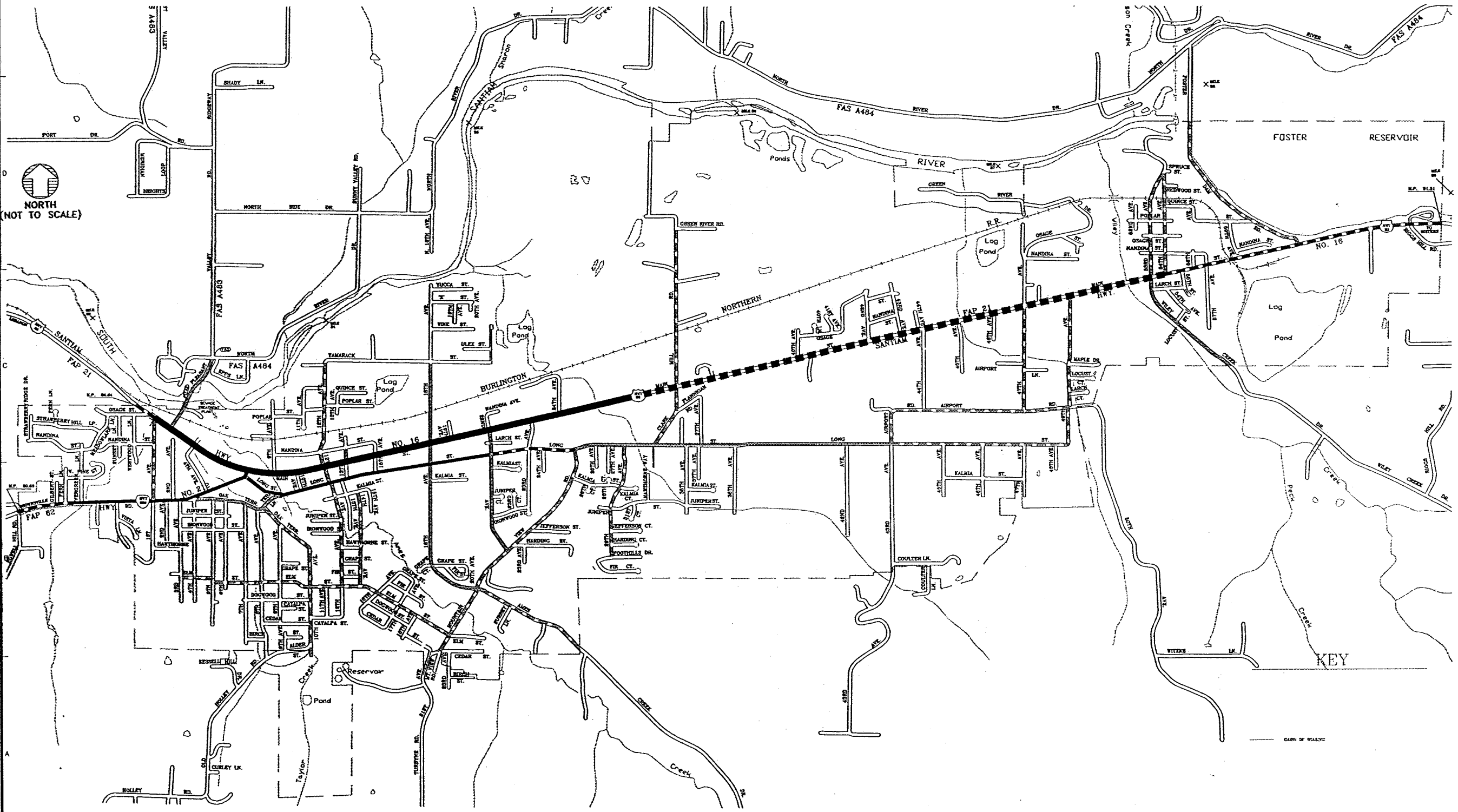
**W&H PACIFIC**  
 8405 SW NIMBUS AVE.  
 BEAVERTON, OR 97008  
 (503) 626-0455



DESIGNED BY: LAJ  
 DRAWN BY: HLG  
 CHECKED BY: \_\_\_\_\_  
 APPROVED BY: \_\_\_\_\_

**W&H Pacific**  
**SWEET HOME TSP**  
**YEARLY ADT TRENDS**  
**1984 - 1995**

SWEET HOME    SCALE: AS SHOWN    PROJECT NO. 4-2658-6001    DRAWING FILE NAME: 1985F003.DWG    SHEET 6



DATE	BY	REVISION	CK'D	APPR.

LEGEND	
	≥ 15,000
	10,000 - 14,999
	6000 - 9999
	4000 - 5999
	2000 - 3999
	1000 - 1999
	0 - 999

**W&H PACIFIC**  
 8405 SW NIMBUS AVE.  
 BEAVERTON, OR 97008  
 (503) 626-0455



DESIGNED BY: LAJ  
 DRAWN BY: HLG  
 CHECKED BY:  
 APPROVED BY:

**W&H Pacific**  
**SWEET HOME TSP**  
**1995 AVERAGE DAILY**  
**TRAFFIC VOLUMES**

SWEET HOME OREGON  
 SCALE: AS SHOWN PROJECT NO. 4-2658-6001 DRAWING FILE NAME: 1965ADTS.DWG SHEET 7

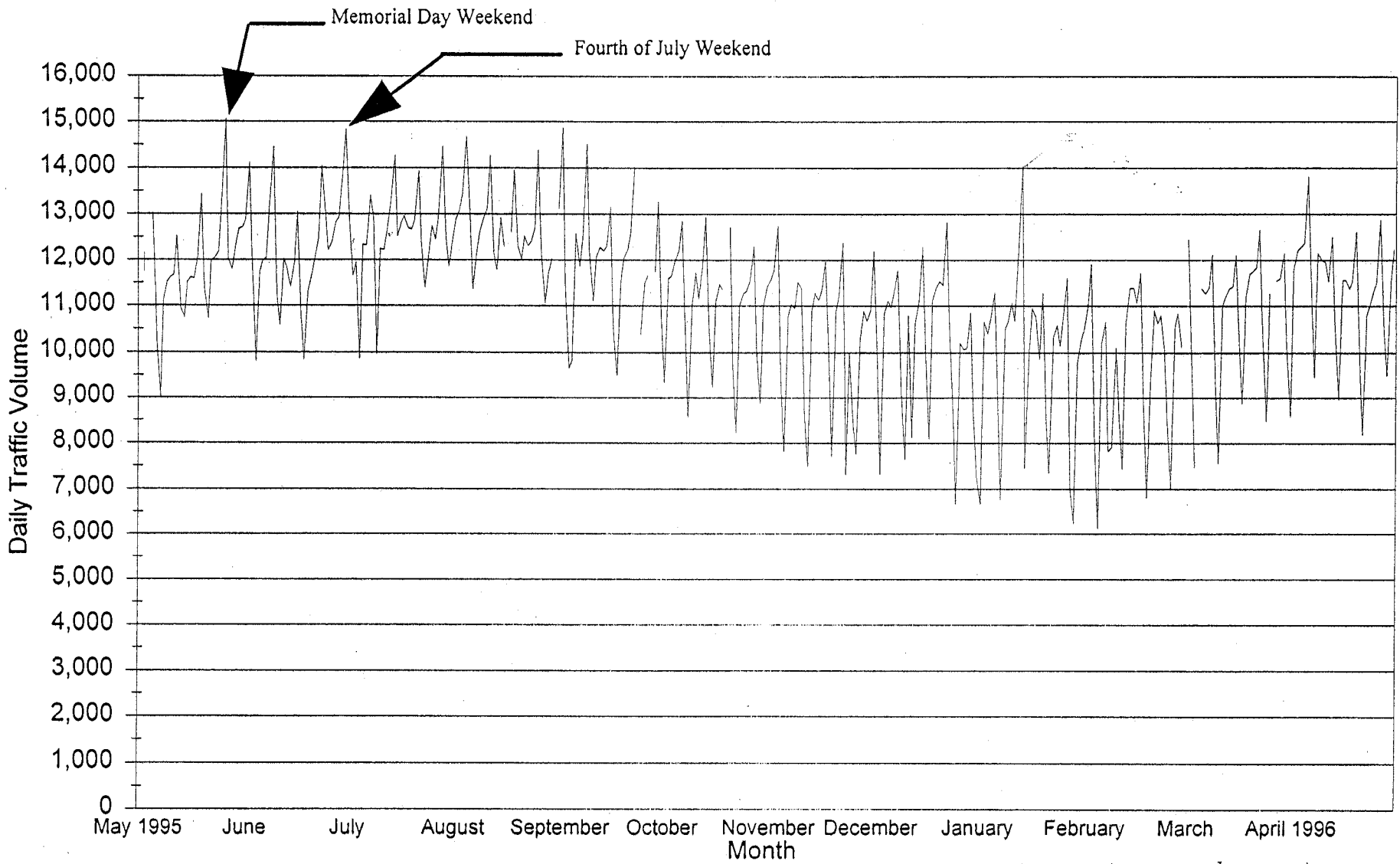
PLOT DATE: 7-7-97  
 LAST EDIT: HLG 7-7-97

In order to determine the seasonal peak in annual traffic volumes, traffic recorder data along U.S. 20 for the most recent, complete one-year time period was examined and analyzed. ODOT maintains a permanent traffic recorder station (#22-013: Waterloo) along U.S. 20, approximately 3.4 miles southeast of the City of Lebanon, between Lebanon and Sweet Home. Figure 8 illustrates the ADT volumes recorded at this station from May 1995 through April 1996. A significant decrease in daily traffic volumes occurs during the fall and winter months, while traffic volumes during the spring and summer months are consistently higher. August was determined to be the peak month, with traffic volumes approximately 13 percent higher than the annual ADT volume. On May 26, 1995, (the Friday before Memorial Day weekend) the station recorded the single highest daily traffic volume for the entire year, likely due to an increased proportion of recreational traffic.

### ***Traffic Operations***

Eighteen (18) intersections were identified for the traffic operations analysis based on the daily and peak hour traffic volumes experienced at each intersection, and the functional classification of the intersecting roadways. The lane configurations and traffic control devices at each intersection were confirmed in the field, and are shown in Figure 9. Manual turning movement counts were conducted at twelve (12) critical study area intersections during the weekday p.m. peak period in November 1996. Weekday p.m. peak hour traffic volumes were estimated for the remaining six intersections: 47th Avenue/Highway 20, 49th Avenue/Highway 20, 12th Avenue/Long Street, Mountain View Road/Long Street, 43rd Avenue-Airport Road/Long Street, and 49th Avenue/Airport Road. The estimates were based on directional traffic flow during the p.m. peak hour, anticipated driver origins and destinations within the City during the p.m. peak hour, and the ratio of average daily traffic volumes to p.m. peak hour volumes on the subject roadways. The four traffic signals within the study area are located on U.S. 20 at the intersections with Highway 228, 12th Avenue, 15th Avenue, and 18th Avenue. The remaining study area intersections that were analyzed are stop-controlled on either two or four approaches.

The traffic counts were conducted between the hours of 4:00 p.m. and 6:00 p.m. on a Tuesday, and were examined for reasonableness. The system peak hour for the study area was determined to occur between 4:00 and 5:00 p.m. For analysis purposes, summer conditions were considered because traffic volumes are significantly higher. To account for the difference in traffic volumes between November when the counts were conducted, and average summertime conditions in August, eastbound and westbound through volumes on U.S. 20 were subjected to a 23% seasonal adjustment factor. This factor was determined from the records kept by the ODOT permanent recorder situated on U.S. 20 between Lebanon and Sweet Home. All other turning movement volumes were increased by ten percent (10%) to account for increased activity within the City during the summer. The 10% value is based on comparable situations in other cities and has been accepted as reasonable by the City Engineer. The estimated summertime traffic volumes are shown in Figure 10.



DATE	BY	REVISION	CHK'D	APPR.

**W&H PACIFIC**  
 800 NIMBUS AVE.  
 GRESHAM, OR 97008  
 -0455



DESIGNED BY: LAJ  
 DRAWN BY: HLG  
 CHECKED BY: \_\_\_\_\_  
 APPROVED BY: \_\_\_\_\_

W&H Pacific  
 SWEET HOME TSP  
 ODOT RECORDER 12-013  
 DAILY BI-DIRECTIONAL TRAFFIC VOLUMES

SCALE: AS SHOWN	PROJECT NO. 4-2658-8001	DRAWN 1995	SHEET 8
--------------------	----------------------------	---------------	------------

DATE	BY	REVISION



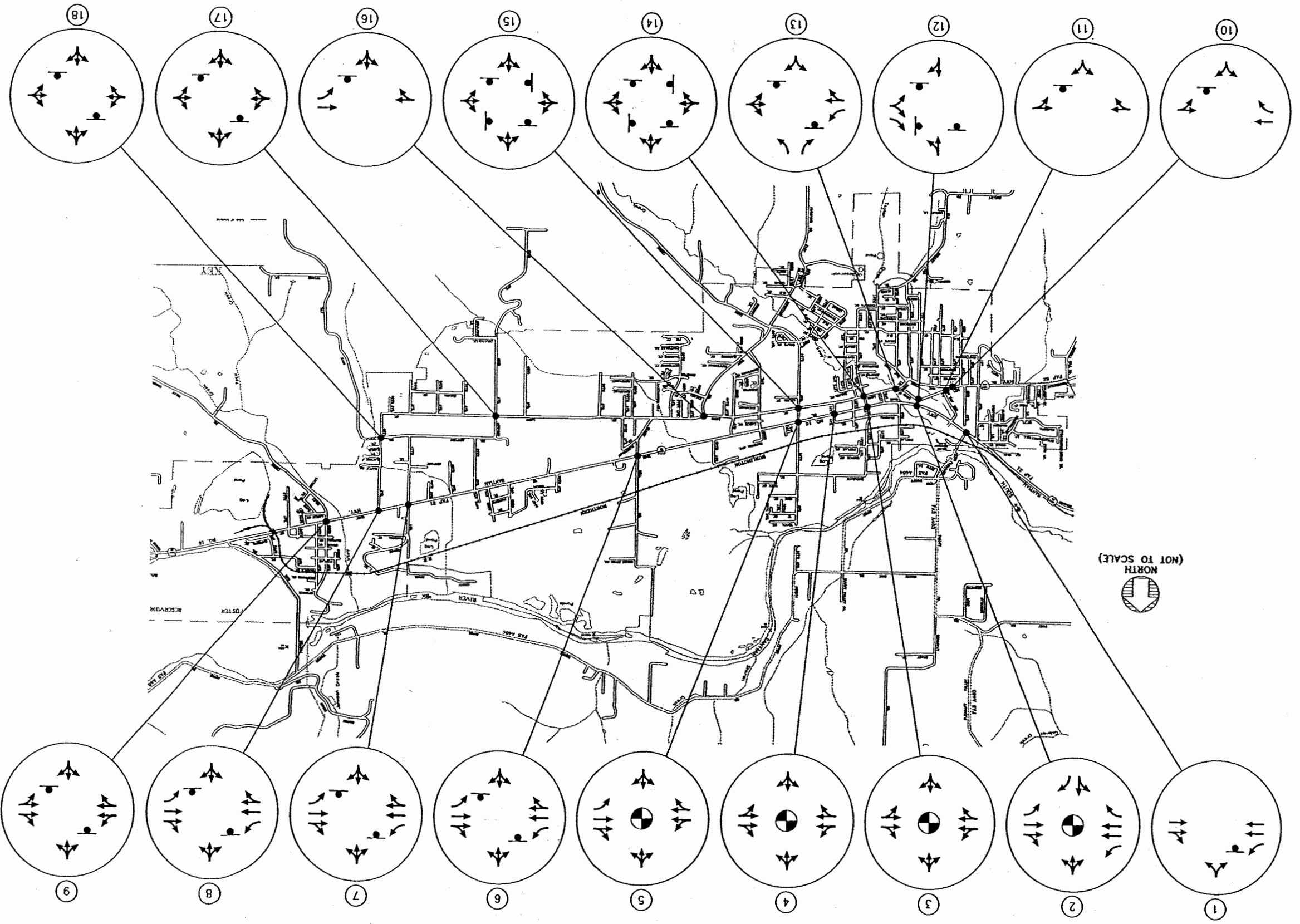
PROPOSED LOCAL STREET  
PROPOSED COLLECTOR



**W&H PACIFIC**  
8405 SW NIMBUS AVE.  
BEAVERTON, OR 97008  
(503) 626-0455

DESIGNED BY: LAJ  
DRAWN BY: HLG  
CHECKED BY:  
APPROVED BY:

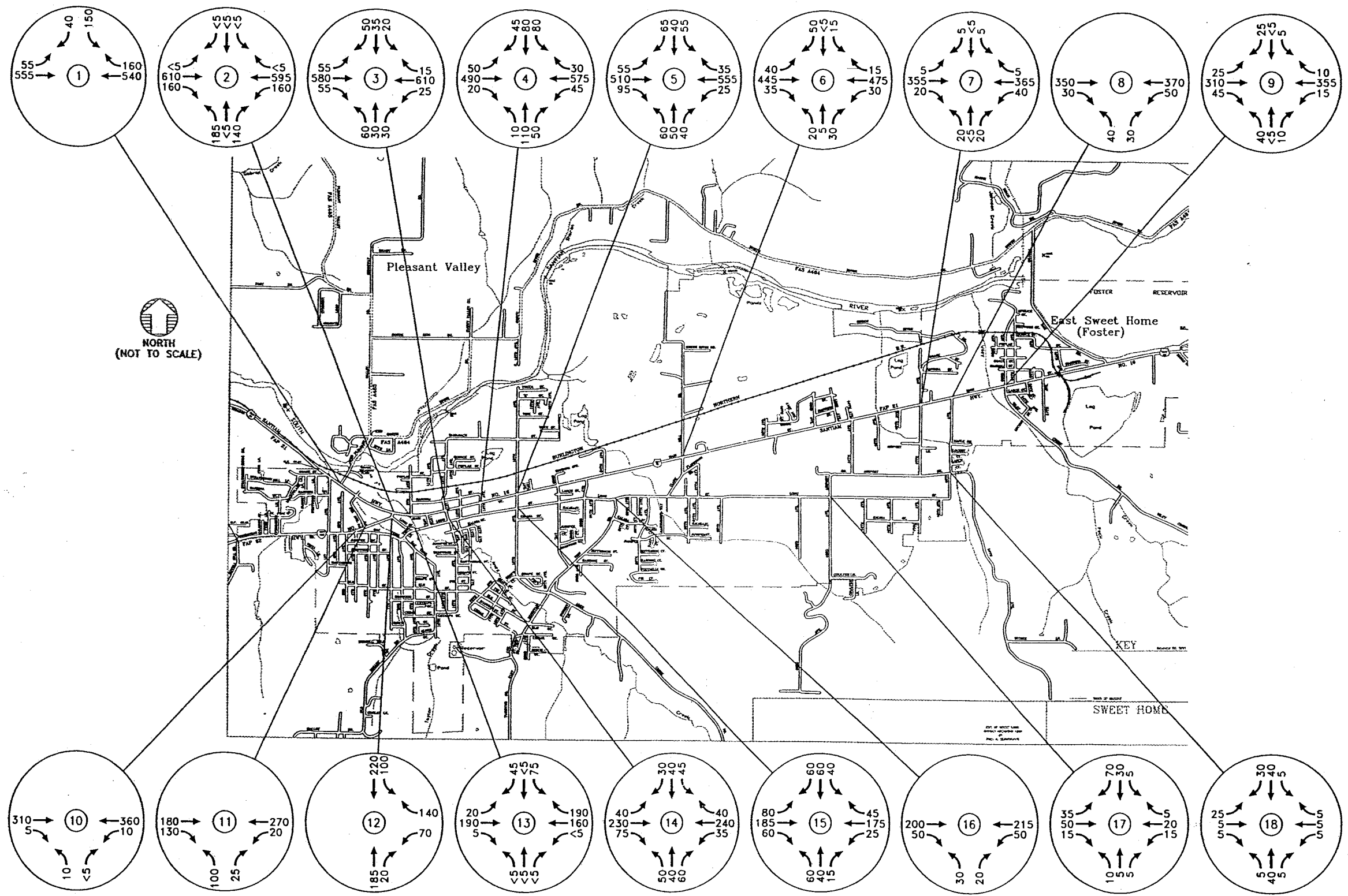
SCALE: AS SHOWN  
PROJECT NO. 4-2658-6001  
DRAWING FILE NAME: 1965LANE.DWG  
SHEET HOME  
**CONTROL DEVICES**  
SWEET HOME TSP  
CONFIGURATIONS & TRAFFIC  
W&H Pacific  
SHEET 9  
OREGON



### *Level of Service Analysis*

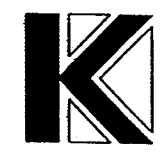
Using the 1996 summertime weekday p.m. peak hour traffic volumes described above, together with the current traffic control and lane configurations, peak hour intersection Level of Service (LOS) analyses were performed for each of the 18 study area intersections. LOS is a concept developed by the transportation engineering profession to quantify the degree of comfort (measured by such elements as travel time, number of stops, total amount of stopped delay, and impediments caused by other vehicles) afforded to drivers as they travel through an intersection or roadway segment. LOS is expressed as a letter grade ranging from "A" (little delay) to "F" (intolerable delay).

Table 1 summarizes the LOS analysis results for the nine study intersections. For the signalized and all-way stop-controlled (AWSC) intersections, the intersection volume-to-capacity ratio (v/c), average vehicle delay, and corresponding intersection LOS are shown. For the unsignalized intersections, the critical approach is indicated along with the v/c ratio, average total delay per vehicle, and corresponding LOS for the critical approach. The Oregon Highway Plan (OHP) level of service standards stipulate minimum LOS for design hour operating conditions through a 20-year horizon for all state facilities. The service levels depend on level of importance and general land use characteristics. For a regional highway such as U.S. 20 through an urban area, the minimum LOS is "D".



DATE	BY	REVISION	CK'D	APPR.

**W&H PACIFIC**  
 8405 SW NIMBUS AVE.  
 BEAVERTON, OR 97008  
 (503) 626-0455

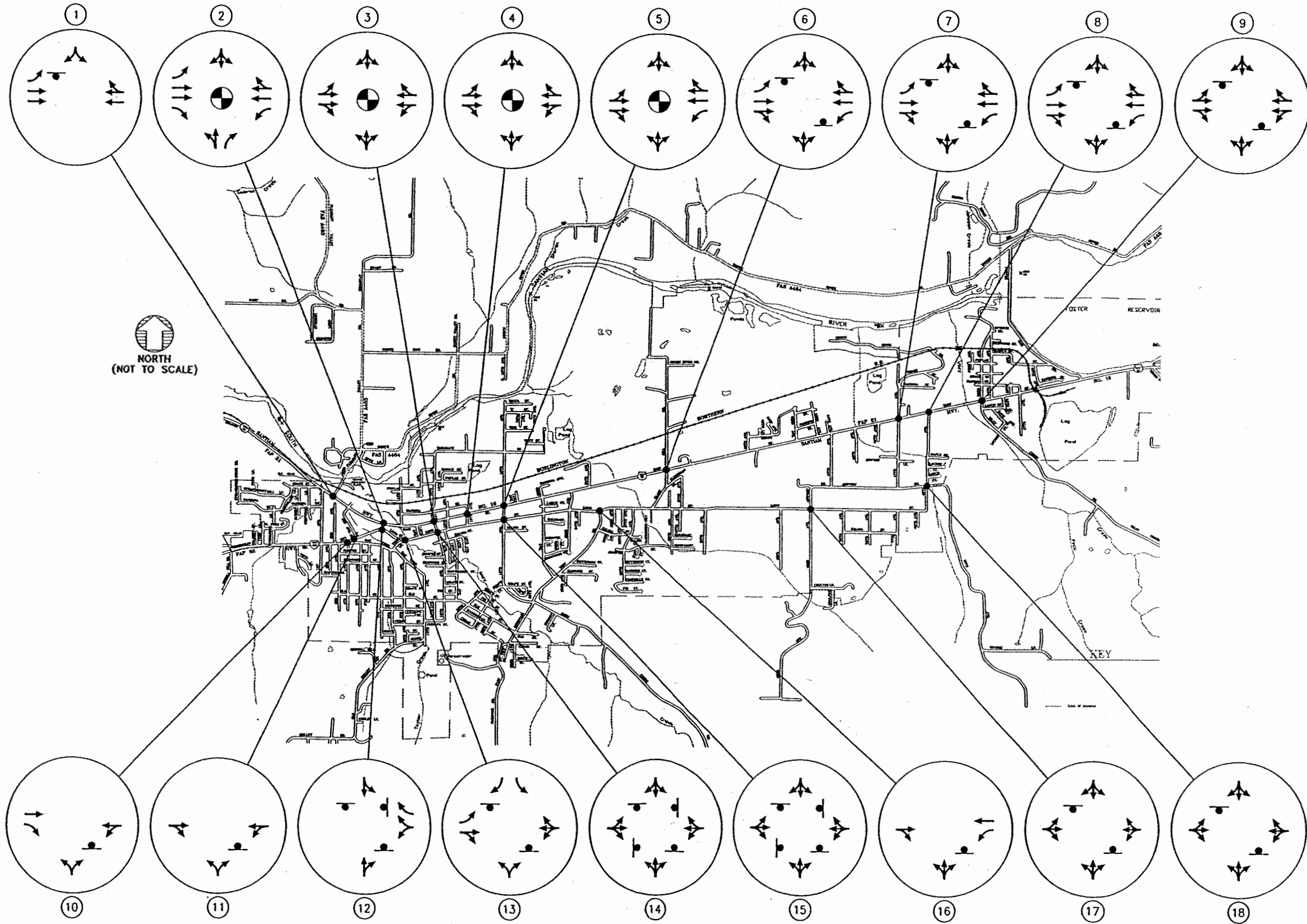


DESIGNED BY: LAJ  
 DRAWN BY: HLG  
 CHECKED BY: \_\_\_\_\_  
 APPROVED BY: \_\_\_\_\_

**W&H Pacific**  
**SWEET HOME TSP**  
**1996 FUTURE TRAFFIC VOLUMES**  
**WEEKDAY PM PEAK HOUR**  
 SWEET HOME OREGON  
 SCALE: AS SHOWN PROJECT NO. 4-2658-6001 DRAWING FILE NAME: 1965VOLS.DWG SHEET 10



PLOT DATE: 8-27-97



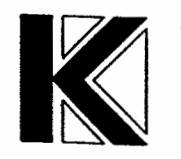


DATE	BY	REVISION	CK'D	APPR.

**LEGEND**

-  PROPOSED COLLECTOR
-  PROPOSED LOCAL STREET

**W&HPACIFIC**  
 8405 SW NIMBUS AVE.  
 BEAVERTON, OR 97008  
 (503) 626-0455



DESIGNED BY: LAJ  
 DRAWN BY: HLG  
 CHECKED BY: \_\_\_\_\_  
 APPROVED BY: \_\_\_\_\_

**W&H Pacific**  
**SWEET HOME TSP**  
**CONFIGURATIONS & TRAFFIC**  
**CONTROL DEVICES**

SWEET HOME OREGON

SCALE: AS SHOWN	PROJECT NO. 4-2658-6001	DRAWING FILE NAME: 196SLANE.DWG	SHEET <b>9</b>
--------------------	----------------------------	------------------------------------	-------------------

SECTION, TOWNSHIP, RANGE

PLOT DATE: 7-7-97  
 LAST EDIT: HLG 7-7-97

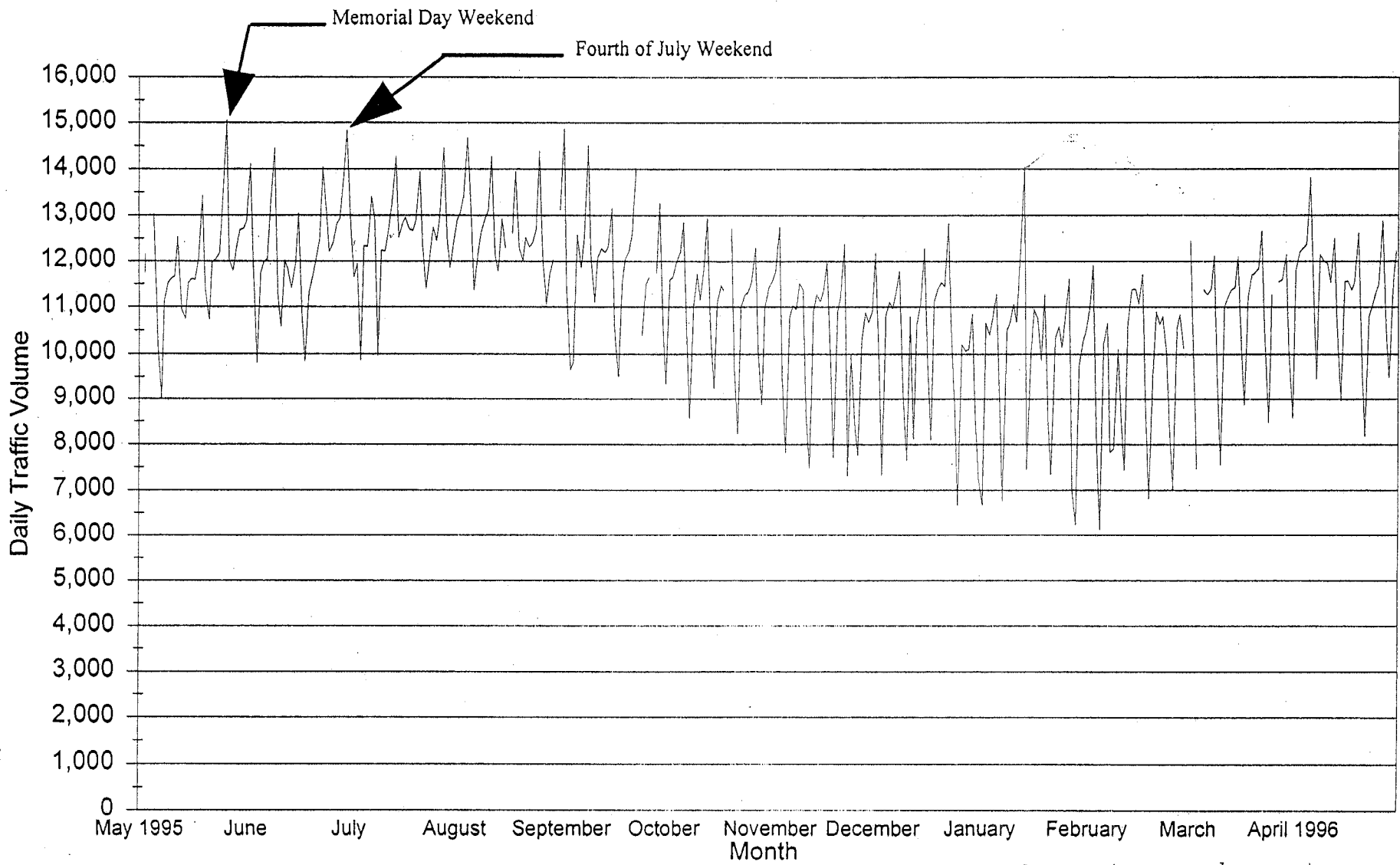


In order to determine the seasonal peak in annual traffic volumes, traffic recorder data along U.S. 20 for the most recent, complete one-year time period was examined and analyzed. ODOT maintains a permanent traffic recorder station (#22-013: Waterloo) along U.S. 20, approximately 3.4 miles southeast of the City of Lebanon, between Lebanon and Sweet Home. Figure 8 illustrates the ADT volumes recorded at this station from May 1995 through April 1996. A significant decrease in daily traffic volumes occurs during the fall and winter months, while traffic volumes during the spring and summer months are consistently higher. August was determined to be the peak month, with traffic volumes approximately 13 percent higher than the annual ADT volume. On May 26, 1995, (the Friday before Memorial Day weekend) the station recorded the single highest daily traffic volume for the entire year, likely due to an increased proportion of recreational traffic.

### ***Traffic Operations***

Eighteen (18) intersections were identified for the traffic operations analysis based on the daily and peak hour traffic volumes experienced at each intersection, and the functional classification of the intersecting roadways. The lane configurations and traffic control devices at each intersection were confirmed in the field, and are shown in Figure 9. Manual turning movement counts were conducted at twelve (12) critical study area intersections during the weekday p.m. peak period in November 1996. Weekday p.m. peak hour traffic volumes were estimated for the remaining six intersections: 47th Avenue/Highway 20, 49th Avenue/Highway 20, 12th Avenue/Long Street, Mountain View Road/Long Street, 43rd Avenue-Airport Road/Long Street, and 49th Avenue/Airport Road. The estimates were based on directional traffic flow during the p.m. peak hour, anticipated driver origins and destinations within the City during the p.m. peak hour, and the ratio of average daily traffic volumes to p.m. peak hour volumes on the subject roadways. The four traffic signals within the study area are located on U.S. 20 at the intersections with Highway 228, 12th Avenue, 15th Avenue, and 18th Avenue. The remaining study area intersections that were analyzed are stop-controlled on either two or four approaches.

The traffic counts were conducted between the hours of 4:00 p.m. and 6:00 p.m. on a Tuesday, and were examined for reasonableness. The system peak hour for the study area was determined to occur between 4:00 and 5:00 p.m. For analysis purposes, summer conditions were considered because traffic volumes are significantly higher. To account for the difference in traffic volumes between November when the counts were conducted, and average summertime conditions in August, eastbound and westbound through volumes on U.S. 20 were subjected to a 23% seasonal adjustment factor. This factor was determined from the records kept by the ODOT permanent recorder situated on U.S. 20 between Lebanon and Sweet Home. All other turning movement volumes were increased by ten percent (10%) to account for increased activity within the City during the summer. The 10% value is based on comparable situations in other cities and has been accepted as reasonable by the City Engineer. The estimated summertime traffic volumes are shown in Figure 10.



DATE	BY	REVISION	CHK'D	APPR.

**W&H PACIFIC**  
 8-10 NIMBUS AVE.  
 BEASLEY, OR 97008  
 503-255-0455



DESIGNED BY: LAJ  
 DRAWN BY: HLG  
 CHECKED BY: \_\_\_\_\_  
 APPROVED BY: \_\_\_\_\_

W&H Pacific  
 SWEET HOME TSP  
 ODOT RECORDER 12-013  
 DAILY BI-DIRECTIONAL TRAFFIC VOLUMES

SCALE: AS SHOWN	PROJECT NO. 4-2658-0001	DRAWN 1995	SHEET 8
-----------------	-------------------------	------------	---------

### ***Level of Service Analysis***

Using the 1996 summertime weekday p.m. peak hour traffic volumes described above, together with the current traffic control and lane configurations, peak hour intersection Level of Service (LOS) analyses were performed for each of the 18 study area intersections. LOS is a concept developed by the transportation engineering profession to quantify the degree of comfort (measured by such elements as travel time, number of stops, total amount of stopped delay, and impediments caused by other vehicles) afforded to drivers as they travel through an intersection or roadway segment. LOS is expressed as a letter grade ranging from "A" (little delay) to "F" (intolerable delay).

Table 1 summarizes the LOS analysis results for the nine study intersections. For the signalized and all-way stop-controlled (AWSC) intersections, the intersection volume-to-capacity ratio ( $v/c$ ), average vehicle delay, and corresponding intersection LOS are shown. For the unsignalized intersections, the critical approach is indicated along with the  $v/c$  ratio, average total delay per vehicle, and corresponding LOS for the critical approach. The Oregon Highway Plan (OHP) level of service standards stipulate minimum LOS for design hour operating conditions through a 20-year horizon for all state facilities. The service levels depend on level of importance and general land use characteristics. For a regional highway such as U.S. 20 through an urban area, the minimum LOS is "D".

correctable by a signal, and specific requirements for vehicle and/or pedestrian volumes have been established.

**Warrant 7 - Systems Warrant** - Signals may be desired to encourage concentration and organization of traffic flow networks. This warrant is applicable when two or more major routes intersect. Additional criteria are specified in this warrant related to volumes.

**Warrant 8 - Combination of Warrants** - In some cases, signals may be justified when no single warrant is satisfied, but Warrants 1 and 2 are satisfied to 80% or more of the criteria. Other traffic control measures should be pursued before installing a signal under this warrant.

**Warrant 9 - Four Hour Volumes** - This warrant is similar to Warrant 1, but requires higher volumes to be met for each of four hours. Criteria are based on plotted points on a graph, calibrated to size of the surrounding community.

**Warrant 10 - Peak Hour Delay** - This warrant applies in situations where for one hour per day, minor street traffic suffers undue delay in entering or crossing the major street. Specific volume criteria must be met for this to apply.

**Warrant 11 - Peak Hour Volume** - This warrant is similar to Warrant 10, but are based on plotted points on a graph, calibrated to the size of the surrounding community.

Three warrants were analyzed for the intersection of Highway 20 and Pleasant Valley: Warrant 1, Minimum Vehicular Volume; Warrant 2, Interruption of Continuous Traffic; and Warrant 11, Peak Hour Volume. These warrants were selected because traffic volumes, especially in the pm peak hour appear to be the cause of congestion; accident history and pedestrian volumes are not appropriate for analysis at this location. Table 2 shows the results of the signal warrant analysis:

The intersection meets MUTCD traffic signal warrants under 1996 summertime conditions. A traffic signal installation may be warranted at this location to improve traffic operations to acceptable levels of service and safety. It is acknowledged that ODOT has its own procedure to verify that a signal is warranted, and that other options, such as additional road connections may also alleviate the need for a signal at this location. As part of the analysis conducted for the Transportation System Plan, a recommendation for a signal installation or other remedy for this location will be made.

## **ACCIDENT DATA AND CURRENT SAFETY NEEDS**

### ***Traffic Safety***

An assessment of traffic safety conditions in Sweet Home was conducted using accident data obtained from both ODOT and the City covering the 3.5-year period from January 1993 to June 1996. The two data sets were cross-checked to ensure a comprehensive analysis. A corridor-level analysis examined traffic safety along three discrete segments of U.S. 20: an urban segment (from

the west City limits to 24th Avenue) and a rural segment (from 24th Avenue to the east City limits), as well as the median-controlled segment of U.S. 20 in the downtown area (from 10th Avenue to 18th Avenue). The entire median-controlled segment was included in the analysis of the urban segment. A second analysis examined traffic safety at several key intersections in the downtown area that experienced high accident rates during the study period.

### ***U.S. 20 Accident Rates***

For roadway segments, the total number of accidents is divided by the product of the roadway volume and segment length in miles. The result is reported as accidents per million vehicle miles traveled (ACC/MVM). Average accident rates in the State of Oregon for facilities similar to U.S. 20 through Sweet Home are approximately 3.55 ACC/MVM for urban segments and 0.87 ACC/MEV for rural segments (as reported in the *1993 State Highway System Accident Rate Tables*, published by ODOT). The accident rates per million vehicle miles for each of the three roadway segments are shown in Table 2.

**Table 2**  
**Roadway Accident Rates: U.S. 20 in Sweet Home**

<b>Roadway Segment</b>	<b>Description</b>	<b>Number of Accidents 1/93 to 6/96</b>	<b>Segment Length (miles)</b>	<b>Accident Rate (ACC/MVM)</b>
West City Limits to 24th Avenue	Urban	182	1.44	6.32
24th Avenue to East City Limits	Rural	58	3.23	1.57
10th Avenue to 18th Avenue	Urban: Median-controlled	122	0.50	11.79

Legend: ACC/MVM = accidents per million vehicle miles

The accident rate through the rural section of U.S. 20 exceeds the average rate for similar rural facilities throughout Oregon, indicating that a safety problem may exist in this section. The single fatality identified during the 3.5-year study period occurred in this section, near the east City limits. This particular accident occurred near midnight on a Saturday in January 1996, when a driver speeding eastbound on U.S. 20 lost control of his vehicle and was killed. As Table 3 shows, the accident rate through the urban section is considerably higher than in the rural section, indicating the likelihood of a safety problem along this section of roadway. Furthermore, the median-controlled segment of U.S. 20 through downtown Sweet Home experienced an unusually high accident rate during the 3.5-year study period. This is uncommon for median-controlled roadways because left turn movements are prohibited, thereby reducing the number of conflicting movements and potential for accidents. A review of the accident data through the median-controlled segment revealed that nearly all of the accidents occurred at intersections. Consequently, a more detailed analysis of the accident data was conducted to identify the intersections experiencing the greatest safety deficiencies.

### ***Intersection Accident Rates***

At intersections, the accident rate is given in terms of accidents per million entering vehicles (ACC/MEV) and is calculated by dividing the average number of accidents per year by the total entering vehicle volume for the year. An accident rate of less than 1.0 ACC/MEV generally indicates that there are no significant safety problems associated with the intersection. A rate in excess of 1.0 indicates the need for further analysis to determine if a safety problem exists, and what mitigation is possible. Table 3 indicates the accident rates for the intersections experiencing the highest number of accidents along the median-controlled segment.

**Table 3**  
**Intersection Accident Rates**

<b>Intersection</b>	<b>Number of Accidents 1/93 to 6/96</b>	<b>Accident Rate (ACC/MEV)</b>
12th Avenue/U.S. 20	24	1.20
13th Avenue/U.S. 20	17	0.96
15th Avenue/U.S. 20	31	1.53
18th Avenue/U.S. 20	38	1.93

Legend: ACC/MEV = Accidents per million entering vehicles

As shown, the intersections of 12th Avenue, 15th Avenue, and 18th Avenue with U.S. 20 experienced accident rates over 1.0 ACC/MEV, indicating a safety problem likely exists at each of these intersections. Furthermore, the accident rate at the 13th Avenue/U.S. 20 intersection is nearly 1.00 ACC/MEV, indicating a possible accident problem at this location. A review of ODOT's accident data revealed that a significant proportion of the accidents at each of these intersections involved vehicles traveling along U.S. 20 at excessive speeds. The signalized 12th Avenue/U.S. 20 intersection experienced many accidents involving a driver running a red light, while at the 15th Avenue/U.S. 20 intersection a high proportion of accidents resulted from vehicles making left turns from U.S. 20. The 18th Avenue/U.S. 20 intersection experienced primarily turning and rear-end accidents.

While vehicle speed was found to be a critical factor in many of the accident cases investigated, the accident problem within this section is aggravated by the absence of separate left turn bays on the east and/or west intersection approaches (due to the median), coupled with the permitted left turn phasing at the signalized intersections. Vehicles waiting to turn left from U.S. 20 currently must wait in the through-left lane until an acceptable gap appears in opposing traffic. This creates potential rear-end conflicts with vehicles in the same lane intending to go straight through the intersection. The through vehicle must either stop behind the left turning vehicle and wait for it to turn, or maneuver around the turning vehicle by merging with traffic in the through-right lane.



### ***Potential Mitigation Measures***

Excessive vehicle speed was a crucial factor in many of the accidents occurring through the median-controlled segment of U.S. 20 in Sweet Home. However, since this segment currently has a posted speed of 25 mph, any reduction in the posted speed would be inappropriate for a highway. Consequently, increased police enforcement would likely be necessary to reduce speeds to appropriate levels. In addition, construction of separate left turn bays and implementation of protected left turn phasing would likely reduce the number of left turning and rear-end accidents experienced at the intersections. Finally, a significant number of accidents resulted from drivers running red lights. This suggests that the traffic signals may not always be visible to drivers, or that drivers are looking at another downstream signal. In addition, yellow and all-red times at the signals may need to be increased in order to provide adequate clearance times.

### **CURRENT FACILITY NEEDS**

The following is a summary of initial findings based on site visits and comments received in the public involvement process.

#### ***Traffic Control***

The current comprehensive plan notes several deficiencies which have been verified as currently existing. These include inadequate right-of-way width, poor pavement conditions, inadequate roadway widths, intersection sight distance problems, open ditches along roads, poor alignment at intersections, limited sidewalks, limited or confusing traffic control at some intersections, and parking permitted on both sides of narrow streets which serve a significant function.

#### ***Bicycle and Pedestrian***

The existing deficiencies for bicycle and pedestrian facilities are well documented in the Draft Bicycle and Pedestrian Plan (1995). On new streets and in the downtown area, sidewalks exist, however on some collector streets, sidewalks or expanded shoulders are needed.

Mountain View Road, in the vicinity of the junior high school, should be improved to provide sidewalks. This will improve safety for students walking to the school and reduce impacts to adjacent residential properties.

#### ***Public Transportation***

Public Transportation as it exists through the Senior Center shuttle and dial-a-ride services is adequate. As population grows, it may be desirable to increase the level and availability of dial-a-ride service. With senior housing projects under development, improved fixed-route shuttle service to Lebanon and/or Albany may also be warranted to serve medical needs as well as Lane-Benton Community College students.

### ***Rail and Aviation***

Currently, few trains use the existing rail line through Sweet Home. The City is courting industrial users for redevelopment of former mill sites and development of vacant land which is zoned industrial. Provision of rail service to potential development sites may be attractive to prospective tenants, however the current rail facilities need significant improvement and replacement of rails and ties to remain productive.

Continued provision of airport facilities in Sweet Home will require some significant decision-making on the part of the City and the private owners/operators of the two airstrips. Both existing facilities have strengths and weaknesses in terms of perpetuation and expansion of service.

Langmack Airport is privately owned and maintained as a private airstrip. Even if the current or future owners desired to expand the airport, growth and development in the area has limited the airport's function and ability to expand. The airport is recognized in the State Airport Plan as the "Sweet Home Airport" and the City is now required to comply with recently implemented regulations under OAR 660 Division 13 (Airport Planning). The area is surrounded by residential development, which may raise noise complaints, if use is increased. The area surrounding Langmack Airport must be reinforced with an airport overlay zone in accordance with OAR 660 Div. 13 to prevent further encroachment of incompatible land uses and encroachment of structures into controlled airspace. The City needs to prepare a revision to the zoning code to bring it into compliance.

Stock/Tomco Airport has a greater area for expansion of service, and is protected with an overlay zone. The City sees this area as valuable for increasing industrial land use and employment centers, however, the site is also adjacent to an area being proposed for a recreational resort facility, which may make the airstrip attractive for visitor use.

### ***Truck Routes***

The current City truck route map is limited. As industrial users develop sites in the city, additional truck routes may need to be identified to reduce truck impacts on residents, other businesses, and direct heavy-vehicle related wear and associated maintenance to appropriate streets.

### ***Pipelines and Other Networks***

It appears that pipeline service as it relates to goods transport is limited to natural gas. The network provided is adequate for the current use levels.

## **EXISTING PLANS AND POLICIES**

The Transportation Planning Rule requires that existing plans and policies that relate to Sweet Home are reviewed and that the City comes into compliance with them. A review of the City's codes and

comprehensive plan was conducted. Identified shortcomings and recommended changes are presented in a separate document. Other broad-scale policies that were reviewed are summarized below.

### ***Oregon Transportation Plan***

The Oregon Transportation Plan (OTP), in a 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 also addresses the coordination of transportation 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 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.

### ***Section 1.6.7 - Oregon Transportation Safety Action Plan (1995)***

The Oregon Transportation Safety Action Plan (OTSAP) is the safety component of the OTP. The OTSAP identifies 70 specific actions which constitute a safety agenda to guide ODOT and the state over the next 20 years. Of the 70 actions, the following 11 respond to most traffic-related deaths and injuries or other key areas of concern:

- Develop a traffic law enforcement strategic plan;
- Seek a dedicated funding source for traffic law enforcement services and support needs;
- Continue a sustained research-based transportation safety public information/education program;
- Support the expansion of local transportation safety programs;
- Complete a strategic plan for traffic records improvements and establish a traffic records system that will serve the needs of state and local agencies;
- Recognize the prevalence of driving under the influence of a controlled substance and revise driving under the influence standards;
- Pass legislation to establish 0.04 percent blood alcohol count (BAC) as the standard for measuring alcohol impairment for all drivers 21 years and over. Continue zero tolerance law for persons under 21;
- Establish and fund a statewide accident management program designed to minimize traffic congestion and secondary crashes by clearing incidents as quickly as possible;
- Ensure access to child safety seats for all young children;
- Develop and implement a comprehensive youth transportation safety strategy for youth to age 21; and
- Increase emphasis on programs that will encourage pedestrian travel and improve pedestrian safety.

### *Oregon Aviation System Plan (1991)*

The Oregon Aviation System Plan (ASP) 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). The city or county has the option of requiring the local airport owner or manager to prepare the document. Local AFPs must be coordinated with

transportation system plans. In Sweet Home, there are two airports, Langmack and Stock-Tomco; Langmack is currently identified in the state ASP, but is not protected by overlay zoning. The City plans to correct this in the future.

### ***Oregon Rail Freight Plan (1994)***

The Oregon Rail Freight Plan presents an overview of the state's rail system, how it operates and how it is used. The Plan also examines rail lines that may be eligible for state or federal assistance. State and local government have little authority over rail, as it is privately owned.

There is one active rail line in Sweet Home. It is currently operated by Burlington Northern and primarily serves the Willamette Industries facilities along the Highway 20 corridor. This line averages one to three trips per day.

### ***Corridor Planning***

Corridor Planning is a statewide program to develop a long-range "vision" and plan for improving and managing the state transportation system. The program aims to assure consistency of land use plans and transportation plans in these corridors. Corridor planning will identify the functions and LOS of each corridor, needed transportation facility and service improvements, transportation management actions, priorities for actions, and any changes in comprehensive land use plans needed to make transportation improvements and to protect the integrity of the transportation investments. Highway 20 will be the subject of a corridor planning study some time in the future.

### ***Oregon Highway Plan***

The Oregon Highway Plan (OHP), adopted by the Oregon Transportation Commission in 1991, outlines the policies which enable ODOT to better manage the highway system for the period 1991-2010. 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:

- Level of Importance (LOI)
- Access Management

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

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

The level of importance concept is based on the premise that the more important routes require a higher LOS. Interstate routes, for example, should maintain a higher LOS than district routes. Highway 20 through the city is identified as a highway of Regional importance. Highway 228 is identified as being of District importance.

*Regional Highways* - 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* - 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. Highway 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.

*Level of Service (LOS) Standards* - The LOI policy includes operational LOS standards as summarized in Table 5. These standards are to be used by OSHD when making operating decisions (such as access management decisions) and when coordinating with local comprehensive planning. The OSHD's objective is to maintain LOS at or above the listed standards.

The standards depend on the highway level of importance and general land use characteristics. Special standards are provided for areas where highways are located in exclusive transitway corridors and where highways, other than interstate highways, pass through special transportation areas such as dense transit or pedestrian-oriented business districts. Other allowances are made for highway sections that are severely constrained by intensive land use development or major environmental limitations, and for highway sections that are operating at a substandard level but are not scheduled for improvement in the Six-Year Transportation Improvement Program.

**Table 4**  
**Operating Level of Service Standards**  
**For Design Hour Operating Conditions**  
**Through a 20-Year Horizon**

Level of Importance	Type of Area Surrounding Highway			
	Urban Parts of Metropolitan Areas	Urban Parts of Other Cities	Urbanizing Areas and Rural Development Centers	Rural Areas
Interstate	D	C	C	B
Statewide	D	C	C	B
Regional	D	D	C	C
District	E	D	D	C

Shaded cells indicate LOS standards for the City of Sweet Home. Operating standards are not design standards; they are used by ODOT when making operating decisions such as access management decisions. Design standards, which are used to guide the design of highway improvements, are often higher to provide acceptable operating conditions in the future.

Urban areas are those areas within an urban growth boundary that are generally developed at urban intensities as allowed by a comprehensive plan. Urbanizing areas are those within a UGB that are underdeveloped or developing. Metropolitan areas include Portland, Salem-Keizer, Eugene-Springfield, and Rainier (part of Longview-Kelso).

Rural development centers are concentrations of development outside of urban growth boundaries, including rural unincorporated communities. Rural areas are those outside of UGBs, but not including rural development centers.

*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 which will be consistent with the function and operating LOSs identified in the LOI Policy. It is used by the OSHD to carry out its responsibilities for managing access under statutes and administrative rules. It is used by the OSHD to guide the design of highways and coordination with local comprehensive planning

The OHP Access Management Policy standards are defined by roadway category in Table 5. Highway 228 falls into access management category 6, while access management category 5 would be applied to Highway 20.

### *Oregon Benchmarks (1994)*

The Oregon Benchmarks (updated in 1994) is 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.

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.



**Table 5**  
**Access Management Classification System (ODOT)**

Category	Access Treatment	LOI <sup>1</sup>	Urban / Rural	Intersection				Signal Spacing <sup>2</sup>	Median Control
				Public Road		Private Drive <sup>3</sup>			
				Type <sup>4</sup>	Spacing	Type	Spacing		
1	Full Control (Freeway)	Interstate/ Statewide	U	Interchange	2-3 Mi	None	NA	None	Full
			R	Interchange	3-8 Mi	None	NA	None	Full
2	Full Control (Expressway)	Statewide	U	Grade /Intch	½-2 Mi	None	NA	½-2 Mi	Full
			R	Grade /Intch	1-5 Mi	None	NA	None <sup>5</sup>	Full
3	Limited Control (Expressway)	Statewide	U	Grade /Intch	½-1 Mi	Rt Turns	800'	½-1 Mi	Partial
			R	Grade /Intch	1-3 Mi	Rt Turns	1200'	None <sup>5</sup>	Partial
4	Limited Control	Statewide/ Regional	U	Grade /Intch	1/4 Mi	Lt/Rt Turns	500'	½ Mi	Partial/ None
			R	Grade /Intch	1 Mi	Lt/Rt Turns	1200'	None <sup>5</sup>	Partial/ None
5	Partial Control	Regional/ District	U	Grade	1/4 Mi	Lt/Rt Turns	300'	1/4 Mi	None
			R	Grade	½ Mi	Lt/Rt Turns	500'	½ Mi	None
6	Partial Control	District	U	Grade	500'	Lt/Rt Turns	150'	1/4 Mi	None
			R	Grade	1/4 Mi	Lt/Rt Turns	300'	½ Mi	None

<sup>1</sup> The Level of Importance (LOI) to which the Access Category will generally correspond. In cases where the access category is higher than the LOI calls for, existing levels of access control will not be reduced.

<sup>2</sup> Generally, signals should be spaced to minimize delay and disruptions to through traffic. Signals may be spaced at intervals closer than those shown in order to optimize capacity and safety.

<sup>3</sup> Generally, no signals will be allowed at private access points on statewide and regional highways. If warrants are met, alternatives to signals should be investigated, including median closing. Spacing between private access points is to be determined by acceleration needs to achieve 70% of facility operating speed. Allowed moves and spacing requirements may be more restrictive than those shown to optimize capacity and safety.

<sup>4</sup> The basic intersection design options are as listed. Special treatments may be considered in other than Category 1. These include partial interchanges, jughandles, etc. The decision on the design should be based on function of the highway, traffic engineering, cost-effectiveness and need to protect the highway. Interchanges must conform to the interchange policy.

<sup>5</sup> In some instances, signals may need to be installed. Prior to deciding on a signal, other alternatives should be examined. The design should minimize the effect of the signal on through traffic by establishing spacing to optimize progression. Long range plans for the facility should be directed at ways to eliminate the need for the signal in the future.

## TRANSPORTATION SYSTEM IMPROVEMENT PROJECTS

Improvement Projects from the following sources were reviewed and those pertaining to the City of Sweet Home Urban Area are discussed:

*ODOT Statewide Transportation Improvement Program (STIP) 1996-1998*

*ODOT Statewide Transportation Improvement Program 1998-2001 (Draft)*

Sweet Home WCL - Foster Dam Rd. (mp. 26.6 to 30.8) Preservation Overlay - Funded through the 3R program (resurface, restore, rehabilitate), the project includes resurfacing Highway 20, sidewalk repair or replacement, inclusion of bike lanes east of downtown, and new traffic signals with left turn pockets in downtown. This project is shown in both STIPs as the construction date was moved from 1998 to 1999.

*City Capital Improvements Plan, 1996-97 Through 2001-02* - The City of Sweet Home's Capital Improvements Plan (CIP) consists mostly of pavement maintenance and improvement projects. No new facilities are identified in the CIP. The City has not identified any long-range transportation improvements. A more inclusive, expanded CIP is under development and will be completed upon finalization of the this document.

## OTHER DOCUMENTS AND DATA

There have not been many traffic studies or other transportation-related plans done for Sweet Home. The only recent study is the *Sweet Home Pedestrian and Bicycle Plan and Appendix (Draft Final Report, June 1995)* prepared in 1994-5. A *Roadway and Traffic Safety Plan* was prepared in 1978. Many of the findings regarding high accident locations and confusing intersections that were identified by public audiences in 1996 were also cited in this 1978 study. Many of the recommendations of the 1978 study have not been implemented and mirror some of the remedies that have been conceptually identified for application to this plan. These include:

- Realignment of 12th Avenue to eliminate the offset at Main Street
- Rebuild curves on Elm Street west of 10th Avenue to provide better alignment
- Provide left turn lanes on Main at 9th, 10th, 12th, 13th, 15th, and 18th
- Provide left turn lane on Main at Wiley Creek Road
- Install "Signal ahead" signs west of Holley and east of 18th Avenue to alert drivers. Also consider installing larger signal lenses.
- Improvements to sight distance throughout the city

## PUBLIC PERCEPTION OF PROBLEMS AND NEEDS

Four meetings were held which discussed key issues to be addressed either by the Highway 20 3R project or the TSP. These meetings included a meeting of the project teams for the two projects on

July 8th, the first Open House on September 19th, the first TAC meeting on October 10th and the first CAC meeting on October 29th.

Comments have been ordered based on category of issue and include comments made by the project team at the meeting in italics. *The following items are not necessarily facts, but represent opinions and observations of meeting participants.*

### ***Traffic Signals and Other Traffic Control***

- Lack of STOP signs: Poplar at 11th is an accident waiting to happen.
- Are signals being considered for 22nd and 53rd? *Not at this time.*
- Curves on Elm from 8th to 10th (offset) should be corrected.
- Signage needs improvement, for example "DEAD END" signs; dead end streets need turnarounds.
- Truck routes: 47th and 49th are designated. Is there a need for a signal at 47th and Main?
- The Long/Highway 228 intersection, including the arrows and channelization is confusing. Possibility of cul-de-sac on Hwy. 228 at Long St. intersection and re-routing Hwy. 228 to Pleasant Valley Rd.
- The Highway 228/Oak Terrace/4th intersection is confusing.
- Speed bumps in alleys?
- Can traffic signals be used to slow cars? *Yes*
- Can you install a left turn arrow with no turn lane? We would support that type of signal. *(Yes, but the volumes are high enough that this would work for a couple of years only.)*
- Will signals and left turn lanes solve safety problems? *(ODOT and Dave Sypher identified how left turn lanes improve safety and capacity and how signals can be used to control speed and improve safety.)*
- What would be the impact of just improving signals (coordination/interconnect) and enforcement? *(Need for more study.)*
- In the long term, 12th should be realigned, which would remove Yo'Mama's Pizza. Possibly wait to do this when property becomes available. One option would be to close 12th off now, and use as a parking street or public space. The north leg is right-in/right-out and signal serves south leg only.
- U-Turns need to be addressed.
- ODOT is realigning access to its yard to align with Pleasant Valley Road. The building is being expanded and the sewer line relocated. Pleasant Valley Road intersection conflicts with ODOT yard access. Option to use back entrance limited by truck restrictions and sight distance. To align intersection would require right-of-way acquisition of a new business. Would signal be warranted here because of electronics factory?
- Clark Mill is a candidate for signalization. Volumes will increase on this road. There is no real problem today. The recommendation for signalization should come from the TSP, not the 3R project.

- 49th is a street of concern, primarily for the TSP. It is a truck route and 400 residential units with commercial development have been approved. Also 47th street will be the access for an assisted living facility.
- The transition from 5 to 2 lanes at 55th is an area of concern, as is Wiley Creek Road because of sight distance.
- City would like section to include 3 lanes and a bike lane to extend east of Wiley Creek.

### *Accidents*

- Accidents are caused by speed; traffic flow does not go 25 mph.
- Turning lanes - is there another way to get safety effect?
- Speed bumps.
- Pavement markers to slow traffic, also improve foglines and centerline reflectors on Highway 20, collectors and arterials.
- Correct the off-set intersections.
- Beef up law enforcement (on speeding), maybe use photo radar?
- Accident rate statewide for urban arterials is 3.55. This segment averages 1.86. However, 3 of the regions top 10 SPIS intersections are here. They are 12th, 18th, and 53rd. There may be some state money for SPIS corrections available for these locations.

*Discussion covered the effectiveness of speed bumps and the legality of using them on a state highway. ODOT mentioned that the Highway 20 project is a "cost effective" 3R project and that realignment of offsets is beyond the scope/budget of the 3R project, but is an issue for discussion in the 20-year TSP. 3R is an abbreviation for resurfacing, restoration, and rehabilitation.*

*The status of photo radar in Oregon was discussed, and considered viable if the legislature ok's its use. The responsibility for speed enforcement was raised - State, County or City, and the budgetary implications were mentioned.*

### *One-Way Couplet*

- System of one way streets, like Lebanon.
- Long Street/Highway 20 couplet? Highway 20/RR right-of-way couplet?
- There is a long history of right-of-way acquisition along Highway 20 without use. Long/Main couplet was proposed 20 years ago.
- General support of the audience for the couplet.
- What will couplets do for speed and accident reduction? I suspect speed will increase.
- Hazard of using Long: school locations are an obstacle. Can High School campus become a closed campus? What is the plan for renovation or moving the school? (*None known.*)
- A couplet study was done which determined the railroad right-of-way as the best option for a couplet. Line is not currently available for this use.

*Project team had concerns over the need to do major upgrading in Long St. R/W, which would be costly to businesses with frontage on Long. Also concern re: other land use impacts. Also, couplets can increase speeding and make downtown less friendly.*

### ***Economic Development***

- The economic development group(s) need to be stronger.
- Need a plan to bring business to city to fund transportation and police improvements.
- In the future, wastewater needs may limit industrial siting requests.
- Need to get Chamber of Commerce thinking about internal activity in the downtown business district.

### ***Public Transportation***

- There needs to be better promotion of the Albany shuttle provided by the Senior Center.
- Is there a need for an in-town shuttle/circulator? dial-a-ride service?

### ***Development Review/Development-Related Funding***

- How did the espresso stand get a permit? The queue backs up onto Highway 20.
- The C-1 zone has no development review standard of off-street parking...is there a need?
- City has an SDC for sewer; is there a need for a transportation SDC?
- Should development be required to improve facilities used for access?

### ***The Median***

- We support the median as a pedestrian refuge.
- Support for Median at Open House: Half favored getting rid of it; half do not care; no one said keep it (approx. 50 people)
- Median affects property access and reduces turning ability for big RVs and trucks.
- Should the Median cross the 13th intersection?
- The median by Safeway is invisible. Need to paint or reflector it.

*City staff mentioned how the median does control traffic by limiting crossing access from numerous alleys and driveways that open onto Highway 20. A few people later conceded that the median is relevant for pedestrian crossings, esp. mid-block. ODOT mentioned that it is only 6 feet wide, which will not give them the width needed for the left turn lane. Parking would still be needed, although probably not as much, since tapers would be less severe.*

### ***Parking Problems***

- A parking stall is worth \$120/day in business; business can't afford to lose parking.
- While there is unused space near businesses, the cost of grading/paving/drainage is prohibitive (where can we get help to pay?).

- Do buildings on Main need to be taken out for parking lots?
- Cannon Beach as a model for parking lots in a small town?
- Business owners are using customer stalls.
- Do we need special employee parking areas - save on-street for customers?
- Bakery and pizza shops rely on short-term, close-by parking.
- Liability of property owner over parking area can be a discouragement to shared use.
- Do marked parallel spaces give you more capacity than unmarked ones? *Probably, since people tend to leave more unusable space between cars if there is no demarcation. State/City should look at striping spaces. Better marking of on-street spaces is needed.*
- Parking - In State right-of-way, parking, signage and striping is under State control. City can make recommendations. State is aware of sight distance issues at 13th and by Key Bank (10th). At 13th, there is about 150 feet that is signed no parking now; proposal would take about 50 feet more...not a significant amount. Area by Santiam Supply could be developed for more parking. There needs to be a way to accommodate fully loaded trucks at Santiam Supply without parking on sidewalk or blocking accesses.
- City Hall/Library lot is currently the only public lot. Some employees use it.

*Comments were raised that Cannon Beach is more of a destination-tourist town. Local residents from Sweet Home area do not want to park and walk. Many businesses thrive on quick-stop business; they need close-by, short-term parking. Project team members pushed the ideas of some off-street parking for employees or large vehicles, as a way to reserve on-highway stalls for those quick stops. It seems that maybe an educational program by/for local business may be used to discourage downtown employees from using choice customer stalls.*

### **Highway 20 3R Project**

- Project start is about MP 26.64, however sidewalks will start closer to town, near the Welcome to Sweet Home sign.
- What is the goal of the Highway 20 project? Move traffic: as fast as possible; and/or as safe as possible; and/or provide benefit to local businesses? Are citizens asking for turn lanes?
- The concept for the 3R project works with taking the median. This means adjusting the lane widths, including a narrow travel lane next to parking and a narrow parking lane (12' turn lane, 11.5' travel lanes and 7' parking). With truck and RV traffic, this may not be such a good idea. Turning accidents would be traded for sideswipes and fixed object accidents. Using trees in the median, curb bump-outs at intersections and other techniques for traffic calming could be used to slow traffic. The basic choice for the 3R project is to keep parking and lose a large part of the median, or lose parking and keep the median.
- Downtown area signalized intersections are proposed for left turn pockets, extended bulbs on the existing median to provide pedestrian refuge, modernized signals with potential for interconnection, and parking removal at intersections to create turn pocket space. Current signals are 25+ years old and replacement parts are not available. Mid-block crossings may or may not be provided. The politics favor them, however engineering and current ODOT policy cautions against them. If merchants do not allow parking removal, there will be no turn lanes, which means that significant safety problems will not be corrected. 3R projects prioritize safety

deficiency correction over parking. Parking is available off-street, but all in private control. Possibly an urban renewal or economic development grant could be used to fund a cooperative parking program.

- The likelihood of this project staying in the STIP is pretty good. There is a lot of support from Region for the project. There is a remote possibility that there will be a push to make it strictly a preservation project rather than 3R and defer the federal money for other projects. This segment is still in pretty good shape, however it is rapidly approaching the point where maintenance/preservation costs will increase dramatically.
- We need to develop a strategy for presenting this project to the business community that can piggyback on the process for the TSP. The on-street parking changes will probably cause some grief, so we need to build their support.

*ODOT representatives explained the purpose of a 3R project as a resurfacing/restoration/rehabilitation project to preserve the highway, and that safety corrections were also included. Improvement to speed and negative impacts to business are not an objective of the project.*

### ***Access Management***

- Smurfit's new driveway should have an island in the median to make it right-in/right-out.
- Glenn's store has problems with access and parking, esp. for boat trailers. More right-of-way may be needed to provide the desired section on Highway 20. Access management treatment may create difficulties for users of Glenn's parking area.
- The existing KOA and proposed marina create some problems. Foster Dam Road has been proposed for realignment to Willamette's driveway. Sight distance problems due to vertical curve in the vicinity will need to be corrected (TSP recommendation). Signalization or Ped crossing for KOA to park will be addressed in TSP. City has also requested that speeds on this section of Hwy. 20 be reduced. Most recent request denied.
- Area by Midway Grocery has been proposed for a large (commercial?) development. They will request and probably gain access to Highway 20.
- Safeway has been requesting a mid-block left turn lane. ODOT wants to have left turns into this site channeled through the existing intersections. Also desire to close the driveway immediately adjacent to the intersection, by the Video store. This would be addressed in the TSP as a City action.
- Access closures - who and when? *(Will be handled on a case by case basis. Redevelopment oriented and targeted at safety and reduction of driver confusion.)*
- Willamette Industries has 3 driveways, the eastern one is used by log trucks, central is used by chip trucks, and the west one is used by lumber trucks. The issue with realigning the Foster Dam Road includes realigning this western driveway as well to improve sight distance and safety. Riggs Hill road is adjacent to one of these driveways. The area around Riggs Hill is undergoing a lot of development, mostly in the County.

## *Other Transportation Issues*

- Daily Volumes in 1994 (ADT): 11,700 at west city limit; 14,800 at 18th; 13,800 at Clark Mill, and 3,100 at east city limit. This does not reflect weekend peaks. This shows that the city is a destination, and implies some commuting/business travel to/from the west.
- Need to improve pedestrian crossings.
- What is decision timeline? TSP adoption in June/July 1997; Highway 20 construction in 1999. *Decision desired in early 1997.*
- Money seems to be the big issue here - we cut officers and police budget, but now see enforcement as a solution.
- Trucking concerns - space and lane width downtown is tight; poor car driver courtesy; drivers pull out without realizing that a truck can't stop easily.
- Maintain alleys - they are not now a usable part of the transportation system.
- Utility poles conflict with use of parking spaces in off-street parking areas.
- Storm drain maintenance and sizing is lacking/needs improvement.
- Need to upgrade/pave secondary streets.
- 13th and Long - there is a "free-for-all" at the post office.
- On Poplar, residents park large items (boats, campers) on both sides of the street, creating a sight distance problem and a passing constraint. (Is neighborhood watch a solution?)
- 18th is the primary corridor for an additional river crossing, 12th is a secondary choice.
- Rail right-of-way provides a great opportunity for pedestrians and bicycles, but motorcycles are a hazard and a nuisance.
- Need for Enforcement! How does Sweet Home match in terms of officers/1000 residents?
- Mid-block crossings on Highway 20: Hazard or help?
- Street lighting, esp. on Long should be improved, peds and bicycles are difficult to see.
- There is a gap in the paving on Highway 228. There needs to be better coordination of City, County and State on projects like this.
- Emergency vehicles use Long. The median makes it difficult for emergency vehicles to pull around stopped traffic.
- At 15th, the crosswalk ends in a driveway on the southeast corner. This needs to be fixed, possibly by closing the access on Main and use 15th as access and added parking.
- The process needs to emphasize that the TSP, the fate of the median, and the 3R project will all be community consensus decisions. The community needs to understand the difference between the 2-year timeframe and objectives of the 3R project and the 20-year nature of the TSP.
- Wiley Creek area has 150+ units of senior and assisted living permitted and on the drawing board. Also, there needs to be some work at 53rd to widen road for a turn pocket. School buses currently use 54th and could be rerouted to 53rd. Parking on the highway in the vicinity of 53rd and 54th would have to be removed for sight distance.

## **SUMMARY**

Sweet Home's transportation system is comprised of bicycle, pedestrian, and roadway facilities located within the UGB. The City has a well developed pedestrian system in its downtown core area



including crosswalks at the four signalized intersections along U.S. 20 and several crosswalks at mid-block locations along the highway. Pedestrian travel in the downtown area is centered primarily around the commercial areas and the schools. Beyond the downtown area and residential neighborhoods, sidewalks are not interconnected or are not provided, and pedestrian activity is very low. Designated bicycle facilities are limited to the bike lanes along U.S. 20 from 18th Avenue to the Wiley Creek Bridge; primary bicycle activity centers and trip generators are the schools and the downtown core area.

The transportation system experiences its peak traffic demand between 4:00 and 5:00 p.m. on a typical summer weekday. This is likely due to the combination of commuter, recreational, and commercial traffic. During this peak period the transportation system operates sufficiently well to accommodate the peak demand, although the unsignalized Pleasant Valley Road/U.S. 20 intersection currently experiences high left turn delays during the weekday p.m. peak hour corresponding to LOS "F". Traffic signal warrants appear to be met at this intersection under worst case conditions. Further study is needed to determine if a signal is the appropriate solution.

The safety analysis revealed that accident rates along U.S. 20 are high in comparison with the rates experienced on other similar facilities throughout Oregon. The signalized intersections of 12th Avenue, 15th Avenue, and 18th Avenue with U.S. 20 experienced particularly high accident rates, primarily attributable to excessive vehicle speeds in the downtown area, the lack of left turn bays and protected left turn phasing, and possibly limited signal visibility.

## **CHAPTER 3: DESIGN STANDARDS**

The TPR requires local jurisdictions to adopt ordinances and regulations to protect transportation facilities. This chapter includes a summarization of street functional classification standards and policies that, together, form Sweet Home's Access Management Plan.

### **FUNCTIONAL CLASSIFICATION**

Streets should be classified according to their function. Such a classification provides 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 also 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:

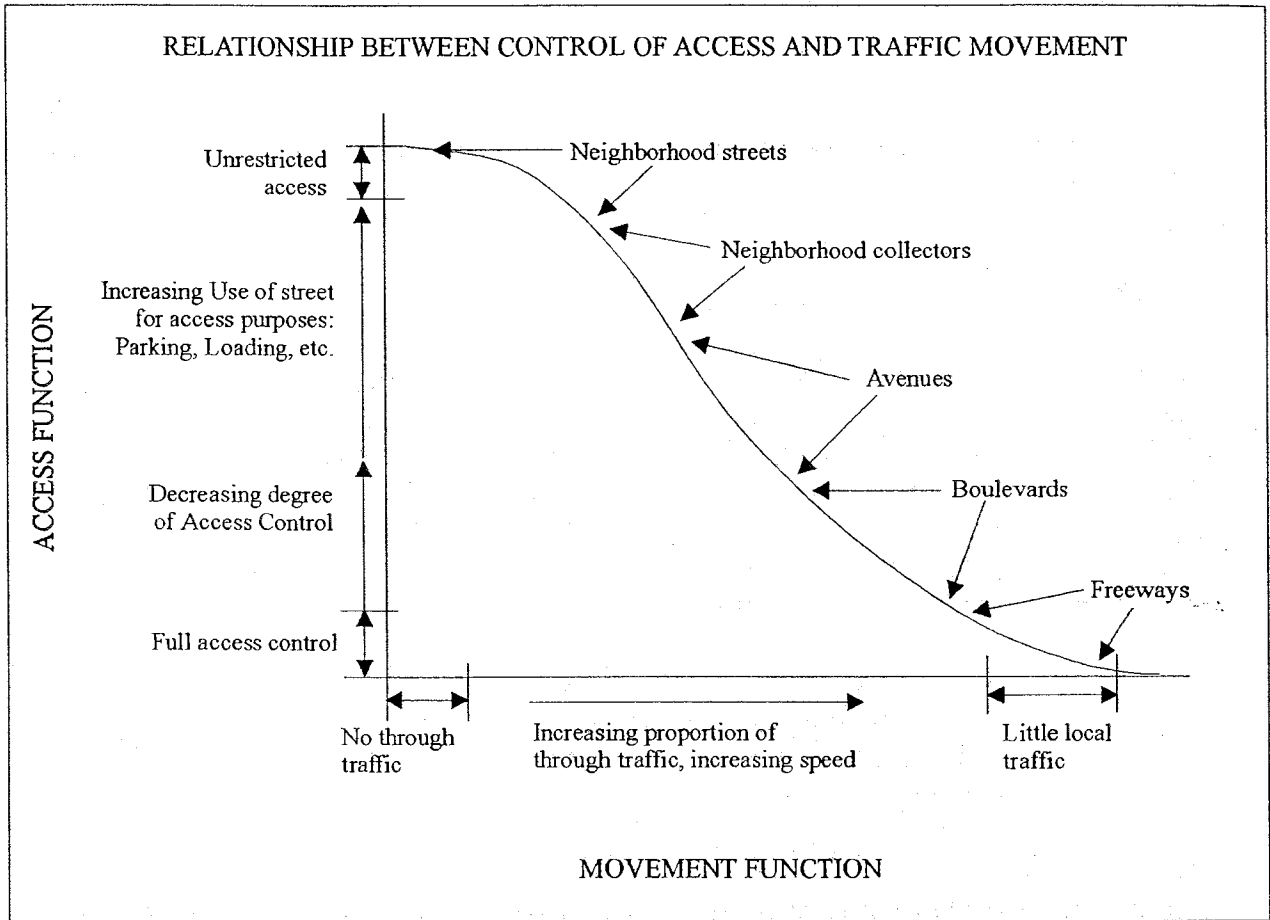
- Grouping of streets by the service they provide;
- Facility definitions to handle different desired levels of access and mobility;
- An understanding of how a street is being used;
- Guidelines on how streets are to be designed;

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 intrusion is 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 11 shows the relationship of the functional classification to access and mobility.

Sweet Home currently classifies streets as Major Arterial, Minor Arterial, Collector, and Local (unclassified) streets. Figure 1 shows the existing functional classification of streets. There is also a classification for private street.

As a general guideline, the design of all Sweet Home streets should achieve volumes and speeds at the appropriate range for all street classifications as described in Table 6.

Figure 11



Neighborhood streets are sometimes called local streets; neighborhood collectors often are called minor collectors. Avenues and boulevards are comparable to major collectors and arterials.

**Table 6**  
**Functional Classification General Traffic Volume and Speed Guide**

Roadway Type	Average Daily Vehicles	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 Street	< 1,000	25 mph or less

Highways 20 and 228 are the **Major Arterials** in Sweet Home. They connect to Interstate 5 and link communities and activity centers on a regional basis. In smaller communities, they also serve a high number of local trips. Arterial streets are typically spaced to assure accessibility and reduce the incidence of traffic using minor arterials, collectors, or local streets in lieu of major arterials.

**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 penetrate neighborhoods, distributing trips from the major arterials through the area to their ultimate destinations.

The standard minor arterial is characterized by a range of uses that typically result in a greater intensity of development along its route or at major intersections with other 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. Sweet Home's minor arterials are Oak Terrace between Highway 228 and Long Street, Long Street east to Airport Road, and the link between Long and Highway 20 using Airport Road and 47th.

**Collectors** are similar in function to minor arterials in that controlled access is generally unnecessary, and that they penetrate neighborhoods or business areas, distributing trips from the major arterials through the area to their ultimate destinations. In the case of a collector, 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. Sweet Home has a number of collector streets, mostly in the area west of Clark Mill Road.

**Local Streets** have the primary function of providing access to immediately adjacent land. Although through-traffic movement on new local streets usually is deliberately discouraged, this may not be practical for particular neighborhoods. Local streets should be designed to minimize the impact of traffic (primarily traffic speed) on adjacent development. At volumes generally associated with local streets, the greatest impact and the source of the greatest number of complaints is traffic speed. Identified traffic calming techniques (bulbed intersections, etc.) may be constructed at the time of development.

In summary, Sweet Home's current street design standards have been described in Chapter 2. These standards predate the requirements of the transportation planning rule. The number of classifications and general requirements appear consistent with current transportation planning and engineering trends.

The City has expressed an interest in seeking outside funding for redeveloping alleys in the downtown area as a means of providing additional pedestrian and vehicle circulation, and encouraging development of off-street parking areas. The City has right-of-way for the alleys, and future planning may identify recommendations as currently used for "frontage improvements" to apply to alley frontage of new development, as well as street frontage. A separate parking study has been prepared which incorporates some recommendations for parking areas and alleys.

The recommendations for the future road network will include the creation of several new streets which warrant classification as collector, to link future development areas with Highway 20. These are discussed in Chapter 7, Future Street Connections, Figure 18.

Traffic volumes on different streets vary depending on their classification and number of traffic lanes. Table 7 provides general parameters for widths and facilities on the various classifications. Values indicated are not intended to be absolute maximums or minimums. The function of the street within the roadway system and the types and intensities of land use along their routes are other important factors in their appropriate designation.

**Table 7  
Proposed Functional Classification System**

Feature	Major Arterial	Minor Arterial	Collector	Local Street
<b>Lane Widths<sup>6</sup></b>	2-4 lanes, 11-12 feet	2-4 lanes, 11-12 feet	2 lanes, 11-12 feet	2 lanes, 10-11 feet
<b>Bike Amenities<sup>7</sup></b>	2 lanes, 6 feet	2 lanes, 6 feet	2 lanes, 6 feet	N/A
<b>Pedestrian Amenities<sup>8</sup></b>	2 sidewalks, 6 feet	2 sidewalks, 6 feet	2 sidewalks, 5 feet	2 sidewalks, 5 feet
<b>Transit</b>	Appropriate	Appropriate	Appropriate	N/A
<b>Managed Speed<sup>9</sup></b>	30-55mph	25-35 mph	25-35 mph	25 mph
<b>Street Width (two-way)<sup>10</sup></b>				
No on-street parking	72' between curbs	72' between curbs	N/A	N/A
Parking one side	N/A	56' between curbs	54' between curbs	32' between curbs
Parking both sides	N/A	64' between curbs	62' between curbs	32' between curbs
<b>Traffic calming</b>	N/A	Not typical	Permissible	Permissible
<b>Adjacent Land Use</b>	High Intensity	Medium to high	Medium	Medium to low
<b>Access Control</b>	Yes	Some	Some	Minimal
<b>Turn lanes/ Center median</b>	Continuous and/or medians/pedestrian islands (12 ft.)	Typical at intersections (11-12 ft.)	As appropriate	N/A
<b>Park Rows</b>	Desirable	Desirable	Desirable	Desirable
<b>Through Traffic Connectivity</b>	Primary Function	Typical Function	Secondary Function	Secondary Function
<b>Maximum Grade</b>	7%	8%	10%	15%

<sup>6</sup> Lane widths shown are the preferred construction standards to apply to existing routes adjacent to areas of new development and to newly constructed roads. On arterial and collector roadways, an absolute minimum for safety concerns is 10 feet. Such minimums are expected to occur only in locations where existing development along an established substandard route or other severe physical constraints precludes construction of the preferred width. On new roads, a variance will be required for narrower widths.

<sup>7</sup> An absolute minimum width for safety concerns is 5 ft. on major arterials and 4 ft. on minor arterials and collectors, which is expected to occur only in locations where existing development along an established sub-standard route or other severe physical constraints preclude construction of the preferred facility width. Parallel multi-use paths in lieu of bike lanes are not appropriate along the arterial-collector system due to the multiple conflicts created for bicycles at driveway and sidewalk intersections. In rare instances, separated (but not adjacent) facilities may provide a proper function.

<sup>8</sup> Sidewalks should be 8-15 feet wide in commercial areas. Bike lanes in downtown between 9th and 22nd are not appropriate due to constrained right of way. Travel speed of 25 mph on Main is acceptable for shared bicycle-vehicle travel.

<sup>9</sup> Major arterial speeds in the central business or other commercial districts in urban areas may be 20-25 mph. Traffic calming techniques, signal timing, and other efforts will be used to keep traffic within the desired managed speed ranges for each Functional Class. Design of a corridor's vertical and horizontal alignment will focus on providing an enhanced degree of safety for the managed speed.

<sup>10</sup> Street design for each development shall provide for emergency and fire vehicle access. Street widths of less than 32 feet may be requested through the variance process. Conditions of approval may require fire-suppressive sprinkler systems for any dwelling unit more than 150 feet from a secondary access point. When minimum right-of-way is not available for construction of a street, improvements shall be deleted in order of 1) center landscape median; 2) park rows; and 3) auto parking lanes. Parking is generally not advised on four-lane arterial streets, but allowable on 2-lane minor arterials.



## **STREET STANDARDS**

Suggested design standards for access on the City of Sweet Home roadway system have been developed to maximize the safety and efficiency of the entire transportation system. Suggested street design standards are described in Tables 7 and 8.

The suggested roadway design standards are to be used as a guideline for the development of future roadway facilities within Sweet Home. As Sweet Home continues to develop, there will be the need to provide some flexibility in the City's road design standard, especially on local streets, assuming that the arterial/collector system is functioning properly. The purpose of a flexible design standard is to accommodate development needs within the City in a consistent manner, but also allow for individual consideration of unique issues such as, but not limited to, land access, non-auto travel modes, right-of-way constraint(s), terrain, vegetation, and building orientation.



**Table 8  
Proposed Street Design Standards**

Functional Classification	System Spacing	Design/Managed Speed	Vert. Alignment	Horiz. Alignment	Traffic Control	Street Lighting	Access management			
							Min. Spacing	Residential Use	Commercial Use	Industrial Use
Major Arterial	1 mile	40+/30-55	Max. Grade 7% Sight Dist. 350'	Min. Centerline Radius: 650'	MUTCD Warrants. Minimum signal spacing: 1/4 mile	35-40' height  22,000 lumen sodium vapor	300 feet	No direct Access	Shared access driveways encouraged  Left-turn lanes based on review	Shared access driveways encouraged  Left-turn lanes based on review
Minor Arterial	½ mile	30-35/25-35	Max. Grade 8% Sight Dist. 300'	Min. Centerline Radius: 560'	MUTCD Warrants	30-35 feet  22,000 lumen sodium vapor	100 feet	Shared access driveways encouraged	Shared access driveways encouraged  Left-turn lanes based on review	Shared access driveways encouraged  Left-turn lanes based on review
Collector	1/4 mile	30/25-35	Max. Grade 10% Sight Dist. 150'		MUTCD Warrants	At intersections	75'	Direct Access allowed, shared access encouraged	Shared access driveways encouraged	Shared access driveways encouraged
Local	250 feet	25/25	Max. Grade 15% Sight Dist. 150'		MUTCD Warrants	At intersections	75'	Direct access	Direct access	N/A

## **CHAPTER 4: FUTURE CONDITIONS**

### **INTRODUCTION**

This chapter summarizes the year 2017 future conditions traffic analysis conducted as part of the Sweet Home Transportation System Plan (TSP). 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 and employment 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 experienced on the transportation system through discussion of the following topics:

### **FUTURE TRANSPORTATION DEMAND AND TRAFFIC OPERATIONS**

- Travel demand forecast methodology
- Mode split
- Traffic assignment
- No-build roadway network
- Year 2017 average daily traffic (ADT) volumes on the city's roadways
- Year 2017 weekday p.m. peak hour traffic volumes at key intersections
- Year 2017 level of service (LOS) at key intersections
- Operating LOS/operations analysis
- Mitigation required

### **TRAVEL DEMAND FORECAST METHODOLOGY**

#### ***Population and Employment Forecasting Methodology***

In order to estimate future traffic volumes for the year 2017, 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.

U.S. Census information showed Sweet Home's 1990 population at 6,850, with 1,831 families and 2,651 households. Between 1980 and 1990, Sweet Home decreased just over 1% in population from 6,921 to 6,850. The number of households decreased during this time from 2,660 to 2,651, or about 0.4%. The 1995 population estimate for Sweet Home was 7,350, representing an increase of 7.3%

between 1990 and 1995, or about 1.42% annually. In 1995, Sweet Home was the 46th largest city in Oregon.

Linn County is Oregon's 22nd largest county. Between 1980 and 1990, Linn County population increased by about 2%. It also grew about 5.6% between 1990 and 1995 (1.08% annually), from 91,227 to 96,300. The estimated population for 1996 is 100,000. At its peak in the 1970's, Sweet Home had over 10,000 residents, however transient population related to the construction of Foster Dam, and the decline of the wood products industry has led to a population decrease over the past 30 years. In the past 5 years, other businesses, as well as recreational and retirement attractions have lured new residents.

In 1994, a student team from the University of Oregon prepared a Potential Development Impact Analysis (PDIA) report for the City of Sweet Home. This analysis compared 1990 census values by census blocks to the potential development levels allowed by zoning. A similar comparison was made for commercial and industrial uses based on information from aerial photos. This analysis concluded that in 1990 there were 2,598 residential units on land zoned for residential use and an additional 229 units on land not residentially zoned. The potential estimated buildout on the remaining vacant residential lands is 7,210 units, with the city-wide maximum buildout being 9,968 units on residentially zoned land. With respect to commercial and industrial land, there is a total of 1,031 acres zoned for commercial and industrial use. Existing commercial developments use about 165 acres, leaving 127 acres for additional commercial development. Approximately 559 of the 739 acres zoned for industrial development are also vacant.

If all residential units are developed and occupied at 2.58 people per unit (the current rate of occupancy), this results in a potential population of 25,717. Achievement of this over the next 20 years is not likely, as this represents an annual growth rate of 6.8%. The PDIA analysis forecast a 2012 population of 7,572 for the city, also considered to be low, in light of the recent number of development applications and a 1995 population of 7,350.

At the Governor's request, the Department of Land Conservation and Development and other agencies were charged with preparing statewide forecasts by county, up to 2040. These statewide forecasts are considered "official," however it will be some time before the cities and counties agree on the proportions of these county forecasts to allocate to individual cities. The 2015 forecast for Linn County is 121,593, representing an increase of 23.9% over 1995, or an annual rate of 1.1%. If this rate is applied to the 1995 population estimate for Sweet Home, the forecast would produce 9,309 residents. One issue that needs to be resolved is that the proportion allocated to each city in the county may vary as the larger cities begin to attract fewer residents. That may account for the current growth rate in excess of 1.4 percent per year for Sweet Home.

Recent residential development applications and development concepts that have been discussed with the City staff suggest that growth in the city is going to continue to increase population over the near and mid-term. Some of this growth will be in retirement or recreation-related housing. In

addition, growth in the resort and recreation areas in central Oregon, such as Bend, Redmond, and Sisters, will add through traffic to Highway 20 and cause some increases in local traffic.

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 project team believes that the proportion of new growth in Sweet Home will closely match the growth of the County, resulting in a 2017 population of 9,309. For an estimate that could be achievable under certain circumstances, at 2.0% per year, the 2017 population would be 11,360.

The project team reviewed the locations of existing residential, commercial and industrial centers and developed a set of traffic analysis zones. These zones were split somewhat along zoning boundary lines, to create areas with similar traffic generating characteristics. Nine zones were created, as shown in Figure 12. Based on information in the PDIA report, the population and household estimates for each TAZ are summarized in Table 9.

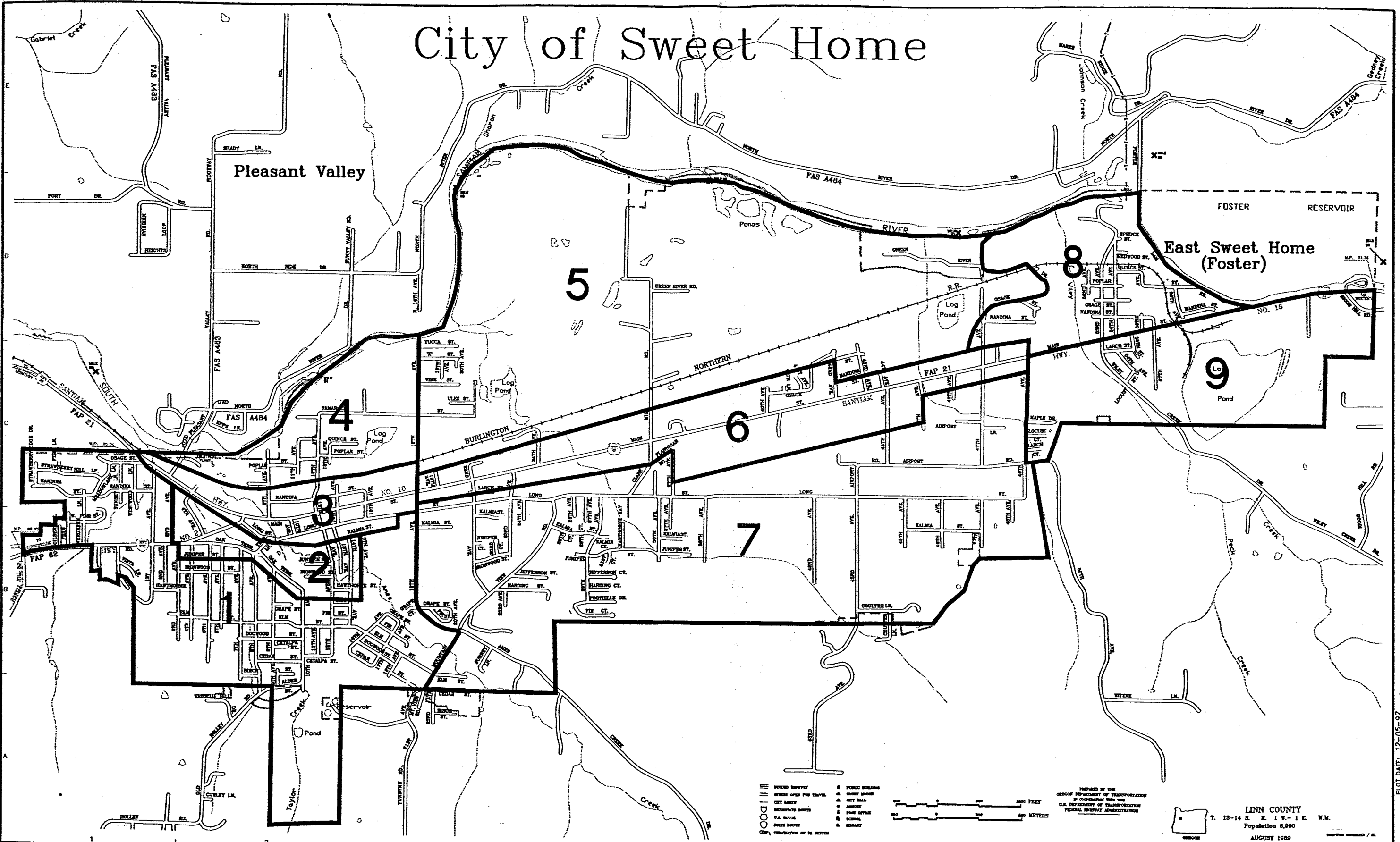
**Table 9  
Population and Households by TAZ**

TAZ #	Population (1990)	Households (1990)	Population (2017)	Households (2017)
1	2188	848	3488	1348
2	534	207	852	329
3	191	74	304	118
4	679	263	1082	418
5	415	161	662	256
6	859	333	1370	530
7	1582	613	2522	975
8	281	109	448	173
9	119	46	189	73

For the purpose of forecasting growth in commercial and industrial uses, City staff was interviewed regarding both known proposals and businesses likely to locate in Sweet Home over the next 20 years. Subject land uses included retirement centers and commercial/medical facilities to support these residents, industrial uses not related to wood products, and natural resource extraction-based industries. The project team also discussed the desire for a greater jobs-housing balance. Recent

traffic counts suggest that there is a significant portion of the working population of Sweet Home that commutes to areas west of the city (Albany, Lebanon) for work.

# City of Sweet Home



DATE	BY	REVISION	CK'D	APPR.

**LEGEND**

FUTURE BIKE LANES & SIDEWALKS  
 EXISTING BIKEWAY  
 EXISTING SIDEWALK

**WHPACIFIC**  
 8405 SW NIMBUS AVENUE  
 BEAVERTON, OR 97008-7120  
 WWW.WHPACIFIC.COM  
 TEL: (503) 628-0466 FAX: (503) 528-0775  
 Planning • Engineering • Surveying  
 Landscape Architecture • Environmental Services

DESIGNED BY: LAJ  
 DRAWN BY: HLG  
 CHECKED BY: \_\_\_\_\_  
 APPROVED BY: \_\_\_\_\_

**W&H Pacific**  
**SWEET HOME TSP**  
**TRAFFIC ANALYSIS ZONE**

SWEET HOME OREGON  
 SCALE: AS SHOWN PROJECT NO. 4-2658-6001 DRAWING FILE NAME: PCSHTA02.DWG SHEET 12

PLOT DATE: 12-05-97

Employment growth was anticipated to approximately match population growth. Employment was estimated at 3,515 jobs in 1990. Keeping this ratio of employment, the future employment estimate is 4,775. This job growth was applied to estimates of existing commercial and industrial land uses to create estimated square footage of new commercial and industrial uses. Table 10 summarizes the existing and projected commercial square footage by zone.

**Table 10**  
**Commercial and Industrial Area by TAZ**

TAZ #	Commercial (1990)	Industrial (1990)	Commercial (2017)	Industrial (2017)
1	6,500	0	8,600	0
2	100,000	0	150,000	0
3	275,000	145,700	324,460	170,030
4	15,000	295,000	19,980	392,940
5	0	1,500,500	0	2,084,000
6	635,100	114,300	882,115	158,760
7	700,000	0	277,800	0
8	20,000	0	30,000	0
9	40,000	1,400,000	60,000	2,100,000

### *Changing Demand for Transportation Options*

Travel demand 20 years from now is likely to consist of an increasing component of non-automobile traffic. Such components as telecommuting and other "information superhighway" technology will comprise an increasing part of future transportation demand by the year 2017. Remote offices in centers such as Sweet Home's downtown will allow employees to work via modems and other electronic links with offices any distance away, thus reducing the need to commute.

It is generally understood that as smaller, rural communities grow in population and employment, they become more self sufficient, better able to serve the full needs of their population. Citizens are able to find the employment and services they desire within their communities, instead of having to travel to larger urban areas. The benefit to the transportation system is in the potential for some of these trips (now local, not long distance) to be made via modes other than the automobile, thus reducing overall demand on the roadway network.

Generating quantitative future travel demand estimates for these modes is a challenging task. Traditional methods of "extrapolation of trends" require a basis in substantial historical data. Such data is not readily available for the Sweet Home area. Therefore, the *ITE Trip Generation Manual*, 5th Edition, has been assumed to adequately represent the auto trip-making characteristics of Sweet Home for use in estimating future auto travel demand. It is therefore assumed that a single-family dwelling unit in Sweet Home generates approximately 9.5 auto trips per day. Such auto trip generation rates are indicative of urban areas of greater population than Sweet Home; however, they are applicable in this study due to the information and assumptions provided below.

### ***Future Automobile Traffic Forecasting Methodology***

In order to evaluate year 2017 traffic operations within the City under a "no-build" scenario, future weekday traffic volumes estimated to occur on the City's arterial and collector streets for the year 2017 were required. The method used to estimate future traffic volumes involved a manual assignment of daily trips based on the population and employment estimates cited earlier.

Forecasts of future traffic volumes can be provided at varying levels of detail. It was determined that the estimates of future trips in the Sweet Home area be provided as *daily volume* estimates. Such daily estimates may be used to identify the size of future roadway facilities and/or the need for additional facilities to be included in the future transportation network over time.

Future *peak hour volume* estimates would be required to reflect the impact of a variety of alternatives generally considered in such studies as this, including:

- Increases/decreases in splits between auto and non-auto modes
- The implementation of Access Management, Transportation System Management, and Transportation Demand Management alternatives
- The positive and negative aspects of signalization and/or coordination of signals to the overall operation of the transportation system
- The effect of peak hour spreading (longer commute periods) on the overall demand experienced, due to congestion
- Intersection-level improvements which would forestall or eliminate the need for signalization

It would not be prudent to attempt to identify refined needs or deficiencies (such as those listed above) based on these *daily volume* estimates alone. Further, the daily estimates could not reflect refinements in assumptions for such things as improved mode splits or the effects of study area trip internalization due to modifications to planned land uses. However, *daily volume* estimates can be factored to produce *peak hour* intersection turn volumes when the need arises to evaluate intersection capacity and/or traffic control. Caution must be used to avoid making determinations of need and mitigation that exceed the reliability or accuracy of the data manipulated. Under such circumstances, recommendations for improvements should require additional analysis to verify initial findings.



## ***Development of Transportation Analysis Zones***

To facilitate the development of forecasted vehicular travel demand estimates, the project team identified a total of nine unique transportation analysis zones (TAZs) or catchment areas of residential, commercial, and/or industrial development within the existing Urban Growth Boundary (UGB) for the City. Each TAZ would be served by an existing collector or arterial street giving access to U.S. 20 or Long Street in Sweet Home. As discussed above, estimates of population and employment expected to occur in each of the travel zones were prepared for the year 2017.

### ***Vehicular Trip Generation***

Internally Generated Trips - Trip generation rates were obtained from the *ITE Trip Generation Manual* to estimate the total number of vehicle trips generated by land uses within Sweet Home (referred to as "local trips"). These trip generation rates resulted in estimates for trips made within and between the travel basins as well as trips made between the basins and external zones (such as Lebanon, Cascadia, Holley, etc.).

An internal or local trip is defined as one which starts **or** ends in Sweet Home. An example would be a Sweet Home resident who travels from home to the Sweet Home City Hall. Another example would be a Lebanon resident who travels from home to Bend and stops in Sweet Home for gas on the way (this motorist would have generated two local trips, one from Lebanon to the gas station, the second from the gas station to Bend).

Through-Trips - Through-trips are described as trips that neither begin nor end in Sweet Home. An example would be a commercial truck traveling from Albany to Bend via U.S. 20 through Sweet Home. As long as the driver does not stop in Sweet Home (for any purpose including food, gas, delivery or pick up, etc.), the trip would be considered a through trip.

A review of historical traffic volumes revealed that the existing number of daily trips traveling through the Sweet Home area on U.S. 20 is approximately 1,050 (or approximately 26 percent of the 1995 ADT of 4,100 at the east end of Sweet Home). These through-trips were then grown for the 20-year period using information obtained from ODOT *Traffic Volume Tables*. It was estimated that there would be approximately 1,400 through-trips on U.S. 20 by 2017 (or approximately 24 percent of the estimated future ADT of 5,800 at this same location).

The Highway 228-U.S. 20 through volume (i.e., not destined for Sweet Home) was found to be approximately 2,150 vehicles per day in 1997; using ODOT annual traffic counts and comparing volumes within and beyond the City. Traffic growth from historical data (the same 20-year historical growth period used for U.S. 20) indicated that there would be approximately 2,700 daily through trips in 2017.

### ***Trip Distribution***

Trips produced by the population and employment located within Sweet Home were distributed to areas within and outside of Sweet Home based on the "attractiveness" of an area for the type of trip being made. Examination of census journey-to-work data revealed that trips by Sweet Home residents for work were attracted to employment areas outside of Sweet Home more often than within Sweet Home. Trips for local services such as groceries, banking, and retail were assumed to be attracted to areas within Sweet Home as often as outside of Sweet Home. Finally, many trips were assumed to be attracted to Sweet Home from outlying rural areas due to the services (e.g., employment, commercial, retail) that are provided within Sweet Home.

Local trips within the City of Sweet Home were distributed between the 9 TAZs and the external basins in proportion to the travel demand estimates for each TAZ and external travel basin. For example, basins generating higher travel demand proportions would attract more trips than basins with lower travel demand proportions. Trips between Sweet Home and the outlying areas were distributed in direct proportion to the travel demand represented by each external station. However, this distribution was tempered by a comparison to existing traffic volume counts on U.S. 20 and Highway 228 and other external stations to ensure a reasonable distribution.

### ***Mode Split***

For many small, urbanizing communities throughout Oregon, the number of trips generated on a daily basis is higher than in larger, more densely populated areas. This is frequently due to the freedom of movement inherent in such urbanizing communities and the close proximity of uses including shopping, recreation, schools, and employment. Although the freedom of movement often results in higher auto trip generation, the proximity of uses affords the opportunity for many trips to be made by non-auto modes.

No specific mode share data is available for Sweet Home to determine the propensity for non-auto travel. Therefore, average auto trip generation rates have been assumed for all uses in Sweet Home. The determination of need for the non-auto modes (specifically bicycle and pedestrian) in Sweet Home will be based on ensuring adequate connectivity and safety for these travel modes.

### ***Traffic Assignment***

Total future daily traffic volumes were assigned to U.S. 20 and Highway 228. Arterials and collectors are assumed to intersect with the highways and Long Street using the shortest path method. Simply stated, the shortest path method assigns the trip to the route with the shortest length between beginning and end. This assignment procedure is reasonable given the relatively small geographic size of Sweet Home, the propensity for auto travel in this community, and the lack of frequent or significant congestion that would substantially impact or modify travel patterns. This "unconstrained" assignment was tempered by examination of areas expected to experience higher than normal travel demands and the availability of convenient alternative routes. Under such

circumstances, a portion of the forecast volumes on the more congested routes were re-assigned to less congested routes.

## **FUTURE TRAFFIC OPERATIONS**

### ***No-Build Analysis***

The future conditions analysis identified the expected LOS on the existing arterial/collector transportation system and at key signalized and unsignalized intersections assuming no new roads and no capacity improvements to the existing system. The LOS which would be experienced on the existing system and at existing intersections was analyzed and the improvements required to restore the system to within operational levels (LOS "D" or above) were determined.

### ***Operating Level of Service Standards***

The City and the state have each identified a LOS threshold for 20-year planning level work such as this. In consultation with City staff an interim threshold has been established for this project, as none currently is identified in the adopted comprehensive plan. The City's objective is to ensure that its facilities over time are maintained and improved to provide a minimum LOS "D" on all arterial/collector streets. During planning and/or operational stages, circumstances may arise under which the City would likely vary from this standard (i.e., financial constraints which preclude a capacity improvement from being made when it is deemed necessary).

The planning standards applicable to state highway facilities are controlled by the recommendations laid out in the OHP. The state has classified its facilities in terms of Level of Importance (LOI); from Interstate LOI as the highest to District LOI as the lowest level of designation. U.S. 20 is designated as a highway of Regional LOI, and Highway 228 a District LOI highway within the study area. According to the OHP, LOS requirements for a 20-year planning horizon for U.S. 20 and Highway 228 are LOS "D". The state uses these guidelines in developing long-range plans (e.g., corridor plans and transportation system plans). During the planning process, circumstances can be identified under which the State would elect to vary from this policy by accepting a different LOS threshold or modifying the class or category assigned to a particular section of the facility.

### ***Year 2017 Average Daily Traffic Volumes***

Figure 13 shows the estimated ADT volumes on key roadways within Sweet Home in 2017, based on the assignment of daily travel demand. Over the 20-year time period from 1997 to 2017, traffic volumes on U.S. 20 will increase by approximately 5,500 vehicles per day (43%) at the west city limits and by approximately 1,700 vehicles per day (41%) at the east city limits. A maximum increase of approximately 8,500 vehicles per day (58%) is expected along U.S. 20 west of Clark Mill Road, mostly due to the significant increase in commercial development along U.S. 20 between 1997 and 2017. Daily traffic volumes on Highway 228 will increase by approximately 2,800 vehicles per

day (39%) between 1997 and 2017. On Long Street, the increase in daily traffic volume will range from 500 vehicles per day (13%) at the intersection with Highway 228, to 1,900 vehicles per day (95%) east of Clark Mill Road. The large increase on Long Street east of Clark Mill Road is attributable primarily to significant residential growth in southeast Sweet Home.

Figure 14 illustrates the resultant link LOSs on Sweet Home's highways (U.S. 20 and Highway 228) in 2017, based on the ADT volumes shown in Figure 13. The LOS thresholds were obtained from the planning-level guidelines described in the Florida Department of Transportation's (FDOT) *Level of Service Manual*, and are dependent upon characteristics anticipated along each roadway including access control and traffic signal spacing. As shown in Figure 14, Highway 228 will operate at LOS "C" or better in 2017, and U.S. 20 will operate similarly throughout most of Sweet Home, with the exception of the city's downtown section. Through the downtown section, U.S. 20 is expected to operate at LOS "D" due to increased levels of combined through traffic and local traffic circulation within the downtown area. However, it should be noted that this section of highway still meets OHP requirements for a highway of Regional LOI under 2017 conditions.

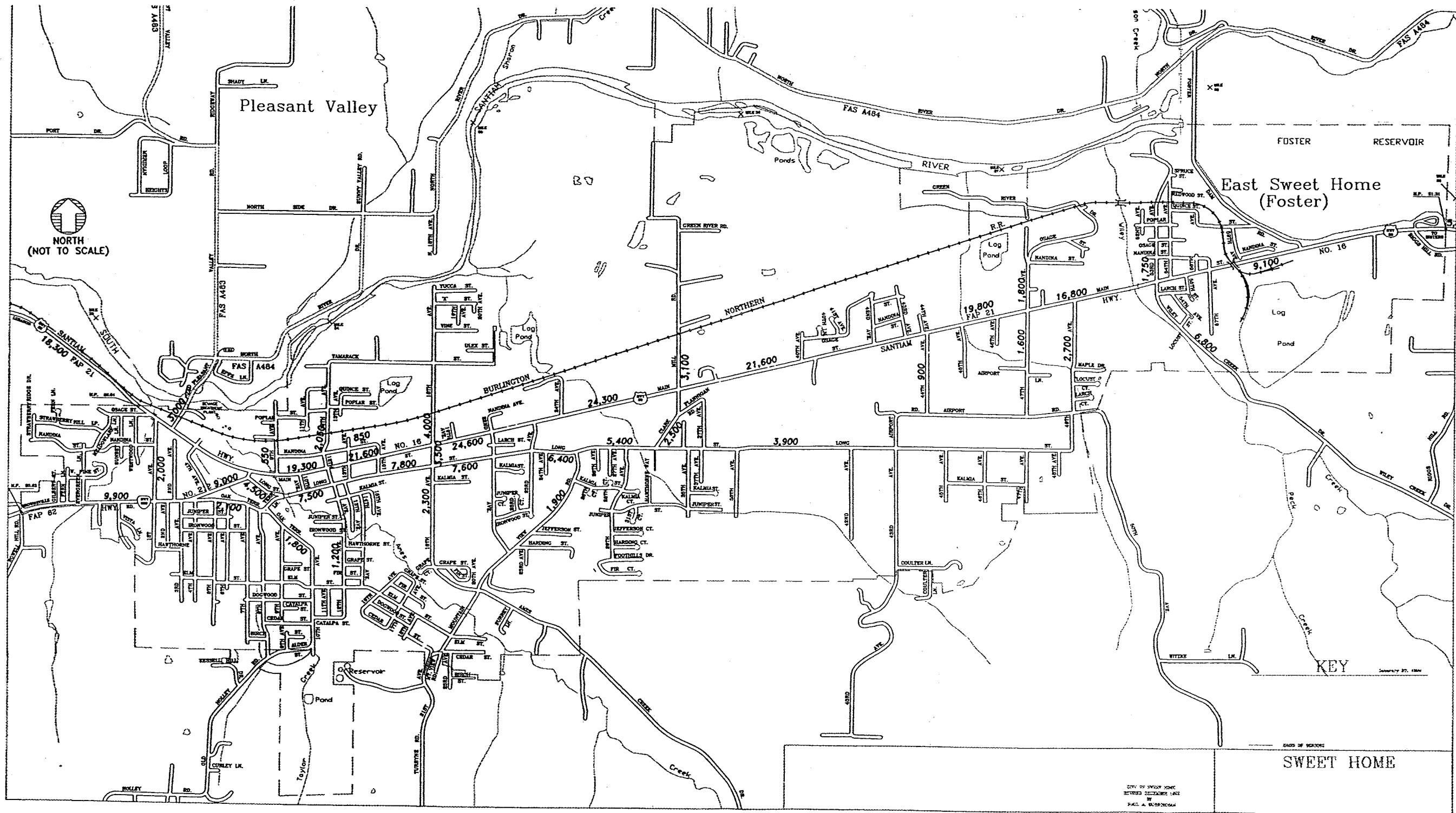
#### ***Year 2017 Weekday P.M. Peak Hour Intersection Volumes***

Year 2017 weekday p.m. peak hour intersection turning movement volumes were estimated for the eighteen (18) key intersections originally identified in Chapter 2. The estimates were developed based on the year 2017 ADT volumes (shown in Figure 13), with weekday p.m. peak hour directional split under 1996 conditions, and the ratio of daily-to-weekday p.m. peak hour traffic volume at each intersection calculated under 1996 conditions. The estimated weekday p.m. peak hour intersection turning movement volumes at the key study area intersections are shown in Figure 15.

#### ***Year 2017 Level of Service Analysis***

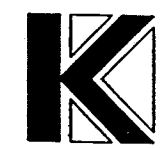
Using the year 2017 weekday p.m. peak hour traffic volumes shown in Figure 15, together with the existing traffic control and lane configurations, weekday p.m. peak hour LOS analyses were performed for each of the 18 study intersections.

Table 11 summarizes the LOS analysis results for the 18 study intersections. For the signalized and all-way stop-controlled (AWSC) intersections, the intersection volume-to-capacity ratio (v/c), average vehicle delay, and corresponding intersection level of service are shown. For the unsignalized intersections, the critical approach is indicated along with v/c ratio, average total delay per vehicle, and corresponding LOS for the critical approach.



DATE	BY	REVISION	CK'D	APPR.

**W&H PACIFIC**  
 8405 SW NIMBUS AVE.  
 BEAVERTON, OR 97008  
 (503) 626-0455



DESIGNED BY: LAJ  
 DRAWN BY: HLG  
 CHECKED BY: \_\_\_\_\_  
 APPROVED BY: \_\_\_\_\_

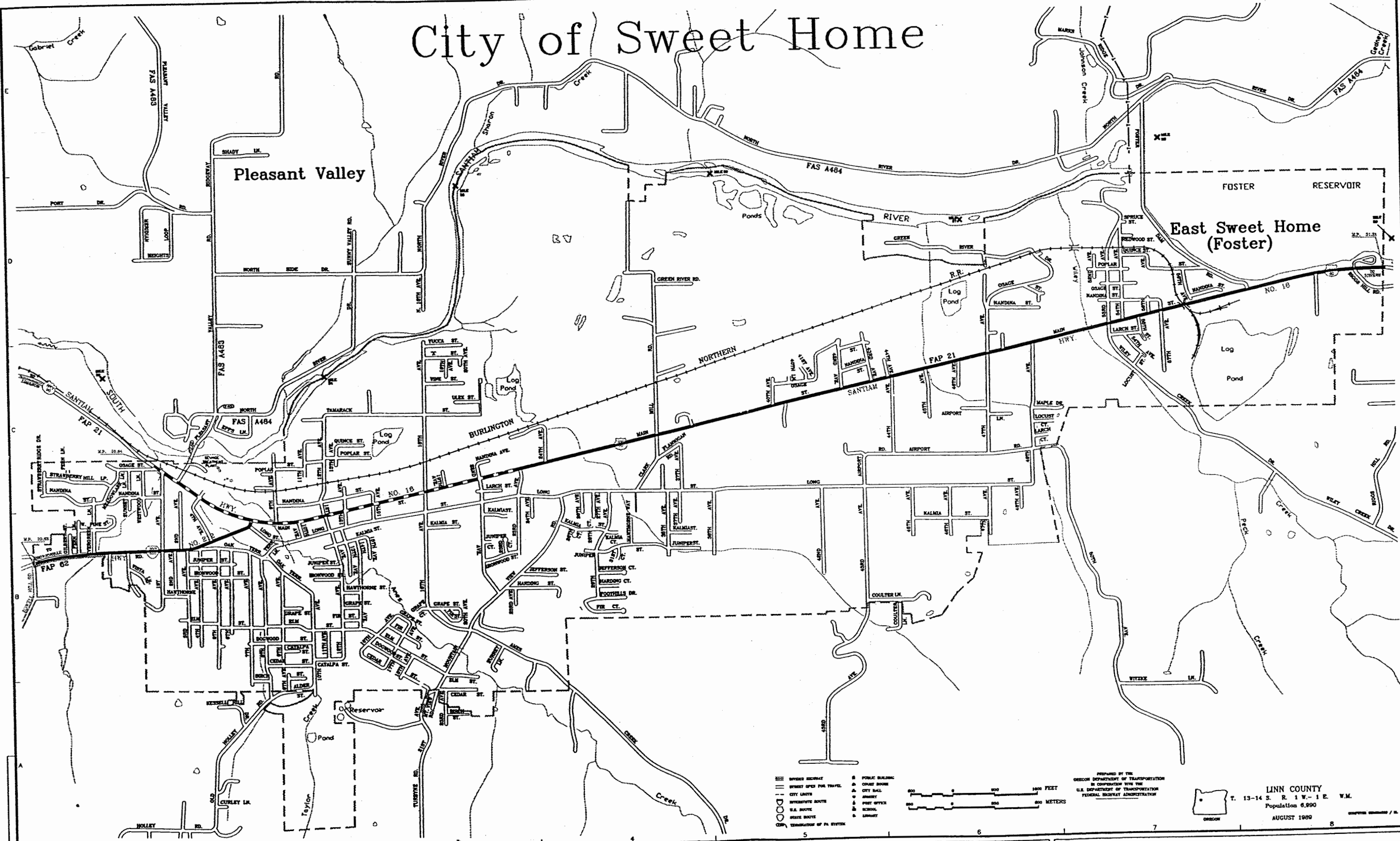
**W&H Pacific**  
**SWEET HOME TSP**  
**2017 AVERAGE DAILY**  
**TRAFFIC VOLUMES**

SWEET HOME OREGON  
 SCALE: AS SHOWN PROJECT NO. 4-2658-6001 DRAWING FILE NAME: 1965ADT3.DWG SHEET 13

SECTION, TOWNSHIP, RANGE:

PLOT DATE: 7-8-97 LAST EDIT: HLG 7-8-97

# City of Sweet Home



■ HIGHWAY RIGHT-OF-WAY  
 ■ STREET OPEN FOR TRAVEL  
 ■ CITY LIMITS  
 ■ UNIMPROVED RIGHTS-OF-WAY  
 ■ U.S. ROUTE  
 ■ STATE ROUTE  
 ■ TRANSMISSION OF P.E. SYSTEM

● PUBLIC BUILDING  
 ● CHURCH  
 ● CITY HALL  
 ● JUDICIAL  
 ● POST OFFICE  
 ● SCHOOL  
 ● LIBRARY

0 100 200 300 400 500 600 700 800 900 1000 FEET  
 0 100 200 300 400 500 600 METERS

PREPARED BY THE  
 OREGON DEPARTMENT OF TRANSPORTATION  
 IN COOPERATION WITH THE  
 U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION

LINN COUNTY  
 T. 13-14 S. R. 1 W. - 1 E. W.M.  
 Population 6,890  
 AUGUST 1989

DATE	BY	REVISION	CK'D	APPR.

**LEGEND**

**LEVEL-OF-SERVICE**

——— A,B,C  
 - - - - D  
 - - - - F

**W&HPACIFIC**  
 8405 SW NIMBUS AVENUE  
 BEAVERTON, OR 97008-7120  
 WWW.WHPACIFIC.COM  
 TEL: (503) 628-0455 FAX: (503) 528-0775  
 Planning • Engineering • Surveying  
 Landscape Architecture • Environmental Services

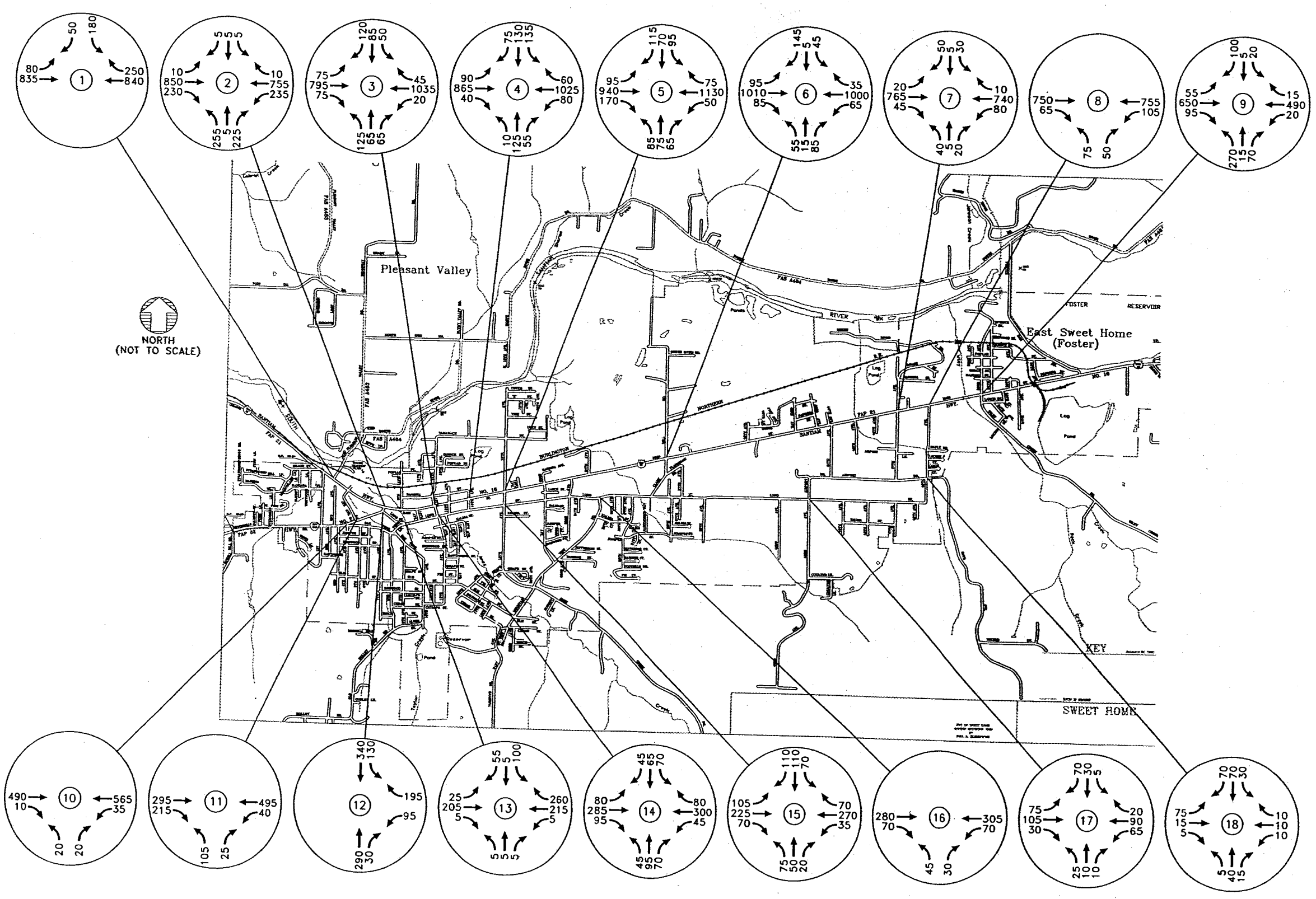
**K**

DESIGNED BY: LAJ  
 DRAWN BY: HLG  
 CHECKED BY:  
 APPROVED BY:

**W&H Pacific**  
**SWEET HOME TSP**  
**2017 DAILY VOLUME-TO-CAPACITY**  
 OREGON

SWEET HOME	PROJECT NO.	DRAWING FILE NAME:	SHEET
SCALE: AS SHOWN	4-2658-6001	PCSHV.01.DWG	14

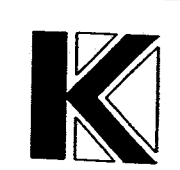
PLOT DATE: 7-8-97  
 LAST EDIT: HLG 7-8-97



NORTH  
(NOT TO SCALE)

DATE	BY	REVISION	CK'D	APPR.

**W&HPACIFIC**  
8405 SW NIMBUS AVE.  
BEAVERTON, OR 97008  
(503) 626-0455



DESIGNED BY: LAJ  
DRAWN BY: HLG  
CHECKED BY: \_\_\_\_\_  
APPROVED BY: \_\_\_\_\_

W&H Pacific  
SWEET HOME TSP  
**2017 FUTURE TRAFFIC VOLUMES**  
**WEEKDAY PM PEAK HOUR** OREGON  
SCALE: AS SHOWN PROJECT NO. 4-2658-6001 DRAWING FILE NAME: 2017VOLS.DWG SHEET 15

PLOT DATE: 7-7-97  
AST EDIT: HLG 7-7-97

**Table 11  
Year 2017 Level of Service**

Int. #	Intersection	Signalized/AWSC			Unsignalized			
		v/c	Delay	LOS	Critical Approach	v/c	Average Delay	LOS
Weekday P.M. Peak Hour								
1	Pleasant Valley Road/U.S. 20 <i>Signalized</i>	0.60	8.5	B	SB	>1.0	>45.0	F
2	Highway 228/U.S. 20	0.63	13.0	B				
3	12th Avenue/U.S. 20	0.93	13.8	B				
4	15th Avenue/U.S. 20 <i>EB &amp; WB-LT lanes &amp; protected phasing</i>	1.13 0.89	60.1 19.6	F C				
5	18th Avenue/U.S. 20 <i>EB &amp; WB-LT lanes &amp; protected phasing</i>	1.13 0.85	45.7 17.5	E C				
6	Clark Mill Road/U.S. 20 <i>Signalized</i>	0.59	10.7	B	NB	>1.0	>45.0	F
7	47th Avenue/U.S. 20 <i>Signalized</i>	0.41	7.0	B	NB	0.84	>45.0	F
8	49th Avenue/U.S. 20 <i>Signalized</i>	0.43	6.3	B	NB	>1.0	>45.0	F
9	53rd Avenue/U.S. 20 <i>Signalized; EB &amp; WB LT-lanes &amp; protected phasing</i>	0.70	15.4	C	NB	>1.0	>45.0	F
10	Highway 228/4th Street				NB	0.04	9.3	B
11	Highway 228/Oak Terrace				NB	0.52	22.5	D
12	Highway 228/Long Street				WB	0.69	21.5	D
13	Terrace Lane/Long Street				SB-TL	0.27	11.6	C
14	12th Avenue/Long Street (AWSC)	0.72	13.1	C				
15	18th Avenue/Long Street (AWSC) <i>Signalized</i>	1.09 0.68	24.6 11.0	D B				
16	Mountain View Road/Long Street				NB	0.18	9.0	B
17	43rd Avenue-Airport Road/Long Street	0.69	4.9	A				
18	49th Avenue/Airport Road				SB	0.20	4.4	A

Legend: AWSC = All-Way Stop-Control, TL = Through-Left Lane, LT = Left turn Lane



The OHP level of service standards stipulate minimum LOS for design hour operating conditions through a 20-year horizon for all state facilities. The service levels depend on LOI and general land use characteristics. For a regional highway such as U.S. 20 through an urban area, the minimum LOS is "D". Intersection improvements (including signalization, turn pocket additions, and changes in signal phasing) were investigated at intersections experiencing either a failing LOS or capacity deficiencies under 2017 conditions. Table 11 also identifies the improvements and gives the resultant intersection LOS in 2017 both with and without the improvements.

### Unsignalized Intersections

The intersections of Pleasant Valley Road, Clark Mill Road, 47th Avenue, 49th Avenue, and 53rd Avenue with U.S. 20 are anticipated to experience high delays corresponding to LOS "F" during the weekday p.m. peak hour in 2017 due to high side-street traffic volumes and a lack of acceptable gaps for left turns from the side streets. In addition, the AWSC intersection of 18th Avenue/Long Street will operate over capacity during the weekday p.m. peak hour in 2017. Signalization of each of the deficient intersections would restore traffic operations to acceptable levels. Only the 53rd Avenue/U.S. 20 intersection will require a modification to the existing lane geometry upon signalization. This particular intersection will require widening and re-striping to accommodate exclusive eastbound and westbound left turn lanes.

### Signalized Intersections

The intersections of 15th Avenue/U.S. 20 and 18th Avenue/U.S. 20 will operate over capacity at LOS "F" and "E", respectively, during the weekday p.m. peak hour in 2017. Installing eastbound and westbound left turn bays with protected left turn signal phasing at each intersection would restore operations at these intersections to acceptable levels. The identified improvements would also enhance safety at these high-accident locations.

### Signal Warrant Analysis

Unsignalized intersections experiencing unacceptable levels of service can be mitigated with signalization to restore operational capacity and acceptable LOS. However, LOS failures do not necessarily require signalization or other mitigation measures. Since the intersections of Pleasant Valley Road/U.S. 20, Clark Mill Road/U.S. 20, 47th Avenue/U.S. 20, 49th Avenue/U.S. 20, 53rd Avenue/U.S. 20, and 18th Avenue/Long Street are predicted to experience capacity deficiencies or delays corresponding to failing levels of service, a signal warrant evaluation was conducted at these intersections. Two warrants out of eleven were analyzed: *Warrant 1, Minimum Vehicular Volume* and *Warrant 2, Interruption of Continuous Traffic*. Signal warrants are defined on page 22. These two warrants were selected as best representing the cause of congestion at the subject intersections. Table 12 shows the results of the signal warrant analysis.

**Table 12**  
**Signal Warrant Evaluation**  
**Year 2017 Traffic Conditions**

Intersection	Warrant #1	Warrant #2
Pleasant Valley Road/U.S. 20	YES	YES
Clark Mill Road/U.S. 20	YES	YES
47th Avenue/U.S. 20	NO	YES
49th Avenue/U.S. 20	NO	YES
53rd Avenue/U.S. 20	YES	YES
18th Avenue/Long Street	YES	NO

Each of the above intersections meets at least one of the MUTCD traffic signal warrants under 2017 conditions. As such, each intersection should be monitored to determine if and when signal installation would be appropriate. Since the intersections of Pleasant Valley Road/U.S. 20, Clark Mill Road/U.S. 20, and 53rd Avenue/U.S. 20 are expected to meet both warrants by 2017, signalization should be considered as an acceptable potential mitigation for these intersections in the 20-year time frame. For the intersections meeting only one warrant (47th Avenue/U.S. 20, 49th Avenue/U.S. 20, and 18th Avenue/Long Street), a traffic signal is a likely mitigation beyond the 20-year time frame.

#### **SUMMARY OF FUTURE CONDITIONS**

Based on the results of the analysis described in this chapter, some spot improvements to the existing transportation system are likely to be necessary within Sweet Home in order to accommodate the expected travel demand in 2017 under a “no-build” scenario. While both Highway 228 and U.S. 20 are expected to operate acceptably on an overall link level in 2017 according to current OHP guidelines, several intersections within the city may require improvements in order to restore traffic operations to acceptable levels. The signalized intersections of SE 15th Avenue/U.S. 20 and SE 18th Avenue/U.S. 20 may require exclusive eastbound and westbound left turn lanes and protected phasing for left turns from U.S. 20. In addition to improving the capacity deficiencies at these intersections, the improvements would also enhance safety at these locations. These intersections are anticipated to be improved as part of the resurfacing project to be constructed in 1999.

The intersections of Pleasant Valley Road/U.S. 20, Clark Mill Road/U.S. 20, 47th Avenue/U.S. 20, 49th Avenue/U.S. 20, 53rd Avenue/U.S. 20, and 18th Avenue/Long Street are expected to operate at failing LOS and/or experience capacity deficiencies by 2017 due to high traffic volumes and long delays predicted for side street movements. These intersections should be monitored over time to determine if and when signalization will be required. The intersections of Pleasant Valley Road/U.S. 20, Clark Mill Road/U.S. 20, and 53rd Avenue/U.S. 20 are expected to meet at least two signal warrants by 2017 and will likely require signalization by 2017. The intersections of 47th Avenue/U.S. 20, 49th Avenue/U.S. 20, and 18th Avenue/Long Street are expected to meet only one

signal warrant by 2017; therefore, signalization needs may fall beyond the 20-year time frame. Only the 53rd Avenue/U.S. 20 intersection will require a significant modification to the existing lane geometry upon signalization, including widening and re-striping to accommodate exclusive eastbound and westbound left turn lanes.

Additional intersections along Highway 20 east of Clark Mill may need to be signalized depending on property size, traffic generation and access management requirements imposed by ODOT. Current development plans in the vicinity of 42nd suggest that a traffic signal may be warranted for one large parcel property to develop as planned. Signalization at these locations will need to be coordinated with ODOT and in accordance with the Oregon Highway Plan.

The City is currently spending the majority of its transportation income on overlay and maintenance projects. The level of funding has declined over recent years to the point where the City will begin to defer maintenance in the next few years. This will eventually increase the need for reconstruction funds.

## CHAPTER 5: Pedestrian and Bicycle System Recommendations

In 1995, the City of Sweet Home received a draft Pedestrian and Bicycle Plan prepared by David Evans and Associates. The plan contains an inventory of existing pedestrian and bicycle facilities, commentary on various legal requirements for bicycle and pedestrian facilities, and a set of recommendations for the City to implement.

Figure 4 in Chapter 2 shows the existing bike lanes and sidewalks in Sweet Home. Pedestrian generators include the public library/post office/city hall area, the schools, and the convenience and grocery stores. One future pedestrian/bike attraction is the planned Boys and Girls Club along 18th. The inventory in the draft plan includes a description of some of the barriers to efficient and desirable pedestrian and bicycle travel. These include a lack of walkways and difficulty of crossing Highway 20 outside of downtown, lack of walkways and space for bikes on collector streets, difficulty in getting to downtown from outside areas, lack of east-west alternatives to Main and Long, poor connections of new residential areas to the street system, and county roads which lead into the city lack sufficient space for safe bicycling despite heavy truck use.

The recommendations developed in the plan include a discussion of changing the city's zoning to include mixed or multi-use zoning and improved site planning requirements. These recommendations need to be discussed at a greater level within the City, possibly during the next periodic review cycle. There were 18 recommended construction projects, broken down by road segment included in the plan. The total estimated cost of these projects is \$2,955,600. Of this, about \$1.6 million is in high priority projects, \$595,900 in medium priority projects, and \$733,500 in low priority projects. Table 13 lists these projects, including an estimated cost (in thousands of dollars) and the responsibility for funding these projects.

**Table 13  
Recommendations from the Draft Bicycle Plan**

No.	Street	From	To	Length	Description	Cost/ Source ('000's)
1A	Hwy. 228	Fern Ridge	Evergreen	0.20	Widen to 36'	45 State
1B	Hwy. 228	Evergreen	West of 1st	0.19	Widen to 34' with bike lanes and add sidewalks	115 State
1C	Hwy. 228	West of 1st	Oak Terr.	0.23	Stripe bike lanes, fix curb ramps	5.1 St./ local

No.	Street	From	To	Length	Description	Cost/ Source ('000's)
1D	Hwy. 228	Oak Terr.	Main	0.22	Widen to 34' with bike lanes and add sidewalks	100 State
2A	Main	West UGB	Osage	0.04	Stripe bike lanes	0.6 St.
2B	Main	Osage	9th	0.46	Stripe bike lanes	3.0 St.
2C	Main	9th	18th	0.55	Stripe parking stalls and install curb extensions	38 State
2D	Main	23rd	23rd	0.36	Manage curb cuts	25 St.
2E	Main	53rd	53rd	2.23	Add sidewalks and manage curb cuts	665 State
2F	Main	54th	54th	0.05	Stripe bike lanes and add sidewalks	1.5 State
2G	Main	East UGB	East UGB	1.00	Widen for 6-foot shoulders	65 St.
3A	Long	Holley	22nd	0.88	Repair sidewalks and smooth patches	8.0 Local
3B	Long	22nd	Mtn. View	0.28	Widen to 34 feet with bike lanes and sidewalks	160 Local
3C	Long	Mtn. View	35th	0.40	Widen to 34 feet with bike lanes and sidewalks	180 Local
3D	Long	35th	Airport	0.72	Widen to 32 feet	115 Local
3E	Long	Airport	49th	0.62	Widen to 32 feet	100 Local
4	RR Row	Main	South UGB	2.50	Maintain trail and develop plan	---
5A	Mtn. View	Long	Ames Creek	0.60	Widen to 32 feet with bike lanes and add sidewalks	318 Local
5B	Mtn. View	Ames Creek	Cedar	0.25	Widen to 30 feet	31 Loc.
6	Elm	10th	Mtn. View	0.46	Stripe bike lanes at 3,000 ADT	3.3 Local
7	14th	Kalmia	Elm	0.32	Add sidewalks	120 Local
8A	18th	Tamarack	Main	0.28	Improve RR xing and restripe bike lanes	6.0 Local

No.	Street	From	To	Length	Description	Cost/ Source ('000's)
8B	18th	Main	RR ROW	0.32	Stripe bike lanes	2.6 Local
8C	18th	RR ROW	Mtn. View	0.27	Stripe bike lanes and complete sidewalks	115 Local
9	Ames Creek	Mtn. View	South UGB	0.42	Widen to 30 feet	56 Loc.
10	Wiley Creek	Main	South UGB	0.45	Widen to 30 feet	57 Loc.
11	Clark Mill	Cty.Rd. 909	Long	0.82	Widen to 30 feet	118 Local
12	Tamarack	12th	18th	0.36	Widen to 30 feet and add sidewalks	180 Local
13	44th	Main	Airport	0.27	Widen to 28 feet	45 Loc.
14	47th	Main	Airport	0.36	Widen to 32 feet	70 Loc.
15A	49th	Main	Airport	0.38	Stripe bike lanes and complete sidewalk	47 Local
15B	49th	Airport	Long	0.17	Widen to 30 feet	18 Loc.
16	Airport	Long	49th	0.74	Widen to 32 feet	117 Local
17	53rd	54th	Main	0.37	Widen to 32 feet	25 Loc.
18	Foster Dam	Dam	U.S.20	0.40	Sign road and explore trail options	0.5 Local

In the Draft Plan, projects 1 through 4 are considered highest priority, 5 through 8 are medium priority, and 9 through 18 are low priority.

With respect to recommendations on Main Street, the State will implementing most of these recommendations as a part of the planned rehabilitation/resurfacing project in 1999. Many of the medium and low priority projects can be incorporated into routine resurfacing projects that the City may conduct over time. Other projects may be eligible for incorporation into road improvements required by developers to ensure access to new land uses.

In combination with the discussion in upcoming chapters on recommended connectivity improvements, the following projects identified in the Draft Bicycle and Pedestrian Plan warrant consideration as high priority projects for City and State funding:

Project 1A-1D - Highway 228 is a significant entryway into the City, with high volumes of vehicle traffic. It is also a major arterial, similar to Highway 20, on which bike lanes are recommended outside of the downtown area.

Project 2A-2B - Bike lanes in this location will establish this section of the highway as an urban area for bicyclists. This improvement may be part of the Highway 20 3R project.

Project 3A-3E - The section of Long between 9th and Airport should provide safe shoulders and surface for riding. Main Street through downtown will not have bike lanes, and Long will likely be used as a bypass. It is important that the road surface be safe and easy to use. This improvement will also serve the high school.

The recommended design standard for a collector in Sweet Home includes a bike lane. With the exception of Project 7 on 14th Ave., the Medium Priority projects are all on Collector streets. As the city upgrades these streets to new standards, bicycle and pedestrian facilities, as recommended, can be implemented. Many of the low priority projects fall into this category as well.

There are two potential rails-to-trails conversions in Sweet Home. A former rail line along the south side has been abandoned and small segments have reverted to private ownership. Most of the potential trail is owned by the City or the School District. The rails have been removed and the area is currently used by off-road vehicles. The existing rail line paralleling Highway 20 is still in use, but, should the railroad stop operations, the facility has the potential for conversion to a trail. Rails to trails conversions are common, and funding is available for local jurisdictions to acquire right-of-way and develop the facilities. A previous transportation study suggested that the railroad right-of-way would make a good second roadway to develop a couplet with Highway 20. Given the environmental constraints in the vicinity of this railroad line, it may be difficult to develop the area to a collector or arterial standard without incurring significant mitigation and engineering costs. The development of a bicycle/pedestrian path would be a relatively low cost option to creating a "highway" for bicyclists and walkers, and should be considered for discussion between the City and the railroad as rail use decreases. The rails and ties have been removed and the majority of site preparation is related to brush removal and paving. Acquisition of the missing segments and development of the trail should be jointly pursued by the public works and parks departments of the City. The costs of such a project may be eligible for significant funding through an array of grant opportunities.

Bike lanes on Highway 20 are currently planned to end in the vicinity of the railroad trestle, west of Foster Dam. This is because the highway right of way becomes confined by topography, and considerable expense would be required to widen the road for additional space. ODOT is exploring options for pedestrian and bicycle travel in this area using separated facilities.

According to the Army Corps of Engineers, use of Foster Lake is at or near capacity. Improvements to the vicinity are needed to accommodate existing uses, and possible new land uses in the area. This includes a realignment with Highway 20 to improve safety and sight distance. At the time that Foster

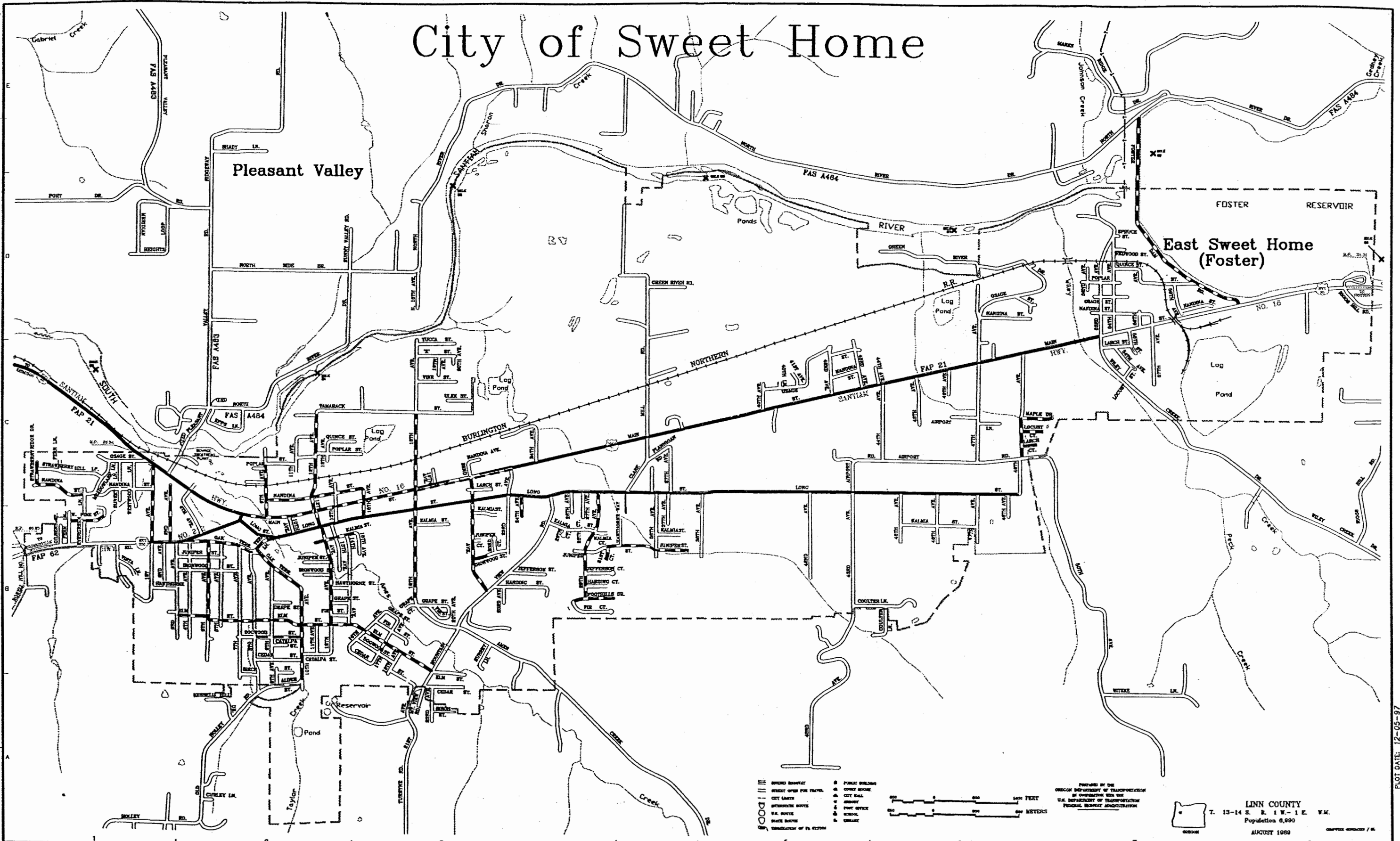
Dam Road is reconstructed, at a minimum, a wide shoulder should be provided between the north side of the river and Highway 20. The City and ODOT need to cooperate in recognizing that this area is urbanizing, and that speed limits, pedestrian crossings from the developing upland areas, and appropriate signage all need to be addressed in the near-term.

Mountain View Road provides access to the junior high school. Sidewalks should be incorporated into the roadway to allow safe travel for students. The City is concerned about striping a shoulder on this road, as it could encourage students go be in the roadway.

Figure 16 presents the recommended sidewalk and bike lane system for Sweet Home which is to be implemented outside of new road construction and reconstruction projects to bring sub-standard roads up to cross-sections appropriate to their classification.



# City of Sweet Home



PROVIDED BY THE  
 OREGON DEPARTMENT OF TRANSPORTATION  
 IN COOPERATION WITH THE  
 U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL BUREAU OF INVESTIGATION

LINN COUNTY  
 T. 13-14 S. R. 1 W. - 1 E. W.M.  
 Population 8,990  
 AUGUST 1989

0 100 200 300 400 500 600 700 800 900 1000 FEET  
 0 100 200 300 400 500 600 METERS

DATE	BY	REVISION	CHK'D	APPR.

**LEGEND**

- FUTURE BIKE LANES & SIDEWALKS
- - - EXISTING BIKEWAY
- - - EXISTING SIDEWALK

**W&HPACIFIC**  
 8405 SW KIMBUS AVENUE  
 SEASIDE, OR 97138-7120  
 WWW.W&HPACIFIC.COM  
 TEL: (503)428-0455 FAX: (503)528-0775  
 Planning • Engineering • Surveying  
 Landscape Architecture • Environmental Services

DESIGNED BY: LAJ  
 DRAWN BY: HLG  
 CHECKED BY:  
 APPROVED BY:

**W&H Pacific**  
**SWEET HOME TSP**  
**FUTURE BIKE LANES & SIDEWALKS**  
 SOURCE: BICYCLE & PEDESTRIAN PLAN; AERIAL PHOTO  
 SWEET HOME OREGON  
 SCALE: AS SHOWN PROJECT NO. 4-2658-6001 DRAWING FILE NAME: PCSHSW02.DWG SHEET 16

SECTION, TOWNSHIP, RANGE:

PLOT DATE: 12-05-97

LAST EDIT: HLG 12-05-97

## **CHAPTER 6: Access Management**

### **RECOMMENDED ACCESS MANAGEMENT POLICY**

As the city of Sweet Home continues to develop, the arterial/collector street system will become more heavily used and relied upon for a variety of travel needs. As such, it will become increasingly important to manage access on the existing and future street system as new development occurs. Experience throughout the United States has shown that a well managed access plan for a street system can: 1) minimize the number of potential conflicts between all users of the street system, and hence provide safer and more efficient traffic operations; and 2) minimize local cost for transportation improvements needed to provide additional capacity and/or access improvements along unmanaged roadways.

One of the objectives of the Sweet Home Transportation System Plan is to develop an access management plan that maintains and enhances the integrity (capacity, safety, and level-of-service) of the area's highways and arterials. To accomplish this, an access management policy and implementation plan must be developed that will control access to and operation of these roadways. The Sweet Home Transportation System Plan will complement the City's land use plan by providing access management strategies and review policies and procedures, which will guide future development and growth within the city. The plan defines how the highways and arterials will function in and maintain or improve the existing system over the next 20 years. The recommended access management plan is consistent with the current Oregon Highway Plan and National Highway System (NHS).

The recommended access management plan for arterials and highways within Sweet Home focuses on three specific areas:

1. Future land use actions and review policy
2. Traffic impact study requirements
3. Comprehensive Plan Land Use ordinance modifications

Each of these specific strategies is discussed in greater detail in the remainder of this section. *It should be noted that existing developments and accesses on the area highways and major arterials will not be affected by the recommended Access Management Plan until either a development review or change of use is proposed, or a safety or capacity deficiency is identified that requires specific mitigation..*

## FUTURE LAND USE ACTIONS AND REVIEW POLICY

As described in Oregon Statutes and Administrative Rules, local agencies are required to ensure that future land use actions (zone changes, comprehensive plan amendments, redevelopment, and/or new development) meet the 1991 Oregon Highway Plan Level of Importance (LOI) and Access Management policies and standards. Within urban or urbanizing areas, a new development will need to maintain a 300-foot (*Category 5 highways and 3-lane arterials*)<sup>11</sup> spacing (centerline-to-centerline) between either existing private or public access points on both sides of the roadway and to either side of the proposed access point. Proposed land use actions that do not comply with the designated access spacing policy will be required to apply for a *conditional access permit* from the City of Sweet Home and/or ODOT. In addition, according to the 1991 OHP, the impact in traffic generation from proposed land uses must allow a LOS "D" to be maintained for *Category 5* segments within the development's influence area along the highway. The influence area is defined as the area in which the average daily traffic is increased by 10 percent or more by a single development, or 500 feet in each direction from the property-line of the development (whichever is greater). Suggested construction standards for access on all roadways within the City of Sweet Home roadway system are listed in Table 8.

Conditional access may be provided to parcels whose frontage, topography, or location would otherwise preclude issuance of a conforming access permit. Conditional access permits will be issued under an administrative approval process and include a condition that requires the land owner to work in cooperation with adjacent land owners to provide either joint access points, front and rear crossover easements, or a rear-access upon future redevelopment. The conditional access permit will remain valid until a neighboring (adjacent or across the roadway) piece of property goes through a land use action or alternative access is provided. ODOT and/or the City of Sweet Home will then have the right to require either relocation of the conditional access driveway to align with an opposing driveway, elimination of the access and provide crossover access, or consolidation of access with an adjacent parcel. Using this process, all driveways and roadways along the highway/arterial will eventually comply with the access spacing policy set for that particular segment of roadway as development and redevelopment occurs in the study area. Figure 17 is an illustration of how the conditional access policy and process would bring existing and future accesses into access spacing compliance over time. Table 14 shows the sequence of land use actions and condition process by which the City of Sweet Home and ODOT can meet the access management guidelines set forth by the 1991 Oregon Highway Plan.

Not every parcel can or should be accessed through the process described in Figure 17 and Table 14. The topography of the parcel, type of proposed use or adjoining use, and/or frontage may preclude a development from using consolidated or crossover access points (i.e., consolidating access for a fast-food restaurant and a wood processing facility would be inappropriate).

---

<sup>11</sup>The City of Sweet Home currently includes Category 5 (Highway 20) and 6 (Highway 228) segments.

**Figure 17**  
**ACCESS MANAGEMENT EXAMPLE**

**Table 14**  
**State Highway and Arterial Access Management Example**

Step	Process
1	<i>EXISTING</i> - Currently Lots A, B, C, and D have site-access driveways that neither meet the access spacing criteria of 500 feet nor align with driveways or access points on the opposite side of the roadway. Under these conditions motorists are put into situations of potential conflict (conflicting left turns) with opposing traffic. Additionally, the number of side-street (or site-access driveway) intersections decreases the operation and safety of the highway/arterial.
2	<i>REDEVELOPMENT OF LOT B</i> - At the time that Lot B redevelops, the City of Sweet Home would review the proposed site plan and make recommendations to ensure that the site could promote future crossover or consolidated access. Next, the City would issue conditional permits for the development to provide crossover easements with Lots A and C, and the City of Sweet Home and/or ODOT would grant a conditional access permit to the lot. After evaluating the land use action, the City would determine that Lot B does not have either alternative access, nor can an access point be aligned with an opposing access point, nor can the available lot frontage provide an access point that meets the access spacing criteria set forth for this segment of roadway.
3	<i>REDEVELOPMENT OF LOT A</i> - At the time Lot A redevelops, the City of Sweet Home and ODOT would undertake the same review process as with the redevelopment of Lot B (see Step 2); however, under this scenario ODOT and the City of Sweet Home would use the previously obtained cross-over easement at LOT B to consolidate the access points of Lots A and B. ODOT and/or the city would then relocate the conditional access of Lot B to align with the opposing access point and provide safe and efficient access to both Lots A and B. The consolidation of site-access driveways for Lots A and B will not only reduce the number of driveways accessing the roadway, but will also eliminate the conflicting left-turn movements on the highway/arterial by the alignment with the opposing access point.
4	<i>REDEVELOPMENT OF LOT D</i> - The redevelopment of Lot D will be handled in the same manner as the redevelopment of Lot B (see Step 2).
5	<i>REDEVELOPMENT OF LOT C</i> - The redevelopment of Lot C will be reviewed once again to ensure that the site will accommodate cross-over and/or consolidated access. Using the crossover agreements with Lots B and D, Lot C would share a consolidated access point with Lot D and will also have alternative frontage access via the shared site-access driveway of Lots A and B. By using the crossover agreement and conditional access permit process, the City of Sweet Home and ODOT will be able to eliminate another access point and provide the alignment with the opposing access points.
6	<i>COMPLETE</i> - After Lots A, B, C, and D redevelop over time, the number of access points will be reduced and aligned, and the remaining access points will meet the appropriate access management standard.

## REVIEW POLICY AND PROCEDURE

The Transportation Planning Rule (OAR 660-12-045) discusses the need to facilitate communication between agencies with jurisdiction over transportation activities within a city or county. Access management review can be a multi-agency review process, especially when State facilities are adjacent to a planned land use action. In order to provide an efficient process for communication and implementation of the recommended access management plan, a detailed review procedure is recommended, as described below. These guidelines are intended to ensure that developments do not negatively impact the operation and/or safety of the roadway.

- A) Applicants must submit a preliminary site plan for ODOT review to the City of Sweet Home, prior to receiving a public works driveway or ODOT right-of-way permit. At a minimum, ODOT requires that the site plan shall include:
- 1) The location of existing access point(s) on both sides of the road within 300 feet in each direction for Highway 20 and Highway 228, and 150 feet for minor arterials;
  - 2) Distances to neighboring constructed public access points, median openings, traffic signals, intersections, and other transportation features on both sides of the property (*this should include the section of roadway between the nearest upstream and downstream collector*);
  - 3) Number and direction of site-access driveway lanes to be constructed, as well as an internal signing and striping plan;
  - 4) All planned transportation features on the state highway/minor arterial (such as auxiliary lanes, signals, etc.);
  - 5) Trip generation data or appropriate traffic studies (See the following section for the state's traffic impact study requirement thresholds.);
  - 6) Parking and internal circulation plan;
  - 7) Plat map showing property lines, right-of-way, and ownership of abutting properties;
  - 8) A detailed description and justification of any requested conditional access permit;
- B) ODOT requires proposed land use actions, new developments, and/or redevelopment accessing a state highway/major arterial directly or indirectly to provide traffic impact studies to the City of Sweet Home, Linn County (as needed) and ODOT if the proposed land use meets one or more of the following traffic impact study thresholds. *A traffic impact study will not be required of a development that does not exceed the stated thresholds.*
- Trip Generation Threshold - 50 newly generated vehicle trips (inbound and outbound during the adjacent street peak hour) based on the current edition of the Institute of Transportation Engineers Trip Generation manual or data specific to the site;

- Mitigation Threshold - the development will require installation of any traffic control device and/or construction of any geometric improvements that will affect the progression or operation of traffic traveling on, entering, or exiting the highway;
- Truck Generation Threshold - 20 newly generated truck trips (inbound and outbound) during the day;

All traffic impact studies will need to be prepared by a registered traffic engineer in accordance with ODOT's development review guidelines, described in a following section.

### ***ODOT Required Jurisdiction Review Items***

Subdivision and site plan review shall address the following access considerations:

- 1) Is the road system designed to meet the projected traffic demand at full build-out and are the functional roadway classification standards consistent with the proposed use?
- 2) Is access properly placed in relation to sight distance (i.e., does the driveway location meet both intersection and stopping sight distance requirements as set by ODOT or the City on respective facilities), driveway spacing, and other related considerations, including opportunities for joint or crossover access? Are entry roads clearly visible from the adjacent highway/arterial?
- 3) Is the frontage for dwelling units on interior residential access streets rather than major roadways?
- 4) Is traffic movement within the site provided without having to use the peripheral road network?
- 5) Does the road system provide adequate access to buildings for residents, visitors, deliveries, emergency vehicles, and garbage collection?
- 6) Does the pedestrian path system link buildings with parking areas, entrances to the development, open space, and recreational and other community facilities (i.e., address the requirements of the Transportation Planning Rule)?
- 7) Does the site plan provide for potential future crossover or consolidated access, and/or alternative access?

### ***Standards for Reviewing Conditional Access Permit Requests***

Conditional access permit requests will be reviewed by ODOT and/or the City of Sweet Home for proposed driveways that do not meet the recommended access spacing criteria. Conditional access permits may be allowed under the following conditions:

- A) The parcel's highway frontage, topography, or location would otherwise preclude issuance of a conforming access point.
- B) Alternative access (crossover easement, shared, side-street, and/or rear access) is not available to a parcel.

An approved request will provide the parcel with a *conditional access permit*. The conditional access permit will remain valid until a neighboring (adjacent or across the highway/arterial) piece of property goes through land use action or alternative access is provided. ODOT and/or the city will then have the right to either require relocating the conditional access driveway to align with an opposing driveway, eliminating the access and provide crossover access, or consolidating the access with an adjacent parcel.

### ***Recommended Arterial Conditions of Approval and Necessary Improvements to Evaluate***

As part of every development review action affecting arterial access, the City of Sweet Home and ODOT will be required to evaluate the potential need of conditioning a development with the following items in order to maintain the existing operation and safety of existing facilities and provide the necessary right-of-way and improvements to develop the future planned transportation system.

- A) *Crossover easement agreements* will be required on all compatible parcels (topography, access, and land use) to facilitate future access between adjoining parcels.
- B) *Conditional access permits* will be issued on new developments which have proposed access points that do not meet the designated access spacing policy and/or have the ability to align with opposing access driveways.
- C) *Right-of-way dedications* will be required to facilitate the future planned roadway system in the vicinity of the proposed development
- D) *Half-street improvements* (sidewalks, curb and gutter, bike lanes/paths, and/or travel lanes) should be provided along site frontages which do not have full build-out improvements in place at the time of development.



## ***Traffic Impact Study Requirements***

The following is a summary of the minimum requirements for a traffic report, as defined by ODOT. ODOT views these as the minimum considerations to be dealt with by registered traffic engineers in their analysis of traffic impacts resulting from new developments adjacent to state highways.

- A) The analysis shall include alternates (where possible) other than what the developer originally submits as a proposal for access to state highways, city streets, and county roads.
- B) The analysis of alternate access proposals shall include:
  - 1) Existing daily and appropriate design peak hour counts, by traffic movements, at intersections which would be affected by traffic generated by the development (use traffic flow diagrams).
  - 2) Projected daily and appropriate design peak hour volumes for these same intersections and at the proposed access points after completion of the development. If the development is to be constructed in phases, projected traffic volumes at the completion of each phase should be determined.
  - 3) Trip Generation shall be calculated using the Institute of Transportation Engineers' manual "TRIP GENERATION - 5th Edition" or other, more current, and/or applicable information.
  - 4) A determination of the need for a traffic signal based on warrants in the current "Manual on Uniform Traffic Control Devices."
- C) The recommendations made in the report should be specific and shall be based on a minimum level of service "D" when the development is in full service. As an example, if a traffic signal is recommended, the recommendations should include the type of traffic signal control and what movements should be signalized. If a storage lane for right turns or left turns is needed, the recommendations should include the amount of storage needed. If several intersections are involved for signalization, and an interconnect system is considered, specific analysis should be made concerning progression of traffic between intersections.
- D) The internal circulation of parking lots must be analyzed to the extent that it can be determined whether the points of access will operate properly.
- E) The report shall include an analysis of the impacts to neighboring driveway access points and adjacent streets affected by the proposed new development driveways.
- F) The report should include a discussion of bike and pedestrian usage and the potential for public transportation to serve the development.

## *Neighborhood Traffic Control*

If local traffic conditions arise that conflict with adopted roadway design and policies, the City should review ongoing research regarding roadway design and adopt new or improved design features when available, and if applicable to local Sweet Home standards. Further, there are provisions which could be added to the Sweet Home development code to provide the desired flexibility. For example, the City of Portland has established and adopted traffic control measures to identify and deal with problems related to safety, travel speed and travel volume on local streets. These measures are generally policy-oriented, but they allow the City to test and implement traffic control devices to achieve stated goals and policies (i.e., routing through-traffic from local streets onto arterials) through such measures as speed "humps" and turning circles.

Furthermore, research and implementation of traffic calming devices used to control traffic on local streets have shown some success outside the United States. As a minimum, there are four references that should be used to assist in road design. These include:

*Roadside Design Guide* by the American Association of State Highway Transportation Officials (AASHTO).

*A Policy on Geometric Design of Highways and Streets* by AASHTO.

*Residential Streets - Second Edition* by the American Society of Civil Engineers, National Association of Home Builders and the Urban Land Institute.

*Residential Street Design and Traffic Control* by the Institute of Transportation Engineers.

## *Traffic Calming*

Traffic calming measures alter the physical street and driving environment to encourage or require a desired driving action. This can mean altering where people go, how they get there, or at what speeds. Many of the techniques listed below are known as traffic calming devices. These efforts can be used to reduce speeds to those posted or below, as desired.

*Speed Humps* - Speed humps can become an optional traffic control device in the public right of way. They have been studied for many years and show some positive results. A speed hump differs from a speed bump by its size. A **speed hump** is 12 to 14 feet long and three to four inches high, while a **speed bump** may be only two to three feet long and three to six inches high. A properly designed speed hump should not cause a speeding vehicle to lose control, while a speed bump causes a sudden, potentially dangerous jar to the vehicle. Properly designed speed humps have mild effects that tend to slow traffic to speeds appropriate for residential areas without losing control when crossing a hump. Raised crosswalks or intersections can be designed to have similar effects.

Traffic Circles - Traffic circles reduce vehicle speeds and eliminate very fast vehicles on local residential streets. Traffic circles do not divert local traffic and do not restrict access to adjacent streets or land uses. They are usually installed in a series of two or more adjacent intersections to create a reduced-speed corridor. Traffic circles are commonly used in European countries, particularly in Great Britain, instead of four way stop signs or traffic signals. Traffic circles are also used in many Oregon communities including Eugene. Traffic circles reduce speed while maintaining a high level of service and capacity.

A traffic circle may cost as much as \$10,000 to construct. Development of a plan for the use of traffic circles in a particular neighborhood (public meetings, testing, traffic engineering evaluation of testing and final design) may also cost as much as \$10,000. Traffic circles generally have landscaped interiors requiring ongoing irrigation and maintenance.

Because of traffic circle expense, speed humps should be evaluated before uniform standards for traffic circles are developed. Specific attention should be given to warrants and to provisions for testing and evaluation when developing standards. A consensus within the affected neighborhood should be reached before using this traffic control device.

Diverters, Forced-Turn Channelization and Cul-de-sacs - Diagonal diverters involve the installation of a diagonal barrier in the intersection. This forces vehicles into a 90-degree turn. These devices permit better circulation than cul-de-sacs and can be designed to allow the passage of emergency vehicles. Certain maintenance aspects, such as manhole cover access, should be considered when applying this type of device.

Semi-diverters limit access to a street by blocking one direction of travel at an intersection. Semi-diverters reduce traffic volumes and retain easy access for emergency vehicles. However, because half of the street is still open to traffic, the violation rate can be high.

Forced-turn channelization generally involves the installation of traffic islands to prohibit certain movements. For example, to force right turns, only at an intersection, an island could be installed to make left or through movement difficult. This installation can increase safety at an intersection by discouraging unsafe movements.

Cul-de-sacs involve closure of a street, either midblock or adjacent to an intersection. Their purpose is to fully block access to the adjacent street. Cul-de-sacs can have the largest negative impact on emergency vehicle access time. Use of cul-de-sacs reduces the permeability of the street network and forces drivers to use a limited number routes to their destinations. In effect, the traffic removed from a cul-de-sac is forced on to other streets, potentially causing traffic problems in these locations.

All of these traffic control devices force changes in the flow of traffic and create obstacles for emergency service vehicles. They should be considered only where a significant traffic problem could be greatly reduced or eliminated and adequate access for emergency service can be

maintained. They should be considered on a case-by-case basis and used only with a consensus of the affected residents.

Chokers - Chokers, also called curb extensions, narrow the street by widening the sidewalk area or landscaping to provide safer pedestrian crossings. Additionally, the narrowed street reminds drivers that they are not on a major thoroughfare. *Chicanes* are a variation on chokers, which require all motor vehicles to make adjustments in their travel path and reduce travel speed to avoid collision.

Chokers may effectively reduce speeds on local streets in neighborhoods or commercial areas while increasing pedestrian safety. Curb extensions are being considered for some of the intersections along Highway 20 in downtown, and may be appropriate on some of the north-south streets as well. Given the narrow streets which already exist, chokers may need to be evaluated as a test situation on neighborhood streets.

Visual Control - Visual tools can be used to control traffic speed as well. Use of street tree canopies to create a tunnel effect can cause drivers to slow. Using brick or concrete paving to highlight cross walks can give drivers a visual cue that they need to use caution. Several jurisdictions have used combinations of striping, concrete and asphalt to create a visual image that the road is narrower than it really is, causing drivers to proceed slowly through a downtown business area with a high level of pedestrian activity.

## SUMMARY

Many methods can play a role in structural traffic control. Narrowing streets or making them feel narrower with placement of parking or planting of trees along the sides or in median strips can slow traffic. Building discontinuity into a traditional street grid with some of the techniques described above can be effective. It is important to note that any designed obstruction in the roadway can be considered as a liability. Below is a summary of suggested actions regarding structural traffic control.

- Standards for uniform application of traffic control devices are important
- Standards for Traffic Signals, Stop Signs and Yield Signs are contained in the MUTCD and should be adhered to.
- Standard stop sign plans should be developed for Sweet Home.
- Standards should be developed for the uniform application of Intersection Control Flashing Beacons and Crosswalks in Sweet Home.
- Speed zones are established by the State Traffic Engineer and should be reevaluated as conditions change.
- Speed humps and similar design techniques should be tested and evaluated where appropriate in Sweet Home.

- Traffic circles are effective at reducing speed and are expensive. Their use should be considered after speed humps have been evaluated.
- Diverters, force-turn channelization and cul-de-sacs should be considered only where a significant problem could be greatly reduced or eliminated by their use and adequate access for emergency services can be maintained.
- Chokers may be appropriate in the future, and could be tested in Sweet Home.
- A consensus within an affected neighborhood should be reached before implementing stop sign plans, or installing traffic circles, speed humps, diverters, forced-turn channelization, cul-de-sacs, and chokers.

## CHAPTER 7: FUTURE IMPROVEMENTS

The analysis of existing and future conditions presented in Chapters 2 and 3 presents a relatively problem-free scenario for Sweet Home. There are several high accident locations along Highway 20 which are scheduled to be improved by ODOT in 1999, and there are a few other areas where signals may be warranted in the next 20 years due to the volume of traffic.

The most significant shortcoming in the City's transportation system is the lack of system continuity. Several key facilities that were reviewed include: establishing a facility parallel to Highway 20 on the north side, establishing more north-south through streets, including one additional crossing of the Santiam River, establishing one additional Wiley Creek crossing, improving the Highway 20/Highway 228/Long Street intersections, and providing collector-level facilities to areas where development is slated to occur. Other improvements that were investigated include:

- The extension of Second to create a four-leg intersection with Pleasant Valley and Highway 20, and signalization of this intersection.
- Restructuring the existing intersection of Highway 228 and Highway 20, making Highway 228 transition into Long Street for safety. The signal at this intersection could be removed. There are some treatments that can be considered which would allow right-in/right-out movements, which would meet the safety objectives without full intersection closure.
- We reviewed three river crossings: 18th, Clark Mill, and North Side Drive. From a cursory review, all are likely to be feasible, although North Side Drive may require a longer span and higher cost. Each would provide a slightly different level of access. All three would also require cooperation with the County to develop the crossing. With increased development expected along the riverfront, a more detailed engineering-based feasibility study is warranted to determine which crossing is most appropriate. We show all three, but realize that for the 20 year horizon, only one crossing is warranted.
- The area south of Main, east of 35th, lends itself to development of a grid system. Some of the recommendations for code changes will include revisions that eliminate creation of new cul-de-sacs unless there is no possibility of future extension. The basic grid we have shown would likely be classified as collector streets, with the streets provided within new development classified as local (or unclassified).
- The area north of Highway 20 offers opportunity for development of a grid system as well, however the presence of log ponds, wetlands and potential environmental contaminants may preclude development of such a system. We have tried to identify some logical connections and locations for new roads. The transportation plan will rely on development

standards to take care of the local roads within development to connect into these identified collector-level facilities.

- With respect to the railroad line, if it is abandoned, one possible use would be for a paved pedestrian/bicycle path which would connect the west end of the city with Foster Lake. Another use would be to serve as a truck route and Highway 20 bypass into industrial area north of Main.
- The study team recommends a refinement study on Highway 20 and the surrounding area, from 1st to 9th, especially on the south side, to seek engineering solutions to the problems at Highway 228/20 connection. The study should be by ODOT, as Highways 20 and 228 are under their jurisdiction. This would also provide information to validate the need for a signal at Pleasant Valley.
- Extending Yucca to create a "Riverside Road" around and through the gravel extraction area and into the area along the river where development is beginning to be proposed. The area around the riverside ponds is two benches below the upper level, so the road may need to be set on the upper level.
- Many of the roads shown on the base map (transcribed from an aerial photo by ODOT) are private roads. At this time they are little more than driveways. In many cases, they make an ideal base for new system connections. These roads should be brought into the public system, classified as local streets and brought up to standards as additional properties develop and request access or existing properties redevelop.
- There is potential for an extensive grid to be developed in the southeast part of Sweet Home, using Juniper as the collector street. Development of this area for housing and roads is limited by wetlands. Further study is needed to identify where appropriate new local grid streets are likely.
- Extension of Nandina could function as a parallel facility to Highway 20, however, recent development and existing industrial plants makes it highly unlikely. The railroad tracks create a barrier and wetlands have formed along the south edge. There is a possibility of extending a new road along the north edge of the railroad tracks to serve this need.
- Most jurisdictions do not have a preferred methodology for acquiring right of way. In the case of a new facility, a centerline is established and right of way is generally acquired equally from each side. For widening of existing facilities, the preferred method is to acquire equally from each side. Depending on existing development, it may be more appropriate to adjust the centerline and take more right of way from one side. In many cases, the distribution of right of way "takes" from one side or another may vary on a block-by-block basis.

- The study team reviewed the existing truck route map. There are some new roads that warrant consideration for designation and construction as a truck route. The existing system is recommended to remain in place. Additional truck route classification is recommended as shown in Figure 18 for some of the new facilities, in order to provide improved access to developing areas which are classified for industrial use.

## **RECOMMENDED PROJECTS**

The project team initially identified 42 road projects that would benefit connectivity within the city. Alternative 2, as discussed in Chapter 8 presents a prioritization of projects. These projects were based on several factors:

- The ability to provide connections between existing dead end streets
- The need for signalization or other capacity or safety management device
- The need to provide connections to areas of new development
- The need to increase the number of collector streets in the city to remove pressure and possible cut-through traffic from local streets

These projects were reviewed by the Technical Advisory Committee (TAC) and Citizens Advisory Committee (CAC) and the initial list was altered to produce the following list. Projects are not listed in any priority order. The following table presents the project vicinity, the estimated length and estimated cost for the improvement. Costs are based on recent construction costs in Oregon and do not include any factors for wetland mitigation, structural or significant object removal, mitigation or relocation for right of way acquisition. Costs include new curbs, sidewalks storm drainage, and factors for mobilization (7%), temporary protection and direction of traffic (TP&DT) (5%), engineering (15%) and contingencies (25%).

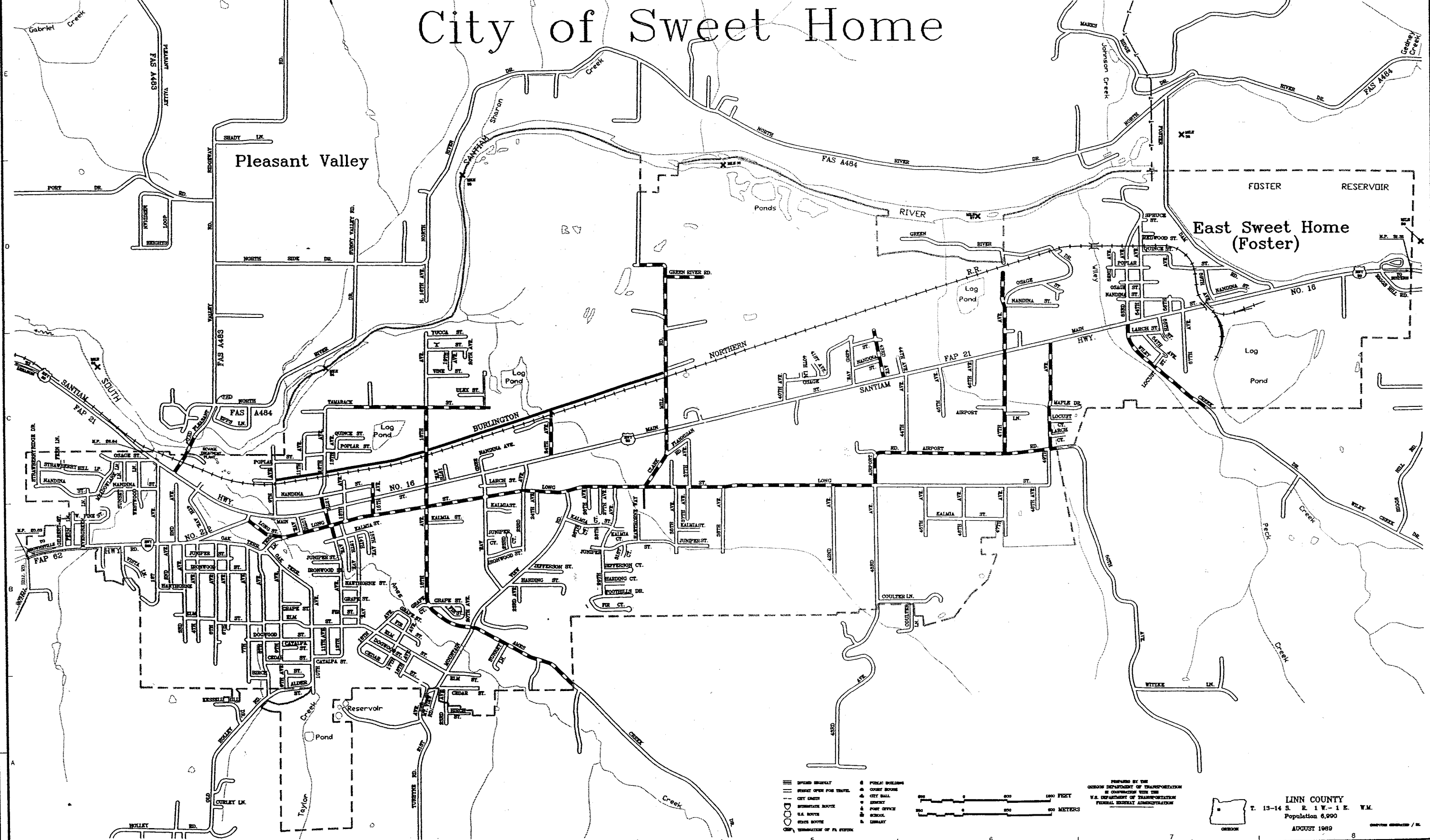
The new roadways, with several exceptions, are assumed to be 32 feet curb to curb with 5" asphalt concrete over a 10" aggregate base. Exceptions include six new segments that are proposed to be developed as collectors, requiring 36 feet of pavement width. Bridges and other structures are costed on a unit basis, with width and length taken into account.

This project list represents about \$37 million in design and construction costs for road projects. In addition, the City has an existing annual overlay budget generally around \$100,000 which needs to be increased, especially with the increase in road-miles within the city's jurisdiction. Bicycle and pedestrian improvements recommended in Chapter 5 amount to about \$831,711 in additional costs. This results in a total 20-year identified need for about \$42.5 million. Funding responsibilities and opportunities are discussed in Chapter 9.

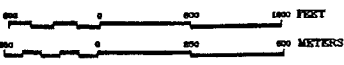
These projects are shown on Figure 19 by proposed road classification. Table 15 presents the project list and cost assumptions.



# City of Sweet Home



- OPEN DASH
- OPEN FOR TRAVEL
- CITY CENTER
- BROWNSHAW BOULEVARD
- U.S. ROUTE
- STATE ROUTE
- TERMINATION OF P.A. SYSTEM
- POLICE BUILDING
- COURT HOUSE
- CITY HALL
- JUDICIAL
- POST OFFICE
- SCHOOL
- LIBRARY



PREPARED BY THE  
OREGON DEPARTMENT OF TRANSPORTATION  
IN COOPERATION WITH THE  
U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION

LINN COUNTY  
T. 13-14 S. R. 1 W.-1 E. W.M.  
Population 6,990  
AUGUST 1989

DATE	BY	REVISION	CK'D	APPR.

**LEGEND**

— PROPOSED TRUCK ROUTES

- - - ADOPTED TRUCK ROUTES

**WHPACIFIC**  
8405 SW NIMBUS AVENUE  
BEAVERTON, OR 97008-7120  
WWW.WHPACIFIC.COM

TEL: (503) 626-0455 FAX: (503) 626-0776  
Planning • Engineering • Surveying  
Landscape Architecture • Environmental Services

DESIGNED BY: LAJ  
DRAWN BY: HLG  
CHECKED BY: \_\_\_\_\_  
APPROVED BY: \_\_\_\_\_

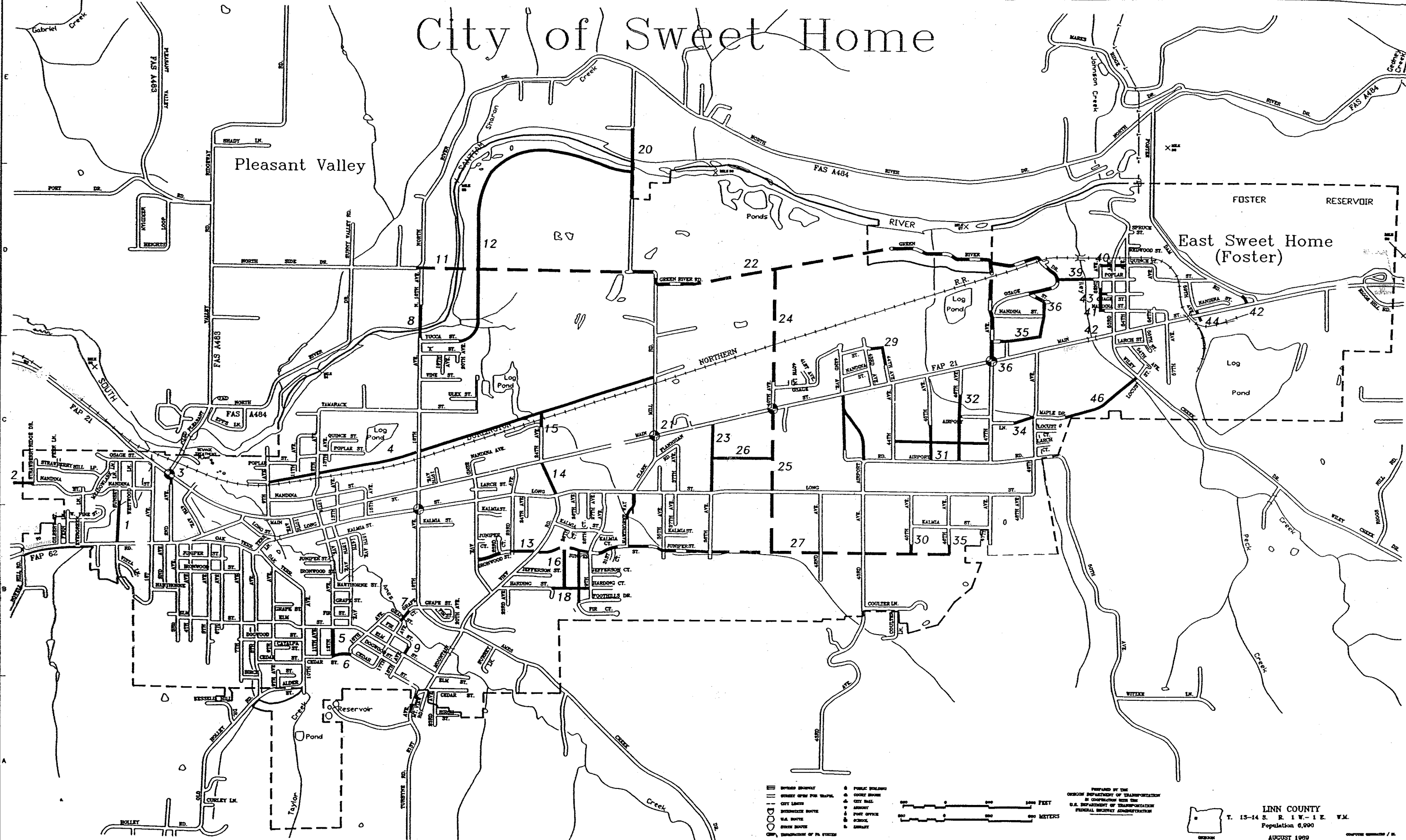
**W&H Pacific**  
**SWEET HOME TSP**  
**FUTURE TRUCK ROUTES**

SWEET HOME OREGON  
SCALE: AS SHOWN PROJECT NO. 4-2658-6001 DRAWING FILE NAME: PCSHTRO2.DWG SHEET 18

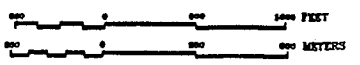
SECTION TOWNSHIP RANGE

PLOT DATE: 4-9-98  
PLOT REV: H/C 4-9-98

# City of Sweet Home



- DIVISION BOUNDARY
- COUNTY OPEN FOR TRAFFIC
- CITY LIMITS
- INTERURBAN ROUTE
- U.S. ROUTE
- STATE ROUTE
- TRANSPORTATION OF PA. SYSTEM
- PUBLIC BUILDING
- COURT HOUSE
- CITY HALL
- SCHOOL
- POST OFFICE
- CHURCH
- SHED



PREPARED BY THE  
OREGON DEPARTMENT OF TRANSPORTATION  
IN COOPERATION WITH THE  
U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL BUREAU OF INVESTIGATION

LINN COUNTY  
T. 13-14 S. R. 1 W.-1 E. W.M.  
Population 6,900  
AUGUST 1999

DATE	BY	REVISION	CHK'D	APPR.

**LEGEND**

- PROPOSED COLLECTOR
- PROPOSED LOCAL STREET
- NEW SIGNAL

**W&H PACIFIC**  
8405 SW NUMBUS AVENUE  
BEAVERTON, OR 97008-7120  
WWW.WHPACIFIC.COM  
TEL: (503)626-0455 FAX: (503)626-0775  
Planning • Engineering • Surveying  
Landscape Architecture • Environmental Services

DESIGNED BY: LAJ  
DRAWN BY: HLG  
CHECKED BY: \_\_\_\_\_  
APPROVED BY: \_\_\_\_\_

**W&H Pacific**  
SWEET HOME TSP  
**NEW STREET CONNECTIONS**

SWEET HOME OREGON  
SCALE: AS SHOWN PROJECT NO. 4-2658-6001 DRAWING FILE NAME: PCSHST01.DWG SHEET 19

**Table 15  
Projects Identified for the 20-Year Timeframe**

Map No.	Street	Section	Proposed Length (ft)	Proposed Width (ft)	Subtotal	Engineering & Contingencies (40%)	New Traffic Signal (\$125,000/ea)	New Railroad Crossing (\$250,000/ea)	New Bridge (\$125/sf)	Total	Cost Per Foot	Funding Source	Priority
01	Sunset Lane	Dead End - OR 228	800	32	\$294,280	\$117,712			\$20,000	\$431,992	\$540	D	M
03	2nd Avenue	Dead End - U.S.20	200	32	\$70,672	\$28,269	\$125,000			\$223,941	\$1,120	O/C	L
04	North Railroad Drive *	9th Ave. - Clark Mill Rd.	8000	32	\$2,865,464	\$1,146,186			\$2,400,000	\$6,411,650	\$801	C/D	LM
05	12th Avenue	Elm St. - Cedar St.	600	32	\$217,056	\$86,822				\$303,878	\$506	D	LM
06	Cedar Street	Dead End - 16th Ave.	400	32	\$146,104	\$58,442				\$204,546	\$511	D	LM
07	Grape Court	Dead End - Grape St.	300	32	\$111,664	\$44,666			\$900,000	\$1,056,330	\$3,521	C	ML
08	18th Avenue Bridge *	Dead End - Yucca St.	700	32	\$255,808	\$102,323			\$3,000,000	\$3,358,131	\$4,797	Co/C/S	H
09	18th Avenue	Dead End - Elm St.	200	32	\$70,672	\$28,269				\$98,941	\$495	C/D	H
10	18th Avenue	@ Long St.	N/A	N/A	\$36,288	\$14,515	\$125,000			\$175,803	N/A	O/D	M
11	North Side Drive Bridge*	18th Ave. - Yucca St.	4000	32	\$1,458,128	\$583,251			\$3,000,000	\$5,041,379	\$1,260	Co/C/S	L*
12	Yucca Street *	Dead End - Clark Mill Rd.	7000	32	\$2,551,752	\$1,020,701			\$1,200,000	\$4,772,453	\$682	C/D	H
13	Ironwood Street	22nd Ave. - Juniper St.	1300	36	\$490,056	\$196,022				\$686,078	\$528	C/D	MH
14	24th Avenue	U.S.20 - Long St.	700	32	\$255,808	\$102,323				\$358,131	\$512	D	M
15	24th Avenue	Dead End - North Railroad Dr.	300	32	\$111,664	\$44,666		\$250,000		\$406,330	\$1,354	D	L
16	26th Avenue	Juniper St. - Harding St.	1000	32	\$365,400	\$146,160				\$511,560	\$512	D	MH
17	Fir Court	23rd Ave. - Dead End	1500	32	\$547,848	\$219,139				\$766,987	\$511	D	LM
18	Harding Street	Dead End - Harding Ct.	700	32	\$255,808	\$102,323				\$358,131	\$512	D	M
19	Hawthorne Way	Dead End - Long St.	600	32	\$217,056	\$86,822			\$600,000	\$903,878	\$1,506	D	M
20	Clark Mill Road *	Dead End - Dead End	1400	32	\$511,336	\$204,534			\$3,000,000	\$3,715,870	\$2,654	Co/C/S	L*
21	Clark Mill Road	@ U.S.20	N/A	N/A	\$36,288	\$14,515	\$125,000			\$175,803	N/A	O/D	M
22	Green River Road	Dead End - Dead End	4000	36	\$1,497,608	\$599,043				\$2,096,651	\$524	D/S	H
23	38th Avenue	U.S.20 - Long St.	1400	32	\$511,336	\$204,534				\$715,870	\$511	D	MH
24	40th Avenue	Green River Rd. - Dead End	2400	36	\$899,920	\$359,968		\$250,000		\$1,509,888	\$629	D	M
25	40th Avenue	U.S.20 - Juniper St.	2800	36	\$1,049,944	\$419,978	\$125,000			\$1,594,922	\$570	O/D	MH
26	Airport Road	38th Ave. - 40th Ave.	1200	32	\$435,904	\$174,362				\$610,266	\$509	D	MH
27	Juniper Street	Dead End - 46th Ave.	5000	36	\$1,873,144	\$749,258				\$2,622,402	\$524	D/C	H
28	Osage Street	Dead End - 44th Ave.	300	32	\$111,664	\$44,666				\$156,330	\$521	D	M
29	44th Avenue	Osage St. - Dead End	400	32	\$146,104	\$58,442				\$204,546	\$511	D	M

Map No.	Street	Section	Proposed Length (ft)	Proposed Width (ft)	Subtotal	Engineering & Contingencies (40%)	New Traffic Signal (\$125,000/ea)	New Railroad Crossing (\$250,000/ea)	New Bridge (\$125/sf)	Total	Cost Per Foot	Funding Source	Priority
30	45th Avenue	Dead End - Juniper St.	200	32	\$70,672	\$28,269				\$98,941	\$495	D	M
31	45th Avenue	Dead End - Airport Rd.	800	32	\$294,280	\$117,712				\$411,992	\$515	D	M
32	46th Avenue	Dead End - Airport Ln.	500	32	\$183,064	\$73,226			\$600,000	\$856,290	\$1,713	D	M
33	46th Avenue	Dead End - Juniper St.	200	32	\$70,672	\$28,269				\$98,941	\$495	D	M
34	Airport Lane	Dead End - 49th Ave.	400	32	\$146,104	\$58,442				\$204,546	\$511	D	MH
35	47th Place	Dead End - 49th Ave.	800	32	\$294,280	\$117,712				\$411,992	\$515	D	M
36	47th Avenue	@ U.S.20	N/A	N/A	\$36,288	\$14,515	\$125,000			\$175,803	N/A	O/D	M
37	47th Avenue	Dead End - Green River Dr.	500	36	\$178,528	\$71,411		\$250,000		\$499,939	\$1,000	D	MH
38	49th Avenue	47th Pl. - Osage St.	500	32	\$183,064	\$73,226				\$256,290	\$513	D	MH
39	Poplar Street *	Green River Dr. - Dead End	800	32	\$294,280	\$117,712			\$600,000	\$1,011,992	\$1,265	D	H
40	Quince Street	52nd Ave. - 54th Ave.	500	32	\$183,064	\$73,226				\$256,290	\$513	D	L
41	52nd Avenue	Dead End - Nandina St.	500	32	\$183,064	\$73,226				\$256,290	\$513	D	L
42	Osage Street	52nd Ave. - Dead End	200	32	\$70,672	\$28,269				\$98,941	\$495	D	L
43	Nandina Street	52nd Ave. - Dead End	200	32	\$70,672	\$28,269				\$98,941	\$495	D	L
44	59th Avenue	Nandina St. - U.S.20	100	32	\$36,680	\$14,672				\$51,352	\$514	D	L
45	Foster Dam Rd.	Realignment to U.S.20	200	32	\$70,672	\$28,269				\$98,941	\$495	O/D	MH
46	Maple Drive *	Dead End - Wiley Creek Dr.	1600	32	\$582,288	\$232,915			\$600,000	\$1,415,203	\$885	D/S	MH*
47	42nd	Main -Airport or Long	1400	32	\$524,972	\$209,989	\$125,000			\$859,961	\$614	D	MH
B	Bicycle Projects	Various								\$832,000	N/A	C/S	
M	Annual Overlay Maintenance	Based on CIP Projects								\$4,000,000	N/A	C	H
R	4 Reconstruction Projects ID'd in PMS study	Based on CIP								\$500,000		C	H
	TOTAL				\$20,868,092	\$8,347,237	\$750,000	\$750,000	\$15,920,000	\$51,467,329			

\* Options - Some projects are not included in total, as only one is assumed to be built. This includes only one Santiam and one Wiley Creek crossing are assumed. The RR Drive Bridge is assumed to not be constructed in the 20-year time frame.

Numbers are not consecutive due to elimination of some projects from consideration. Project 47 is shown on map in two possible alignments, costs would be similar for either.

The above table represents a summary of construction cost estimates. The full set of assumptions and cost estimates is available from the City Planning office.

Sources of funding C= City, Co=County, O=ODOT, D=Developer, S=SDC; Could include actions such as LID, special grants from OEDD or other agencies. Priorities - H= next 5 years, M= 6-10 years, L - 10+ years

## SUMMARY

Clearly, this is an ambitious list of projects. Each project has some merit in terms of providing access and improving the functional hierarchy of the Sweet Home transportation system. Some of the projects are directly related to improving safety, while others are associated with growth in residential and industrial uses of vacant lands in the city.

Some of the projects are shown in a particular alignment, however the intent is to preserve flexibility for the City in the creation of new local streets that best meet the needs of incoming development. This is particularly true in the vicinity of 40th to 47th Avenues. Signalization will likely be warranted somewhere in this vicinity, but it is difficult to determine the specific location without existing development proposals.

Unfortunately, the City is not in a position to fund such an ambitious list of projects. The projects listed in Table 15 have been identified as to possible funding responsibility. Some projects are clearly ODOT or City responsibility, whereas others are considered to be the responsibility of developers. Even when identifying projects that are primarily City responsibility, there is a possible funding shortfall.

The next chapters will use this project list as a basis for developing a recommended alternative for the City to adopt as its transportation system plan. Funding sources, including state and federal funds, local sources and developer funding will also be discussed in the next chapter.

## **CHAPTER 8: DEVELOPMENT AND EVALUATION OF ALTERNATIVES**

Within the requirements of the Transportation Planning Rule, Sweet Home is not required to evaluate alternatives for the transportation system plan because there are no improvements that are related to unacceptable levels of service in the existing conditions or in the future conditions. OAR 660-12-035 (8) states that "*where existing and committed transportation facilities and services have adequate capacity to support the land uses in the acknowledged comprehensive plan, the local government shall not be required to evaluate alternatives as provided in this section.*"

The list of transportation improvements listed in Chapter 7 is a wish list of system improvements that is desired over the next 20 years. The improvements are related to improving system connectivity and providing new road access into areas where development is anticipated to occur or providing additional bridge crossings where concerns exist for emergency access if the primary route is unavailable. System improvements also include general maintenance and reconstruction of pavement.

The project list has been modified based on the discussions the project team had with the TAC, CAC and open house attendees. Bridge cost assumptions were increased, and several projects were added or deleted. The grand total, assuming one new Santiam crossing and one Wiley Creek crossing, as well as an annual overlay maintenance program is about \$42,467,329 in estimated capital needs over a 20-year period.

The project team realized that, at least at a cursory level, several alternatives needed to be put forth for the City to gain an understanding of the array of opportunities and the contrast with the amount of funding available for transportation improvements anticipated over the next 20 years. The project team identified three conceptual alternatives to review.

### **ALTERNATIVE 1 - MAINTAIN THE EXISTING SYSTEM**

The first alternative is to continue managing the transportation system as it is today. This alternative assumes that funding levels remain approximately what they are today, and that the improvements planned by ODOT as part of the Highway 20 3R project are implemented. The only improvements the City will pursue are related to resurfacing and maintenance. New roads, signals and other improvements will occur as conditions on new development.

At this time, the City is keeping up with its maintenance needs, but just barely. There are several streets which are in need of reconstruction today. The result of these assumptions is that the City would begin to defer full maintenance on overlays, leading to an increased need for future reconstruction. The City would continue to receive about \$330,000 from the State Highway Fund, \$60,000 in interest per year from a capital projects reserve account and about \$35,000 per year from the Federal Government. This results in an anticipated income of \$7.3 million over 20 years.

## ALTERNATIVE 2 - DO WHAT WE CAN WITH AVAILABLE FUNDS

For the second alternative, some general assumptions were made regarding an increase in transportation funding at the state and federal levels, and the income that would generate for the City of Sweet Home. A more detailed assessment of funding options and assumptions is presented in Chapter 9. The project list was then reviewed and a list of projects which are perceived to be high-priority and likely could be funded within those constraints was created.

Table 16 summarizes the assumptions made regarding transportation expenditures and projects under this alternative.

**Table 16**  
**Alternative 2 Identified Projects**

Map No	Street	Section	Total
9	18th Avenue	Dead End - Elm St.	\$98,941
12	Yucca Street	Dead End - Clark Mill Rd.	\$4,772,453
B	Bicycle Projects	Long St., 9th to Mountain View	\$168,000
M	Annual Overlay Maintenance		\$4,000,000
R	4 Reconstruction Projects ID'd in PMS study		\$500,000
8	18th Avenue	Santiam River crossing	\$3,358,131
39	Poplar Street	Green River Dr. - Dead End	\$1,011,992
27	Juniper Street	Dead End - 46th Ave.	\$2,622,402
22	Green River Road	Dead End - Dead End	\$2,096,651
	TOTAL		\$18,628,570

The above projects were selected for the following reasons:

- Annual maintenance (project M) is needed to keep the city's street system safe and to avert significant street rebuilding costs in the future. Reconstruction projects (project R) are included as necessary improvements to prevent further deterioration of roadways in very poor condition.
- Key bicycle and pedestrian projects (project B) recommended in the Draft Bicycle and Pedestrian Plan were included because these projects provide significant facility improvement for bicycles and walking on high-use City streets.
- Bridge crossing of the Santiam River using 18th (project 8) was included to increase access for public safety providers and to provide some added access into central Sweet Home for those areas in Linn County likely to develop in the future.

This list of projects provides some basic safety, capacity and alternative route connections that will improve system connectivity in Sweet Home over the next 20 years.

### **ALTERNATIVE 3 - CREATE NEW FUNDING SOURCES**

For the third alternative, the project team reviewed transportation systems development charges (SDCs) in small Oregon communities and made an assumption about a reasonable SDC level for Sweet Home. From this information, a revenue projection was developed and compared to the prioritized project list and list of projects potentially eligible for Systems Development Charges to identify a recommended set of actions.

ORS 223.297 through 223.314 establishes a uniform framework for governmental units to impose systems development charges to pay for capital improvements, including facilities or assets used for transportation. Such charges may be assessed or collected "at the time of increased usage of a capital improvement or issuance of a development permit, building permit or connection to the capital improvement." ORS 223.299(4)(a). The statute allows imposition of systems development charges for costs associated with capital improvements to be constructed ("improvement fees") and capital improvements already constructed or under construction ("reimbursement fees"). ORS 223.304. The statute also provides for credits against fees for the construction of qualified public improvements. ORS 223.304 (3), (4).

ORS 223.307(2) authorizes improvement fees on new development to help cover the costs of capacity increasing capital improvements. Under ORS 223.309(1), such improvements must be identified in a capital improvement plan, public facilities plan, transportation master plan or similar plan which lists the capital improvements which may be funded with improvement fee revenues and the estimated cost and timing for each improvement. Consistent with ORS 223.307(2), the capital improvements identified in this report are limited to those which are capacity increasing. Their inclusion in a plan as defined in ORS 223.309(1) assures compliance with that requirement of the statute.

Under ORS 223.304(2), improvement fees must be established by ordinance or resolution setting forth a methodology that considers the costs of projected capital improvements needed to increase the capacity of the systems to which the fee is related. The statute requires no specific methodology. However, there must be a rational basis for the charge, i.e. the costs imposed on development must reasonably relate to the impacts created by the development and the overall costs of the improvements.

The transportation improvements on the list provide new capacity (signals, new bike and pedestrian facilities), and connectivity improvements. Under Oregon law, only a portion of the roadway improvement costs are eligible for funding under SDCs. Improvement costs to maintain or improve the structure of existing roadways and intersections, or costs associated with operations that do not provide significant capacity increases are not eligible.

Overall, the project team recommends that the City pursue the establishment of an SDC which is defensible under State law. The SDC must be commensurate with similar fees being charged elsewhere in Oregon, so as not to discourage locational decisions by businesses and developers. In order to gain community support for an SDC, projects funded should have community-wide benefit.



One category of capacity-related projects that are obvious candidates for SDC projects are four of the five recommended signals. These include signals at 18th and Long, and on Highway 20 at Clark Mill, 40th and 47th. These signals are strictly the result of growth in residential and employment travel in the city. The signal at Pleasant Valley is possibly warranted today, based on a limited assessment of warrants, and would be difficult to justify as a project generated by future growth.

Other projects that could be considered as candidates for inclusion into an SDC structure include:

- The new road parallel to the railroad tracks (Project 4)
- Extension/improvement of Green River Road from the Yucca extension to 47th (Project 22)
- Extension of 40th north and south (Project 25)
- The Ironwood/Juniper improvement/extension between 22nd and 46th (Projects 13 and 27)
- Extension of 36th and connection of 36th to 40th (Projects 23 and 26)
- Extension/improvement of 47th to Green River Rd. (Project 37)
- Extension of 42nd to Long or Airport and signalization of Main and 42nd (Project 47)

Most of the smaller connections should be made as conditions of development on new projects that require access from those facilities.

Projects shown in the vicinity of 40th Avenue are based on anticipated development and flexibility needs to be preserved regarding actual location of connections and signals.

Further discussion of SDCs is presented in Chapter 9.

## **CHAPTER 9: RECOMMENDED FUNDING STRATEGY**

This chapter assesses the adequacy of existing and potential funding sources to fund the transportation improvements in this Plan. The components of this assessment are the major headings used to organize this chapter; these headings and their content include:

*Existing Transportation Funding Sources in Sweet Home* describes Federal, State, and local funding for projects, and the outlook for these sources over the twenty-year period of this Plan.

*Funding for Transportation Projects in Sweet Home* presents the cost estimates for projects in this Plan, and compares these costs to the level of funding available from existing sources. Additional sources of funding for remaining costs are identified.

This chapter contains the elements of analysis required by the Transportation Planning Rule (OAR 660-012-0040).

### **EXISTING TRANSPORTATION FUNDING SOURCES IN SWEET HOME**

This description of existing funding sources for transportation projects in Sweet Home is organized around the jurisdictions that fund transportation projects. ODOT directly funds projects through the Statewide Transportation Improvement Program (STIP). ODOT also distributes Federal and State funding to counties and cities in Oregon, including the City of Sweet Home, which combines this with funding from local sources to fund transportation services in the City. The City may also apply to ODOT for grant funding from Federal and State programs. Funding that is allocated to projects by the City is described under the City of Sweet Home.

#### ***State Funding Through the STIP***

ODOT allocates Federal and State funding for improvement projects through the STIP, which identifies funded projects over a four-year period. The current Draft STIP is for the 1998–2001 period; this STIP includes fifteen projects in Linn County, with a total construction cost of \$59.4 million over the four-year period. Only two of these projects are in the Sweet Home area— a surface overlay and signal interconnect on U.S. 20 in the City of Sweet Home (\$4.0 million in 1999) and a pavement preservation project on the eleven miles of U.S. 20 immediately east of the City limits (\$4.5 million in 2000).

The current Draft STIP is not fiscally constrained, but Federal guidelines require project costs in the STIP to match the level of expected funding. ODOT expects total funding in the Draft STIP will be reduced by about 20% to meet the Federal requirement when the Final STIP is adopted. Therefore,

the level of project funding in the Sweet Home area may be less than the \$8.5 million included in the Draft STIP.

The STIP is updated every two years, so planning the 2000–2003 STIP will begin in 1998. The City of Sweet Home can seek State funding for projects in this plan by participating in the STIP process.

### ***City of Sweet Home Funding***

This section presents an overview of current revenues, expenditures, and other local funding mechanisms. Table 17 summarizes existing transportation-related revenues and expenditures in the last four fiscal years, as reported in the City's *Adopted Operating Budget 1996–1997* and *1997–1998*.

*Revenue* - Total current transportation-related revenue declined from over \$590,000 in fiscal year 1993-94 to \$452,000 anticipated in 1996-97. Much of this decline is attributable to the cessation of County revenue sharing.

Most of the City's current revenue is from the State Highway Fund, which contributes about 79% of current revenue in fiscal year 1996-97. State transfer of Federal funds (FAU) is anticipated to contribute an additional 8% of total current revenue for 1997-98.

**Table 17**  
**Transportation-Related Revenues and Expenditures in the City of Sweet Home**  
**1993-94 to 1996-97 (in current dollars)**

	1993-94 Actual	1994-95 Actual	1995-96 Actual	1996-97 Actual	1997-1998 Budgeted
Beginning Fund Balance	\$1,959,962	\$1,917,490	\$1,741,729	\$1,592,979	\$1,592,577
State Gas Tax/Street Maint. Fund	\$279,324	\$114,676	\$142,214	\$108,869	\$57,303
Street Maint. Improvement Fund	\$1,643,900	\$1,805,317	\$1,590,883	\$1,477,110	\$1,503,274
Path Program Fund	\$36,738	(\$2,503)	\$8,632	\$7,000	\$32,000
Total Current Revenues	\$591,629	\$572,624	\$509,967	\$417,778	\$451,629
State Highway Fund	\$318,288	\$324,302	\$307,216	\$330,098	\$346,053
State Transfer (FAU)	\$68,975	\$34,574	\$32,254	\$37,980	\$35,800
County Revenue Sharing	\$149,898	\$158,709	\$75,919	\$0	\$0
Interest	\$52,454	\$53,055	\$85,945	\$47,000	\$66,000
Misc. Revenue	\$2,014	\$1,984	\$8,633	\$2,700	\$3,776
Total Current Expenditures	\$634,101	\$750,385	\$706,967	\$572,666	\$463,132
Personal Services	\$153,824	\$160,403	\$164,637	\$190,813	\$201,002
Materials and Services	\$362,538	\$463,328	\$395,907	\$293,654	\$96,335
Street Maint.(overlay and maint.)	\$264,322	\$376,152	\$118,861	\$83,541	\$100,000
Street Projects	\$22,818	\$0	\$132,761	\$0	\$59,074
Street Lights	\$0	\$0	\$0	\$65,000	\$0
Other Materials and Services	\$75,398	\$87,186	\$144,285	\$145,113	\$96,335
Capital Outlay	\$43,625	\$12,156	\$63,253	\$8,065	\$12,300
Path Development	\$42,361	\$23,545	\$24,930	\$30,000	\$111,495
Transfers	\$31,753	\$90,953	\$56,720	\$66,135	\$108,034
General Fund	\$18,243	\$18,243	\$18,243	\$18,243	\$18,243
Equipment Reserves	\$13,510	\$23,526	\$15,157	\$24,591	\$11,791
12th Avenue LID	\$3,120 (path prog.)	\$3,120	\$33,260	\$23,301	\$3,461
Operating Contingency		\$0	\$0	\$10,000	\$10,000
Ending Fund Balance	\$1,917,490	\$1,741,729	\$1,634,305	\$1,435,301	\$1,435,000
State Gas Tax/Street Maint. Fund	\$114,676	\$142,214	\$121,008	\$0	\$0
Street Maint. Improvement Fund	\$1,805,317	\$1,590,883	\$1,505,435	\$1,435,000	\$1,435,000
Path Program Fund	(\$2,503)	\$8,632	\$7,862	\$301	\$0

Source: City of Sweet Home Adopted Operating Budgets 1996-1997 and 1997-1998.

“Current dollars” mean dollars as of the year in which they were spent: (without adjustment for inflation). Thus, a dollar in 1993-94 bought more than a dollar in 1996-97, other things equal. Table 17 combines funding in the State Gas Tax/Street Maintenance, Street Maintenance Improvement, and Path Program Funds.

The significant level of working capital in the Street Maintenance Improvement Fund reflects \$1,739,000 transferred from Linn County to Sweet Home in fiscal year 1991-92 for maintenance and improvement of roads that were transferred from County to City jurisdiction. The City’s current policy is to keep \$1.5 million of this funding in reserve and spend only the interest, although the adopted budget for 1996-97 shows the City plans expenditures that would reduce this reserve to \$1,435,000 due to street light expenditures.

County Revenue Sharing from surplus timber receipt funds, declined from about \$150,000 in 1993-94 to \$0 in 1996-97, apparently due to increased spending on County roads and declining timber receipt revenue.

Interest revenue is primarily from interest on the City’s \$1.5 million reserve, which is currently yielding interest at an annual rate of 3%.

It appears that the failure of the City’s tax base measure in May 1996 and the recent approval of Measure 50 should not have a significant impact on transportation-related revenue in Sweet Home, since most of the City’s existing revenue is from gas tax-supported State and Federal funding. There is no transportation funding in Sweet Home from property tax sources.

*Expenditures* - Most of the City’s expenditures have been for maintenance and preservation of existing transportation infrastructure. Expenditures categorized as “capital” are primarily for equipment and preservation work, not for reconstruction or new construction.

Expenditures for Street Lights were transferred from the General Fund to the Street Maintenance Fund for 1996-97 due to the failure of the City’s tax base levy in May 1996. The City transferred these expenditures back to the General Fund in 1997-98. If ever moved back to the Street Maintenance Fund, it would reduce funding available for other transportation expenditures.

1997-98 will be the seventh year of the City’s 10-year pavement management program. The City spent \$100,000-150,000 per year for pavement management in the first four years of this program. Some of this maintenance is currently being deferred; the City anticipates spending only \$100,000 for pavement management in 1997-98. Reduced expenditures for pavement management are primarily due to the transfer of Street Light expenditures from the General Fund.

Street Project expenditures were primarily for reconstruction of 24th Avenue. Path Program expenditures have funded installation of wheelchair-accessible curb ramps throughout the City. Installation of these ramps is required by the Americans with Disabilities Act (ADA) where the City overlays pavement or constructs new streets.

Transfers to the General Fund reflect the cost of administrative overhead provided by the City, and those to Equipment Reserve are for equipment purchases and maintenance. Transfers to the Path Program include 1% from state gas tax revenues and fixed amounts as can be afforded from the street maintenance improvement fund.

In addition to the funding shown in Table 17, the City code allows the City Council to form Local Improvement Districts to fund improvements, and the City formally requires new development to construct needed on-site improvements. We describe each of these in more detail below.

### ***Funding from Local Improvement Districts***

City code 3.16 allows the City Council to create a Local Improvement District (LID) to fund all or part of an improvement project with assessments on properties that benefit from the project. Once an LID is adopted by the City Council, the assessments become liens on property in the district; property owners must pay these liens or the City can foreclose their property. In practice, the City typically establishes a LID only when petitioned by a majority of affected property owners. The City also has not foreclosed properties with unpaid liens; instead the City is waiting until a property sells to enforce its lien.

Current City practice makes LIDs an unreliable funding source. For example, a LID was recently established to fund improvements to 12th Avenue. Of the 32 property owners in the district, 12 have made no attempt to make payments on their portion of the LID assessments. The City was forced to borrow money from other City funds to cover these unpaid assessments. The borrowed money will be repaid when delinquent property owners choose to pay the lien on their property, or when their property sells and the City is able to enforce its lien.

### ***Private Sector Funding***

The City of Sweet Home does not require new development on existing lots and unimproved streets to construct right-of-way improvements. The City does require an agreement to pay their fair share costs for those improvements abutting their property upon development of the right-of-way, including sidewalks, curbs, driveway approaches, gutters, storm drains and street improvements. New subdivisions do have to complete required on-site improvements. No off-site improvements have been required of developers.

The City does require that a property developer pay a Systems Development Charge (SDC) before a building is connected to the City's water or sewer system. The City does not have a SDC for new development to contribute to off-site construction or improvements. Thus, development of existing lots in Sweet Home will increase traffic on existing streets, but will not generate any additional funding for future transportation projects in Sweet Home.

## OUTLOOK FOR TRANSPORTATION IMPROVEMENT FUNDING IN SWEET HOME

The outlook for existing funding sources in the City of Sweet Home is currently uncertain due to pending legislative actions at the State and Federal levels.

At the State level, the Oregon legislature finished their current session without action on a transportation funding package that would have increased funding available to the State, counties, and cities. The final funding package considered by the legislature would have increased the gas tax by \$0.06 over two years, increased vehicle registration fees by \$10 per year, and imposed the full weight-mile tax on trucks. Governor Kitzhaber has voiced support for a special legislative session to consider transportation funding, but he has not formally convened this session. If there is not a special legislative session, there will not be an opportunity to increase transportation funding at the state level until the next regular legislative session in 1999.

At the Federal level, Congress must reauthorize the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), which expired in 1997. This Act establishes every major transportation funding program at the Federal level, and defines the criteria by which Federal funds are allocated to states, counties, and cities. The Clinton administration proposed NEXTEA, which would reauthorize ISTEA with a 25–30% increase in program spending. Alternative proposals in Congress would not increase spending as much, and would reduce the share of funding allocated to non-roadway projects. A Federal Highway Administration comparison of funding from NEXTEA vs. a continuation of ISTEA at current levels indicates that NEXTEA would increase the average level Federal transportation funding in Oregon by 22%. Congress will consider reauthorization of ISTEA in the 1998 session.

ODOT's latest long-run projection of transportation funding, *Financial Assumptions for the Development of Metropolitan Transportation Plans* (March 1995), contains a range of future funding scenarios based on sets of assumptions about the future conditions that affect the level of transportation funding. This report includes a funding scenario based on continuation of current law and past trends without legislative action to increase transportation funding. This scenario was used to develop an outlook for transportation funding in the City of Sweet Home from Federal and State sources. This outlook reflects conditions if no action is taken at the Federal, State, or County level to increase funding levels. The assumptions and outlook for specific funding sources are:

*State Highway Fund:* No increase in the State gas tax. Growth of the State Highway Fund occurs due to increased population and per capita VMT, but this growth is less than inflation, resulting in declining revenue of 1–4% per year in inflation-adjusted (real) dollars.

*Surface Transportation Program (STP):* Based on historic growth rates in the 1984–1994 period, Federal funds allocated to cities are expected to grow by 1.9–1.4% per year (in real dollars) through 2020.

*Statewide Transportation Improvement Program:* Due to increasing needs for maintenance and preservation on State highways, STIP funding for modernization is expected to decline to \$0 by 2005. Funding for non-modernization projects (preservation, safety, and bridge projects) is expected to decline an average of 2% per year through the forecast period.

Increases in federal STP funding will not offset declines in State Highway Fund revenue allocated to Sweet Home, resulting in a decline in total funding from these sources of about \$6,000 per year in the twenty-year period of this Plan.

The ODOT forecast contains no assumptions about Federal timber receipts, which are a major revenue source in Linn County's Road Fund. This revenue is currently fixed by law and is scheduled to decline by 3% per year through 2003. After 2003 this revenue will be based on the actual Federal timber harvest in Linn County. Without an increase in timber receipt revenue or other transportation funding at the County level, resumption of County revenue sharing with the City is unlikely.

Given the outlook for declining State Highway Fund revenue and slow growth of STP funds in Sweet Home, and that the City is beginning to defer needed maintenance, it appears that the City will have little funding available for transportation improvement projects. Under current conditions, improvement funding in Sweet Home will be limited to ODOT-funded projects on state highways, Federal and State discretionary grants awarded to the City, local improvement districts, and improvements voluntarily constructed by the private sector. The following section will summarize the project costs in this plan and assess the ability of existing sources to fund them. Potential sources of additional funding will be identified for projects that may not be funded by existing sources.

#### **FUNDING FOR TRANSPORTATION PROJECTS IN SWEET HOME**

Table 18 summarizes the cost of recommended transportation improvement projects in this Plan. Given the City's lack of existing funding for improvement projects, these projects represent the minimum necessary to meet the City's needs over the twenty-year perspective of this Plan.



**Table 18**  
**Summary of Transportation Improvement Costs (in 1997 dollars)**

Street	Section	Project Cost	Funding Source
Maint. and Recon.	Citywide	\$4,500,000	City
18th Avenue	Dead End - Yucca	\$3,358,131	County, City, SDC
18th Avenue	Dead End - Elm	\$98,941	City
Yucca Street	Dead End - Clark Mill	\$4,772,453	Development
Poplar Street	Green River Dr. - Dead End	\$1,011,992	Development
Juniper Street	Dead End - 46th Ave.	\$2,622,402	Development, City
Green River Road	Dead End-Dead End	\$2,096,651	Development, SDC
Bicycle Projects	Long St, 9th, Mtn. View	\$168,000	City/State Grant
<b>Total Costs</b>		<b>\$18,628,570</b>	

The total cost for the recommended overlay maintenance program in Table 18 represents the sum of annual expenditures the City needs to make to efficiently maintain overlays in its transportation infrastructure—these expenditures average \$200,000 (in 1996-97 dollars) per year over the twenty-year period in this Plan. It also includes reconstruction of high priority projects identified in the pavement management system. All of the street projects in Table 18 would construct new street surfaces, with curbs, gutters, and sidewalks and storm sewers on existing right-of-way. The projects on 18th Avenue (Dead End to Yucca St.), Yucca St. and Poplar St. would also construct or reconstruct bridges in the City of Sweet Home. Bike projects in Table 18 would add bike lanes or construct bike paths in the City.

It needs to be noted that general roadway maintenance and department operations are above and beyond the costs noted in this discussion.

The funding sources in Table 18 were identified by W&H Pacific as part of project development for this Plan. “Development” indicates projects where developers are expected to fund part or all of an improvement as a condition of development—this reflects the City’s intention to enact requirements for new development to provide needed transportation infrastructure. “County” represents an expected contribution from Linn County. “SDC” indicates projects that are expected to be funded by a transportation Systems Development Charge the City intends to implement. “City” represents the range of measures the City could use to fund improvements, including applying for Federal and State grants, forming Local Improvement Districts, and sources of additional funding the City may implement.

## *Contributions from Existing Sources and Remaining Costs*

To estimate the contribution from existing sources and identify remaining costs, the following assumptions were made:

- The recommended overlay maintenance program will have priority for funding, because deferring maintenance will increase future costs to the City. The City can fund the maintenance program at \$150,000 per year. Therefore, the City needs an additional \$50,000 to fund the recommended maintenance program in this Plan (which is \$200,000 per year) and this funding gap will increase by \$6,000 per year due to declining State Highway Fund revenue.
- The City will require development to fund needed transportation improvements. Projects where “Development” is the only funding sources identified in Table 18 will be fully funded by development or the projects will not be constructed. The total cost of these projects is \$5.8 million.
- None of the projects in Table 18 is on or intersects with a state highway, so ODOT is not responsible for funding any of these projects. The City may seek to have these projects included in the STIP or funded through discretionary grant programs administered by ODOT, but this funding is rarely allocated to local street projects. The City may also seek grants or loans from the Oregon Economic Development Department for projects that would support economic development in Sweet Home. Since future grant funding is uncertain, this analysis assumes no funding for street projects from these sources.
- Grant funding for local pedestrian and bicycle improvements is generally more available than for local street projects. Federal and State law require funds to be set aside for pedestrian and bicycle improvements, and there are programs that allocate these funds to local projects. These programs include the Federal Transportation Enhancement Program and the Oregon Bicycle and Pedestrian Program; the latter provides up to \$100,000 for projects selected for funding by the Oregon Bicycle and Pedestrian Advisory Committee. The City could maximize the level of funding from this program by dividing its bike projects into components to keep the cost under the \$100,000 maximum grant. Federal and State grants for bicycle and pedestrian projects on local streets generally require a local 20% match. This analysis assumes the Bike Projects in Table 18 will be 80% funded by Federal and State grants, with the City contributing a local match of \$33,600.

The total cost of remaining construction projects in Table 18 is \$8.7 million—these projects will be funded by a mix of funds from development, a County contribution, a transportation SDC, and other sources the City may implement. In addition to these costs, the City faces a funding shortfall of \$50,000 per year for the recommended overlay maintenance program, and will need \$33,600 for its match of Federal or State grants for Bicycle Projects. The following section discusses potential funding sources for these costs.

**Potential Funding Sources for Remaining Costs**

Since the City intends to implement a transportation SDC, this section will begin with a rough estimate of the level of funding this SDC could generate. The population forecast for the City of Sweet Home indicates that population is expected to increase by 1,959 persons by 2017. If new households in Sweet Home have an average size of 2.5 persons, this population growth translates to household growth of about 780 units. Transportation SDC rates are typically applied per housing unit, with different rates for single-family and multi-family units. Since this is a rough estimate of SDC revenue and given the small number of new households expected in Sweet Home, this analysis will simply assume one average SDC rate per unit.

While SDC rates must be based on a methodology that ties the rate to the cost of needed infrastructure, in practice the rates are limited by their political acceptability in the community. Based on information from the Home Builders Association of Lane County, transportation SDC rates for single-family residences in Oregon communities range from \$270 in Ashland to \$2,100 in Wilsonville. Table 19 below estimates the total revenue generated by a range of SDC rates, given expected household growth in Sweet Home and the assumptions described above. Since the totals in Table 19 are in constant dollars accumulated over a 20-year period, the estimate assumes that future SDC rates will increase to match future inflation.

**Table 19**  
**Total Revenue Generated by a Transportation SDC**  
**on Residential Development in Sweet Home**  
**(1997 dollars)**

Average SDC Rate/Unit	Total Revenue
\$250	\$195,000
\$500	\$390,000
\$750	\$585,000
\$1,000	\$780,000
\$1,500	\$1,170,000
\$2,000	\$1,560,000

Source: ECONorthwest, based on assumptions in text.

The total cost for projects that are expected to be funded by SDC revenue in Table 18 is \$5.5 million. The estimates in Table 19 suggest that SDC revenue could contribute about 5–30% of this cost. The estimates in Table 19, however, are only for residential development. Most cities that have a transportation SDC also charge commercial development as well. Transportation SDCs for a dinner-only restaurant, for example, range from about \$5,700 in Ashland to \$96,000 in Wilsonville. The small amount of expected population growth, however, suggests that new commercial development in Sweet Home will not be substantial, and so the impact on total SDC revenue over twenty years will be slight.

For the Green River Road project, this analysis assumes that development will be required to contribute costs not funded by the SDC. Remaining street projects for which the City is expected to contribute funds have a total cost of \$6.6 million, which is an average of about \$330,000 per year over the twenty-year perspective of this Plan. The actual amount the City will need to contribute will depend on the amount contributed by SDC revenue, Linn County, and new development. In addition, the City needs about \$50,000 per year to fund the recommended overlay maintenance program, and a total of \$33,600 for its local match of grants for Bicycle Projects.

The question of “who pays” is a critical consideration for identifying sources of additional funding for projects in Sweet Home. There is a substantial professional literature in public finance, public administration, and economics about principles for determining who should pay; about what’s fair. In summary the basic principles reduce to:

*People should pay based on either the costs they impose or the benefits they receive, unless they belong to some group that deserves special treatment.*

Though most analysts accept some version of the basic principle as stated previously, they also recognize that it is usually in the interest of a local jurisdiction to act on a more political and pragmatic principle: charge as much as you can to people who don’t live in the area and don’t vote in local elections. In the case of local jurisdictions, a gasoline tax will cost local residents less (in the aggregate) because non-local users would also pay. A property tax levy to fund transportation could spread some of the cost to non-resident land owners, but this cost may come back to Sweet Home in the form of higher rents. Another funding source that is tied to use is a Street Utility Fee, where local households and businesses are assessed a fee to fund street maintenance. A Street Utility Fee, however, would charge local residents and businesses only.

A local option gas tax in Sweet Home would require voter approval. In Oregon, each penny of the statewide gas tax generated \$4.77 per person. Assuming a gas tax in Sweet Home would generate a similar amount of revenue, each penny of gas tax would yield about \$35,500 per year. A gas tax of about \$0.032 per gallon would generate about \$115,000 per year, enough to make a significant contribution but not fully fund the City’s recommended overlay maintenance program.

Measure 50, which now governs property tax assessment in Oregon, allows voters to approve temporary property tax levies outside of the Measure’s rate limits. These levies must be approved in a general election or an election with at least 50% turnout of registered voters. Operating levies are limited to five years, and levies for capital improvements are limited to ten years. Total property taxes are still limited to the Measure 5 limit of \$10 per \$1,000 of real market value. Property taxes for bonded debt, however, are still exempt from Measure 5 and 50 limits.

While Measure 50 changes the method of property tax assessment in Oregon, it is easier to understand the impact of a tax levy in pre-Measure 50 terms. Given total assessed value in Sweet Home for the 1996-97 tax year (\$248,228,000), Table 20 shows the annual amount of revenue that could be generated by a range of tax rates.

**Table 20**  
**Annual Revenue From a Range**  
**of Property Tax Levy Rates**

Levy Rate per \$1000 Assessed Value	Annual Revenue
\$0.25	\$62,057
\$0.50	\$124,114
\$1.00	\$248,228
\$1.50	\$372,342

Source: ECONorthwest, based on assumptions in the text.

Table 20 shows that a property tax levy of \$0.25 per \$1,000 assessed value (in pre-Measure 50 terms) would generate enough revenue to fund the City's maintenance shortfall of \$50,000 per year. Other maintenance costs and general public works administration costs will continue to rise, and there is a need to account for these increases in the City's general fund. Washington County is an example of a jurisdiction that has successfully sought voter approval of a property tax levy to fund transportation improvements. In general, voter approval is more likely if a property tax levy is tied to a specific set of projects for which voters perceive there is a real need.

Several jurisdictions in Oregon, including Medford and Ashland, have implemented Street Utility Fees to fund transportation maintenance. A Street Utility Fee is similar in concept to other utility fees for sewer and water—the fee is usually tied to the number of trips typically generated by a given development type. In Medford, single-family residences pay \$2 per month, assessed on their utility bill, and fees assessed to all households and businesses generate about \$1 million per year. A similar Street Utility Fee in Sweet Home would generate about \$140,000 per year, enough to fully fund the City's shortfall for the overlay maintenance and reconstruction programs recommended in this Plan. Such a fee would likely be adopted as a user fee through Council resolution.

There are many combinations of funding sources that could be used to fund the projects in this Plan. To sort out the possibilities, this analysis ends with two simplifying assumptions:

First, the City will use a local option gas tax or Street Utility Fee to fund the maintenance shortfall of \$50,000 per year.

Second, the City will adopt a modest transportation SDC that averages \$750 per unit—this SDC would generate about \$390,000 over 20 years. This would allow SDC revenue to contribute 7% of the cost of the two projects for which SDCs are identified as a funding source in Table 18. For the Green River Road project, development would be required to contribute the remaining \$2 million.

These assumptions leave remaining costs of \$6.1 million. If development funds 50% of the Juniper St. project and Linn County funds 50% of the 18th St. project (Dead End to Yucca St.), the City must fund the remaining costs \$2.9 million, or an average of about \$140,000 over the twenty-year perspective of this plan. This level of funding could be generated by a \$0.04/gallon gas tax or a \$2/month Street Utility Fee (which ever is not being used to fund the overlay maintenance program), or a ten-year property tax levy of about \$1.25 per \$1,000 assessed value. Of course, larger contributions by SDC revenue, Linn County, or development would reduce the funded needed from other sources of revenue.

# CHAPTER 10: TPR COMPLIANCE SUMMARY

## DEVELOPMENT OF A TRANSPORTATION SYSTEM PLAN

Outlined below is a list of recommendations and requirements for a TSP for an urban area with a population between 2,500 and 25,000, and how each of those are addressed in the Sweet Home TSP.

### TPR Recommendations/Requirements

### City of Sweet Home TSP Compliance

#### *Public and Interagency Involvement*

- Establish advisory committees.

A project Technical Advisory Committee (TAC) was established at the outset of the project. Memberships includes representatives of ODOT, the City, Linn County and DLCD. A Citizens Advisory Committee (CAC) was also established, which includes members of the business community, planning commission, and other residents.

- Develop informational material.

A site on the world wide web has been developed, and informational mailers have been distributes to city residents.

- Schedule informational meetings, review meetings and public hearings throughout the planning process. Involve the community.

Three public open houses were held throughout the planning process. The City of Sweet Home provided publication and advanced notice, logistical support, and workshop coordination.

- Coordinate Plan with other agencies.

Coordination with local government agencies was accomplished through the TAC. The City of Sweet Home will also hold separate City Council/Planning Commission study sessions before adoption.



## SWEET HOME TSP - ASSUMPTIONS

- No costs included for wetland mitigation.
- No costs included for removal of structures or obstructions.
- No costs included for right-of-way mitigation.
- Used 7% Mobilization, 5% TP&DT, and 40% Engineering and Contingencies.
- Costs include new curbs, sidewalks, driveways, and storm drainage.
- New roadways are 32' wide with 5" asphalt concrete pavement over 10" aggregate base.