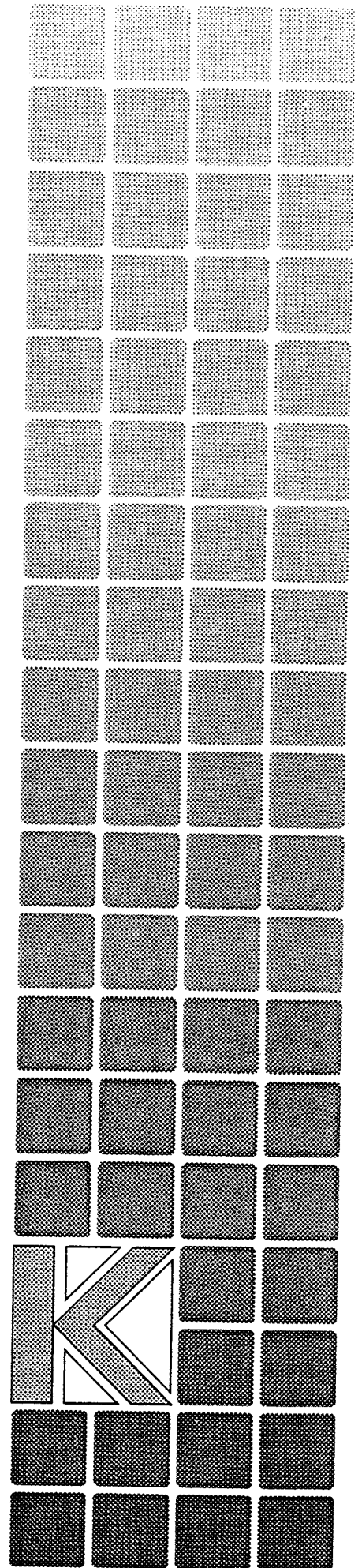


Klamath Falls Urban Area Transportation Systems Plan

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Transportation Planning/Traffic Engineering

W&H PACIFIC



Klamath Falls Urban Area Transportation Systems Plan

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The Klamath Falls Urban Area Transportation System Plan Advisory Committee members (TPAC) devoted a substantial amount of voluntary time and effort to the Klamath Falls Urban Area Transportation System Plan, and their participation was instrumental in the development of the recommendations that are presented in this report. Project team members (including both the consultants and management team) would like to take this opportunity to express their appreciation for the TPAC members' commitment of time, their perceptive questions, their fastidious representation of their constituents, and their valuable suggestions. We believe that the City of Klamath Falls, Klamath County, and the Oregon Department of Transportation's future transportation system will be better because of this commitment, and would like to take this opportunity to recognize individually each member of the TPAC:

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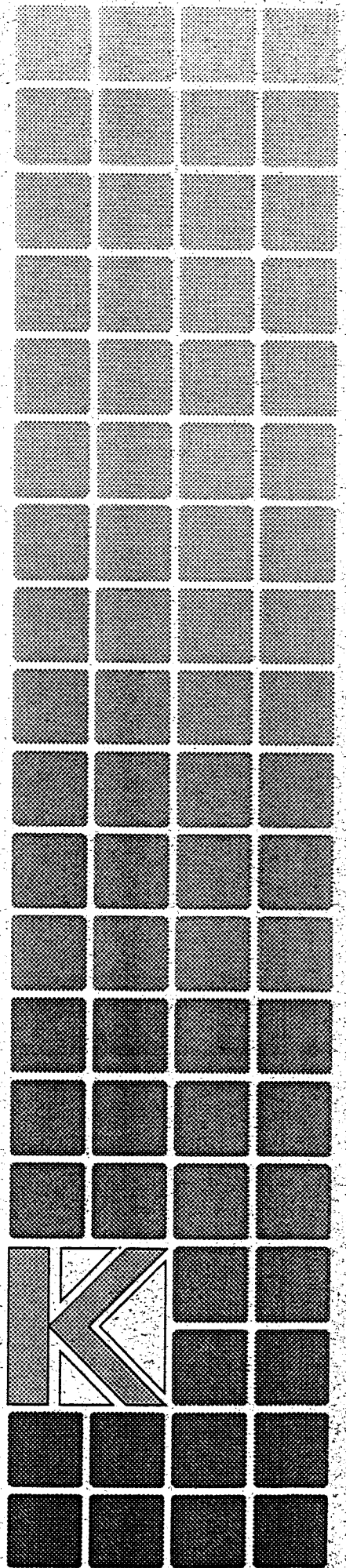
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Chapter 1

Executive Summary

EXECUTIVE SUMMARY

Over the past three years the Oregon Department of Transportation (ODOT), Klamath County, Basin Transit and the City of Klamath Falls have undertaken a study of the Klamath Falls urban area, culminating in the Klamath Falls Urban Area Transportation System Plan (TSP). The TSP is a *multimodal* plan that includes strategies to manage growth and the community's transportation needs during the next twenty years. The Klamath Falls Urban Area TSP is also an *intermodal* plan - identifying important linkages between various passenger transport services (bus, rail and air) and major shippers (truck, rail and air) in the region. This plan includes a comprehensive analysis of Klamath Falls urban area transportation system and has been prepared in accordance with the Oregon Revised Statute 197.712, OAR 660 Division 12 and the Transportation Planning Rule (TPR).

A Management Team, comprised of representatives from the participating jurisdictions, including Klamath County, the City of Klamath Falls, ODOT, and Basin Transit, served as technical oversight and provided day-to-day direction to the consultant. The Management Team also provided technical assistance to the Transportation Plan Advisory Committee (TPAC).

The TPAC, because of their diverse representation of several special interest groups, brought differing perspectives and concerns to the project and served as one of the key conduits for disseminating the information to and soliciting ideas from the public. One of the key functions of the TPAC was to ensure that the development and evaluation of alternatives matched the character, vision, resources, and needs of the community. To accomplish this, a set of goals and objectives were identified to guide the course of the study, as shown below.

In accordance with the goals of the study, the TSP addresses the provision of a safe, affordable, and accessible transportation system for all users. As such, the plan includes an assessment of the existing transportation system, an evaluation of the impacts of growth on the transportation system, an identification of possible alternative improvement strategies and selection of a preferred alternative, an identification of short-term and long-term improvement projects that are included in the preferred alternative, a transportation financing plan, transportation and land use policy recommendations that can assist both the County and City in implementing the TSP, and a description of the plan's compliance with the TPR. The next step in the land use/transportation planning process includes local adoption of the TSP as part of the County and City Comprehensive Plans with due consideration of land use impacts.

The future growth potential for the Klamath Falls urban area was identified through discussions with the Management Team and is based on the Klamath County and City of Klamath Falls Comprehensive Plans. Future transportation system needs for all users were identified based on a 20-year target population of 47,500 and an employment base of 17,630 jobs. To address those needs, 5 general strategies were evaluated:

- building new roadways, sidewalks and bicycle lanes/paths;
- transportation system management (TSM) which maximizes the efficiency of the existing system through better traffic control (e.g. traffic signals, median turn barriers and land use);
- transportation demand management (TDM) by increased use of transportation alternatives;
- transportation-efficient land use plans and policies resulting in reduced vehicle travel or shorter vehicle trips; and,
- a combination of street, sidewalk and bicycle improvements, TSM, TDM and enhanced land use, policies and increased reliance on alternative travel modes.

Based on these general strategies, five primary alternatives were formulated and evaluated: the “Do-Nothing” (no-build); Stay-The-Course (build); TSM, TDM, and the Transportation-Efficient Land Use Alternative. Additional options were also evaluated to address specific circulation needs in the Campus Drive/OIT and South Sixth Street corridor. Based on the alternatives analysis and discussions with the Management Team and Advisory Committee, a preferred alternative was selected and a corresponding financial analysis was prepared. The preferred alternative includes a mixture of transportation-efficient land use strategies, enhancement of the existing pedestrian and bicycle system, expansion of Basin Transit Service (BTS) bus service, coordination of rail, air and highway passenger and cargo transportation, and improvements to the existing street system. A summary of the individual elements of the preferred alternative is provided below.

Within the urban growth area, an intricate network of bicycle and pedestrian facilities, intracity public transportation services for the transportation disadvantaged, intercity bus service, freight and passenger rail and air service, and bridges and roadways provide mobility to the residents of the Klamath Falls urban area. The historic development of these facilities and services has been shaped by the topography, the construction of Highway 97 and the railroads, and the values and vision of the residents of the city and county.

During the last twenty years, the County and City have placed continued emphasis on the provision of bicycle and pedestrian facilities throughout the urban area. Several segments of exclusive pedestrian/bicycle paths have been completed along the “A” Canal and old OC&E Railroad right-of-way. Although few roadways throughout the urban area have on-street bicycle lanes, the County and City have been implementing recommendations from the Klamath County Bicycle Master Plan to provide on-street bicycle lanes and routes throughout the urban area. Over 27 miles of new bicycle paths and bike lanes will be added to the Klamath Falls urban area as identified in the TSP.

Sidewalks are provided on many of the collector and arterials streets, but there remains significant gaps in overall connectivity that link pedestrian generators. The Klamath Falls Urban Area TSP provides both the policy and project framework to assist the County and City to require the installation, improvement, or replacement of sidewalks, as needed when land development or redevelopment occurs. Over 25 miles of new sidewalks along arterial and collector streets are identified in the TSP.

Basin Transit recently completed their Transit Development Plan (TDP) which identified both short- and long-range service and operations enhancements and expansion. In support of and coordination with the Basin Transit TDP, the Klamath Falls Urban Area TSP recommends adding new buses to the BTS system within the next 10 years, effectively adding route coverage (especially in the OIT area) and increasing service frequency from 60 to 30 minutes throughout the urban service area.

In recognition of the increasing usage and importance of air and rail travel in the future, the continued use and coordination of the existing freight and passenger rail and air services is recommended. The frequency of rail freight activity through Klamath Falls is expected to increase in the next several years.

To safely and efficiently accommodate future vehicular travel in the Klamath Falls urban area, a series of improvements to the existing street system were identified. A priority of this plan was to utilize and enhance the existing facilities, promote the development of the transportation-efficient land use strategies, and attain a balance among all travel modes. Yet a number of roadway safety, capacity and upgrade project needs have been identified. These projects include new streets, widening of existing streets and new traffic signals, as well as a series of additional sidewalks and bicycle route improvements.

For an example, to improve safety conditions on the Southside Expressway (Hwy 140) at Tingley Lane, the plan has identified the need for a new underpass to reduce the number of accidents at the intersection. In addition to the Washburn Way interchange improvements already underway, future interchanges are also identified on Southside Expressway at Homedale Road and Highway 39. The Homedale Road interchange is planned for better access and circulation to the Klamath Falls Airport area.

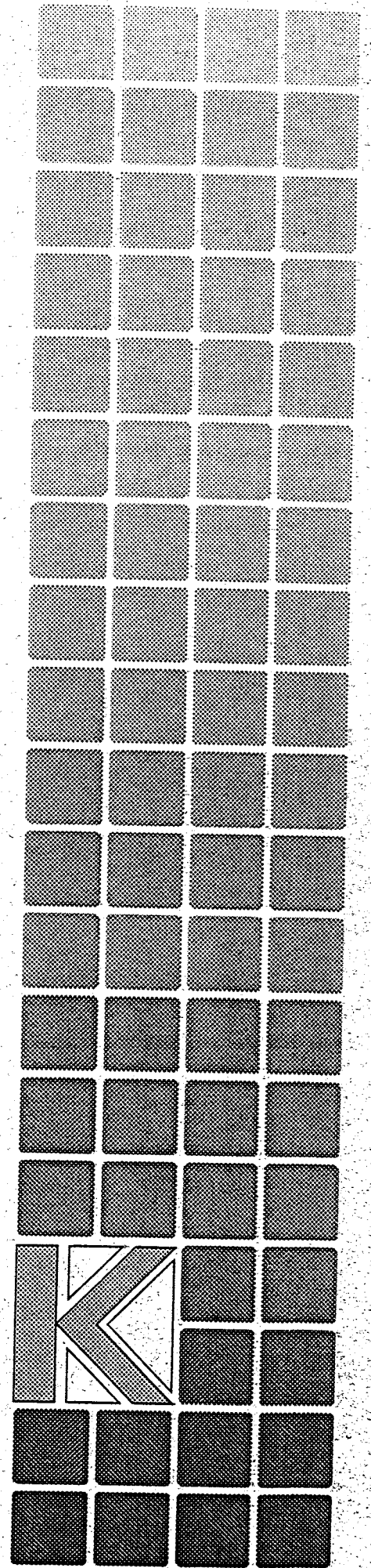
Other roadway and intersection capacity improvements have been identified throughout the urban area. Designs are currently being drawn to widen Campus Drive and install new traffic signal equipment at Dahlia Street and the Alameda Bypass (also known as the Eastside Expressway and/or Kit Carson Way). These improvements are intended to relieve growing congestion in the OIT/Merle West area. Intersection improvements are also being considered at Highway 97/Dan O'Brien Way.

South Sixth Street is slated for roadway, bicycle lane and sidewalk renovation as part of the TSP. This project will also include beautification enhancements and modernization of the traffic signal system to improve traffic flow.

The \$73 million price tag for needed transportation improvements will be spread across a 20-year planning period. The TSP has determined that current transportation funding levels and resources are not adequate to meet the needs of the community. There are a number of funding resources that can be utilized including the state and local gasoline taxes, road user fees, traffic impact fees, revenue bonds and local improvement districts. The challenge ahead will be to match and combine Federal, State and local revenue programs to pay for needed improvements.

The Klamath Falls area will experience substantial growth over the next twenty years. The increasingly complex interaction of transportation and land use, and the need to find new and creative ways to fund public projects, will provide a challenge for policy makers as they make public infrastructure investment decisions. This TSP is intended to guide transportation investment discussions in a coordinated and comprehensive manner and to provide local decision-makers the standards by which the future transportation system will be improved to meet the community's vision.

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Chapter 2

Introduction

INTRODUCTION

Like many other communities in Oregon, Klamath Falls' most significant fortunes have been tied to the intricate relationship between commerce, land use and its transportation system. In earlier years, growth in the Klamath Falls area was related to the presence of the railroad and timber industry, and the designation of Klamath Falls as the county seat. Klamath Falls remains the major north-south rail transfer point in southern Oregon, including passenger service via AMTRAK. Since the 1950's/1960's, Highway 97 has become an increasingly important intrastate and interstate route for commerce and recreational travel. The attractiveness of Klamath Falls as a commercial center for Klamath County and areas to the east was enhanced by both highway and rail connection systems. Today, the economic base of the area is beginning to diversify. While Klamath Falls remains the commercial center for Klamath County, it serves a greater market area population in excess of 60,000. Nonetheless, much of the County population is centered in the Klamath Falls urban growth boundary (UGB) area.

There are two significant visions of growth in the Klamath Falls area: 1) a conservative estimate of long-term growth that reflects the experience of recent economic conditions; and, 2) a more robust estimate of long-term growth (some of which is reflected by the goals of Vision 2002) with substantial growth associated with the Klamath Falls airport and intermodal freight shipment through the area (by truck, rail and air). Much of the residential growth is expected to occur in the south and southeast portion of Klamath Falls, and industrial growth is expected near the Klamath Falls airport. As a result of this development, some of the existing streets and highways may be insufficient to accommodate future travel demand, thereby requiring transportation system improvements. The TSP also addresses the policy and technical issues and implications of how these needed improvements are paid for.

For a variety of reasons, this is an ideal time to develop the Klamath Falls Urban Area Transportation Systems Plan (TSP). At the statewide level, Oregon's adoption of the Transportation Planning Rule (TPR), together with other related statewide and national policies, dictates that public agencies like the City of Klamath Falls and Klamath County each develop a Transportation Systems Plan which recognizes and helps implement the statewide commitment to a balanced and effective multi-modal transportation/land use system. The TPR requires public jurisdictions such as the City of Klamath Falls and Klamath County 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 transportation systems plan.

In addition, the TPR requires the City and County 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 that local communities coordinate their plans with county and state transportation plans. Both the City of Klamath Falls and Klamath County must adopt the TSP as part of their respective Comprehensive Plans.

Beyond the external requirements of the Transportation Planning Rule and related statewide and federal policies, the following local conditions also point to the need for a system-wide study of the transportation facilities and services:

- During peak periods, congested conditions develop on arterials like Highway 97, Highway 140 and South Sixth Street.
- With respect to business development, the Klamath Falls area is served by both air and rail passenger service, but the community has a difficult time overcoming its perceived isolation from the rest of the state.
- The community's early fortunes were tied to the presence of the railroad (and later to logging and lumber). The railroad can again be part of the area's freight movement system and can become a critical component of the overall transportation system.
- There are many existing and new local residents for whom public transportation is becoming a more attractive option.

In order to meet the requirements of the TPR and related state and federal policies and to address the local transportation and land use issues, the Klamath Falls Urban Area TSP was initiated in November, 1994. One of the critical steps at the inception of the TSP was the formulation of two local committees to guide the course of the study. The Management Team included representatives from Klamath County, the City of Klamath Falls, ODOT, and Basin Transit. The Management Team was responsible for serving as the technical liaison and providing day-to-day direction to the consultant and for providing technical assistance to the Transportation Plan Advisory Committee (TPAC).

The TPAC, because of their diverse representation of several special interest groups, brought differing perspectives and concerns to the project and served as one of the key conduits for disseminating the information to and soliciting ideas from the public. One of the key functions of the Advisory Committee was to ensure that the development and evaluation of alternatives matched the character, vision, resources, and needs of the community. To accomplish this, a set of goals and objectives were identified to guide the course of the study, as shown below.

Klamath Falls Urban Area Transportation Systems Plan Goals

The Klamath Falls Urban Area TSP goals are based on policies identified in the Klamath County and City of Klamath Falls Comprehensive Plans and the Oregon Transportation Plan.

Goals:

- Ensure a safe and efficient transportation system allowing access into and through the community for all users including the transportation disadvantaged
- Improve personal mobility and access to transportation services by expanding the variety and availability of travel modes throughout the region (i.e., transit, bicycles, walking, air travel, rail and pipeline).
- Improve the movement of goods and delivery of services throughout the region using a variety of travel modes.
- Improve area-wide quality of life by (1) increasing the compatibility of regional transportation system development with existing and future land use patterns and (2) minimizing the impacts of transportation system development on the natural and built environment.
- Ensure adequate capacity for future travel demand on collector and arterial streets and on the local highways to enable economic development in the community
- Improve local circulation system to reduce the community's reliance on Highways 97, 140, 39 & 50.
- Ensure the integration of adequate bike and pedestrian pathways through the community, particularly to connect residential areas with schools and activity centers.
- Ensure sustained funding for needed transportation improvement projects
- Develop recommendations for improving the overall safety and efficiency of transportation system operations by (1) managing access to and development along state highway facilities; (2) promoting transportation demand management strategies (i.e., car pooling, flexible work hours, telecommuting, etc.) and; (3) drafting ordinances to ensure safe and convenient connections between travel modes and to ensure complimentary coordination between land use and transportation.
- Develop recommendations for ensuring that the Klamath Falls Urban Area TSP will be consistent with the goals, policies, and action strategies of the Oregon Transportation Plan, with Statewide Planning Goals, Oregon Benchmarks, the Intermodal Surface Transportation Efficiency Act (ISTEA), the Clean Air Act Amendments (CAAA), and the Americans with Disabilities Act (ADA).
- Ensure coordination and support of Basin Transit Development Plan and South Sixth Enhancement Project

Objectives:

- Ensure a plan that maximizes the location of intermodal transportation system components (rail, air, highway) and supportive land uses
- Ensure a plan to improve safety on the Southside Expressway and Washburn Way
- Develop a strategy to ensure a more attractive, safer and more convenient access to the airport
- Ensure consistency in the City and County road standards
- Improve east-west arterial/collector connections in Altamont and to the north of Shasta Way to reduce reliance on South Sixth Street and the Southside Expressway
- Develop an effective street maintenance program for city and county facilities
- Ensure long-range funding for Basin Transit Service operations (sustain current service level at a minimum).

Throughout the TSP process, four mechanisms were used to solicit input and provide information to the public, including open houses, newsletters, scoping interviews, and workshops. In addition, regular meetings were held with the Management Team and TPAC to maximize the potential for consensus.

This document summarizes the results of the public involvement process, analysis of existing conditions and the impact of future growth on the transportation system, and the identification of alternatives that can address local transportation system needs in the Klamath Falls UGB area.

As outlined in **Chapter 3**, the development of the Klamath Falls Urban Area Transportation Systems Plan began with an assessment of the existing land use and transportation system, and a review of the relevant city, county, state, and federal plans and policies. Transportation issues and community concerns were identified through a series of stakeholder interviews and by the Management Team and TPAC. In addition, an inventory was conducted to develop an understanding of the physical, operational, safety, and travel characteristics of the existing transportation system in the Klamath Falls urban area.

The study continued with the determination and evaluation of the impacts of local and regional growth on the transportation system, as summarized in **Chapter 4 and 5**. The evaluation of a "No Build" Alternative revealed several deficiencies suggesting that the needs of all users of the system would not be met. Based on the identification of system deficiencies, several alternatives were formulated, considered, and tested that mitigate the identified deficiencies and strengthen and enhance the multimodal transportation system. As discussed in **Chapter 6**, alternatives were presented to both committees for review, decision, and direction. The impact of each alternative on the participating jurisdictions' relevant plans and policies were examined for potential conflicts to implementation. A Preferred Alternative was selected that includes a combination of the land

use and transportation options that were considered and that meet the goals of the study.

Chapter 7 discusses the development of a recommended set of design standards that will guide the direction of new facility construction (pedestrian, bicycle, and auto) in the Klamath Falls urban area. These standards were developed in combination with the evaluation of alternatives and were used in the development of the implementation plan for the Preferred Alternative. The evaluation of the alternatives concluded with the identification of available funding sources to pay for future transportation system improvements. The cost analysis of the projects and the financing plan for the Preferred Alternative is summarized in **Chapter 8**.

Chapter 9 summarizes the findings and recommendations of the study in the presentation of the individual elements of the Klamath Falls Transportation Systems Plan, including a bicycle and pedestrian plan, a public transportation plan, rail, air, water, and pipeline plans, and a street system plan. This section also summarizes the development of an implementation plan that will aid the city in determining the timing and funding of the improvements.

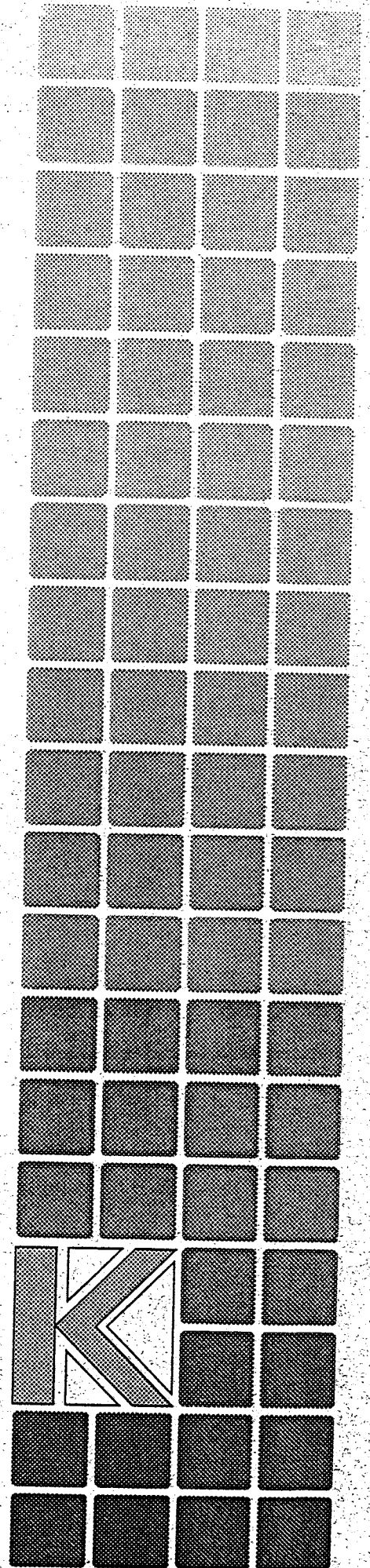
Chapter 10 includes a series of land use and transportation policy recommendations that can be adopted by the jurisdictions to aid in the implementation of the Transportation Systems Plan. A section outlining the requirements of the Transportation Planning Rule (OAR 660 Division 12) and how the city, through the Transportation Systems Plan, has addressed those requirements is provided in **Chapter 11**.

The document concludes with a series of technical appendices that serve as supplemental supporting information to the analysis and findings included in **Chapters 1 - 11**.

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Chapter 3

Existing Conditions



EXISTING CONDITIONS

Today's transportation system offers a wide range of modes for travel in and throughout the Klamath Falls urban study area, although portions of it are increasingly performing at higher levels of congestion and poorer safety conditions. This chapter summarizes the existing transportation system conditions within the study area. Key elements of this chapter include:

- Existing traffic control measures and physical characteristics of arterial and collector streets.
- Pedestrian and bicycle system components,
- Public transportation,
- Passenger and freight rail service,
- Passenger and freight air service,
- Water transportation,
- Pipeline transportation,
- Current traffic operations (level-of-service), and
- Current safety characteristics of roadway facilities within the study area.

TRANSPORTATION FACILITIES

The Klamath Falls urban area, shown in Figure 3-1 is located at the southern tip of Upper Klamath Lake in southern Oregon, approximately 18 miles north of the Oregon-California border. Three state highway facilities provide the primary access to the study area.

Roadway Facilities

Highways and streets serve as the primary means of mobility within the study area. Figure 3-1 also displays the existing highway, arterial and collector street system within the Klamath Falls urban growth area.

US Highway 97 and Oregon State Highways 39 and 140 provide the most direct access to the area. Highway 97, also known as The Dalles-California Highway runs north-south, with Bend to the north and Weed in California to the south where 97 intersects with I-5. Highway 39 enters from Merrill in the south and ends in the City. Highway 140 generally runs east-west, servicing Grants Pass and Medford to the west and Lakeview to the east before the highway leads into Nevada. Once Highways 39 and 97 enter the Urban Growth Boundary (UGB) they split and new names are assigned to the roads. As Highway 97 enters the City from the north, it splits and becomes The Dalles Highway and Alameda Bypass. Highway 97 runs along the west side of town. The Alameda Bypass intersects with Highway 39 at South Sixth Street.

In addition to the state-maintained facilities, several arterial and collector streets within the study area also serve as key access routes for automobile, pedestrian and bicycle traffic. These facilities are maintained by the City of Klamath Falls or Klamath County depending on whether they are located within City limits, or in the County's jurisdiction. Table 3-1 below displays the functional classification, jurisdictional responsibility and physical characteristics of the arterial and collector streets in the urban area.

Existing Traffic Control

The existing signalized intersections are shown in Figure 3-2 by maintenance jurisdiction. The City of Klamath Falls maintains 14 signals in the system. They are located on the downtown couplet (Main Street and Klamath Avenue) at 5th, 6th, 7th, 8th and 9th Streets, on Main Street at 11th and 12th Streets and the intersection with East Main Street, and the intersection of Washburn Way/Shasta Way. The remaining 20 signals are all maintained by the local ODOT District. These signals are located on South Sixth Street and on the Alameda Bypass. The remaining major street intersections within the study area are either controlled with stop signs or are uncontrolled.

Existing Arterial and Collector Street Pavement Conditions

A windshield survey was conducted in November 1994 on the major highways, arterials and collector streets in the study area to get a general sense of the pavement conditions.

Figure 3-3 shows the pavement condition summary of the arterial and collector streets in the Klamath Falls urban area. Each street is classified as "good", "fair" or "poor" as determined from the survey. Pavement condition categories for asphalt concrete pavements used in this survey are based on the State's classification system and are described below:

Good: Stable pavement, at most minor cracking and patching, rutting less than 0.5 inches. Very good or excellent riding qualities. These roads should be monitored over time to determine when maintenance may be necessary.

Fair: Generally stable pavement, with minor areas of structural weakness. Noticeable cracking. Some patching, but not excessively. Rutting 0.5 to 1 inch. Good riding qualities. Will likely require preservation work (chip seal, oil mat) for low volume roads or a 2-inch asphalt concrete overlay for higher-volume roads in the medium to long-term during the transportation plan time frame (20 years).

Poor: Areas of instability, substantial cracking and patching. Rutting greater than 1 inch. Riding qualities range from acceptable to poor. Will require an asphalt concrete overlay or even complete pavement reconstruction in the short term if the pavement is badly deteriorated.

CURRENT STREET FUNCTIONAL CLASSIFICATION

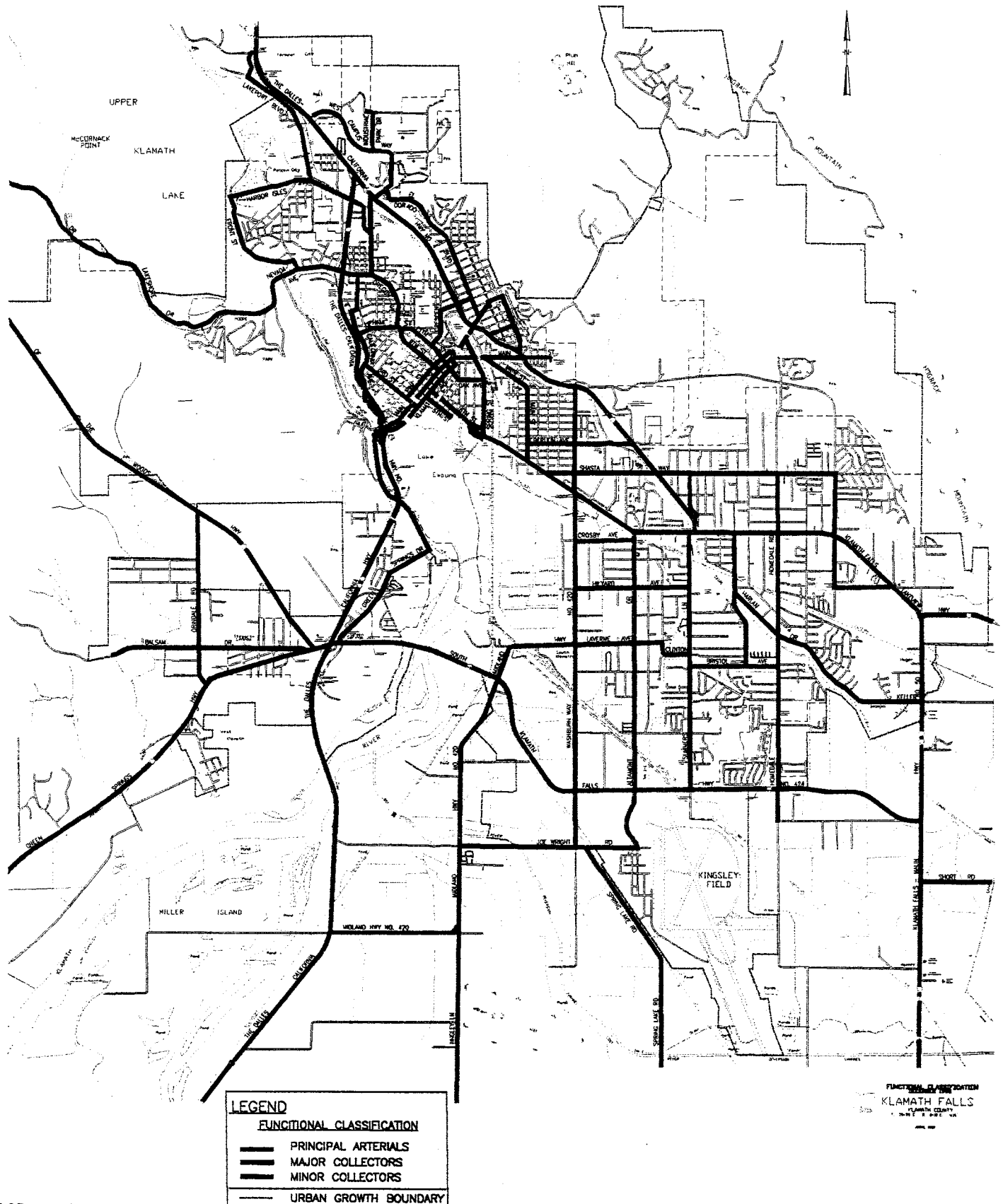


Table 3-1
Functional Classification & Physical Characteristics
City of Klamath Falls Urban Area Arterial and Collector Street System

Street Name	Functional Class	Jurisdiction	No. of Travel Lanes
3rd St.	Collector	City	2
5th St.	Arterial	City	3
6th St.	Arterial	City	3
9th St.	Collector	City	2
11th St.	Arterial	City	2
Altamont Drive	Collector	County	2
Biehn St.	Arterial	City	2
Bristol Ave.	Collector	County	2
California Ave.	Collector	City	2
Campus Drive	Collector	City	4
Clinton Ave.	Collector	County	2
Crest	Collector	County	2
Crescent Ave.	Collector	City	2
Crosby Ave.	Collector	County	2
East Main St.	Arterial	City	2
Eberlein Ave.	Collector	City	2
Eldorado Ave.	Collector	City	2
Eldorado Blvd.	Collector	City	2
Erie St.	Collector	City	2
Harbor Isles Rd.	Collector	City	2
Harlan Dr.	Arterial/Collector	County	2
Hilyard Ave.	Collector	County	2
Homedale Rd.	Arterial/Collector	City/County	3/2
Hope St.	Collector	County	2

Table 3-1 (continued)
Functional Classification & Physical Characteristics
City of Klamath Falls Urban Area Arterial and Collector Street System

Street Name	Functional Class	Jurisdiction	No. of Travel Lanes
Industrial Park Dr.	Collector	City	2
Keller Rd.	Arterial	County	2
Lakeport Blvd.	Collector	City	2
Lakeshore Drive	Arterial	City/County	2
Laverne Ave.	Collector	County/State	2
Main St.	Arterial	City	2
Miller Island Rd.	Collector	State	2
Nevada Ave.	Arterial	City	2
Oregon Ave.	Arterial	City	2
Patterson St.	Arterial/Collector	County	2
Pine St.	Collector	City	2
Shasta Way	Arterial	City/County	2-3
Spring St.	Arterial	City	2
Summers Lane	Arterial	County	3
Tingley Lane	Collector	County/State	2
Upham St.	Collector	City	2
Washburn Way	Arterial/Collector	City/County/State	2-5
Dan O'Brien Way	Collector	City	2
Klamath Avenue	Arterial	City	2
Foothills Boulevard	Collector	County	2-3
Esplanade	Collector	City	2
Green Springs	Collector	County/State	2

EXISTING TRAFFIC CONTROL

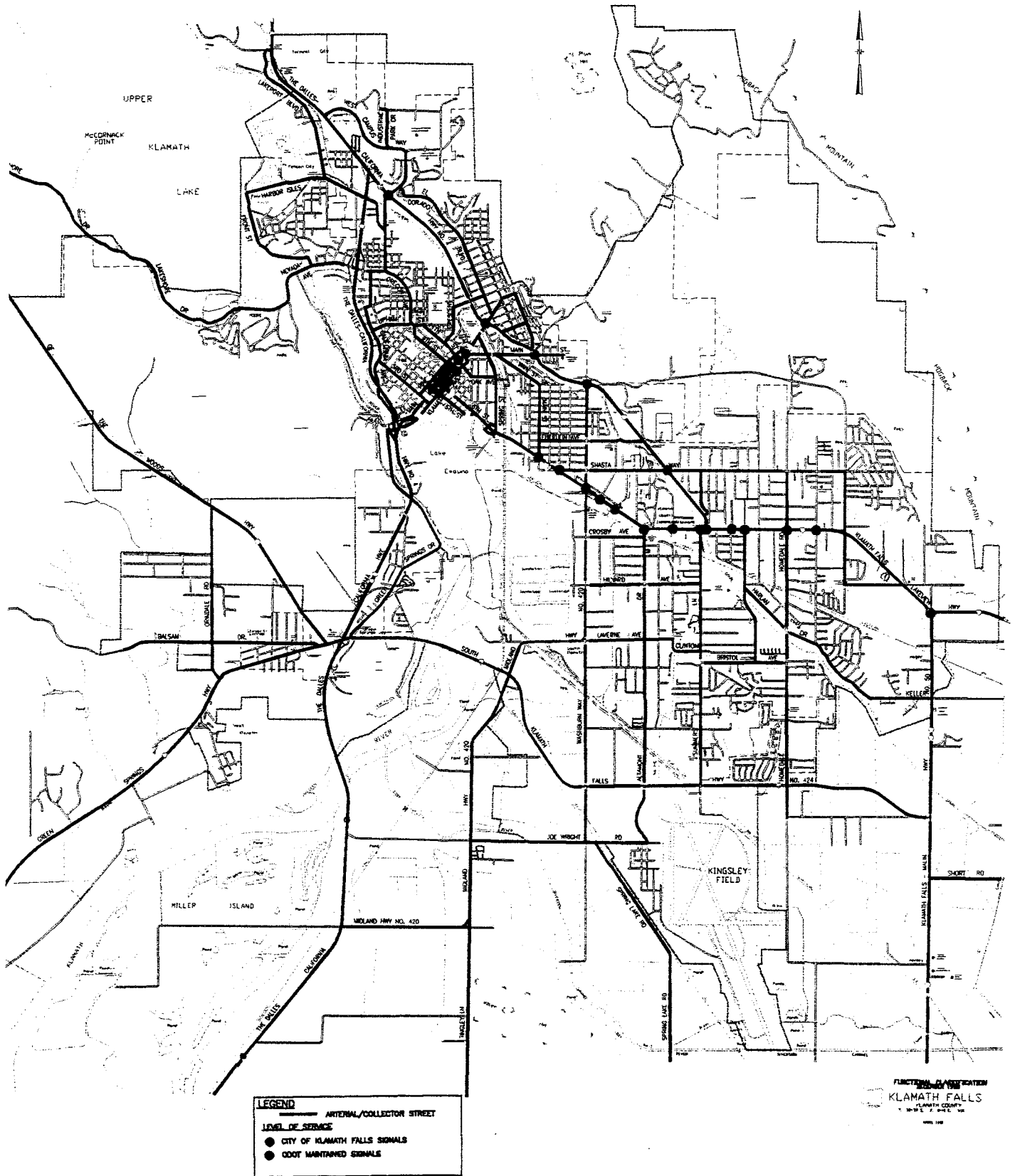


FIG3-2.DWG

As shown in Figure 3-3, the majority of the facilities in the study area are rated in "good" or "fair" condition, with approximately 10 percent rated "poor". The majority of the poor condition streets are located within the City jurisdiction area with Spring Street and 3rd Street being in the worst condition (3rd Street has since been constructed). In the County's jurisdiction, the section of Harlan Drive between Grenada Way and Monrovia Way is the largest needing attention (and was rebuilt during the preparation of the TSP), while the State's Southside Expressway between Summers Lane and the UGB to the east of Homedale requires improvement.

Pedestrian and Bicycle Facilities

Figure 3-4 shows the existing sidewalk facilities on the arterial and collector street system in Klamath Falls. The figure shows roadway segments that have sidewalks on two sides, on one side and those which have no sidewalks at all.

The majority of the City's arterial and collector streets have sidewalks on both sides, with notable exceptions being Nevada Avenue between the Link River and Siskiyou Street, Eldorado Boulevard northwest of Sloan Street, Spring Street, and Washburn Way to the north of Eberlein Avenue. In the County's jurisdiction, Washburn Way (has been installed), Altamont Drive, Hope Street, Patterson Street, Crosby Avenue, Hilyard Avenue, Laverne Avenue, Clinton Avenue, Harlan Drive and Keller Road all require sidewalk installation on both sides. There are a number of roadway segments on Eberlein Avenue, Washburn Way, Shasta Way and South Sixth Street that require sidewalk improvements to provide sidewalks on two sides of the street.

Klamath County commissioned a consultant to develop a bicycle Master Plan for the Urban area. Existing bicycle facilities are located along the abandoned OC&E (Oregon, California and Eastern) railroad right-of-way through Altamont, and along the "A" Canal in the City. This canal parallels the Alameda Bypass (on the west side) and provides a safe and pleasant route for bicyclists and pedestrians traveling in a northwest-to-southeast direction in the urban area. A full inventory of existing facilities is provided within the Bicycle Master Plan. Figure 3-5 details the existing and proposed bicycle facilities in the urban area.

Public Transportation

Basin Transit Service operates six fixed routes in the Klamath Falls basin serving the City and the surrounding suburbs. Figure 3-6 shows the BTS bus routes. Bus stops are placed every two or three blocks along each route, and departure times are listed on the bus stop signs. Specific transfer locations exist on each route to allow transfer to other routes. In addition, BTS offers a dial-a-ride service for customers that are unable to use the regular fixed route services. Further information on the existing transit service in Klamath Falls may be found in the Existing Conditions report for the Transit Development Plan (TDP) by Nelson/Nygaard Associates.

Rail

The Klamath Basin is served by the Union Pacific (formerly Southern Pacific) and Burlington Northern Railroads. The Oregon California and Eastern Railroad has abandoned its right-of-way which has reverted to the County and is used for a bicycle/pedestrian connection.

Passenger rail service in Klamath Falls is provided by the AMTRAK Coast Starlight Line twice per day. The Coast Starlight Line, operating between San Francisco and Seattle, is considered one of AMTRAK's most popular routes. The AMTRAK stations nearest Klamath Falls station are located at Chemult to the north and Dunsmuir, California to the south. Annual ridership on the Coast Starlight Line exceeds 13,000 passengers in Klamath Falls.

Klamath Falls is served directly by two Class I (revenues over \$251.4 million) line-haul freight railroads - the Burlington Northern R.R. Co. (BN) and the Southern Pacific Transportation Co. (SP)¹. Access to a third Class I carrier is relatively close with the Union Pacific R.R. (UP) at Bieber, CA. The UP also has trackage rights over the BN from Wishram, WA to Bend.

Klamath Falls lies on the SP (UP) Cascade Line between Eugene and Black Butte, CA which is their main line to California. This route carries over 25 million gross tons per mile per year with a Federal Railroad Administration (FRA) speed limit of 60 mph freight and 80 mph passenger. The SP (UP) line ends at Portland to the north where it can interchange with the BN or UP. SP (UP) also maintains service on a secondary main line (Modoc Line) that goes to Alturas, CA and from there to connect to their main line east from Roseville, CA through Ogden, UT. FRA freight speed limit is 40 mph.

The BN main line runs along the north side of the Columbia River, with two legs heading south- one ending at Eugene and the other at Bieber. The Bieber Line through Klamath Falls is on shared SP (UP) trackage from Chemult to Klamath Falls. This line carries 1 - 5 million gross tons per mile-year and is rated at 60 mph for freight from Bend to Chemult.

BN access to California is primarily by interchange with the SP (UP), at Portland, Eugene or Klamath Falls. The SP (UP), in turn, can then single line the length of California along both the Highway 101 and I-5 corridors. The BN can also interchange with the UP at Bend/Wishram or Bieber, but this transfer has two disadvantages: First, the UP line goes only as far as the San Francisco Bay area. Second, the UP principal trackage from the Northwest to California goes through Salt Lake City. Because they can single line freight to California without going through Bieber, they do not emphasize service on this segment.

¹ During the preparation of this TSP, Union Pacific RR has taken direct measures to merge Southern Pacific RR facilities and operations, including those through the Klamath Falls Area.

INVENTORY OF PAVEMENT CONDITIONS

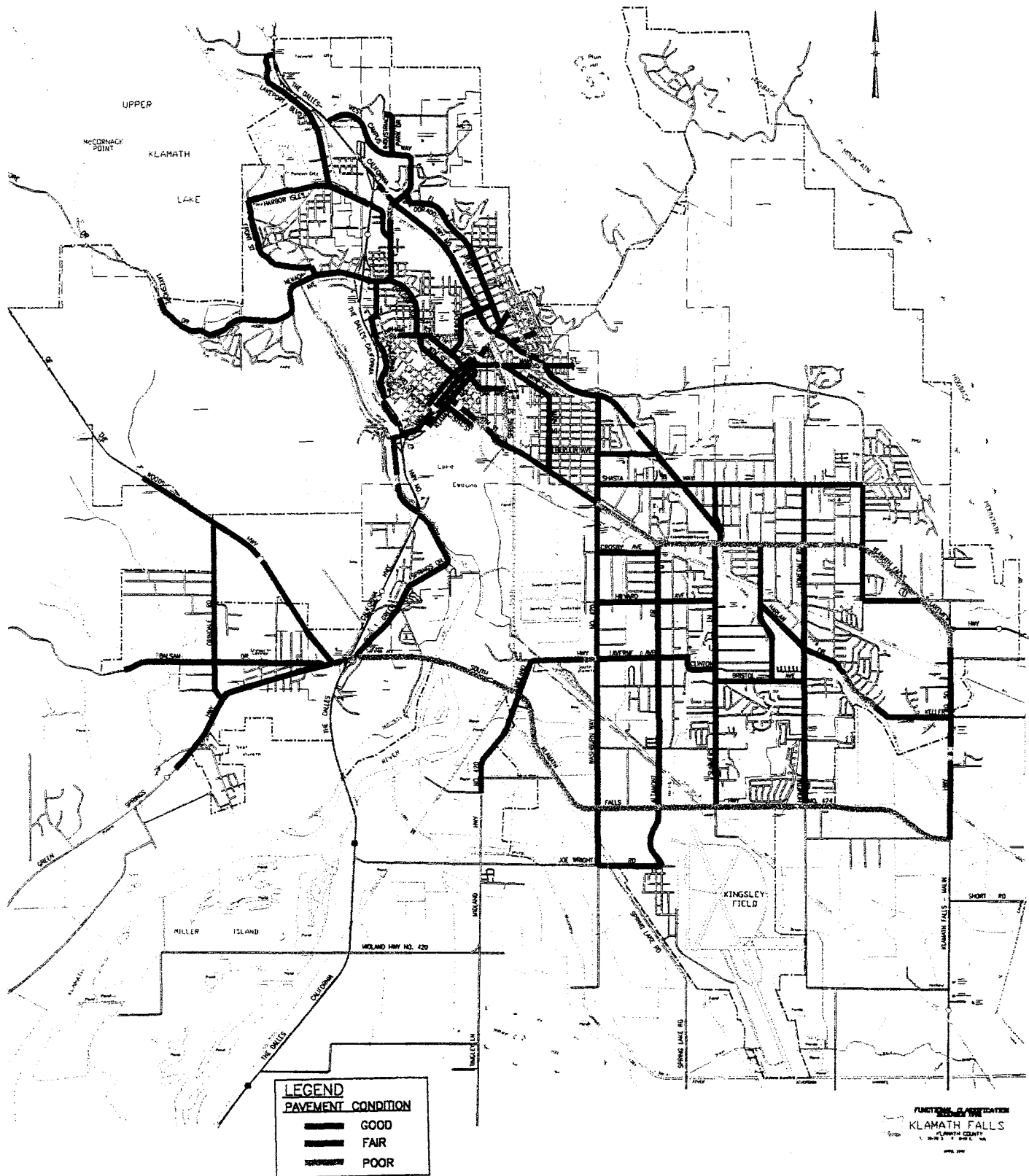
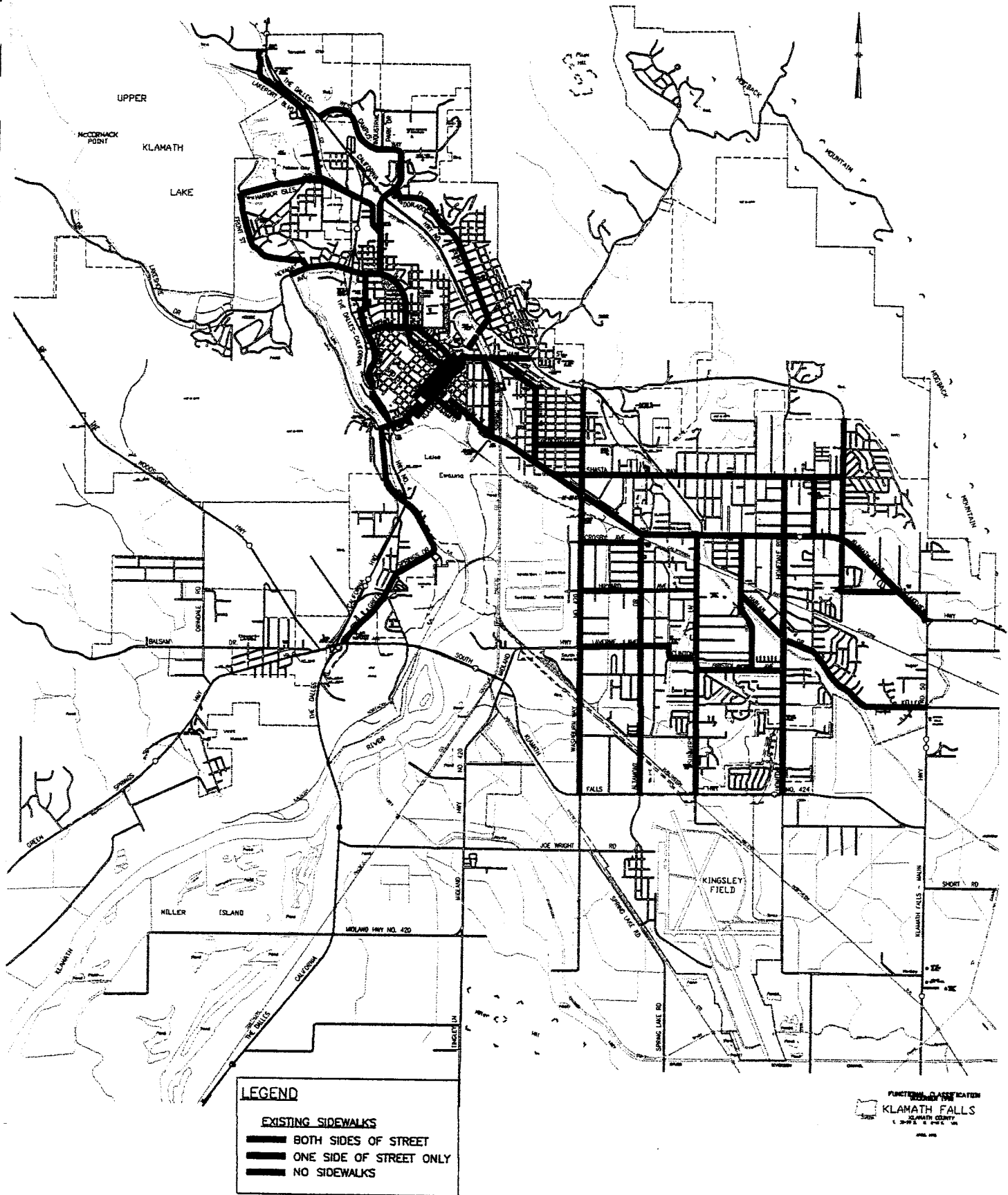


FIG3-3.DWG

EXISTING SIDEWALKS



33-4.DWG

BICYCLE PATHS/ROUTES

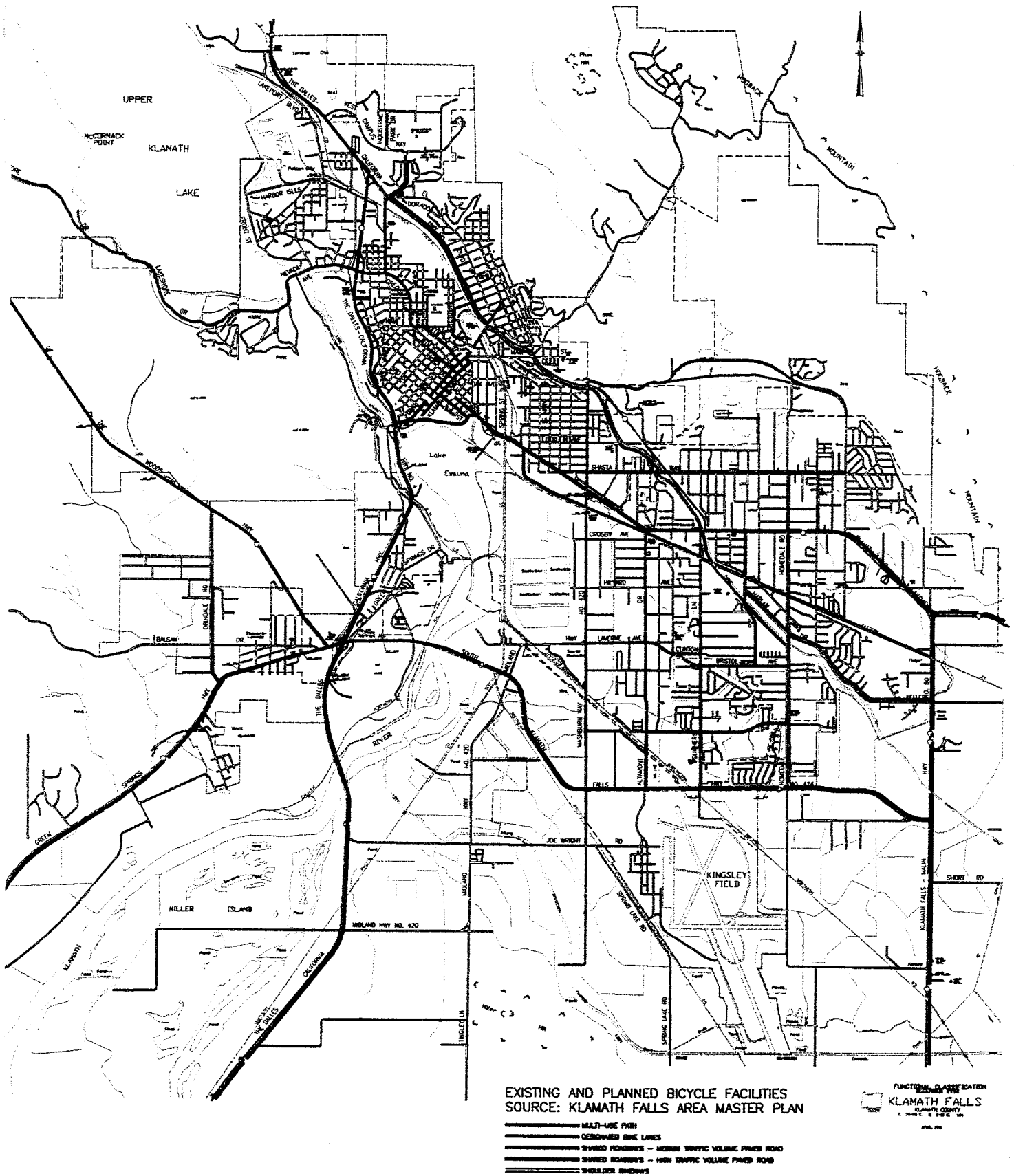


FIG3-5.DWG

EXISTING TRANSIT ROUTES

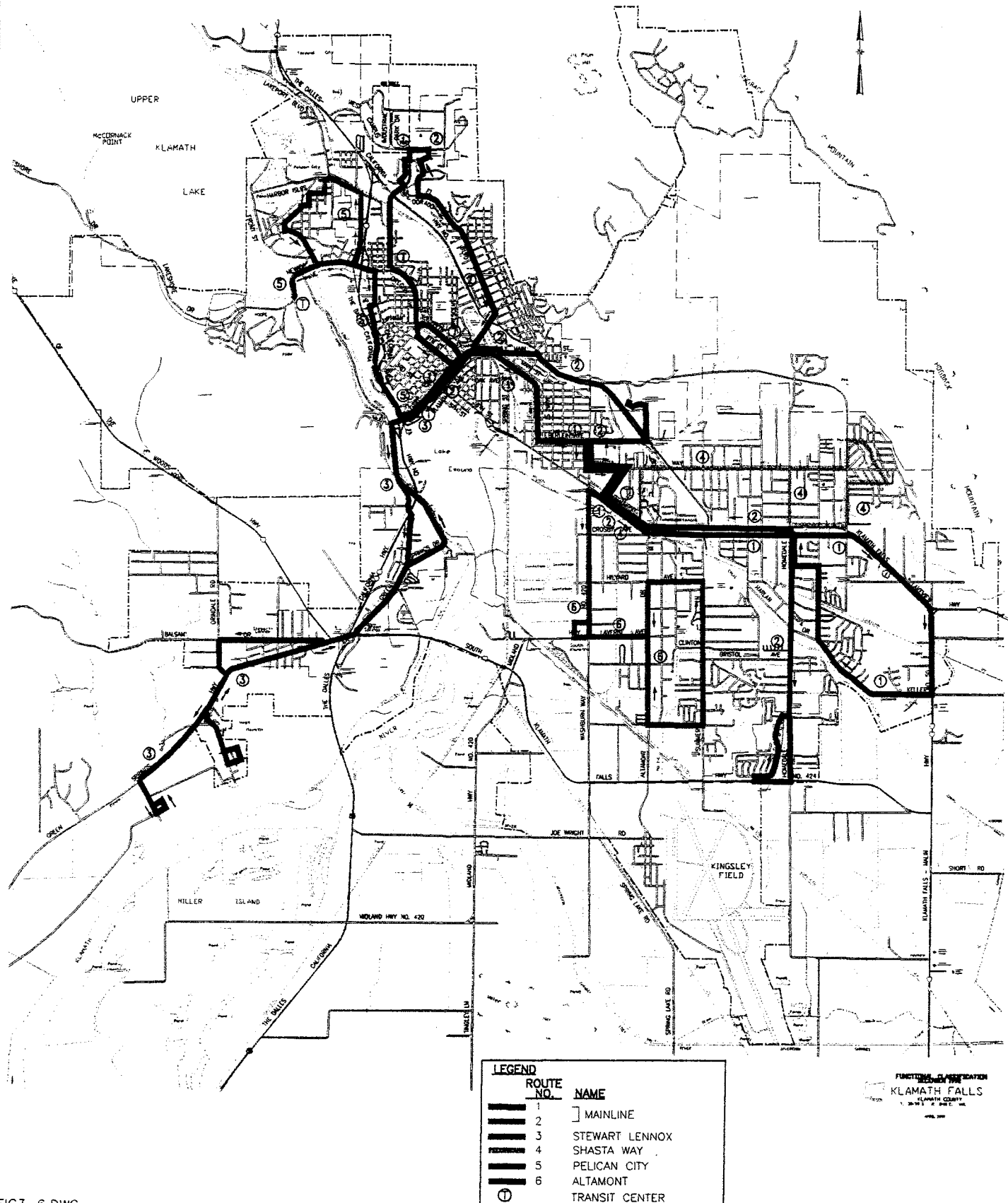


FIG3-6.DWG

Western region access to destinations east of the Mississippi River is gained essentially through the three "gateways" of Chicago, Memphis, and St. Louis. All three carriers have direct access to Chicago and St. Louis. The BN and UP have direct connections to Memphis and the SP gets there via the St. Louis Southwestern out of Shreveport. Freight from Klamath Falls therefore can move east in several ways:

- Via BN north to Bend or Wishram (on the Columbia) and then east on the BN or interchange to the UP
- Via BN south to Bieber and interchange with the UP
- Via SP (UP) south to Roseville, CA and then east through Reno and Ogden
- Via the SP (UP) Modoc Line through Alturas and then connect to the Reno/Ogden main line

Northbound freight can move either on the SP (UP) or BN or by interchange with the UP at Bend/Wishram. The BN and UP provide direct access to the Puget Sound area. The SP ends in Portland and an interchange would have to occur with the BN or UP to continue north. Southbound movement is usually by the SP (UP) but could be via a UP interchange, as described above.

Another way of describing the Klamath Falls position is to identify the national market regions served by each of the three carriers that have access to Klamath Falls, as follows:

SP (now UP)

- Most of California
- The southern tier of the U.S. and gateways to Mexico
- The Willamette Valley (although most traffic will be by truck to this area)

BN

- East/north central interior
- Canadian gateway
- Puget Sound area

UP (by interchange with the BN at Bieber or Bend/Wishram)

- East/south central interior

According to the Oregon Public Utility Commission, Transportation Administration, there are or have been over 50 rail shippers from the Klamath Falls area. The commodities are primarily wood products and agricultural such as grain and sugar beets. As reported in the ODOT Draft 1994 ORP (Oregon Rail Plan), Klamath County accounts for 702,000 total originating and terminating tons per year, representing 2.1% of the State total.

The SP (UP) main line is the most active in the region with about 20 trains per day arriving and departing. The train sizes range from 40 to 100 cars. Of these trains perhaps 20 per month, ranging from 40 to 100 cars, originate in Klamath Falls and are destined for California. An average of one train per day terminates in Klamath Falls for classification and/or switching to customers.

The SP (UP) Modoc Line serves to provide local service to the Alturas region and as a short cut for line haul traffic to Chicago. The former averages 2 round trips per week with perhaps 15 - 16 cars each departing and 25 - 30 cars each inbound. There are 2 - 3 trains per day, averaging 70 cars each, bound for Chicago. This route carries 1 - 5 million gross tons per mile-year. Although this line is the shorter route east and saves perhaps a day and a half over going south through Roseville, it is not without its drawbacks. It has a steeper ruling grade and requires the use of helper locomotives to assist trains over heavy grades. This extra power, in turn, requires additional crews at additional cost. However, Oregon shippers try to avoid Roseville due to the high train traffic and congestion.

The BN, being at the end of their line, experiences significantly less traffic than the SP (UP) and a large portion of this is interchange with the SP (UP) at Klamath Falls or the UP at Bieber. There is one turnaround local per day, consisting of perhaps 30 cars, south to Bieber. The traffic is primarily for one large lumber company and UP interchange. They also interchange with the McCloud Railway at Lookout, CA.

There is more traffic from the north with 2 trains a day arriving and departing. One of these trains turns west at Wishram and the other east. Each train averages about 50 cars. Occasionally there will be a third, grain train bound for California.

As implied, there are considerable local switching movements between the SP (UP) and the BN yards that go on every day. With these yards being end-to-end and crossing only Laverne Avenue, there is little traffic impact on Klamath Falls.

The physical plant for handling this traffic consists of the following: The SP (UP) yard is about 2 - 2½ miles long to the yard limits and consists of 3 running tracks and 10 yard tracks having a useable range of track lengths of 1 - 1½ miles. The yard is fully utilized at current traffic levels. The BN yard is much less extensive at over ½ mile in length. The BN currently makes up 3 trains per day and has ample track capacity for this activity. In fact, as a result of the de-emphasis by the UP of the use of the Bieber interchange (mentioned above), there is less activity now than at times in the past.

North of Klamath Falls, the SP (UP) and BN both run on the SP's (UP's) Cascade Line track. However, just north of Laverne Ave., the BN Bieber Line turns out of the SP (UP) and runs into the BN railyard and then to the east of Kingsley Field. Just south of Highway 140, the SP (UP) track has a wye that connects to the Modoc Line which then aligns to the west of the Field. Because the railroads bracket the airport, an entry road must cross some trackage. The possibilities for alleviating potential model conflict (auto/truck vs. rail at-grade crossings) include:

- Move the SP (UP) line to the west.
- Have the BN share the SP (UP) Modoc Line trackage, abandon its track east of the airport, and connect to the Bieber Line at a point south of the airport.
- Have the SP (UP) share the BN Bieber Line trackage, abandon its track west of the airport, and connect to the Modoc Line at a point south of the airport.

The factors that are common to this analysis include the following:

1. The primary costs involved are acquisition of right-of-way and track construction. Because the land south of the Southside Expressway is lightly developed and relatively flat, the capital costs will be mainly proportional to the amount of track work involved, whichever option is pursued.
2. If one of the track sharing options is used, then the train-control systems must be integrated. Currently, in the area north of Klamath Falls where there is shared traffic, the SP (UP) uses a CTC (Centralized Traffic Control) system. South of Klamath Falls, on the Modoc Line, the SP (UP) uses Direct Traffic Control (DTC) (block control) and the BN uses train orders (or track warrants) on the Bieber Line.
3. Both railroads currently have only a customer or two in the airport area but means should be provided to continue to furnish equivalent service, should one segment or the other be re-aligned or abandoned. Also, any such moves will change the ability to offer railroad service, in one way or another, to the industrial sites in the area.
4. Just south of Henley Road, the BN crosses over Highway 39 and this road then separates the two railroad lines from there on into California. Any connection south of the Henley railroad bridge, therefore, would entail a highway crossing which should be at separated grades which would be costly.

All three of the options are feasible with particular distinctions that are identified below:

Move the SP (UP) line to the west: This approach is physically the easiest to accomplish, within reasonable limits. The track could be brought down to the west of Washburn Way and then turned east along the north side of the Lost River Diversion Channel to re-connect at the southwest corner of the airport. The quantity of track work involved would be on the order of 3 miles. The immediate operational problem with this realignment is the cut-off of access to the industrial area east of the existing tracks and north of Joe Wright Road.

Sharing SP (UP) track/abandon BN track on the east: This concept appears to be the most difficult. The sharing of SP (UP) trackage from the present connection north of Laverne Ave. would by-pass the BN yard. In addition there is no way to reconnect without crossing Highway 39, unless the

connection were to be made where the tracks now cross south of the border. This option would bypass a number of BN customers and accommodations for them could be extensive.

Sharing BN track/abandon SP (UP) track on the west: This option could be accomplished by turning the SP (UP) track north near Old Midland Road and following the Homedale Road alignment north until it intersects with the BN track north of Henley Road. This route would traverse some relatively lightly developed agricultural land and would have to cross the Diversion Channel and Henley Road. Track length would be on the order of 2 miles. Also, as is the case with the first option, the potential SP (UP) service to the sites northwest of the airport would be eliminated. A possible solution to this latter problem might be to connect a lead to the BN track just south of Highway 140 and run it to the west across Altamont Drive into the industrial area.

The BN track crosses Highway 140 about 400' west of Summers Lane. The track forms a triangle with Highway 140 lying to the north and Summers Lane lying to the east. There is a light industrial building within this triangle. Outside the triangle, to the south of the track, is another light industrial facility which is served by a rail spur. Property to the east of Summers Lane is undeveloped for 200' - 300' north of 140 and then runs into residential. Land to the west of Summers Lane and north of 140 is not developed. All property to the south of 140 is undeveloped (except for the triangle described above) and abuts the airport.

Raising the grade of either the railroad or the highway will seriously affect the industries within the developed triangle: the embankment for either the track or the road will take property and cut off existing rail or vehicle access. Also, placing a 25 - 35 foot high structure off the north end of the airport's principal runway may be a problem.

Railroads of course would prefer to not have humps built into their track profiles. Having said this, there is room to raise the grade to bridge over the highway without affecting any significant roadways except the extension of Summers Lane south of 140. Similarly, raising 140 would affect only the Summers Lane interchange. Further, more definitive analysis is required to determine the preferred alternative.

Air Transportation

Commercial passenger and cargo flight service is provided at the Klamath Falls International Airport, also known as Kingsley Field, which lies within city boundaries. A Master Plan for Kingsley Field was prepared by Coffman and Associates in 1993.

Passenger service is provided by Horizon/Alaska and United Express who make a total of 14 flights a day (during the week) into and out of Klamath Falls. Alaska/Horizon provides the most extensive service - 8 flights per day with service to and from Portland. United Express flies six times per day into and out of Kingsley Field with connections to Chico and San Francisco, California.

In addition to passenger air service, small package operations are accommodated at the Klamath Falls International Airport. Currently, there are about 3,000 annual cargo operations, primarily accommodated by three major carriers, United Parcel Service, Federal Express, and Pony Express. These carriers operate under the "Just-In-Time" package delivery concept allowing businesses to store their inventory in a centralized location and deliver it to other locations as needed. The cargo carriers primarily operate small jets and piston and turbine engine airplanes at this airport. UPS and Federal Express each make 4 flights per day to and from Klamath Falls and Pony Express makes two for a total of ten scheduled cargo flights per weekday.

An Oregon Air National Guard Base is also located within Klamath Falls at Kingsley Field/Klamath Falls International Airport. This military base functions as a training center for F-16 pilots and as a stand-by air defense base.

Water

Although Klamath Falls is located on the shores of the largest lake in the Pacific Northwest, the Upper Klamath Lake, it does not benefit greatly from water transportation opportunities that might be expected. Water transportation is limited to recreational use of the lake by sailors and power-boaters.

Pipeline

Pipeline transportation in and throughout the study area includes transmission lines for electricity, cable television and telephone services, as well as pipeline transport of water, sanitary sewer, and a major north-south transmission line for natural gas. In addition, the region currently operates an infrastructure that provides links for electronic communication via telecommuting, satellite communication, etc.

TRAFFIC OPERATIONS

Manual turning movement count data were obtained for afternoon (p.m.) peak hour periods for a total of 49 intersections to enable existing traffic operations conditions to be evaluated for the urban area. The counts were obtained from three primary sources: ODOT counts (taken on state facilities in the past three years); counts conducted by traffic engineering students at the Oregon Institute of Technology (O.I.T.) since 1992; and counts conducted by Kittelson and Associates during November 1994. The p.m. peak hour traffic counts were examined for reasonableness and where possible were compared to previous traffic counts conducted in the area and obtained from ODOT.

Using these peak hour turning movement volumes, an operational analysis was conducted at each study area intersection to determine existing levels of service. All level of service analyses described in this study are in accordance with the procedure preferred by ODOT - an analysis program called

SIGCAP- (for signalized intersections) and as described in the *1985 Highway Capacity Manual* (for unsignalized intersections). The results of this analysis are presented in Appendix D. Figure 3-7 depicts intersections as under, near or over capacity during the average weekday P.M. peak hour.

As shown in Figure 3-7 and in Table D-6, one signalized intersection and four unsignalized intersections in the study area are currently operating near or over capacity. Three of the unsignalized locations are on Washburn Way - at Crosby Avenue, Hilyard Avenue and Edison Avenue (Walmart). These intersections are located on high volume streets, and the State five-year Transportation Improvement Projects listing details a widening project including the installation of signals at these locations for the fiscal year 1996. The fourth unsignalized intersection operating at or near capacity is located at the Highway 97/Highway 140 interchange to the southwest of the city.

The only signalized intersection operating at or near capacity is located at the East-side Bypass and Campus Way/Biehn Street and it operates at level of service (LOS) D-E. This intersection carries very high volumes, particularly during the peak hours when students and faculty are driving to and from OIT.

TRAFFIC SAFETY

A summary of the reported accidents on State highway facilities in the study area over the past three years from January 1991 to December 1993 was assembled from ODOT records and is presented in Table B-1 in Appendix B. The accidents reported for intersections and roadway segments are listed by severity (property damage only -PDO-, injury -INJ- or fatality) and type (angle, head-on, rear-end, sideswipe, turning, fixed object, pedestrian and other) in Table B-1.

For state highway 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 volume for the year. An accident rate of less than 1.0 accidents per million entering vehicles generally indicates that there are no significant safety problems associated with the intersection. As shown in the table, none of the intersections in the study area have an accident rate greater than 1.0 accidents per million entering vehicles. Along roadway segments, the total number of accidents is divided by the product of the roadway volume and segment length in miles, and then reported as accidents per million vehicle miles traveled (ACC/MVM). Average accident rates at similar locations in the state of Oregon are approximately 1.75 ACC/MVM for facilities such as Highway 39 (Klamath Falls-Malin Hwy), Highway 97 and Highway 140.

The accident analysis indicated that there were four accidents involving fatalities in the three year period reviewed. All of the fatalities occurred on the Eastside Bypass in the 3.52 mile section between Biehn Street and Shasta Way. Three fatalities occurred at intersections - at Pacific Terrace which is unsignalized, at Washburn Way and at Shasta Way, both of which are signalized. The fourth fatal

EXISTING LEVELS OF SERVICE WEEKDAY PM PEAK HOUR

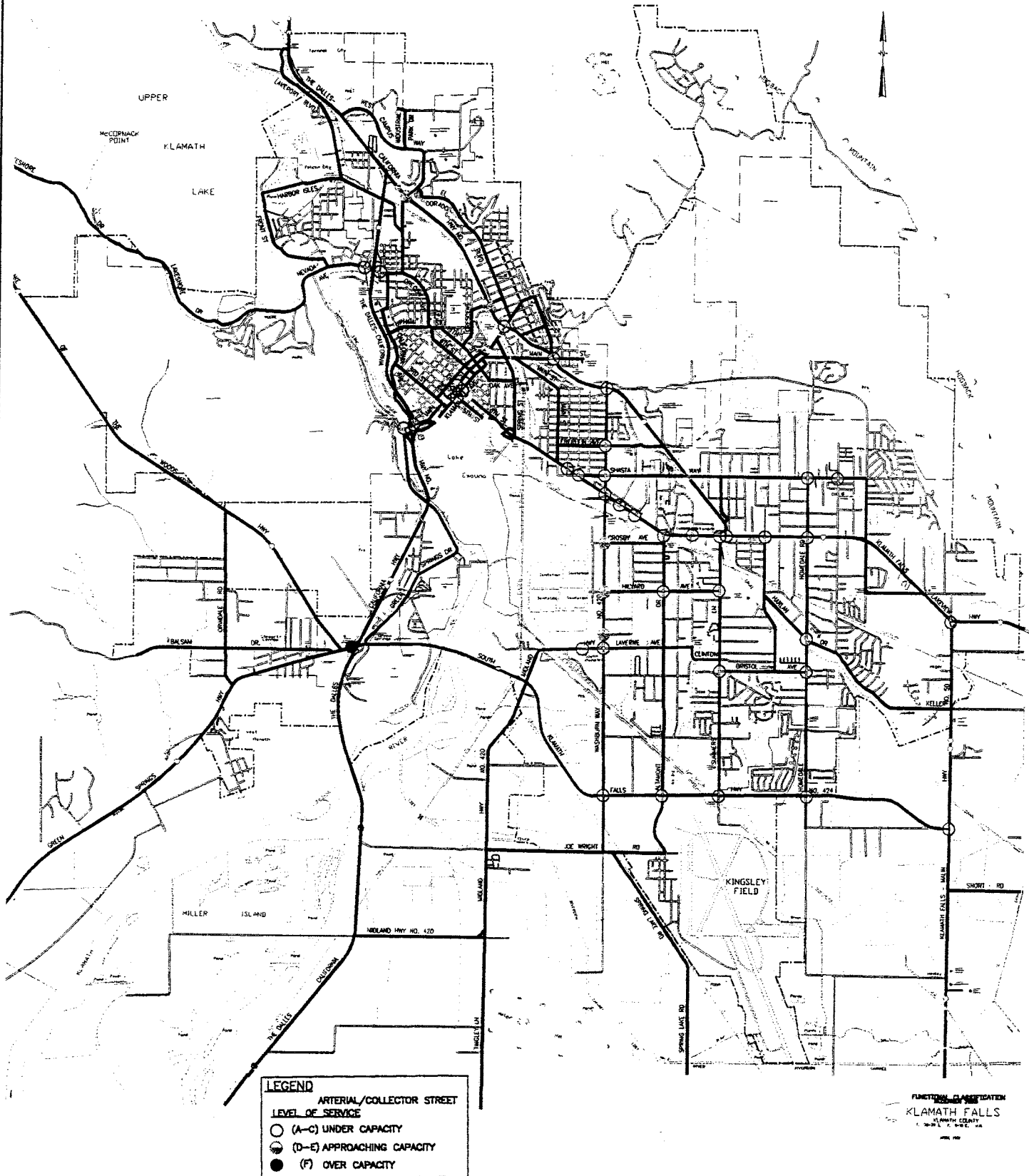


FIG3-7.DWG

KLAMATH FALLS URBAN AREA TRANSPORTATION SYSTEMS PLAN

FIGURE
3-7 **K**

accident occurred in the segment between Biehn Street and Portland Avenue (MP -6.39 to -5.24).

As shown in Table B-1, there are a number of roadway segments along the State highways in the study area that exceeded the average rates reported for similar facilities located throughout the state (1.75 accidents per million vehicle miles). These segments are located along South Sixth Street (Highway 39) and on the Green Springs Highway (Highway 66).

The highway segment between Owens Street and Shasta Way (MP 1.55 - 1.80) had a reported 16 accidents in three years giving a rate of 2.38 accidents per million vehicle miles. The majority of these (nine) were rear-end accidents, due possibly to the movements associated with the unsignalized intersection at Shasta Way/Division Street. The next most common was turning (four) and there was one each of angle, side-swipe and "other" accidents.

The segment of South Sixth Street between Washburn Way and Altamont Drive (MP 2.12 - 2.70) had a total of 62 reported accidents in the three year period. There were 23 reported rear-end accidents, 22 turning and 10 angle accidents, but none involved fatalities. However 26 of the accidents involved injuries. The average accident rate for this segment was 4.17 accidents per million vehicle miles. This section contains the highest volume intersection in the urban area, and endures the most congestion. In addition, the segment contains the Jefferson Square Mall and there are a number of unsignalized driveway accesses to the Mall which carry heavy traffic. These accesses are the likely explanation for the rear-end and turning accidents.

The segment between Altamont Drive and Gettle Street (MP 2.71 - 3.50) experienced a total of 78 accidents in three years, with a rate of 3.71 accidents per million vehicle miles. There were 34 injury-accidents reported for the period. The most common accidents were turning (37) followed by rear-end (33). This segment has two unsignalized intersections, and the highly trafficked and staggered Eastside Bypass/Summers Lane intersection. The weave that occurs between northbound traffic turning right onto South Sixth from Summers and then left onto the Eastside Bypass likely explains the majority of the turning accidents, while the unsignalized intersections on a route that is generally signal-controlled are likely to account for the rear-end accidents. Within this section of South Sixth Street, the segment between the Eastside Bypass and Fargo Street indicated the worst accident rate in the urban area. A total of 12 accidents were reported for the period, for a highway segment of 0.05 mi in length, with a calculated accident rate of 8.51 accidents per million vehicle miles. Eight of the accidents reported (67 percent) were classified as turning movement accidents, and are likely associated with weaving to turn onto the Eastside bypass. Access to the driveways of the gas station, and the adjacent commercial land uses may also be a contributing factor. The other four accidents reported were rear-end accidents. Also within this section, between Fargo Street and Gettle Street (MP 3.38 - 3.49) there were 8 reported accidents resulting in a rate of 2.36 accidents per million vehicle miles. Five of these were turning accidents.

The highway section between Gettle and Homedale (MP 3.50 - 3.98) had a reported total of 26 accidents with a resulting rate of 1.94 accidents per million vehicle miles. The section between Gettle and Hope (MP 3.53 - 3.60) experienced 5 accidents yielding a rate of 2.22 accidents per million vehicle miles. Three of these accidents were rear-end accidents, attributable possibly to the fire-signal at Gettle being activated when unexpected by the drivers. Between Kane and Homedale (MP 3.89 - 3.98) experienced a total of 5 accidents with a rate of 1.90 per million vehicle miles.

The whole of South Sixth Street in the study area experienced a rate of 1.96 accidents per million vehicle miles, placing it above the state average for similar facilities.

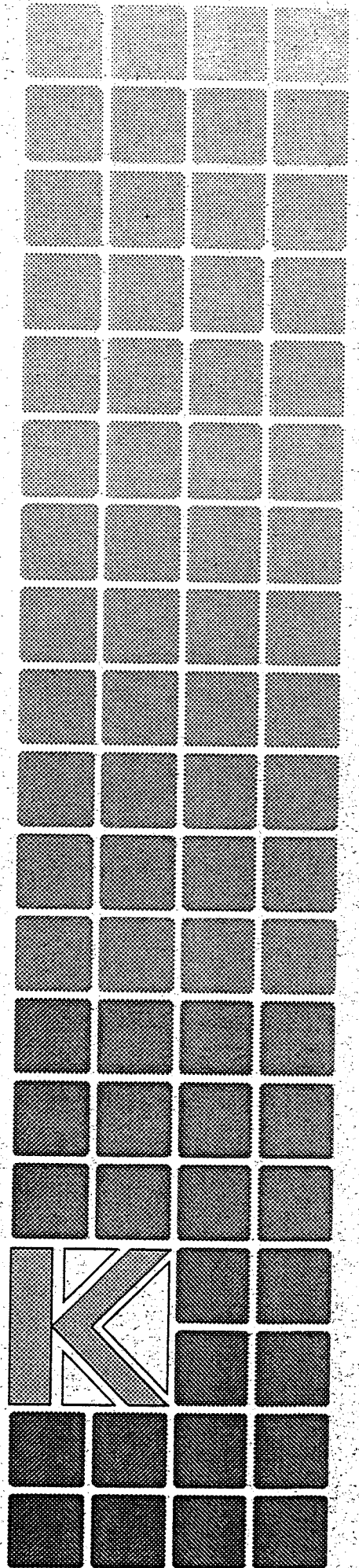
The Green Springs Highway (Highway 21) between Emerald Street and Balsam Drive experienced a total of 6 accidents in the three year period yielding a rate of 2.58 accidents per million vehicle miles. For the section between the Urban Growth Boundary and Highway 97 (MP 57.95 - 59.03) there were 18 accidents reported in total for a rate of 2.32 per million vehicle miles, placing this roadway segment above statewide average for similar facilities.

The remaining highways in the urban area were within the statewide average for urban highway facilities, and exhibited no undue accident experience.

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Chapter 4

Land Use, Growth, and Travel Demand



LAND USE, GROWTH, AND TRAVEL DEMAND

This chapter summarizes the future land use and demographic projections used to estimate future traffic conditions and identification of transportation system deficiencies in the Klamath Falls urban area.

FUTURE LAND USE/DEMOGRAPHICS

The year 2015 was chosen as the twenty year planning horizon for the study in order to identify future demographic and traffic conditions. Beyond the twenty year planning horizon, population, employment and future travel demand forecasts become more speculative and less reliable for identifying future infrastructure needs. This section summarizes the development of future population and employment projections that were used to develop travel demand forecasts for the Klamath Falls urban area.

The Oregon Department of Transportation's (ODOT's) System Studies Unit evaluated existing and future study area demographics, in cooperation with and reviewed by both the City of Klamath Falls and Klamath County as part of the development of a travel demand forecasting model. Below is a summary of the base population (housing) and employment data and forecasts developed by ODOT.

Population (Housing)

The current Klamath Falls and Klamath County Comprehensive Land Use Plans (within the current Urban Growth Boundary), adopted by each jurisdiction in and approved by LCDC through periodic review in, served as the basis for which future transportation system needs were assessed. The current Comprehensive Plans project that by the year 2015 the Klamath Falls urban area's current population of approximately 40,000 will grow to over 45,700¹. Figure 4-1 identifies the allocation of new housing units in the study area by 2015.

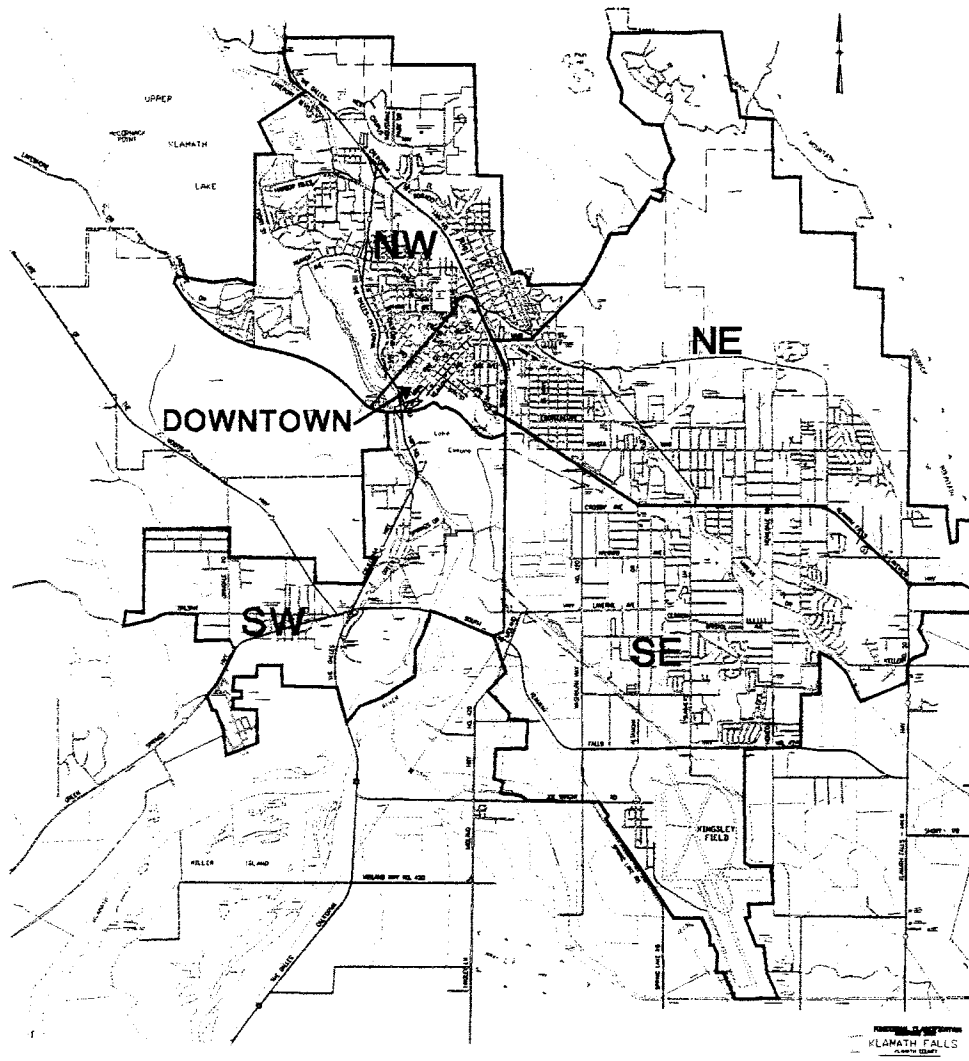
¹ Forecasts based on housing densities of 2-3 people per single family dwelling unit and 1-7 people per multi-family dwelling unit. These densities were established and confirmed by local Planning Staff.

Employment

Employment projections for year 2015 were based on the expected development of the Klamath Falls Urban Growth Boundary (UGB). By year 2015, a total of more than 1,850 new jobs will be created within the study area. Figure 4-1 also identifies the allocation of new employment in the study area by 2015.

ODOT developed a transportation analysis zone (TAZ) system for the aggregation of housing and employment data for the purposes of developing the travel demand model. Figure 4-2 illustrates the TAZ system as defined by ODOT. Appendix E lists the number of dwelling units and employees, by employment type, for each of the study area TAZs for existing (1995) and future year (2015) conditions.

KLAMATH FALLS URBAN AREA POPULATION AND EMPLOYMENT GROWTH (1995-2015)



GROWTH ALLOCATION

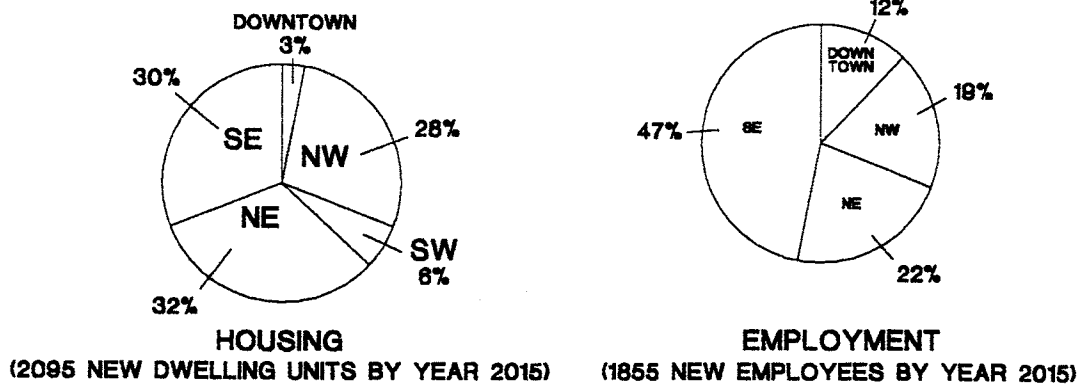


FIG4-1.DWG

KLAMATH FALLS URBAN AREA TRANSPORTATION ANALYSIS ZONES

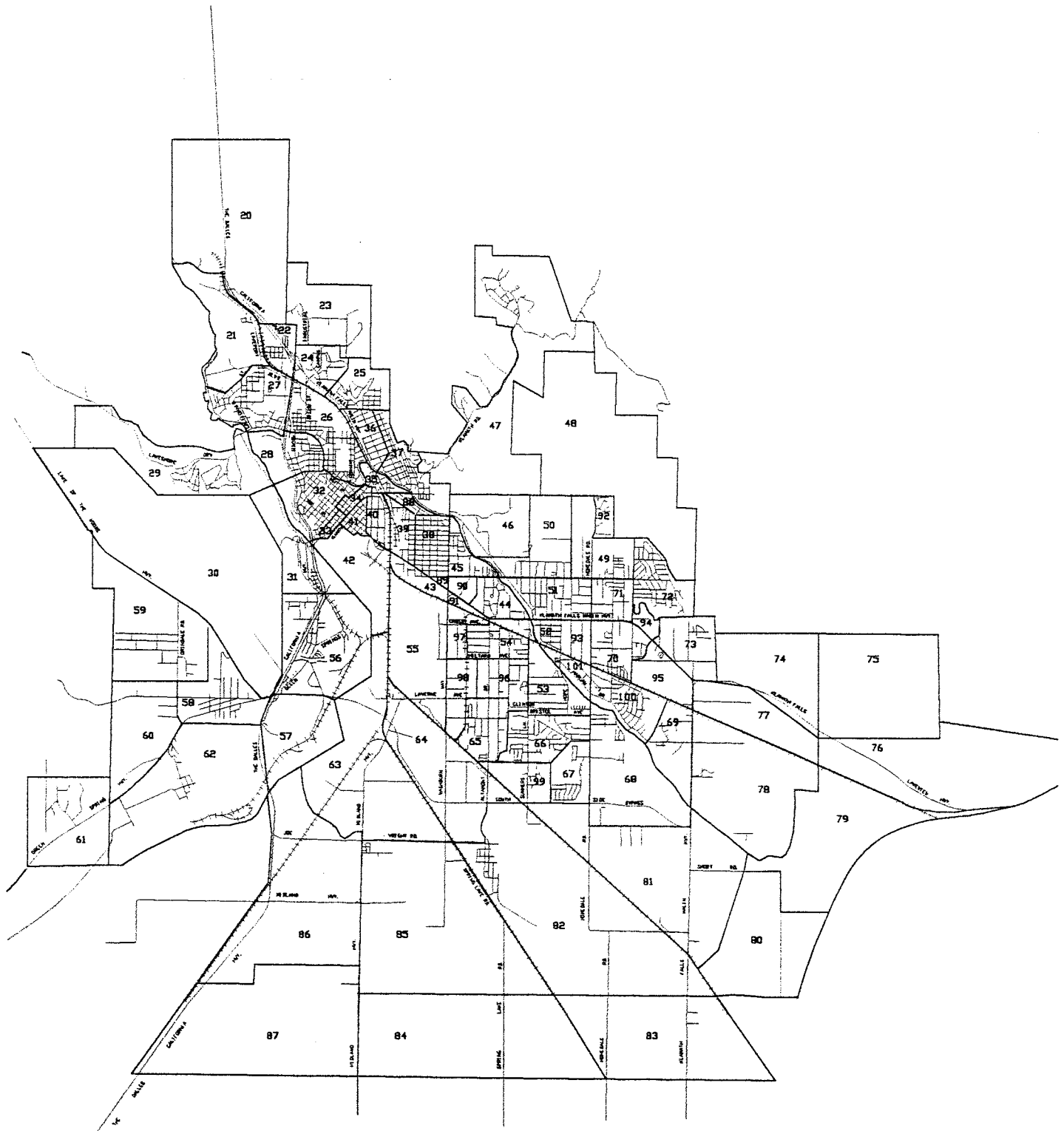
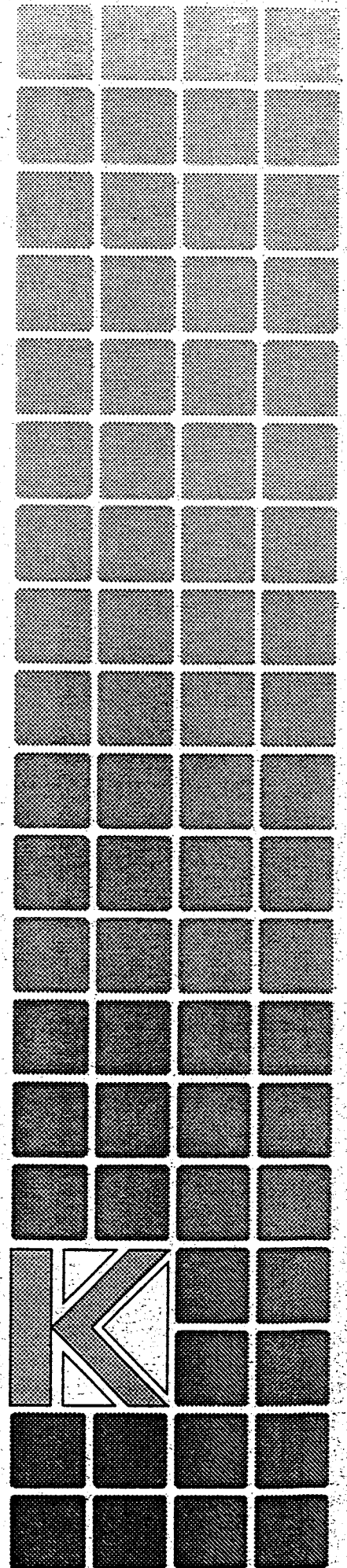


FIG4-2.DWG

Chapter 5

Impact of Growth on the Transportation System



IMPACT OF GROWTH ON THE TRANSPORTATION SYSTEM

FUTURE TRAFFIC CONDITIONS

Base year and future year 2015 afternoon peak hour traffic volumes were estimated based on the housing and employment data summarized above using a series of trip generation, distribution, and traffic assignment models developed and calibrated specifically for the Klamath Falls urban area¹. The future volumes were developed based on the existing collector/arterial street network and the addition of Foothills Boulevard. Hereafter, this scenario is referred to as the 2015 "Do-Nothing" alternative.

Figures 5-1 and 5-2 illustrate the peak hour volume estimates on the study area's collector and arterial streets for base year (1990) and 2015 "Do-Nothing" alternative, respectively. Future p.m. peak hour volume estimates at major intersections in the study area were estimated based on the daily volume forecasts and recent p.m. peak hour traffic count surveys.

FUTURE TRANSPORTATION SYSTEM DEFICIENCIES

Operational analyses were conducted at each of the major study area intersections based on the future traffic conditions described above. Table D-6 summarizes the 2015 LOS at the major study area intersections. Figure 5-3 also illustrates the future (year 2015) PM peak hour intersection LOS (operational analysis) results.

The above analysis indicates that the following roadways will likely exceed capacity by the year 2015 under the "Do-Nothing" alternative: the Alameda Bypass, South Sixth Street, Homedale Road (south of South Sixth Street), Washburn Way, and the Southside Expressway.

The Alameda Bypass will likely exceed capacity between Main Street and South Sixth Street. Operational analyses indicate that the intersections at South Sixth Street, Campus Drive, Esplanade, Portland, and Shasta Way will approach capacity under future year conditions.

South Sixth Street will likely exceed capacity under year 2015 traffic conditions between the Alameda Bypass and Homedale Road. Specific intersections along South Sixth Street that will operate under unacceptable conditions include: Summers Lane, Patterson, and the Alameda Bypass.

¹ See ODOT System's Studies Unit for travel model documentation

Homedale Road will likely approach capacity under year 2015 traffic conditions between South Sixth Street and Harlan Drive. Increasing demands on South Sixth Street result in the inability for drivers traveling on Homedale Road to access and/or cross South Sixth Street without experiencing long delays.

Washburn Way will likely exceed capacity under year 2015 traffic conditions in the industrial area between Hilyard Avenue and Laverne Avenue. Several unsignalized intersections along Washburn Way will operate at unacceptable conditions including Crosby², Hilyard, Edison, and Laverne Avenues because of the high volumes of traffic on Washburn Way that make it difficult for the drivers on the minor, stop-controlled approaches to access Washburn Way without experiencing long delays.

The Southside Expressway will likely approach or exceed capacity between US 97 and Homedale Road under year 2015 conditions. The intersections at Homedale Road and Summers Lane will also operate at unacceptable conditions under year 2015 conditions because of the high volumes of traffic on the Expressway.

In addition, several intersections within the Klamath Falls urban area will operate at unacceptable conditions under year 2015 "Do-Nothing" conditions including: the US 97 Southbound ramps at Route 140 (Lake of the Woods Highway), the Route 140 / Route 66 (Green Springs Highway) intersection, the Shasta Way/Homedale Road intersection, and the Shasta Way/Madison intersection.

FUTURE TRANSPORTATION SYSTEM ALTERNATIVES

Five general transportation/land use alternatives will be developed to assess the long-term study area needs. These alternatives include:

1. **"do-nothing"** alternative assuming no transportation system improvements.
2. **"stay-the-course"** alternative that includes the needed transportation improvements (most of which are roadway capacity improvements for auto travel) needed to accommodate the adopted comprehensive land use plans for the Klamath Falls urban area.
3. **land use** - intensification/relocation of certain land uses within the urban area that, in effect, shorten average vehicle trip lengths and/or reduce a number of auto trips (by use of transit, bicycle and walk modes as alternatives).

² Since the writing of the original Draft TSP the Washburn Way/Crosby Intersection has been signalized. Both the Hilyard and Laverne Avenue intersections of Washburn Way are planned for signalization.

4. **transit-** transit system expansion and improvements (from TDP recommendations) and transportation demand management (TDM) improvements like transit pass subsidies or flex-time work schedules of major employers.
5. **transportation system management (TSM)** - transportation system efficiency improvements like signal timing and coordination, and access management techniques (findings and recommendations from the South Sixth Street Redevelopment Plan will be included in this alternative).

Each of these alternatives were developed and tested using the future travel demand forecasting model for comparison of travel volume demand. Results and recommendations from the Basin Transit TDP and South Sixth Street Redevelopment Plan have been included and tested under the applicable alternative. These alternatives and the evaluation of alternatives are summarized in Chapter 6.

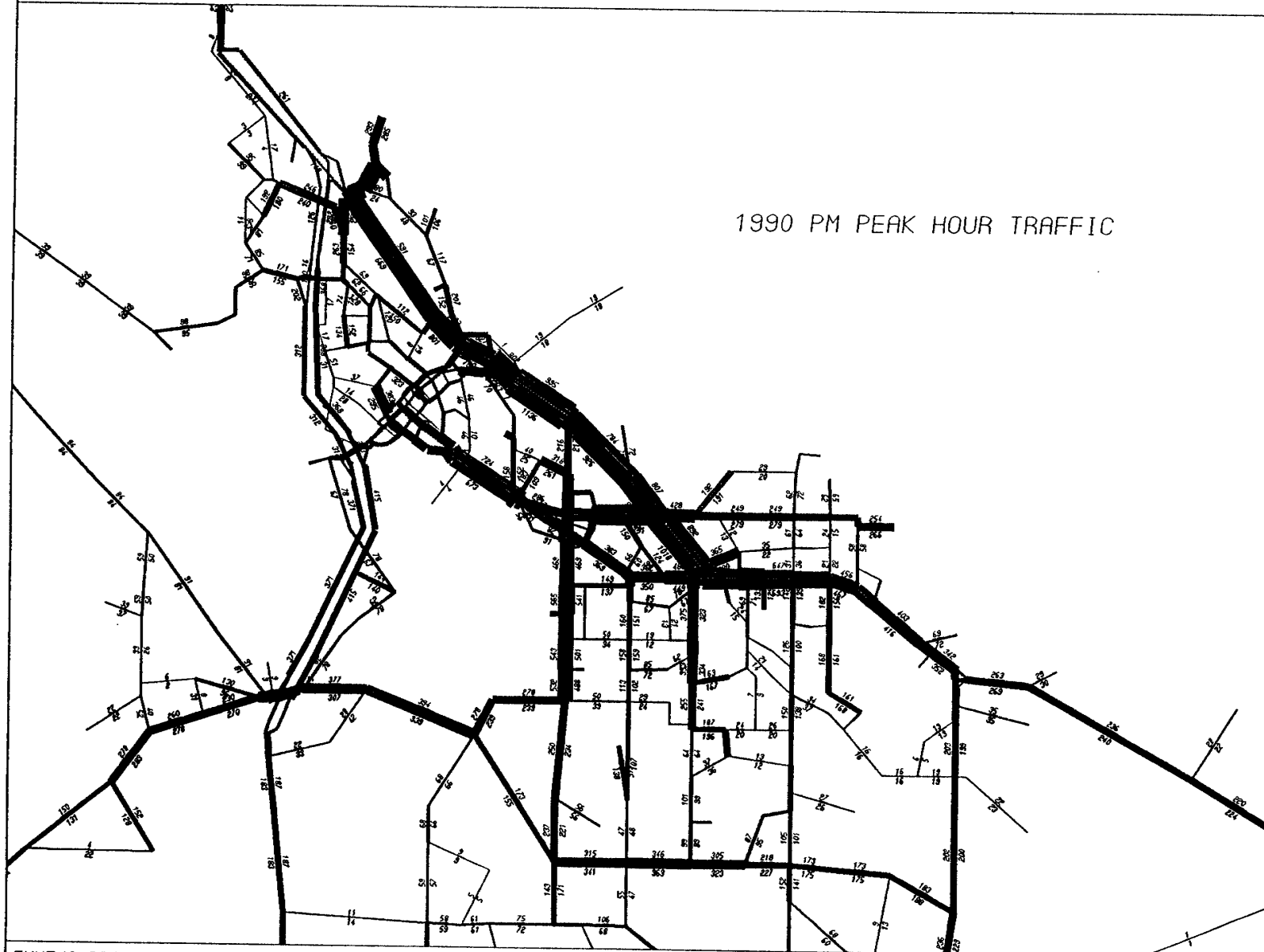
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AUTO VOLUMES

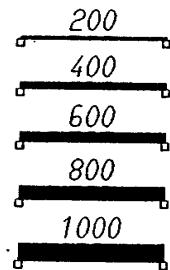
emme/2

LINKS:
all

1990 PM PEAK HOUR TRAFFIC



SCALE: 100



WINDOW:
-374.9/ -3013
2418.5/-917.89

EMME/2 PROJECT: Klamath Falls Area
SCENARIO 1991: observed volumes vs estimated volumes

FIGURE 5-1

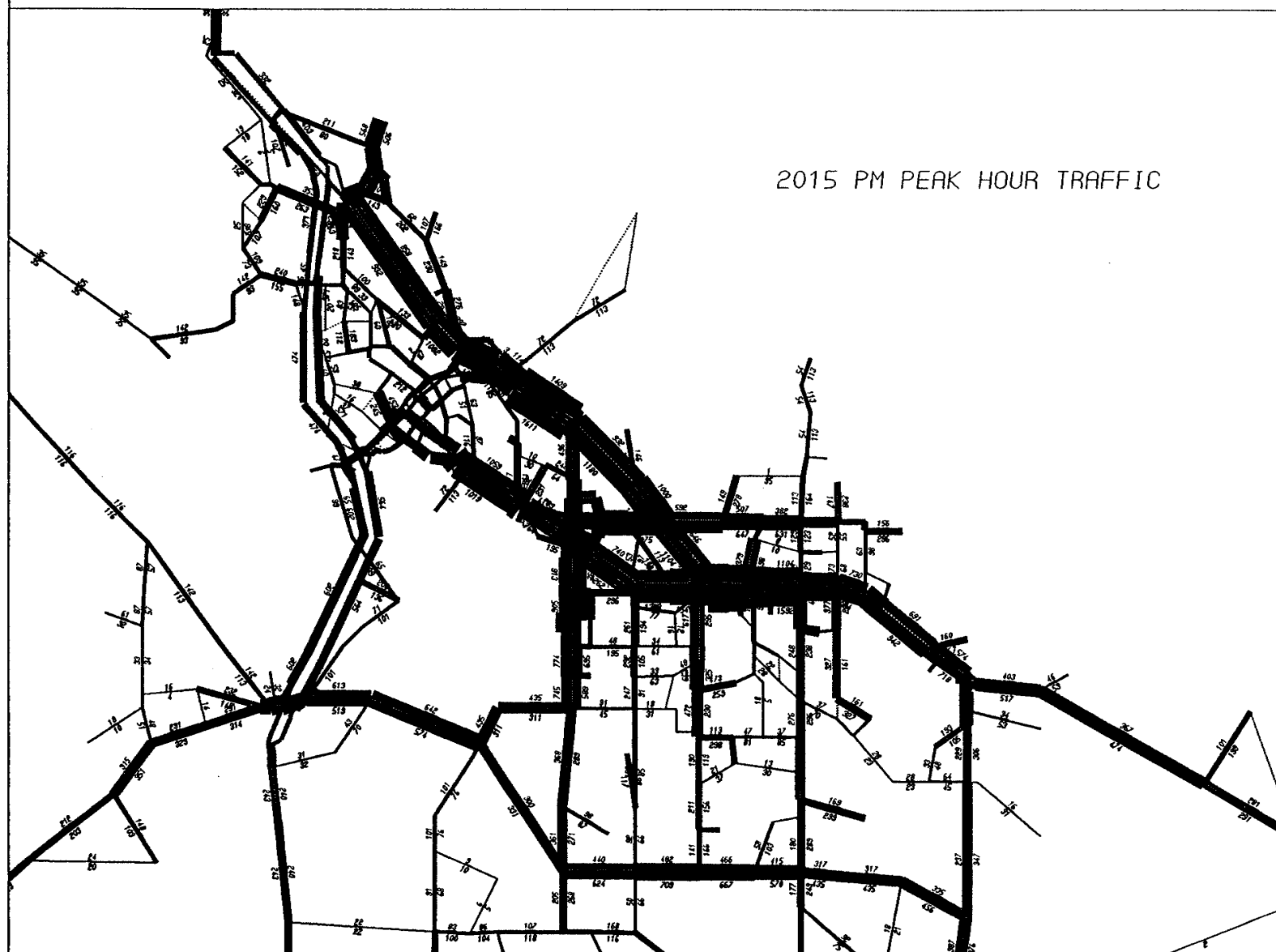
97-10-31 08:11
MODULE: 6.12
OREGOND...ajm

AUTO VOLUMES

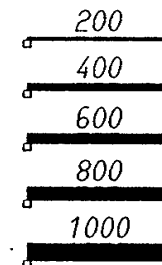
emme/2

LINKS:
all

2015 PM PEAK HOUR TRAFFIC



SCALE: 100



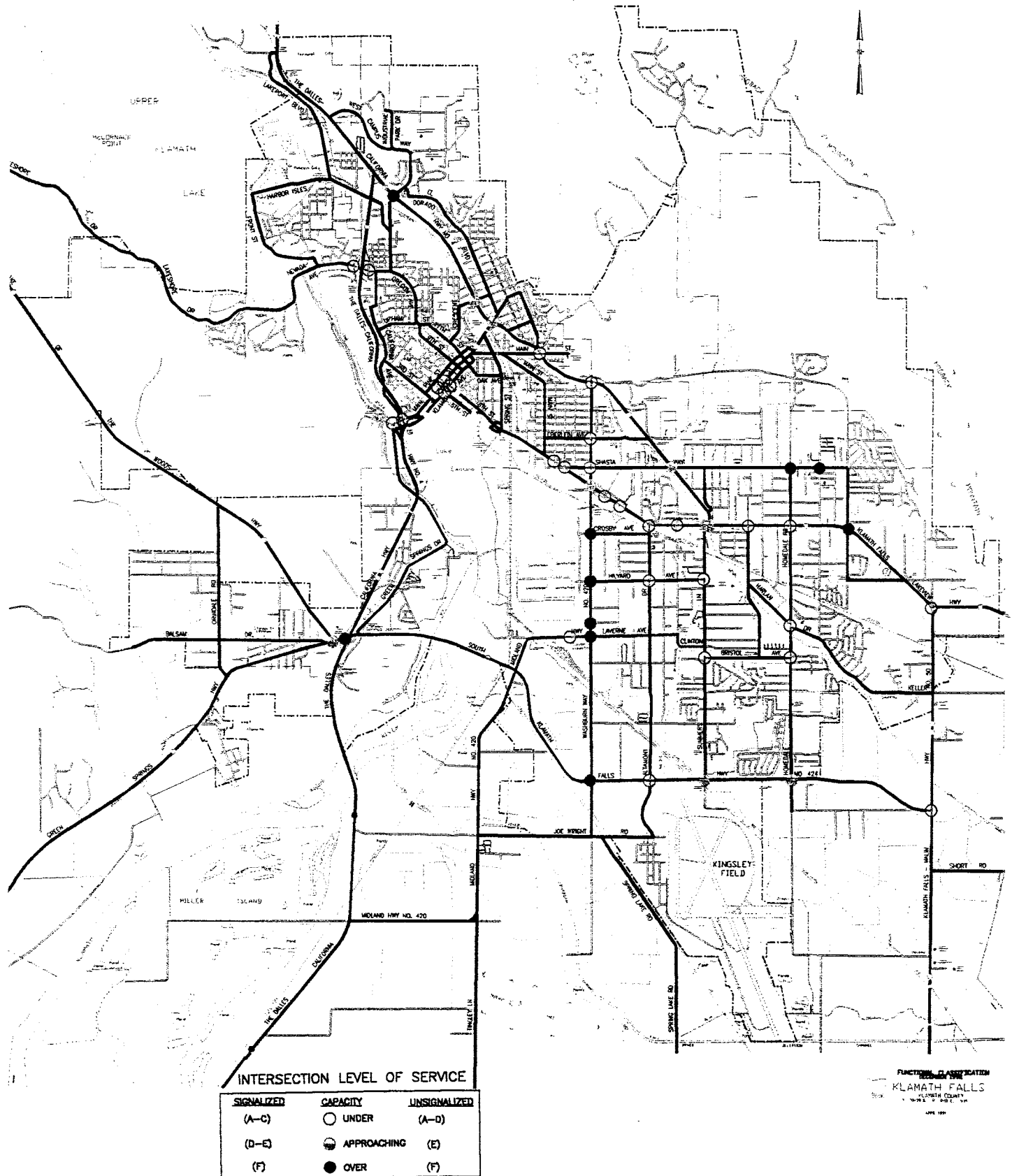
WINDOW:
-374.9/ -3013
2418.5/-917.89

EMME/2 PROJECT: Klamath Falls Area
SCENARIO 1: 2015 Do Nothing Alternative

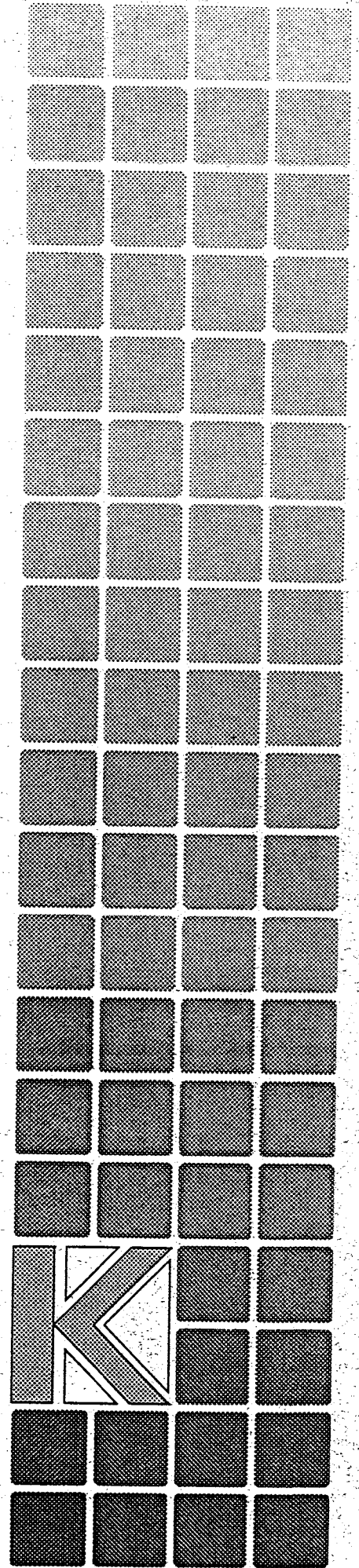
FIGURE 5-2

97-04-18 14:12
MODULE: 6.12
OREGOND...ajm

FUTURE LEVELS OF SERVICE WEEKDAY PM PEAK HOUR



FIGS-3.DWG



Chapter 6

Evaluation of Alternatives and Selection of Preferred Alternative

EVALUATION OF ALTERNATIVES

The future transportation deficiencies, based on the analysis of the "Do-Nothing Alternative" are summarized in Chapter 5. Future transportation system improvements needed, in part, to provide adequate capacity, circulation and safety were presented to the Management Team Transportation Plan Advisory Committee at a number of meetings. These needs were identified based on use of the regional travel demand model and past transportation/land use and traffic studies. This chapter summarizes and evaluates the results of the development and testing of the five major transportation/land use alternatives to accommodate future growth needs in the Klamath Falls urban area. Further evaluation of the alternatives was conducted, focusing on the evaluation of alternatives based on the TSP goals and objectives, as well as the performance measures summarized in this memorandum.

DESCRIPTION OF ALTERNATIVES

The following describes the five major land use/transportation alternatives developed, tested and evaluated as part of the Klamath Falls Urban Area TSP.

"Do-Nothing" (No-Build)

The "Do-Nothing" alternative assumes that no transportation system improvements will be made by year 2015 in the Klamath Falls urban area. Future travel demand on the existing roadway system was identified and summarized in Chapter 4.

"Stay-The-Course" (Build)

This alternative includes the needed street and intersection capacity improvements, to accommodate the level of travel demand generated by existing and future land uses in the UGB. These improvement needs are illustrated in Figure 6-1. In addition to the street improvements shown in Figure 6-1, a number of intersection (new or enhanced traffic signals), have also been identified.

Over the next twenty years under this alternative, the total cost of all street projects is estimated at almost **\$100 million**. These improvements include new streets, street widenings, and street reconstruction. Many of these street projects include new sidewalks or sidewalk replacements, and in some cases new bicycle lanes. A number of new traffic signals and traffic signal upgrades will be needed to accommodate growing travel demand. These signal improvements are estimated at approximately **\$3 million**.

Transportation System Management (TSM)

ODOT defines TSM measures (*Transportation System Planning Guidelines*) as policies and improvements to the transportation system which maximizes “the efficiency of the existing transportation system by managing traffic through the use of traffic control devices such as traffic signals, ramp meters, median turn barriers, etc., and land use controls including closing accesses to properties along congested corridors, and re-routing that traffic to other facilities.” TSM improvements generally allow for an increase between 5 and 10 percent in the **capacity and speed** of a given arterial/collector street. These TSM efficiencies are used to test this alternative by revising link characteristics in the Klamath Falls EMME/2 model.

The major TSM strategies included in the Klamath Falls Urban Area Transportation Plan analysis of alternatives include:

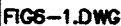
- access management;
- signal progression and coordination;
- reduced left-turning conflict points/Greater left-turn restrictions; and,
- increased use of traffic control devices.

To a lesser extent the following TSM strategies also provide system benefit:

- pedestrian and bicycle amenities;
- direct and convenient pedestrian and bicycle movement with and between adjacent developments;
- speed control including greater enforcement and use of traffic calming techniques and/or devices; and,
- enhanced one-way street networks.

The major arterial routes that are likely to benefit from TSM improvements include South Sixth Street, Washburn Way, Shasta Way and the Alameda Bypass. For the purposes of this alternatives analysis, the future travel demand model link speed and capacity characteristics on these routes were improved by 10 percent.

MAJOR STREET IMPROVEMENT/NEEDS



Transit - Transportation Demand Management (TDM)

Transportation Demand Management (TDM) is the implementation of plans and policies intended to reduce the number of vehicle trips generated by land development, typically at the work place. The specific measure of vehicle trip reduction, in gauging the actual success of TDM, is determined based on a measurable common denominator like number of employees and/or students. With reduced vehicle trips, the land and transportation resources (both public and private) can be better utilized to delay or even avoid the larger and more expensive public infrastructure improvements needed to accommodate the expected growth in travel demand.

Another possible benefit of successful TDM is the reduced need for parking spaces, thereby increasing available building and landscaping space in the urban environment. TDM plan improvements can also provide less obvious (but equally important) environmental improvements. Fewer vehicle trips will, in combination with other programs of this nature, improve regional air quality, and decrease consumption of fossil fuels.

TDM Options

Candidate measures for a TDM program can be listed in a range that extends from “minimal” to “highly aggressive” measures. The range of TDM measures are defined separately below.

Minimal

Typical minimal TDM efforts include: 1) distribution of transit and carpool information in student registration packets, or at new employee orientations; 2) provision of transit/carpool information at centers located at major travel destinations and work/school places; and, 3) provision of outdoor bicycle racks.

Moderate

Typical moderate TDM efforts include: 1) provision of preferred carpool/vanpool spaces (without registration and confirmation); 2) designation of a part-time staff member to act as Employee Transportation Coordinator; 3) provision of bicycle storage lockers; 4) encouragement of employees and students to register in carpool matching system (the sponsor and structure of such a program would need to be defined); 5) development and initiation of public awareness through programs like an annual “Transportation Fair” or “Alternative Transportation Mode” Day.

Aggressive

Typical aggressive TDM efforts include: 1) automatic enrollment of employees and students in a carpool/vanpool matching system; 2) designation of a full-time staff member as an Employee Transportation Coordinator; 3) requiring monthly and randomly-confirmed registration for preferred carpool/vanpool parking; instituting student and staff parking fees (as a diss-incentive to driving alone); 4) providing discounts in tuition fees (OTT) for commuting via alternative modes of

transportation; and, 5) providing a monthly subsidy for transit passes (the highest tax free subsidy allowed by the IRS is \$60/month).

Highly Aggressive

Example of highly aggressive TDM efforts include: 1) implementing 7-bus scenario for Basin Transit operations; 2) implementing a "transportation cost allowance" system for employees and students; and, 3) requirement that all employees and students pay for assigned parking spaces on a monthly basis at a rate equal to or more than twice the Basin Transit bus pass rate.

For the purposes of the alternatives analysis the number and complexity of TDM plan and policy implications, particularly as they might effect travel mode choice in Klamath Falls, is summarized to reflect the *highly aggressive* option. Appendix E summarizes the future 2015 *vehicle* trip adjustment parameters to the Klamath Falls travel demand model reflecting the TDM policy impacts on mode-split.

Transportation-Efficient Land Use Alternative

The Transportation Planning Rule (TPR; OAR 660 Division 12) sets forth the standards and procedures for developing transportation system plans (TSPs). Within Metropolitan Planning Organizations (MPOs), the TPR outlines a process under which local governments with populations larger than 1,000,000 are required to develop land use alternatives for their TSPs (660-12-035)(2). The TPR states that the land use alternatives process is optional for other jurisdictions in the state, including the Klamath Falls urban area.

Although no land use alternative is required for the Klamath Falls TSP, it would be beneficial to the community to examine the transportation-related effects of changing land uses. The process may indicate that, with certain land use changes, some proposed transportation improvements can be avoided or delayed. For these reasons, a land use alternative has been developed based on the following concepts.

Concepts

A variety of land use concepts can be used to develop land use alternative. Generally, the concepts focus on reducing the length of vehicle trips; this usually is accomplished by shortening the distances between areas of housing and areas of employment or shopping. Based on the TPR, a strategy for developing land use alternatives should include:

- Increasing residential densities within walking distance (one-quarter mile) of transit streets, major employment areas, and major shopping areas.
- Increasing densities and intensities for new retail and commercial office development.
- Designating new land for neighborhood shopping centers within convenient walking and biking distance of residential areas.

- Designating lands to provide a better balance between housing and jobs.
- Establishing maximum parking limits for office and institutional development.

Each of these concepts and their application to the Klamath Falls urban area is addressed below.

Residential Densities

A range of options can be used to increase residential densities along transit corridors and near major commercial and employment centers. Options include:

- Redesignate single-family land for multifamily use within one-quarter to one-half mile of the following:
 - 6th Street (entire length),
 - Shasta Way (commercial area),
 - Washburn Way (commercial area),
 - OIT campus,
 - Campus Way (commercial area), and
 - Homedale Road (near the airport).
- Where single-family to multifamily conversion is not acceptable or is inappropriate, add accessory units or granny flats.
- Add multifamily as an allowable land use in commercial districts. Multifamily development could be permitted as a separate free-standing use or according to conditions that require housing to be above or behind the commercial use.
- Redesignate land east of the downtown (between Klamath Avenue and the railroad) as multifamily residential.

Intensity of Retail and Office

The most common method of increasing the intensity of retail and office use is to establish minimum floor area ratios (FARs). Data does not currently exist for the FARs in Klamath Falls. Typically, FARs in small cities and suburban communities are less than 1:4 (0.25). Establishing a minimum FAR of 1:3 (0.33) likely would increase the intensity of development in Klamath Falls. Because establishing a minimum FAR higher than 1:4 likely would result in reduced parking, the retail industry likely will oppose such a change.

Neighborhood Commercial

Shortened vehicle trips and trips by alternative modes can be encouraged by making neighborhood commercial development more accessible to area residents. Currently, the Klamath Falls comprehensive plan map appears to provide a good distribution of neighborhood commercial centers. Additional neighborhood commercial sites should be located at approximately one-half-mile intervals throughout the city. The size of neighborhood commercial areas should range between 1 and 5 acres. Based on a 1995 TGM project in Washington County, it was determined that smaller scattered sites provide the best opportunities for reduced vehicle miles traveled (VMT) per capita.

Balanced Housing and Jobs

Given the relative isolation of Klamath Falls from other major cities, the community serves as the primary employment and housing center for the region; therefore, a need does not exist to add housing to influence the jobs/housing balance.

Within Klamath Falls, a balance between these may be achieved by matching jobs and housing by area within the community. For example, housing may need to be added near the employment centers in the northern portion of the community (OIT and the downtown) to create a localized balance. In general, this type of strategy works best in larger communities and in metropolitan areas where congestion affects commute time and patterns.

For the purposes of testing a transportation-efficient land use scenario and evaluation of housing/jobs balance was conducted for the future year 2015 conditions in the Klamath Falls urban area. Future socio-economic conditions were summarized within the Klamath Falls UGB based on an aggregation of zonal-level data (see Chapter 4 for a description and map of TAZs) into twelve major districts. Figure 6-2 illustrates each major district, and Appendix E summarizes the zonal socio-economic and trip generation data for both the future 2015 base, as well as the transportation -efficient land use alternative.

Existing and future housing and employment data are summarized by type and district for existing and future year 2015 conditions in Table E-1. The overall area housing-to-jobs balance is approximately 1.2 for year 2015 conditions. As shown in Table 6-1, this ratio is dramatically different within the major districts. For example, the OIT, Downtown, West South Sixth and SW/Airport districts have an imbalance of too many jobs for the number of dwelling units planned for the year 2015. Conversely, the West Downtown, Shasta Way and Altamont districts have an imbalance of too many dwelling units for the number of jobs planned for the year 2015.

Maximum Parking Limits

Creating maximum parking limits for office and institutional uses will eliminate a perception that parking is plentiful; thus people will consider alternative modes. In general, this strategy will work best in combination with other strategies listed above.

Conclusion

The strategies described above will result in land use changes designed to increase opportunities for walking or biking between home and work, and between home and shopping areas. Considering the options listed, maximum parking limits likely will have the least positive effect, while adding housing near commercial areas may have the best effect. Specifically, the strategy of converting the land east of downtown into housing may have the single best effect on linking housing, employment, and shopping. This area is close to downtown and relatively close to employment centers in the northern portion of the community. The proximity to these activity areas will increase convenience, shorten trip lengths, and make alternative modes more viable.

COMPARISON OF ALTERNATIVES - SUMMARY OF SYSTEM WIDE PERFORMANCE MEASURES

Each of the five major alternatives were tested and summarized using the Klamath Falls urban area travel demand model. Two major system wide performance measures were used in the summary of future travel conditions in the Klamath Falls urban area, including: *lane-miles of congestion* (streets categorized as “under,” “approaching” or “at/over” capacity); and, total *vehicle miles traveled (VMT) and vehicle hours traveled (VHT) per capita*. Tables 6-2 and 6-3 summarize the key performance measures for each of the alternatives. Figures 6-3 through 6-8 illustrate the future year 2015 per peak hour traffic volumes for each of the alternatives.

Key Findings

The major findings of the comparison of the alternatives area as follows:

- The Transportation-Efficient Land Use Alternative provides the most significant reduction in per capita VMT and VHT when compared to the Do-Nothing Alternative. As shown Table 6-3, the per capita VHT of the Transportation-Efficient Land Use Alternative is approximately 20 percent less than the Do-Nothing Alternative while the per capita VMT is approximately 16 percent less.
- The Transportation-Efficient Land Use Alternative also minimizes the number of congested lane-miles as compared to the other alternatives.
- All of the alternatives provide some reduction in per capita VMT and VHT when compared to the Do-Nothing. Additionally, each alternative reduces the number of lane-miles operating near or over capacity in the Do-Nothing Alternative.

In addition to the analysis of the five primary alternatives, several options that have been identified to improve circulation and access in the Klamath Falls area were evaluated and summarized in separate studies. These options focused on specific solutions to short-term and long-term traffic problem areas. A discussion of the various options studied are summarized below.

Campus Area Traffic Impact Analysis

The city of Klamath Falls initiated the Campus Area Traffic Impact Analysis (Kittelson & Associates, Inc., 1996) to fully assess recent and planned development and their impacts in the vicinity of Campus Drive and Oregon Institute of Technology (OIT). The purpose of this study was to determine the transportation-related impacts associated with new developments in the area, and identify short-term and long-term transportation improvements. Study findings showed the need for new traffic signal placement and coordination on Campus Drive at Dahlia Street as an interim solution. Additional street and traffic control improvements were identified including capacity and traffic control

improvements at Highway 97/Dan O'Brien Way, and the location of a new collector street intersection on Campus Drive east of Dahlia Street. Additional local street connection improvements and transit-related policy improvements (student buss-pass program) were also identified as part of the study as effective measures to improve traffic conditions. The study also identified the need to investigate and study longer-term transportation problems and solutions in the study area, including Highway 97, Eastside Expressway and Dan O'Brien Way.

Klamath Falls Eastside Expressway Alternatives Analysis

The Eastside Expressway (Alameda Bypass) currently terminates at South Sixth Street just east of Summers Lane. Preliminary findings of the Klamath Falls Urban Area TSP study identified the need for better, east-west arterial traffic control and access in the Altamont/South Sixth Street corridor. The TSP Management Team agreed that a more detailed study of alternatives was necessary before consensus could be made on long-term projects and plans in the area. The Klamath Falls Eastside Expressway alternatives Analysis (W&H Pacific, Inc., 1996) was authored to explore and evaluate a number of alternatives for improved arterial solutions. This analysis was then used by the TSP Management Team to define a preliminary route to complete the Eastside Expressway.

Alternatives considered in the analysis included:

1. Continued use of South Sixth Street with long-term access management treatments (driveway closures and consolidation) and new and coordinated traffic signals.
2. Continued use of South Sixth Street with short-term access management treatments (including median barriers and driveway closures and consolidation) and new and coordinated traffic signals.
3. A new arterial connection using Old OC&E Railroad Right-of-Way.
4. A new arterial utilizing a portion of Foothills Boulevard, then crossing Patterson Street to the south of Moyina Heights.
5. A new arterial utilizing a portion of Foothills Boulevard then crossing Patterson Street to the north of Moyina Heights.

The study evaluated each option based on a number of criteria, including:

- Appropriate Street Functional Classification (balanced traffic demand in study area);
- Improved Traffic Operation (minimize congestion);
- Improve Travel Safety (on all study area streets);
- Enhance Alternative Modes (pedestrian, bicycle and transit);
- Support Economic Development (enhanced movement of goods/services);
- Minimize Cost (of new transportation improvements)
- Minimize Land Use/Environmental Impacts (on current residential, commercial/industrial uses and the natural environment).

Table 6-1
Transportation-Efficient Land Use Alternative
Base Year and 2015 Housing-To-Jobs Balance

Base Year Conditions

Year 1990	HOUSING			EMPLOYMENT							TOTAL		
	Single Family	Multi- Family	Other	Indust	Retail	Service	Educ	Govt	Spec	Other	Housing	Jobs	HH/Job
Externals	0	0	0	0	0	0	0	0	0	0	0	0	
OIT/Merie W.	10	26	475	55	138	192	358	177	970	16	511	1906	0.27
Lakeshore	859	46	0	649	44	85	0	10	0	46	905	834	1.09
W. Downtown	2468	304	0	34	59	163	218	101	0	41	2772	616	4.50
Downtown	1161	397	58	730	432	1127	182	479	0	419	1616	3369	0.48
Orindale	781	19	119	1593	18	50	44	24	0	24	919	1753	0.52
Shasta Way	1228	105	113	36	27	97	0	128	0	13	1446	301	4.80
W South 6th	1584	352	172	359	1671	449	117	183	0	159	2108	2938	0.72
E South 6th	1897	136	55	96	393	181	98	43	0	237	2088	1048	1.99
Altamont	3162	305	48	92	97	82	203	2	0	90	3515	566	6.21
SW/Airport	217	0	62	52	18	20	0	483	0	117	279	690	0.40
Southeast	454	19	0	11	9	25	124	0	0	3	473	172	2.75
Total	13821	1709	1102	3707	2906	2471	1344	1630	970	1165	16632	14193	1.17

Comprehensive Plan Scenario

Year 2015	HOUSING			EMPLOYMENT							TOTAL		
	Single Family	Multi- Family	Other	Indust	Retail	Service	Educ	Govt	Spec	Other	Housing	Jobs	HH/Job
Externals	0	0	0	0	0	0	0	0	0	0	0	0	
OIT/Merie W.	10	466	475	462	263	342	421	202	1150	16	951	2856	0.33
Lakeshore	1154	96	0	734	44	135	0	10	0	46	1250	969	1.29
W. Downtown	2583	344	0	34	59	161	258	111	0	41	2927	664	4.41
Downtown	1171	397	58	786	529	1163	196	596	0	447	1626	3717	0.44
Orindale	1063	59	119	1418	59	50	44	24	0	20	1241	1615	0.77
Shasta Way	2014	297	158	6	32	96	45	128	0	13	2469	320	7.72
W South 6th	1580	394	172	434	2072	727	176	203	0	168	2146	3780	0.57
E South 6th	2372	183	55	74	547	296	133	43	0	277	2610	1370	1.91
Altamont	4220	574	48	411	177	113	234	52	0	141	4842	1128	4.29
SW/Airport	217	0	62	87	18	118	24	498	0	137	279	882	0.32
Southeast	731	119	0	74	1	22	164	0	0	67	850	328	2.59
Total	17115	2929	1147	4520	3801	3223	1695	1867	1150	1373	21191	17629	1.20

Transportation-Efficient Land Use Scenario

Year 2015	HOUSING			EMPLOYMENT							TOTAL		
District	Single Family	Multi- Family	Other	Indust	Retail	Service	Educ	Govt	Spec	Other	Housing	Jobs	HH/Job
Externals	0	0	0	0	0	0	0	0	0	0	0	0	
OIT/Merie W.	292	510	481	462	263	342	421	202	1150	16	1283	2856	0.45
Lakeshore	1295	118	3	734	44	135	0	10	0	46	1416	969	1.46
W. Downtown	2152	276	0	106	135	285	282	167	0	81	2428	1056	2.30
Downtown	1854	504	77	576	390	834	140	435	0	338	2435	2713	0.90
Orindale	1063	59	119	1418	59	50	44	24	0	20	1241	1615	0.77
Shasta Way	1680	224	126	76	107	221	71	183	0	53	2030	711	2.86
W South 6th	2022	463	179	435	1997	698	164	198	0	166	2664	3658	0.73
E South 6th	2372	183	55	74	547	296	133	43	0	277	2610	1370	1.91
Altamont	3437	473	45	478	240	222	252	107	0	172	3955	1471	2.69
SW/Airport	217	0	62	87	18	118	24	498	0	137	279	882	0.32
Southeast	731	119	0	74	1	22	164	0	0	67	850	328	2.59
Total	17115	2929	1147	4520	3801	3223	1695	1867	1150	1373	21191	17629	1.20

DISTRICT MAP

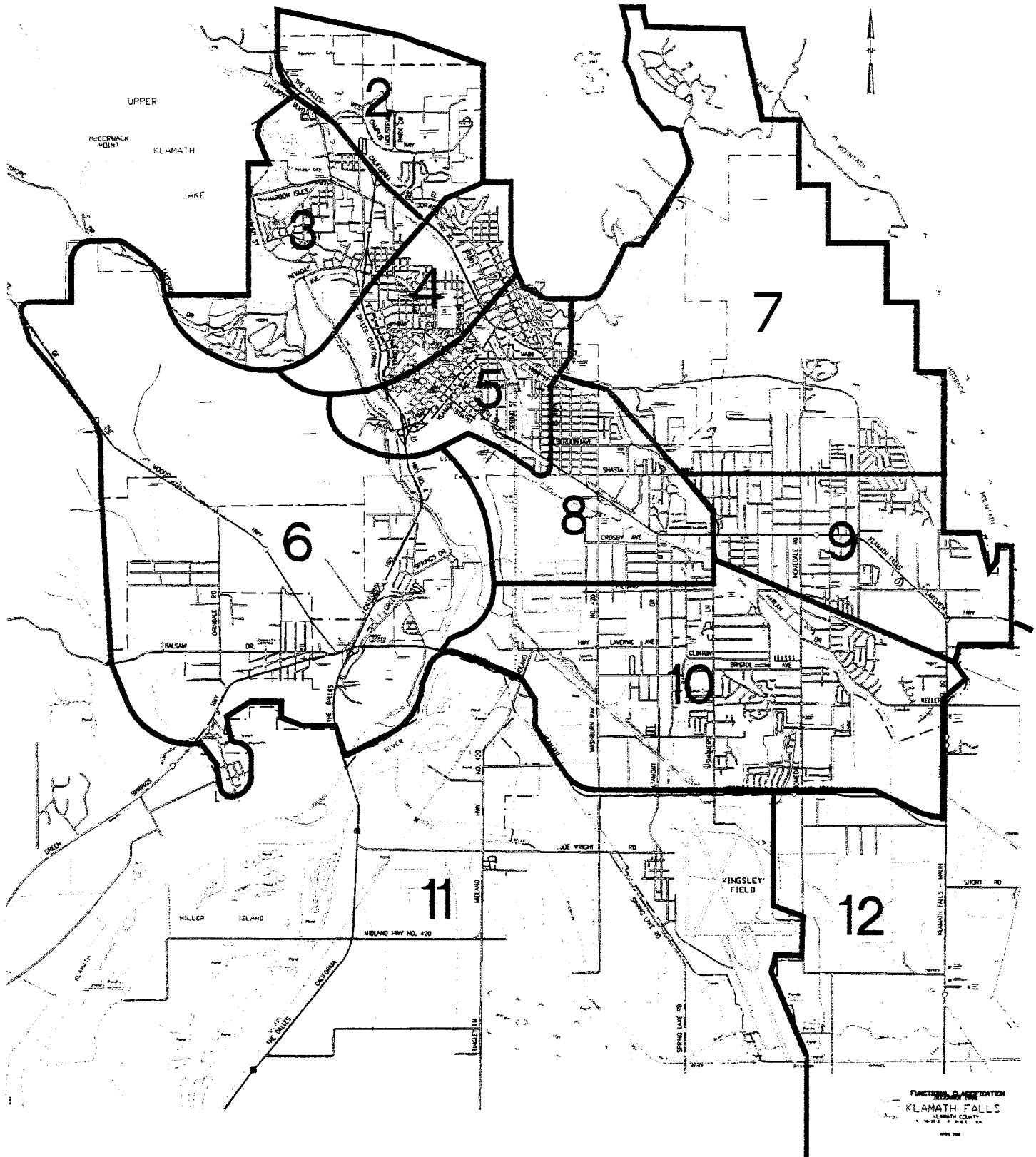


FIG6-2.DWG

FIGURE: 6-2

KLAMATH FALLS URBAN AREA TRANSPORTATION SYSTEM PLAN



Table 6-2
Comparison of Lane-Miles of Congestion
 (Arterials and Collector Streets Only)

Alternative	Lane-Miles		
	Under Capacity (v/c < 0.70) ¹	Near Capacity (0.71 < v/c < 0.85)	Over Capacity (v/c > 0.86)
Do-Nothing	240.69	6.17	2.38
Stay-the-Course	267.54	5.16	0.74
TSM	243.12	4.90	1.22
Transit-TDM	242.88	4.29	2.07
Transportation- Efficient Land Use	246.47	1.72	1.05

¹v/c = Volume-to-Capacity Ratio

Table 6-3
Comparison of Per Capita Vehicle Hours Traveled (VHT)
and Vehicle Miles Traveled (VMT)
 (Arterials and Collector Streets Only)

Alternative	Per Capita VHT	Per Capita VMT
Do-Nothing	0.45	16.71
Stay-the-Course	0.43	16.59
TSM	0.43	16.65
Transit-TDM	0.42	15.92
Transportation- Efficient Land Use	0.36	13.99

Based on the study findings and evaluation, the TSP Management Team selected Alternative #3, which consists of extending the Eastside Expressway along a portion of the Old OC&E Railroad right-of-way, as the best option for improving arterial circulation and access in the study area. These findings were forwarded in the drafting of the Klamath Falls Urban Area TSP.

PREFERRED ALTERNATIVE

The selection of the Preferred Alternative for the Klamath Falls Urban Area TSP followed a technical review and evaluation by both the Management Team and TPAC. Through a series of public meetings with both the City and County Planning Commissions, the draft TSP and Preferred Alternative was further refined based on an expanded focus on the overall cost and impacts of new street projects. This refinement process resulted in the removal of some future street projects totaling \$8 million, most notably the Eastside Expressway Extension (Project #3.2). In lieu of the Eastside Expressway Extension, more rigorous access management standards and policies to protect the function and integrity of South Sixth Street, particularly east of the Alameda Bypass, were added to the Preferred Alternative (see also Chapter 7 - Recommended access management policies). Although not identified as specific roadway improvement projects at this date, additional parallel local street improvements to South Sixth Street were also recognized as needed improvements. These improvements require consideration as new development or re-development occurs in the corridor.

The refined Preferred Alternative was selected, as indicated in Table 6-4 below, because it best met the objectives and policies of the TSP study as outlined in Chapter 2. It is important to note that policies alone (TSM, TDM and land use) do not meet all of the BP objectives. The Preferred Alternative blends a number of modal improvements (transit service, street, bicycle and sidewalk projects) and transportation and land use policy enhancements from each of the major alternatives evaluated above. These individual projects and policies are fully defined in Chapters 9 and 10 of the TSP.

Tabel 6-4
Klamath Falls Urban Area TSP Evaluation Criteria

ALTERNATIVES	OBJECTIVES						
	Maximize Intermodal Components	Improve Safety on Southside Expressway and Washburn	Improve Airport Access	Provide Consistent ¹ Road Standards	Improve East-West Access in Altamont Area	Develop ² Effective Street Maintenance Program	Ensure Long-Range Funding for BTS
Do-Nothing	○	○	○	N/A	○	N/A	○
Stay-The-Course	●	●	●	N/A	●	N/A	○
Transportation System Management	○	●	○	N/A	●	N/A	○
Transportation Demand Management	○	○	○	N/A	●	N/A	●
Transportation Efficient Land Use	○	○	●	N/A	●	N/A	●
Preferred	●	●	●	N/A	●	N/A	●

Evaluation Scoring

○ Poor

● Adequate

● Best

I:\PROJECT\29641801\RPT\FINAL\CH6.FIN

¹ None of the five major alternatives specifically address roadway standards. Recommended standards for consistency in the Klamath Falls Urban Area TSP are summarized in Chapter 7.

² None of the five major alternatives specifically address improved maintenance programs for city and county roads.

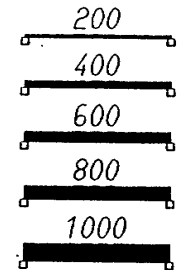
AUTO VOLUMES

emme/2

LINKS:
all

2015 PM PEAK HOUR TRAFFIC
DO-NOTHING ALTERNATIVE

SCALE: 100



WINDOW:
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2418.5/-917.89

EMME/2 PROJECT: Klamath Falls Area
SCENARIO 1: 2015 Do Nothing Alternative

FIGURE 6-3

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OREGONDT...ajm

AUTO VOLUMES

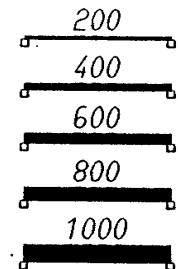
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2015 PM PEAK HOUR TRAFFIC

STAY-THE-COURSE ALTERNATIVE

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2418.5/-917.89

EMME/2 PROJECT: Klamath Falls Area
SCENARIO 2: 2015 Stay-The-Course Alternative

FIGURE 6-4

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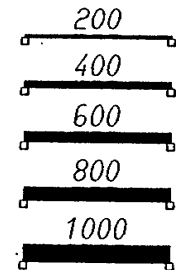
AUTO VOLUMES

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LINKS:
all

2015 PM PEAK HOUR TRAFFIC
TSM ALTERNATIVE

SCALE: 100



WINDOW:
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EMME/2 PROJECT: Klamath Falls Area
SCENARIO 3: 2015 TSM Alternative

FIGURE 6-5

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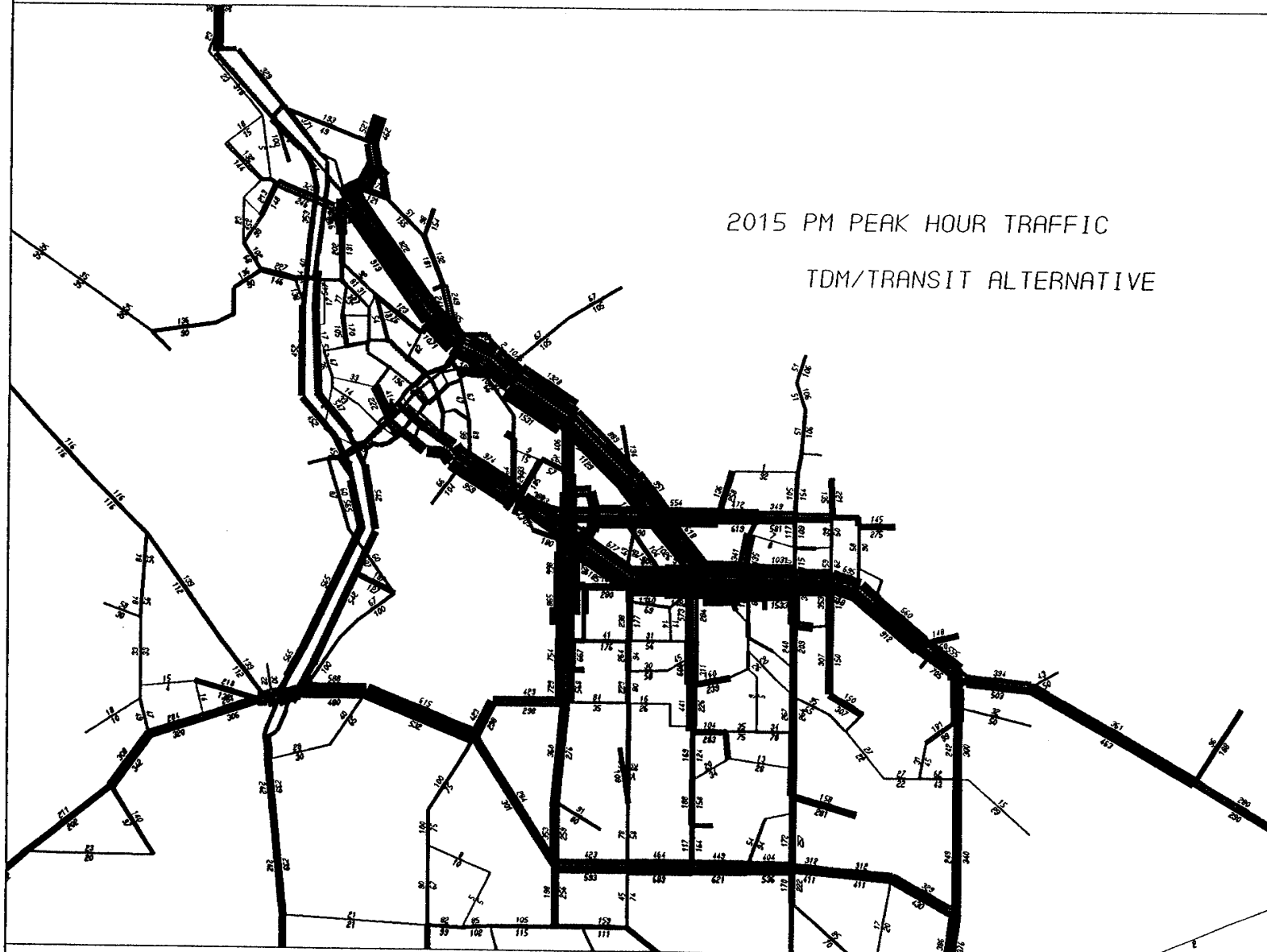
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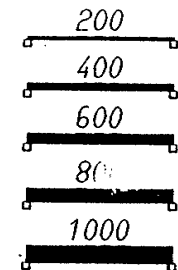
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TDM/TRANSIT ALTERNATIVE



SCALE: 100



WINDOW:
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2418.5/-917.89

EMME/2 PROJECT: Klamath Falls Area
SCENARIO 4: 2015 Transit/TDM Alternative

FIGURE 6-6

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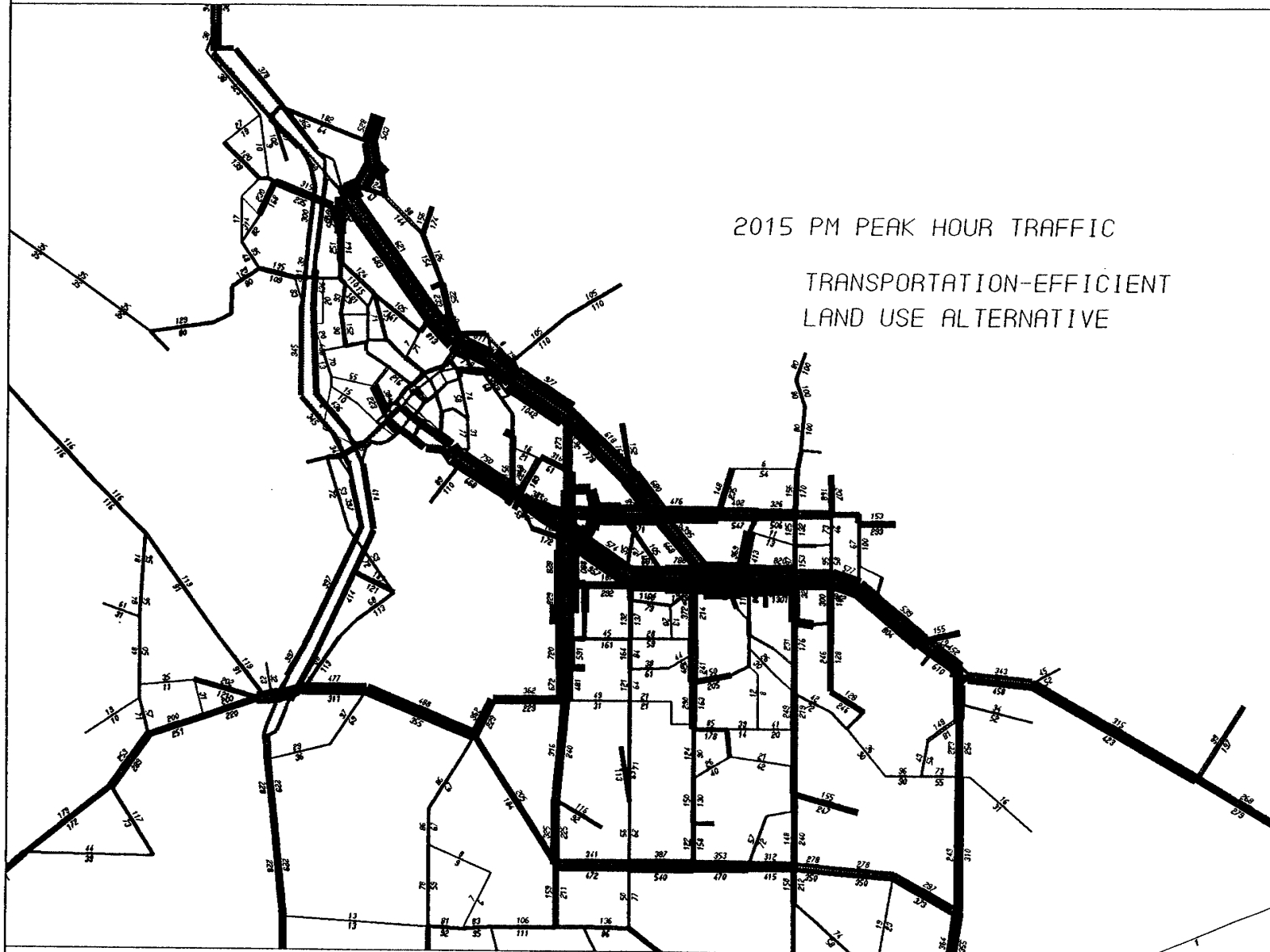
AUTO VOLUMES

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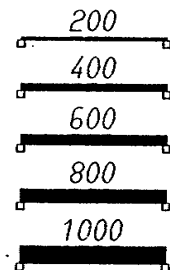
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2015 PM PEAK HOUR TRAFFIC

TRANSPORTATION-EFFICIENT
LAND USE ALTERNATIVE



SCALE: 100



WINDOW:
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2418.5/-917.89

EMME/2 PROJECT: Klamath Falls Area
SCENARIO 5: 2015 Transportation Efficient Land Use Alternative

FIGURE 6-7

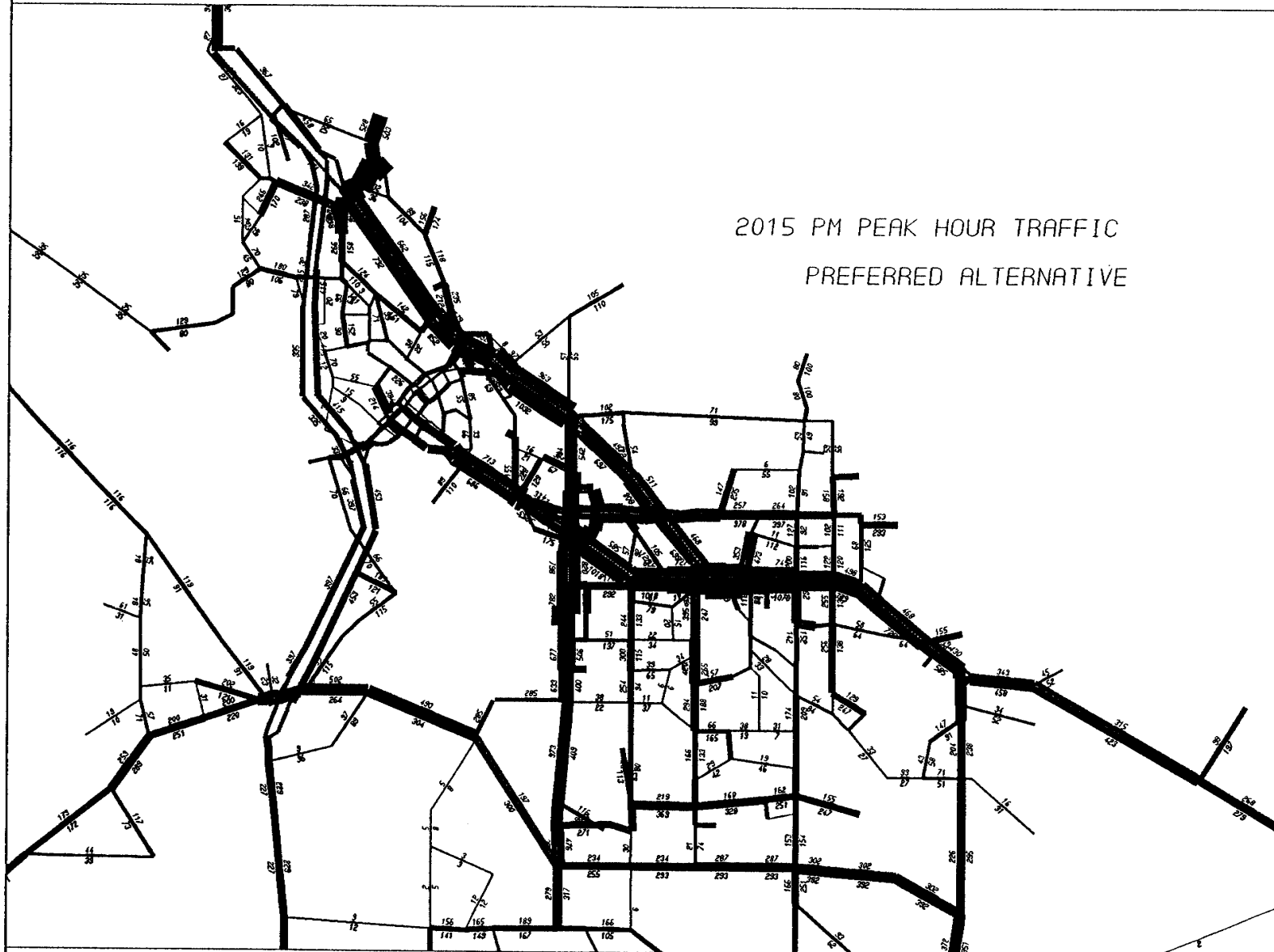
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MODULE: 6.12
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AUTO VOLUMES

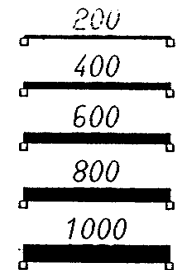
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LINKS:
all

2015 PM PEAK HOUR TRAFFIC
PREFERRED ALTERNATIVE



SCALE 100

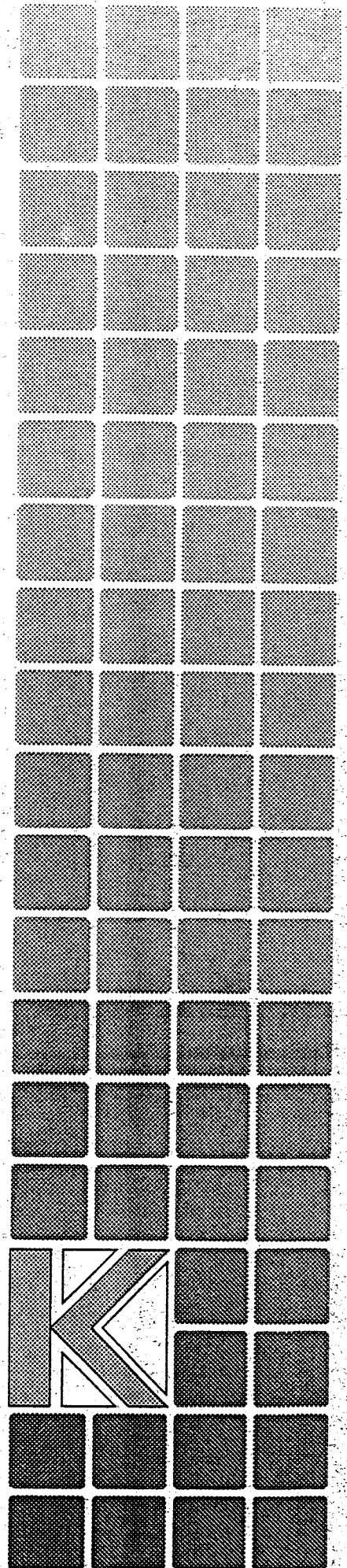


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EMME/2 PROJECT: Klamath Falls Eastside Expressway Alternatives
SCENARIO 11: 2015 Preferred Alternative

FIGURE 6-8

97-10-31 10:42
MODULE: 6.12
OREGONDT...ajm



Chapter 7

Recommended Design Standards

RECOMMENDED DESIGN STANDARDS

It is necessary to adopt design standards to allow for a safe and efficient transportation system for all modes of travel. Because of functional differences, a wide array of design standards are used for the many different types of highway facilities. For example, freeways are designed to allow the maximization of traffic movement while local/minor streets try to maximize access to the transportation system. Within a functional class, design standards may vary with the type of terrain, type of traffic to be served, and whether it is an urban or rural roadway. Design standards should be used as guidelines in the development of new streets and in the reconstruction of existing roads.

RECOMMENDED STREET 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 (see Chapter 11) also requires local jurisdictions to classify streets according to their function. The classification 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 7-1 shows the relationship of the functional classification to access and mobility. Figure 7-2 shows the recommended functional classification of streets. A description of each functional class follows.

State highways serve as the primary gateways in the Klamath Falls urban area, and carry the majority all the vehicle trips entering, leaving, or passing through the Klamath Falls area. These highways are critical to the Klamath Falls urban area because they generally serve the highest traffic volumes and longest trips. Access control is critical on these facilities to ensure that they operate safely and efficiently.

Major arterials connect the state highways and link major, high concentration commercial, residential, industrial, and institutional areas. Major arterial streets are typically spaced to assure accessibility and reduce the incidence of longer distant trips using major and minor collectors and local streets in lieu of well-placed major arterials. Major arterials within the Klamath Falls UGB include: South Sixth Street, Eastside Expressway, Washburn Way, Klamath Avenue and Main Street.

Major Collectors provide major access and circulation within and between residential neighborhoods and commercial/industrial areas. Major collectors differ from major arterials in two ways:

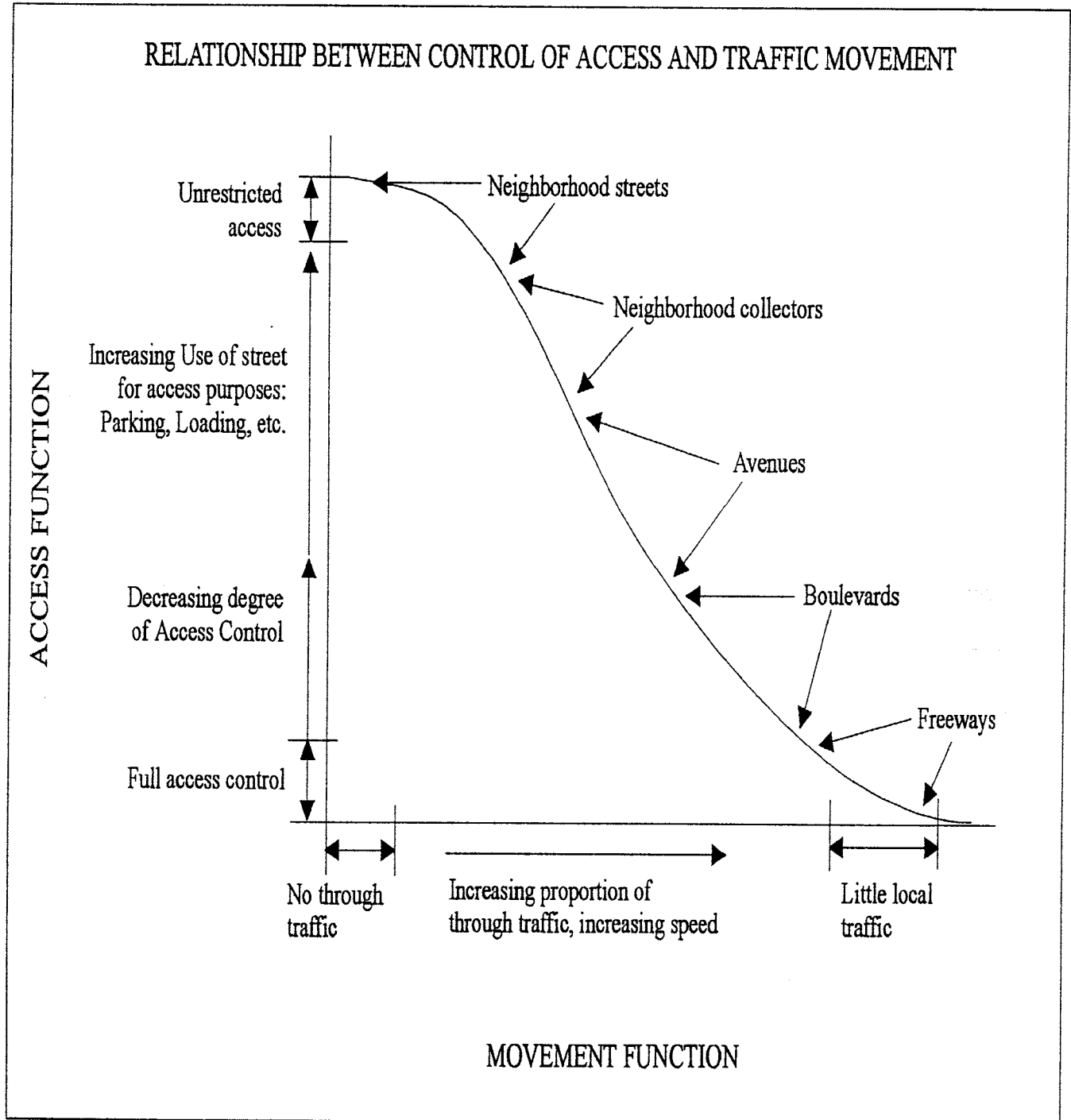
- Controlled access may not be required for all major collectors; and
- Major collectors penetrate neighborhoods, distributing trips from the major arterials through the area to their ultimate destinations.

The standard major collector 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 minor collectors or major 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. Some of the major collectors within the Klamath Falls UGB include: Laverne Avenue, Summers Lane, Shasta Way, Homedale Road, Foothills Boulevard, Campus Drive, and Oregon and Nevada Avenues.

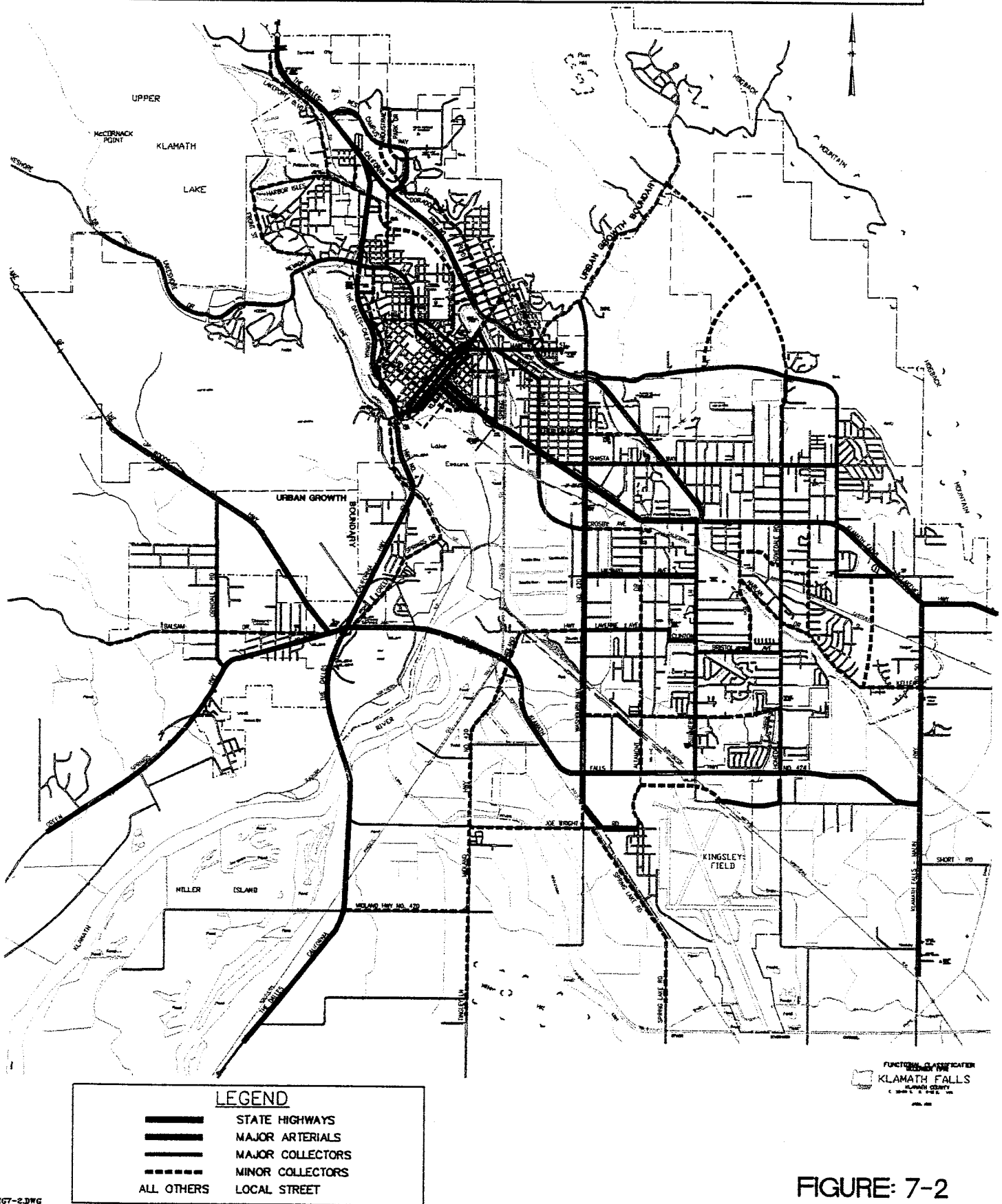
Minor Collectors are similar in function to major collectors in that controlled access is generally unnecessary, and that they penetrate neighborhoods, distributing trips from the major arterials through the area to their ultimate destinations. In the case of a minor collector, however, land use along its route is generally low to medium density residential in nature. The intensity of development at intersections along its route is also generally less intense than might occur for major collectors. Traffic calming techniques such as traffic circles, bulbed intersections, or speed humps can be expected as typical means of controlling traffic speeds on minor collectors. The purpose of the minor collector is to minimize the impact of traffic to adjacent land used while recognizing that collector roadways are still necessary to serve less intense residential areas. Some of the minor collectors within the Klamath Falls UGB include: Biehn Street, 3rd Street, and Hilyard Avenue.

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.) are to be constructed at the time of development.

Figure 7-1



RECOMMENDED STREET FUNCTIONAL CLASSIFICATION



Both Klamath County and the City of Klamath Falls have current street design standards. The Klamath Falls Urban Area TSP proposes a detached set of parameters that defines the Functional Classification System for major (City of Klamath Falls) arterials, collector streets and local streets. As summarized in Table 7-1, and illustrated in Figures 7-3 and 7-4 (Klamath County), these parameters guide planning and development of new street improvements.

Traffic volumes on different streets vary depending on their classification and number of traffic lanes. Table 7-1 provides general parameters for speed, grade and modal amenities. 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.

STREET STANDARDS

Suggested design standards for access on the Klamath County and City of Klamath Falls roadway system have been developed to maximize the safety and efficiency of the entire transportation system. Suggested major arterial, collector and local street design standards are described in Table 7-2. Consistent access management standards for state highways are listed in Table 7-3. These standards are also consistent with the Oregon Highway Plan.

The suggested roadway design standards are to be used as a guideline by the City and County for the development of future roadway facilities within the Klamath Falls urban area, giving maximum flexibility to each jurisdiction while maintaining a core consistency. As the region continues to develop, there may be the need to provide some flexibility in the street design standard, especially on local streets, assuming that the classification system is functioning properly. The purpose of a flexible design standard is to accommodate development needs both within the City of Klamath Falls and outside the city limits within unincorporated Klamath County (but still within the UGB) 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.

Roadway design standards for state highways are provided in the Oregon Highway Design Manual. These standards should be applied to all state highway improvements in the urban area.

Furthermore, research and implementation of street design standards and traffic “calming” devices used to control traffic on local streets have shown some success outside the United States. As a minimum, there are four important 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 (ASE), National Association of Home Builders and the Urban Land Institute (ULI).
- *Residential Street Design and Traffic Control* by the Institute of Transportation Engineers (ITE).

Table 7-1
Proposed Functional Classification System

	Major Arterial	Major Collector	Minor Collector	Local Street
Auto amenities (lane widths) ¹	2-4 lanes (12 ft.)	2 lanes (11-12 ft.)	2 Lanes (11 ft)	2 Lanes (10-11 ft)
Bike amenities ²	2 lanes (6 ft.)	2 lanes (6 ft.)	Optional 2 lanes (6 ft.)	Shared Surface
Pedestrian amenities	2 sidewalks (5 ft. ³), median pedestrian islands	2 Sidewalks (5 ft.)	2 Sidewalks (5 ft.)	2 Sidewalks (5 ft.)
Transit	Typical	Typical	Permissible/not typical	Permissible/not typical
Managed speed ⁴	35 - 55 mph	25- 35 mph	25 mph	15-25 mph
Curb-to-curb width ⁵ (two way)				
No on-street parking	74 ft.	22-46 ft.	22-36 ft.	22 ft.
Parking one side	NA	NA	NA	30 ft.
Parking both sides	NA	NA	NA	36 ft.
Traffic calming	NO	Permissible/not typical	Permissible/not typical	Typical
Preferred adjacent land use	High intensity	Med to high intensity	Medium intensity	Low intensity
Access control (See Table 7-2)	YES	SOME	NO	NO
Turn lanes/center landscape median	Continuous and/or medians/pedestrian islands (14 ft.)	Typical at major intersections (12 ft.)	Typical at major intersections (12 ft.)	Not Typical
Park Strips	Two - 6-8 ft. desired	Two - 6 ft. desired	Two 4 ft. desired	Two 4 ft. desired
Through-traffic connectivity	Primary function	Typical function	Typical function	Permissible
Maximum grade	7%	7%	7%	10%

1 Lane widths shown are the preferred construction standards that apply to existing routes adjacent to areas of new development, and to newly constructed routes. On arterial and collector roadways, an absolute minimum for safety concerns is 10 ft. Such minimums are 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.

2 An absolute minimum width for safety concerns is 5 ft. on major arterials and 4 ft. on collectors and local streets, 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.

3 Sidewalks should be 8-15 feet wide in commercial areas.

4 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.

5 Street design for each development shall provide for emergency and fire vehicle access. Street widths of less than 28 feet shall be applied as a development condition through the subdivision and/or planned development process. The condition may require the developer to make the choice between improving the street to the 28 ft. standard or constructing the narrower streets with parking bays placed intermittently along the street length. The condition may require fire-suppressive sprinkler systems for any dwelling unit more than 150 feet from a secondary access point.

NOTE: 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.

Table 7-2
SUGGESTED STREET DESIGN STANDARDS

Functional Classification	System Spacing	Design / Managed Speed (MPH)	Horizontal Alignment	Vertical Alignment	Traffic Control	Street Lighting	Access Management			
							Minimum Spacing	Residential Use	Commercial Uses	Industrial Uses
Major Arterial	1 mile	35-55\ 45-55	Minimum centerline radius: 650 ft	Maximum grade: 7% Minimum sight distance: 450 ft	1. Placement/ design of traffic control devices as warranted by MUTCD 2. Minimum signal spacing: 1/4 mile	1. Mounting height: 35-40 ft 2. Brightness: 22,000 lumens sodium vapor (200 watts)	300 ft	No direct access	1. Shared access driveways are encouraged 2. Left-hand turn lanes determined through review	1. Shared access driveways are encouraged 2. Left-hand turn lanes determined through review
Major Collector	1/4 mile	35\ 25-35	Minimum centerline radius: 560 ft	Maximum grade: 7% Minimum sight distance: 300 ft	Placement/design of traffic control devices as warranted by MUTCD	1. Mounting height: 30-35 ft 2. Brightness: 22,000 lumens sodium vapor (250 watts)	100 ft	1. Shared access driveways are encouraged	1. Shared access driveways are encouraged 2. Left-hand turn lanes determined through review	1. Shared access driveways are encouraged 2. Left-hand turn lanes determined through review
Minor Collector	1/8 mile	25\ 25	Minimum centerline radius: 300 ft	Maximum grade: 7% Minimum sight distance: 250 ft	Placement/design of traffic control devices as warranted by MUTCD	1. Mounting height: 25-30 ft 2. Brightness: 9,500 lumens sodium vapor (100 watts)	50 ft	1. Shared access driveways are encouraged	1. Shared access driveways are encouraged 2. Left-hand turn lanes determined through review	1. Shared access driveways are encouraged 2. Left-hand turn lanes determined through review
Local Street	Min. 400 ft. Max. 600 ft.	25\ 15-25	Minimum centerline radius: 150 ft	Maximum grade: 10% Minimum sight distance: 150 ft	Placement/design of traffic control devices as warranted by MUTCD	1. Mounting height: 25 ft 2. Brightness: 5,800 lumens sodium vapor (70 watts)	None	Curb cut minimum 45 ft. to curb return.	Curb cut minimum 50 ft. to curb return.	No direct access.

Table 7-3
STATE HIGHWAY
ACCESS MANAGEMENT CLASSIFICATION

Highway	Category	LOI ⁶	Urban/ Rural	Intersection				Signal Spacing ⁷	Median Control
				Public Road		Private Drive ⁸			
				Type ⁹	Spacing	Type	Spacing		
97	1	Interstate/ Statewide	U	Interchange	2-3 Mi	None	NA	None	Full
			R	Interchange	3-8 Mi	None	NA	None	Full
140 - Southside Expressway (desired)	2	Statewide	U	At grade/Intch	¼-2 Mi	None	NA	¼-2 Mi	Full
			R	At grade/Intch	1-5 Mi	None	NA	None ¹⁰	Full
140 -Southside Expressway (interim)	3	Statewide	U	At grade/Intch	¼-1 Mi	Rt Turns	800'	¼-1 Mi	Partial
			R	At grade/Intch	1-3 Mi	Rt Turns	1200'	None ⁵	Partial ¹¹
	4	Statewide/ Regional	U	At grade/Intch	1/4 Mi	Lt/Rt Turns	500'	½ Mi	Partial/None ¹²
			R	At grade/Intch	1 Mi	Lt/Rt Turns	1200'	None ⁵	Partial/None ⁷
39 - Alameda Bypass and South Sixth St (east of Alameda Bypass)	5	Regional/ District	U	At grade	1/4 Mi	Lt/Rt Turns	300'	1/4 Mi	None
			R	At grade	½ Mi	Lt/Rt Turns	500'	½ Mi	None
39 - South Sixth St (west of Alameda Bypass)	6	District	U	At grade	500'	Lt/Rt Turns	150'	1/4 Mi	None
66 - Green Springs Highway			R	At grade	1/4 Mi	Lt/Rt Turns	300'	½ Mi	None
420 - Midland Highway									

- ⁶ 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.
- ⁷ Generally, signals should be spaced to minimize delay and disruptions to through traffic. Signals may be spaced at intervals closer than those shown to optimize capacity and safety.
- ⁸ 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.
- ⁹ 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.
- ¹⁰ On 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.
- ¹¹ Partial median control will allow some well-defined and channelized breaks in the physical median barrier. These can be allowed between intersections if no deterioration of highway operation will result.
- ¹² Use of physical median barrier can be interspersed with segments of continuous left-turn lane or, if demand is light, no median at all.

For streets designated as collector, the City and County engineer is given the latitude to consider street design modifications to preserve trees. In conclusion, consideration of such policies as these will help the City and County to allow flexibility in the design of roads but still maintain a standard set of design parameters.

TRAFFIC CALMING

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 Klamath County and City of Klamath Falls standards. Further, there are provisions which could be added to the City and County development code to provide the desired flexibility. For example, the City of Portland¹³ 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 sought 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.

STRUCTURAL TRAFFIC CONTROL

Structural traffic control measures alter the physical street and driving environment to encourage or require a desired driving action. This can mean to alter 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 posted or below, as desired.

1. Speed Humps.

Speed humps may become a valuable traffic control device in the public right of way. They have been studied for many years and show 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 four inches high. A properly designed speed hump will 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 drivers down without losing control when crossing a hump. Raised crosswalks or intersections can be designed to have similar effects.

The use of speed humps is evolving. The City of Portland is currently testing a 12 foot long by three inch high speed hump on several neighborhood streets and plans to use them as a standard speed control device if found to be effective.

¹³ Neighborhood Traffic Management, City of Portland, Oregon 1988.

Speed humps are much cheaper than traffic circles and may prove to be as effective. Guidelines should be established for the testing and evaluation of speed humps on local neighborhood streets where speed appears to be a problem. If speed humps prove beneficial and economical, Klamath Falls should broaden their use in such neighborhoods. A consensus within the affected neighborhoods should be reached before using this traffic control device.

2. 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.¹⁴ Traffic circles are also used locally in Portland and Seattle. 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.

3. 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.

¹⁴ Brilon, W. (editor), *Intersections Without Traffic Signals II*, Springer Verlag, 1988.

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.

4. 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.

Chokers may effectively reduce speeds on local streets in neighborhoods or commercial areas while increasing pedestrian safety. Klamath Falls should experiment with chokers in the public right-of-way. Guidelines should be established for the testing and evaluation of chokers on local neighborhood streets.

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 grid with T-intersections or chicanes is also effective. Below is a summary of proposed actions regarding structural traffic control.

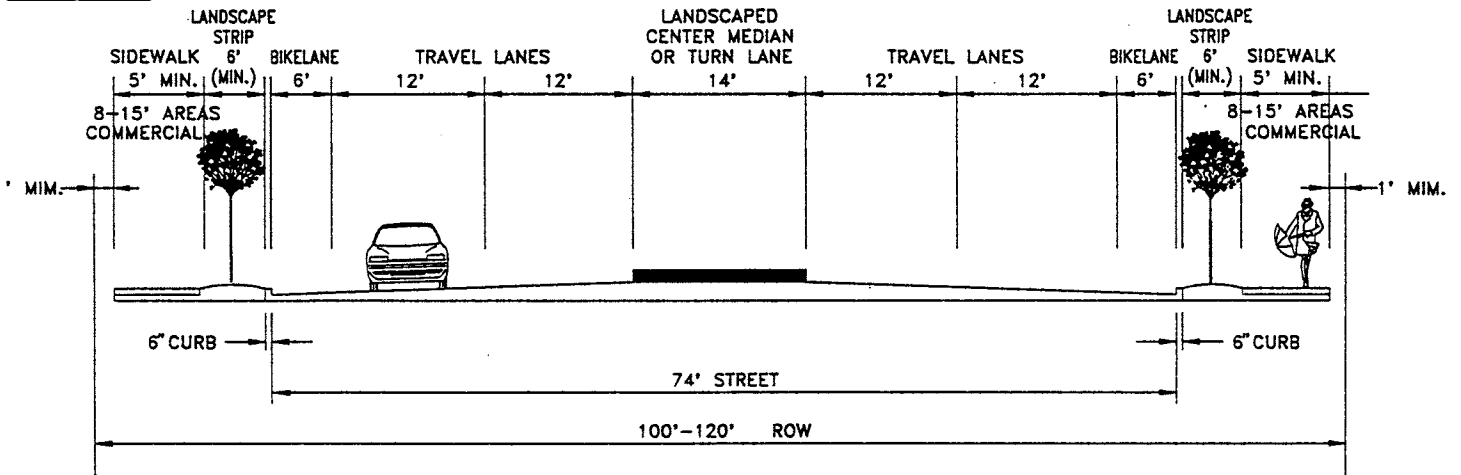
- Standards for uniform application of traffic control devices are important
- Standards for Traffic Signals, Stop Signs and Yield Signs are contained in the MUTCD and should be adhered to.
- Standards for the application of **stop sign plans** should be developed.
- Standards should be developed for the uniform application of Intersection Control Flashing Beacons and Crosswalks in the Klamath Falls urban area.
- 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 in the Klamath Falls urban area.
- Traffic circles are effective at reducing speed and are expensive. Their use should be considered after speed humps have been evaluated because speed humps are potentially more economical.
- 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 should be tested and evaluated in the Klamath Falls urban area.
- 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.

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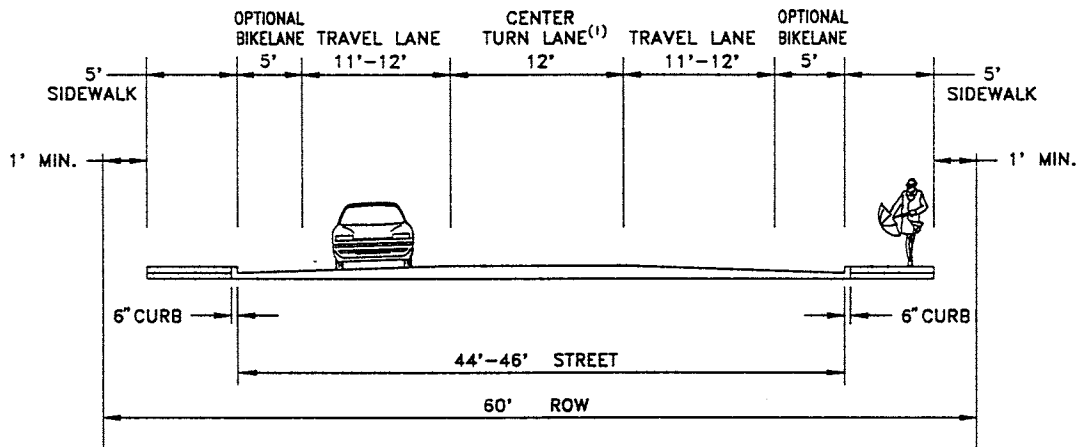
TYPICAL CROSS-SECTIONS CITY OF KLAMATH FALLS

MAJOR ARTERIAL

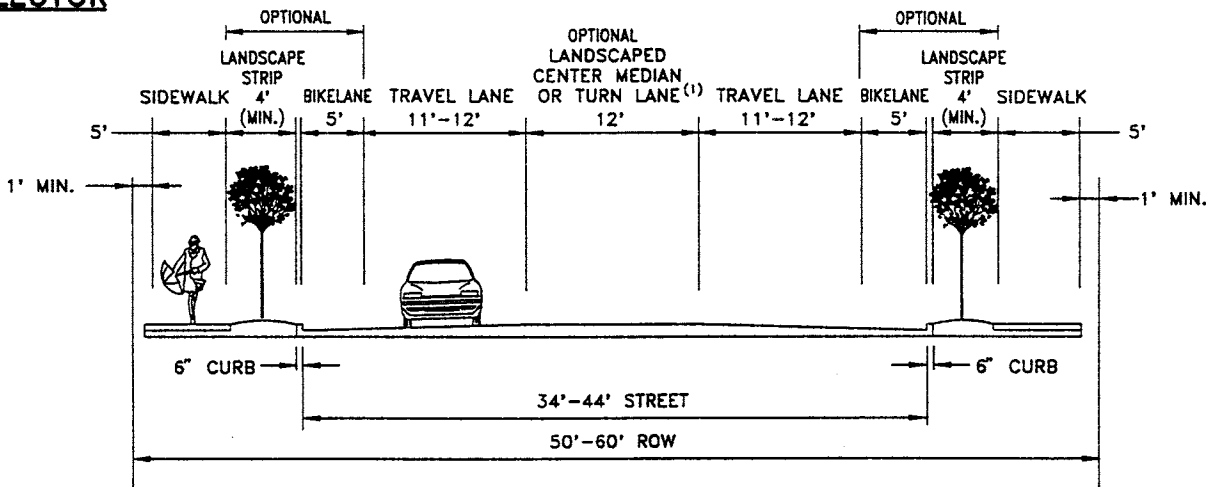


MAJOR COLLECTOR

3 LANE



MINOR COLLECTOR



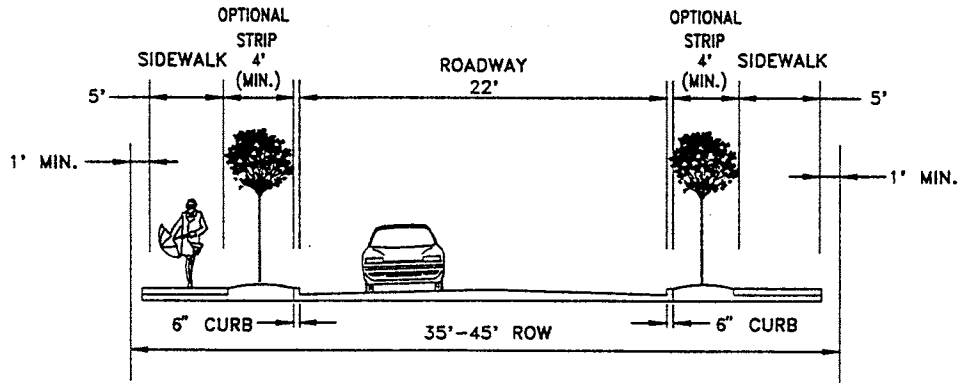
NOTE:
(1) AT ALL MAJOR INTERSECTIONS

FIGURE 7-3
SHEET 1 OF 2

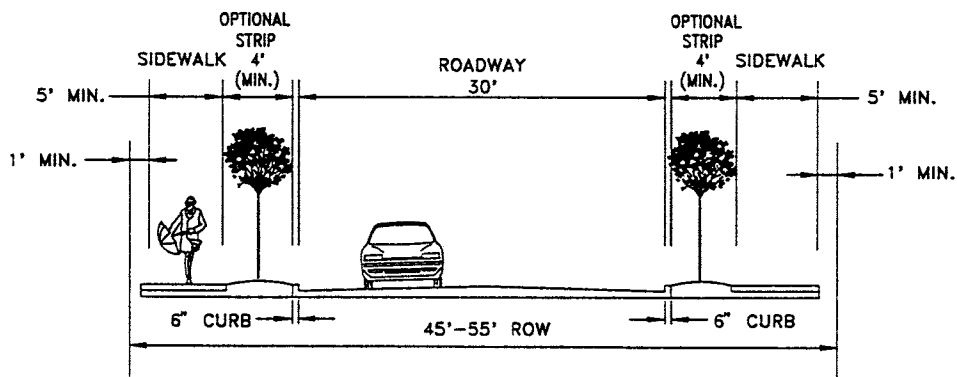
TYPICAL CROSS-SECTIONS CITY OF KLAMATH FALLS

LOCAL STREETS

NO ON-STREET
PARKING



PARKING ON
ONE SIDE



PARKING ON
TWO SIDES

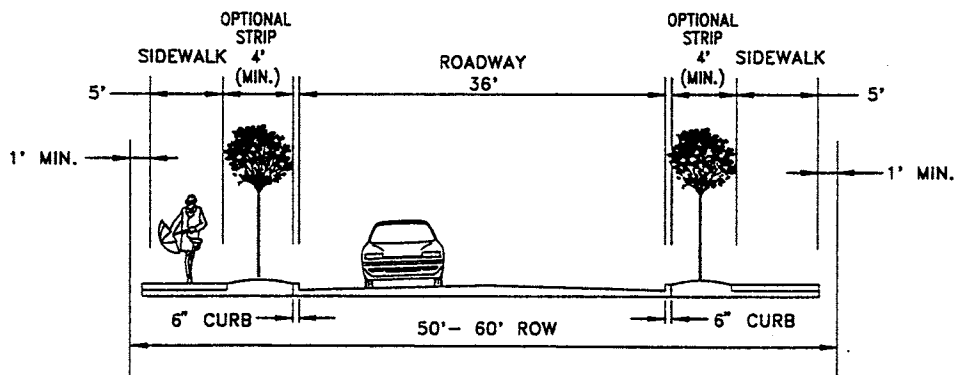
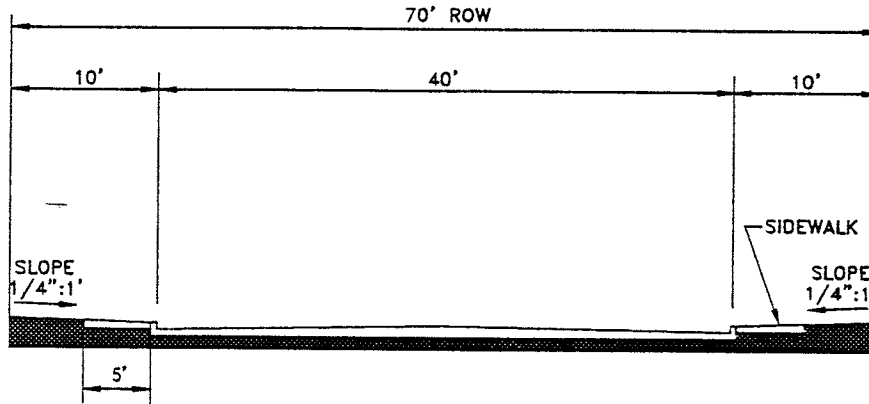


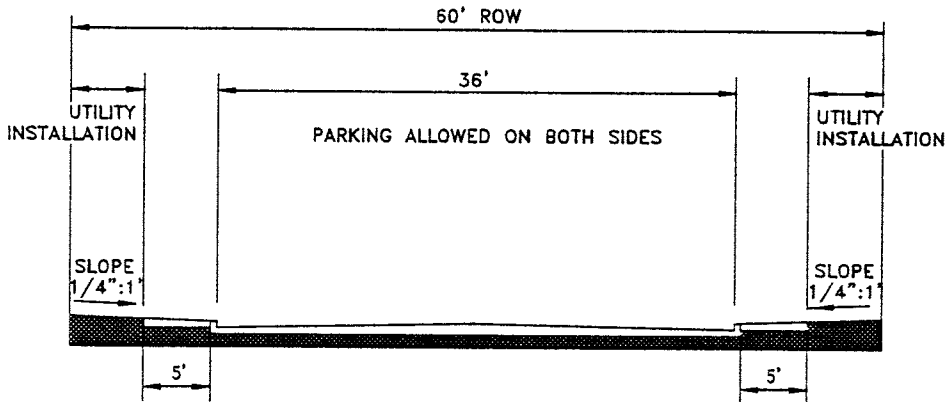
FIGURE 7-3
SHEET 2 OF 2

TYPICAL CROSS-SECTIONS KLAMATH COUNTY

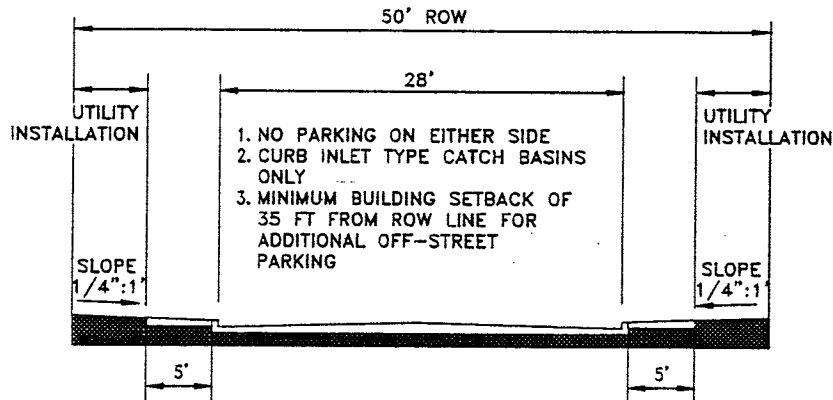
COUNTY ROADWAYS



COLLECTOR STREET

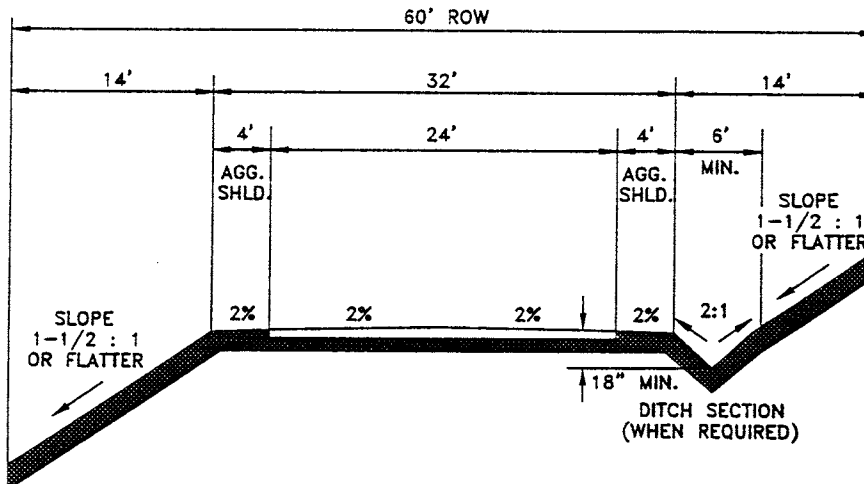


LOCAL STREET



CUL-DE-SAC STREET

NOT EXCEEDING
500 FT IN LENGTH

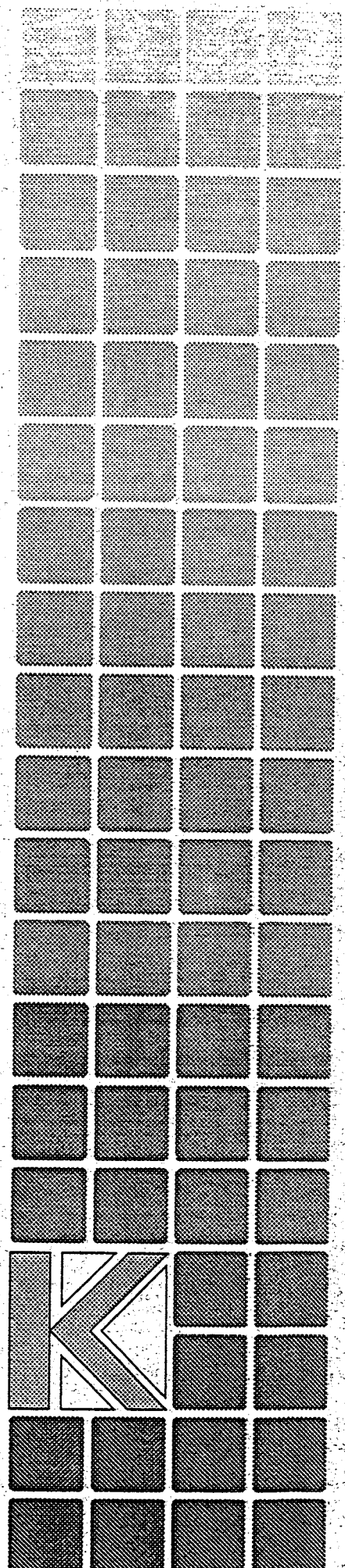


LOCAL STREET

MINIMUM LOT SIZE
ONE ACRE OR LARGER

FIGURE 7-4

FIG7-4.DWG



Chapter 8

Transportation Financing Program

TRANSPORTATION FINANCING PROGRAM

INTRODUCTION

The Transportation Planning Rule (OAR 660-12-040) requires that the Klamath Falls Urban Area Transportation System Plan (TSP) include a transportation financing program. These programs are to include:

- a list of planned transportation facilities and major improvements;
- a general estimate of the timing for planned transportation facilities and major improvements;
- determination of planning level cost estimates for the transportation facilities and major investments identified in the TSP (intended to provide an estimate of the fiscal requirements to support the land uses in the acknowledged comprehensive plan(s) and allow jurisdictions to assess the adequacy of existing and possible alternative funding mechanisms); and,
- a discussion of existing and potential financing sources to fund the development of each transportation facility and major improvement (which can be described in terms of general guidelines or local policies).

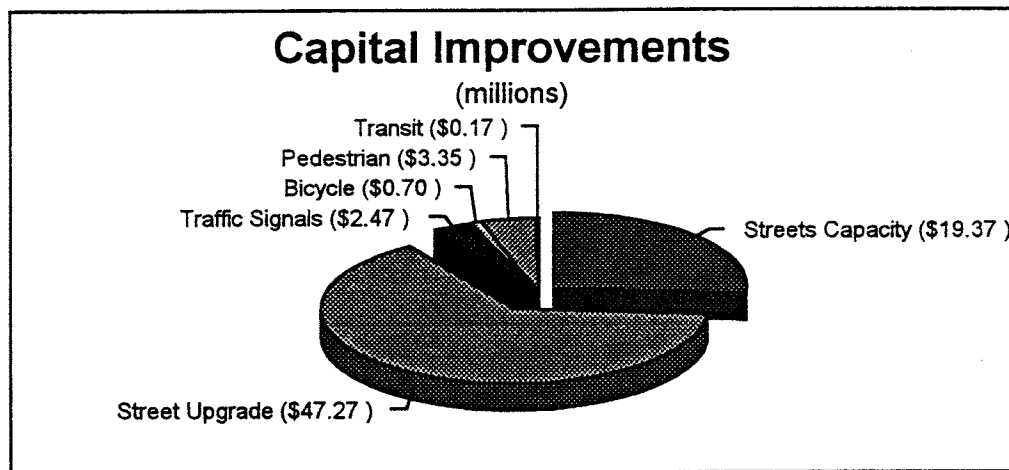
The timing and financing provisions in the transportation financing program are not considered a land use decision as defined by the TPR and ORS 197.712(2)(e) and, therefore, cannot be the basis of appeal under State law. In addition, the transportation financing program is to implement the comprehensive plan policies which provide for phasing of major improvements to encourage infill and redevelopment of urban lands prior to facilities which would cause premature development of urbanizable areas or conversion of rural lands to urban uses.

This chapter summarizes the financing program defined for the Klamath Falls Urban Area TSP as required by the TPR. It summarizes the transportation improvement projects, identifies general timing and rough cost estimates of transportation system improvements, and summarizes the existing and potential future financial resources to pay for these improvements, as a general policy guideline.

TRANSPORTATION SYSTEM IMPROVEMENTS

As illustrated in Figure 8-1, the total cost of all transportation system improvements in the Klamath Falls urban area is expected to exceed \$73 million. These improvements include street, bicycle, pedestrian, traffic signal and transit facility improvements on the State, City and County transportation system over the next 20 years (as identified in Chapter 7 - Transportation and Land Use Policies). It should be noted that the pedestrian and bicycle projects identified are discreet projects, but the street improvement projects also include major bicycle and pedestrian system improvements, particularly on the collector/arterial street system.

Figure 8-1: Total Estimated Costs for Capital Improvements (millions)



Appendix F summarizes the individual projects along with their planning-level cost estimates. In some cases the transportation improvement cost estimates do not include the cost for extra right-of-way. All costs are estimated in constant 1996 dollars. Appendix F also provides an estimate of the type (capacity vs. upgrades), schedule (five-year increments) and jurisdiction (State, City, County, and private) responsible for making major street and intersection improvements. Descriptions of the types of projects and their associated costs follow.

Streets

Thirty-three (33) street improvement projects will be needed to upgrade or increase the capacity of the collector/arterial street and highway system within the urban area. These projects are illustrated in Figure 8-2. Many of these projects include the construction of bicycle and pedestrian facilities, as well as new or replaced traffic signals. In such cases, the costs of the additional improvements are incorporated into the total street improvement project.

FUTURE HIGHWAY AND STREET PROJECTS

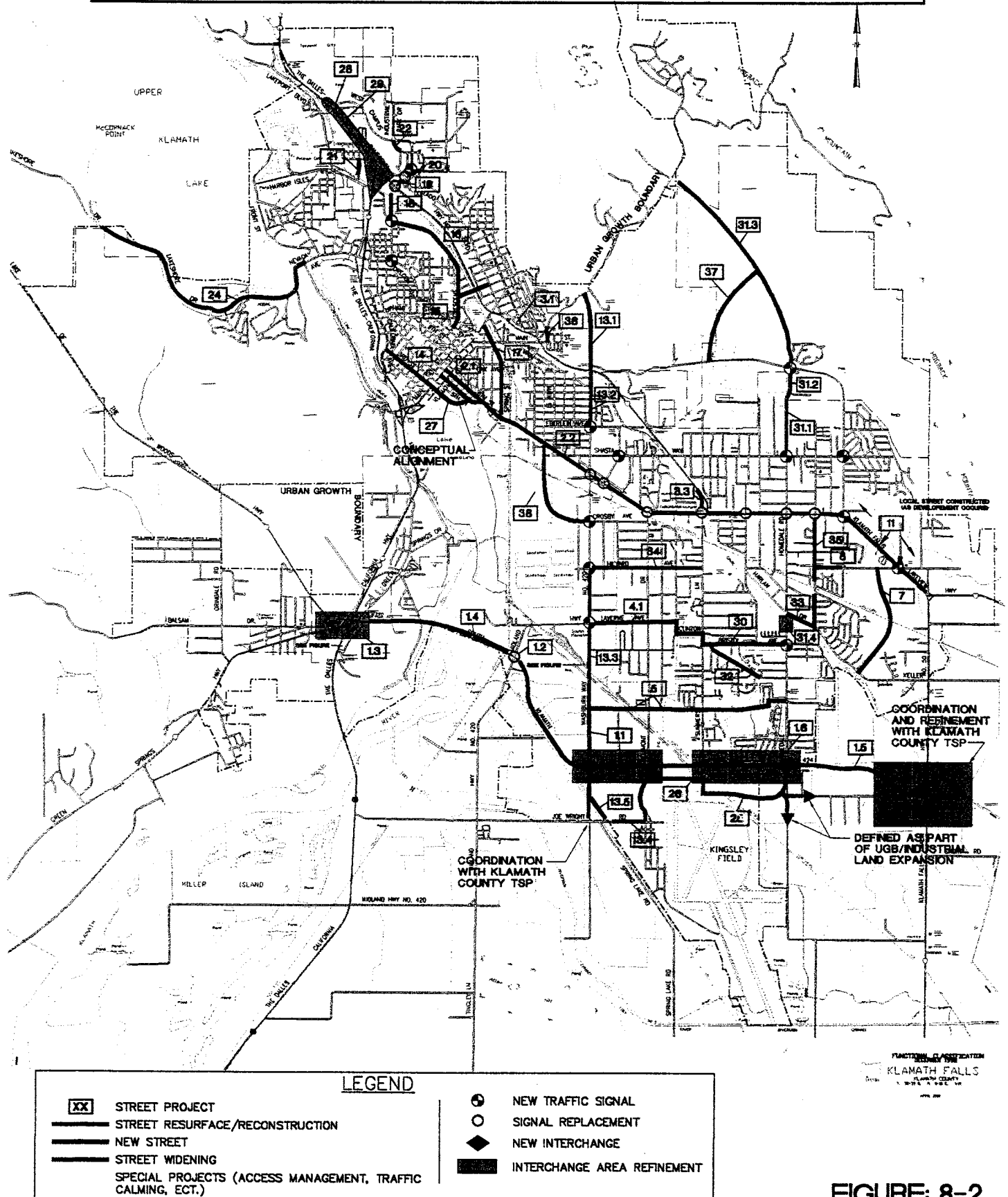


FIG8-2.DWG

KLAMATH FALLS URBAN AREA TRANSPORTATION SYSTEM PLAN

PACIFIC
 ENGINEERING & ARCHITECTURE
 1000 N. 10TH ST., SUITE 100
 Klamath Falls, OR 97603
 (531) 882-1234
 FAX (531) 882-1235



Approximately \$67 million of the total transportation system improvements (see Figure 8-1) are attributed to these multi-use street projects. These projects have been further defined as either **upgrade** (improved circulation or safety, or roadway reconstruction) projects or **capacity** (street widening or new street construction) projects. Target dates for project construction have been tentatively identified by five-year increment. Figure 8-3 depicts the corresponding costs assumed for each of the jurisdictions involved in project funding. A breakdown of improvement by type follows.

1. **Upgrade Improvements**
These improvements account for approximately two-thirds of the total street improvement project costs, or roughly \$47 million (see Figure 8-3). Of the 33 street projects identified, 21 are considered (wholly or in part) upgrade improvements.
2. **Capacity Improvements**
Street capacity improvements total approximately \$19 million (see Figure 8-3). Capacity improvements include 22 individual projects (wholly or in part).

Traffic Signals

Twenty-five (25) traffic signal projects have been identified in the TSP. Nearly a third of these signals (8) are components of street improvement projects which include the traffic signal cost estimates. Construction of the remainder has been assigned to one of the four five-year time periods. The costs for these stand-alone projects is approximately \$2.5 million and are shown in Figure 8-1. As with street projects, the TSP categorizes signal projects by functional improvement.

1. **Upgrade (signal replacement)**
Seven signals are due for replacement as part of street project improvements. In this case, every upgrade project involves replacement of existing traffic signals on South Sixth Street, resulting in estimated costs of approximately \$700,000.
2. **Capacity (new signals)**
In addition to the upgrade projects, 18 new traffic signals are to be installed at various locations within the urban area. The majority of these signals (10) are not funded through existing street projects, and will cost approximately \$1.8 million.

Bicycle Facilities

A total of 8.3 miles of new bike path and 19.0 miles of new bike lanes (resulting from street widening or re-striping) will be added to the existing transportation system. Of these new facilities, 0.5 miles of new bike path and 12.5 miles of new bike lanes are included in street improvement project cost estimates. The remaining 11.3 miles of paths / lanes will be funded through eight distinct projects at a total cost of \$699,000.

Sidewalk Facilities

New sidewalk facilities (along collector/arterial streets) in the Klamath Falls transportation system will increase by 47 miles, 18 miles of which are included in street improvement projects. The remaining 29 miles will be constructed under 14 projects at a total cost of \$3.35 million.

Transit

Transit improvement costs assume an expansion of the current fixed-route system from five buses to nine, with 30-minute service intervals. The new system will require the purchase of four new buses at a cost of \$215,000 each. The FTA/local match funding is assumed at a ratio of 80 percent/20 percent, resulting in the need for \$172,000 local funds to match federal subsidy.

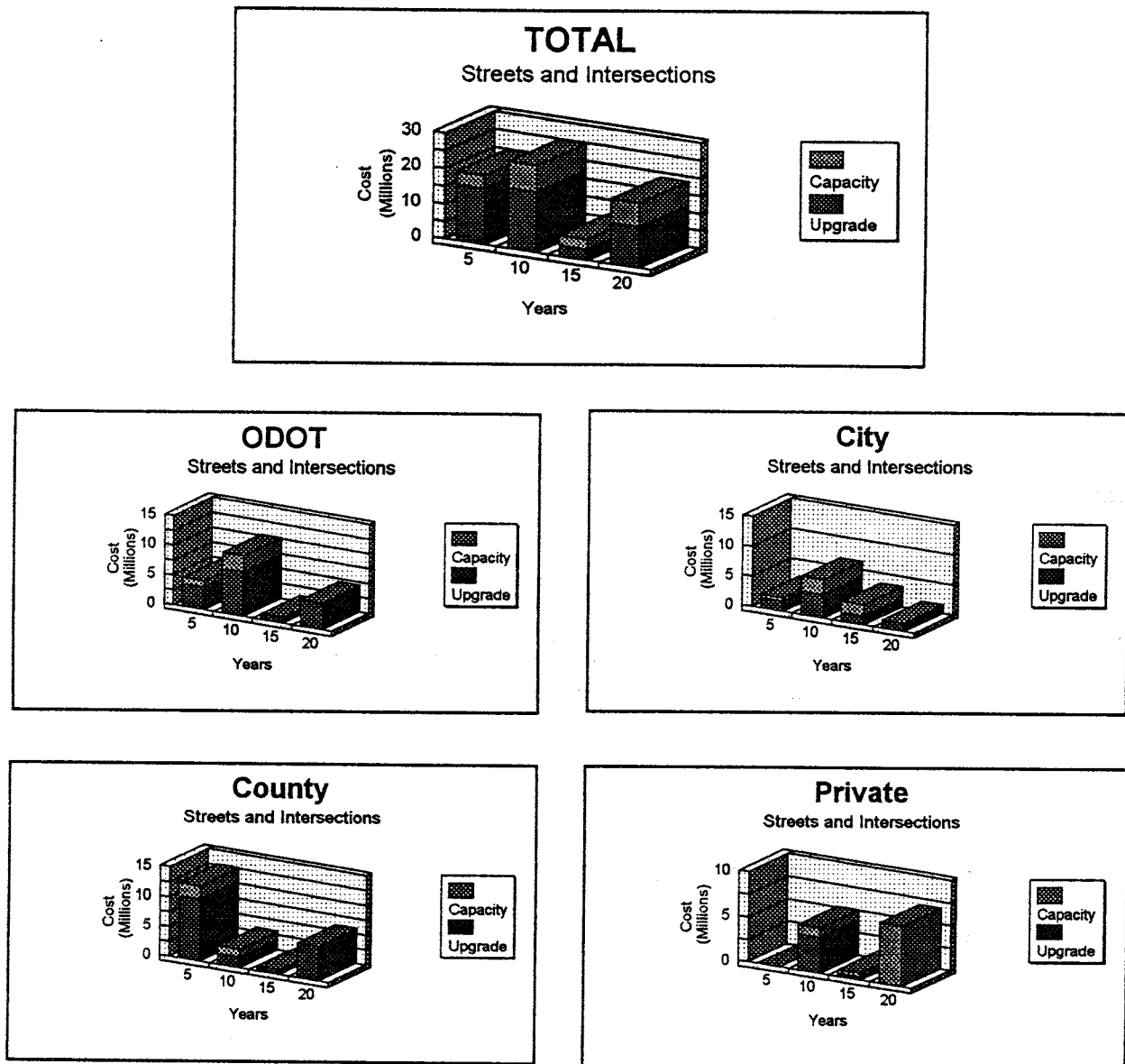
TRANSPORTATION FUNDING HISTORY

Road-Related Funding

In 1992, Oregon received \$704 million, or 67 percent of its highway revenues, from the collection of user taxes and fees. The second largest category is almost entirely comprised of the sale of timber logged from National Forests. In 1992, these timber receipts raised roughly \$115 million. The remaining revenue sources - road and crossing tolls, general fund appropriations, property taxes, miscellaneous receipts and bond receipts - accounted for \$223.5 million or roughly 21 percent of total transportation revenues.

The most significant portion of Oregon's highway user taxes and fees come from federal fuel and vehicle taxes, state taxes, and general motor vehicle fees. These categories account for 32 percent, 34 percent, and 25 percent, respectively, of all highway user taxes and fees collected in the state. During the 1980's, Oregon's transportation budget was bolstered by a series of two-cent annual gas tax increases. At the same time, the Federal Government was increasing investment in highways and public transportation. The situation is different today. The last two Legislatures failed to increase the gas tax and federal budget cuts are reducing transportation funding available to Oregon. The State Highway Fund is further losing buying power because the gas tax is not indexed to inflation, and increased fuel efficiency of vehicles reduces overall consumption.

Figure 8-3: Target Dates for Project Development by Jurisdiction



Oregon Highway Trust Fund revenues are distributed among state (60.22 percent), County (24.38 percent) and City (15.40 percent) governments to fund their priority road needs. In 1995-96, the state estimated it would collect \$575 million in state highway funds. Counties and cities would then receive about \$140 and \$90 million, respectively.

Oregon law allows local government, in addition to receiving state highway trust fund revenues, to levy local fuel taxes for street related improvements. Multnomah and Washington Counties, and some small cities (Tillamook, The Dalles, Woodburn) have used this authorization. Several attempts have been made by other jurisdictions but have not been supported by the electorate. As few local governments have implemented this option, non-user road revenues tend to be relied upon, to supplement the funds received from state and federal user revenues. Other local funding sources have included property tax levies, local improvement district assessments, bonds, traffic impact fees, road user taxes, general fund transfers, receipts from other local governments, and other miscellaneous sources.

Oregon's basic vehicle registration fee is \$15 per year regardless of the vehicle being registered. Oregon law permits local governments (counties) and governmental entities to impose local option vehicle registration fees. To date, no county has implemented this tax.

Cities have relied more than counties on transfers from their general funds to support roadway improvements. Ballot Measure 5, however, approved by the voters in 1990, reduced the range of funding and financing options available to both cities and counties. Measure 5 limited the property tax rate for purposes other than for payment of certain general obligation indebtedness to \$15 per \$1000 of assessed value. The measure further divided the \$15 per \$1000 property tax authority into two components: \$5 per thousand dedicated to the public schools; the remaining \$10 dedicated to other local government units, including cities, counties, special service districts, and other non-school entities. The tax rate limitation for cities and counties went into effect in 1992. The school portion of the measure is being phased in over a five-year period beginning in FY 1992. In 1996, voters again approved a property tax limitation measure, Ballot Measure 47, which will further impact the ability of cities and counties to pay for needed infrastructure through historic or traditional means.

At the same time that increased growth and increased transportation demands are occurring, cities and counties have lost another traditional source of revenue for infrastructure construction and upgrade - timber harvest receipts. Under a 1993 negotiated mitigation plan, federal forest receipts to support county roads are decreasing 3 percent per year. In 1996, counties will receive 74 percent of their 1986-90 average receipts, and by 2003 they will receive 55 percent of the late 1980s revenues. For Klamath County the average receipts from FY 1986-1990 is \$12,070,977 (includes 25% for schools).

The majority of funds have been received from Federal timber receipts and other federal land uses. The other sources of income have been on interest on reserves, and monies from the State Highway fund. State Highway Fund monies have historically been dedicated to operation and maintenance of the road-related system. There are minimal local sources of funding applied to transportation improvements within the City of Klamath Falls.

Given this funding environment, current funding levels and sources are not adequate to meet the transportation needs of the State, cities and counties for the next 20 years. In response to this gap between needs and funding, Governor Kitzhaber organized the Oregon Transportation Initiative to look at statewide transportation needs and to develop a program to address how these needs will be met. Through a public process led by business and civic leaders across the state, findings and recommendations on the state of transportation needs and methods to address those needs was submitted to the Governor in July 1996. A result of these recommendations was appointment of a committee to develop a legislative proposal to the 1997 Legislature regarding transportation funding. Part of that proposal will be identification of a "base" transportation system, with a priority of maintenance, preservation and operation of a system of transportation facilities and services that ensures every Oregonian a basic level of mobility within and between communities. It is expected that other components will include efficiencies resulting from better intergovernmental cooperation (shared resources and equipment, better communication on project needs and definition), and elimination of legislative barriers to more efficient and cost-effective methods of providing transportation services.

A part of transportation funding will be identification of relationships and responsibilities relative to delivery of projects and services. In Oregon, the primary state role has been to construct and maintain the state highway system and to assist local government with funding of other modes. The state also has a role in intercity passenger services and airports. This has historically been minor, but would grow significantly if serious efforts were put into intercity rail improvements. Local governments, in addition to providing local roads, streets and bridge construction, maintenance and preservation, provide local transit and airport support. The Federal Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) began moving decision-making for federal programs to states and this program and other state policies incorporated in the Oregon Transportation Plan (OTP) encourage reassessment of responsibilities and obligations for funding.

These changing relationships have resulted in two significant issues for state and local governments. First, there is no clear definition of state responsibility. At one time, the state operated on an informal consensus that it should provide one-half the match on federally funded local and other projects that served statewide needs. No similar consensus seems to exist today. The state's responsibility for transit, airports and other local transportation infrastructure and services is not clear. The question of regional equity is raised in considering especially high-cost project needs, such as the Bend Parkway or the Portland area light rail program. Regional equity will probably require consideration of all modes together, because different regions may have different modal needs and financial

arrangements.

Given this dynamic transportation funding environment, it is clear that local governments need to reassess traditional methods of funding projects and look creatively at ways to meet public expectations of high quality transportation services.

Transit Funding

Transit service in Oregon has evolved from private development and reliance on user fees for operating revenue to public ownership with public subsidy for operations. No clear philosophy of the state role in providing transit services is evident and the state is continuing its discussion on how the state should raise revenue in support of transit. The state has used general funds, lottery funds, stripper well funds, cigarette tax revenue and other funds at various times to support transit service. These efforts have largely been targeted towards supplying half the required match to federal capital improvement grants. Other than the elderly and disabled program, the state has provided no operating funds for transit. The state role has been one of granting authority to local governments to raise locally-generated operating revenue.

Federal Transit Administration (FTA) grants account for 69 percent of Oregon's funding for transit capital construction, which includes purchase of buses and other equipment. Federal funding for transit was increased through the flexibility provided by ISTEA. This federal legislation expires September 30, 1997 and, although there is strong indication that current flexibility will be retained, it will be dependent on Congressional approval to continue current programs. The largest source of transit operating revenues, \$87 million, are local funds, which provide 64 percent of revenues needed for transit operations. Passenger fares cover 22 percent of Oregon's transit system operating costs. Transportation for the elderly and disabled is funded through dedication of two cents of the state cigarette tax and through federal programs.

Airport and Rail Funding

Federal grants from the Federal Aviation Administration (FAA) Airport Improvement Program (AIP) are used to support general airport infrastructure improvements, with 90 percent Federal funding and a 10 percent local match. Given the ability to adjust user charges to address inflation, revenues will likely remain stable for operation and maintenance of the airport, particularly in relation to funding issues faced by other transportation modes.

The Klamath Falls International Airport is owned and operated by the City of Klamath Falls. A capital project underway is the \$2.5 million improvements to the airport's east side. This is funded by a bond sale, a Federal discretionary grant, and AIP monies. Regular operations and maintenance are funded by leases with airport tenants, aircrafts tie downs and hangar rents, FAA entitlements, concessions

and advertising space in the terminal, and a variety of user fees - fuel flowage fees, aircraft landing fees, terminal rent fees for airlines, rental cars and the restaurant.

The vast majority of rail freight spending is funded by privately-owned railroads. The Federal Local Rail Freight Assistance program is a small program that funds the rehabilitation of both publicly- and privately-owned rail lines, primarily branch lines. Congress is considering proposals to eliminate the program. If this occurs, there will be no program to provide ongoing railroad rehabilitations. Occasional support might be obtained through state lottery-funded economic development programs.

TRANSPORTATION FUNDING SOURCES

There are a variety of methods to generate revenue for transportation projects. Funding for transportation improvement projects are derived from three sources: federal, state and local governments. Table J-2 provides a summary of federal, state and local highway, bridge, sidewalk and bicycle funding programs that have typically been used in the past. Although property tax is listed as a possible revenue source, the impacts of Ballot Measure 47 are not clear.

Table J-3 presents details of the revenue sources for streets, bridges, sidewalks and bicycle facilities currently used by counties, by type of facility, and indicates the percent of revenue each funding source represents for all counties in Oregon, trends, constitutional or other limitations, and the rate. This same information for cities is presented in Table J-4.

A similar list of transportation funding sources for transit projects is included in Table J-5. This is summarized with the general status of each funding source in Table J-6.

FINANCIAL PLAN AND IMPLEMENTATION STRATEGY

Project priorities have been grouped into three categories: short-term (1-5 years), intermediate (6-10 years), and long term (11-20 years). Tables 8-2, 8-3, and 8-4 summarize the improvements that will occur within those timeframes. Each project is identified as to whether it is in the Statewide Transportation Improvement Program (STIP) or the local Capital Improvements Program (CIP), a requirement for any federal or state funding. Funding responsibility and recommended funding sources are also indicated.

County expenditures are the greatest in the next five years, a total of \$12.6 million. Another major expenditure for transportation is required in the next 5 years for an estimated \$3.0 million. City expenditures will also be greatest, at \$5.6 million, about 10 years out. Within the following five years, the city can expect an outlay of \$2.2 million. The City and County are expected to make investments to improve transportation facilities for existing development and to improve major collectors and arterials that serve the entire area. In future years, however, the burden for expansion of the transportation network should be borne by the development creating the additional demand, and this is reflected in the projected costs/responsibilities.

The Basin Transit Plan developed by Nelson/Nygaard Consulting Associates outlines a detailed implementation strategy, both in identification of needed projects and in recommending financing strategies for transit service over the next ten years.

Federal and State Sources

Most Federal funding is passed through ODOT to the local jurisdictions. A good working relationship with ODOT Region 4 planners and the Region Manager is important to have major transportation improvements included as part of the STIP when it is updated every two years. ODOT maintains interstate and state highways - in Klamath Falls area this includes US 97, and State Highways 140 and 66. State and federal funds administered through ODOT are the primary sources of funding for improvements to these facilities. Projects that involve these highways account for \$4.8 million in the next five years, \$10 million in the following five years, and \$5.5 million in the remaining 10 year period. The City and County should take an active role in jointly representing the transportation priorities of Klamath Falls and the surrounding urban areas to ODOT during its process of formally incorporating priorities into the STIP.

A transportation finance package was presented to the 1997 Legislature. No increases in statewide Oregon gas tax, associated weight-mile tax, vehicle registration fees, or dedication of new transit funding was legislated. The street upgrade needs identified in the TSP could be met through the state resources if special legislation is passed in the next 1-2 years and would be programmed through the Statewide Transportation Improvement Program. For such a package to be successful, however, it will need strong support from local governments and the general population of the state. It would be appropriate for Klamath Falls, Klamath County, and Basin Transit to proactively support and encourage support of legislators for a transportation financing package. Otherwise, the cost of upgrading streets in the Klamath Falls area will need to be supported by locally-initiated tax and/or fee programs; or the projects will need to be postponed.

Given the direction of the OTI, more emphasis will be placed on efficiencies in operating, maintaining and constructing Oregon's road system; on reducing the overall transportation demands that require new roadway construction; and on selecting projects for funding that support livability and economic opportunities for the region. Cost sharing of savings is possible, which provides additional incentive to carefully select projects and to maximize expenditures. It is also expected that participation by local governments in total project funding will be attractive to ODOT, to allow broader distribution of limited state funds. The City should consider developing local financing to support funding the higher priority projects, to be more attractive for state and federal allocations by providing a larger local match.

Other opportunities that better position the Klamath Falls area for federal and state funding for projects included in this TSP include:

- Encourage a partnership with the Federal Government and the Departments of Transportation for Washington, Oregon and California to define the proper classification of US 97 to complement I-5 for long-haul transport. This route is important for bi-state commerce. It should receive the same recognition of importance for improvement as other multi-state highways and the multi-national high speed rail program.
- Participate as part of a regional decision-making body to: set regional transportation priorities; assist in development of criteria related to community livability and economic opportunity; advise the Oregon Transportation Commission on regional transportation investments; facilitate coordination among transportation providers; and help improve transportation system efficiencies.
- Work with the Oregon delegation to allow Federal Timber Tax Receipts to be used for road maintenance, including equipment replacement.
- Work with ODOT and appropriate federal agencies to develop a strategy to resolve conflicts of land use, railroads, and other transportation facilities to make Klamath Falls a significant and efficient multi-modal transportation hub in Oregon.
- The City has performance measures to evaluate success in meeting departmental goals and objectives. These should be expanded to develop a performance measurement system to allow the City and the County to track impacts of transportation improvements to position the area for future transportation funds.

Klamath Falls should continue to explore state and federal funding opportunities to meet its long-term transportation needs. State funding is available for funding bike lane modifications, with a state requirement that one percent of the State Highway Fund be spent for the development of pedestrian and bikeways. Federal ISTEA programs include the Surface Transportation Program that provides funds for any street not classified as a local or rural minor collector. The Transportation Enhancement Program provides funds for enhancing pedestrian and bicycle facilities, landscaping and other scenic beautification, and improvements to scenic or historic sites. This program may be a source of funds for projects that include adding bicycle lanes, sidewalks and off-street pathways. The Highway Enhancement Program provides funds for safety improvement projects on public roads. All of these programs are coordinated through the ODOT Region 4 staff and must be included in the STIP.

Section 18, Section 16 and Section 3 funds from the Federal Transit Administration, as well as CMAQ funds from Federal Highways Administration will make up a substantial part of the Basin Transit revenues over the next ten years. Special Transportation Funds, generated by a 2 percent tax on cigarette sales, provide additional state revenue, but are expected to decrease substantially.

County Sources

The United States Forest Service shares 25 percent of national forest receipts with counties. By Oregon law, 75 percent of the national forest receipts are allocated to the road fund and 25 percent to local school districts. Klamath County has received an average of \$12.09 million per year in timber revenues over the past five years from harvest in the four National Forests within the County - Deschutes, Winema, Fremont, and the Rogue. The majority of the Forest lands are "owl" forests and are declining each year with no certainty of continued productivity, and hence income. Although Klamath County has no obligation to fund projects within Klamath Falls, this constitutes a substantial part of the population of the County, and Klamath Falls should continue to work with Klamath County to seek County participation in providing needed transportation improvements to benefit all residents in the Klamath Falls area.

Other opportunities to improve efficiencies in delivering transportation services exist between ODOT, the County and the City, to pool dollar resources and capabilities. This includes sharing facilities for maintenance, public works, planning, building, and other similar government services. It also includes sharing maintenance and operations responsibilities, such as coordinating multi-agency projects to maximize contracting opportunities, or coordinating maintenance activities such as snow removal.

Local Sources

Klamath Falls should continue to pursue federal, state and county funds for transportation projects. Given the high level of annual expenditures needed for construction of the transportation projects identified, existing sources of transportation revenue will not be adequate to meet the demand for new projects. To meet the additional fund needs, the city may wish to consider two additional revenue-generating options: a local gas tax, and systems development charges.

Increasing the "local option" gas tax may be politically attractive because it places some of the burden on non-residents. In addition, Klamath Falls is sufficiently distanced from other jurisdictions so that local competition from communities with no local gas tax should not be significant. At current levels of gasoline consumption in Oregon, every one cent per gallon increase generates about \$100,000 in annual revenue.

Klamath Falls should also consider seeking funds from property owners that directly benefit from transportation improvements and from new development. Roadway system capacity improvement projects or new road construction that places new streets near properties that currently lack adequate automobile access should require financial participation in roadway development necessary to accommodate or to serve that new development. In these cases, there is a very direct benefit to property owners and a direct relationship to future development on the properties, making improvements eligible for funding through Systems Development Charges (SDC). The city also has the option of issuing revenue bonds based on SDC revenue to construct projects in advance of new development it will serve. Bicycles and pedestrian facilities that are not part of roadway

improvements should be funded through Local Improvement Districts (LIDs) or through state CMAQ funds.

For transit, a variety of local revenue-generating sources are used - property tax, payroll tax, advertising, passenger fares, and public/private contributions. Development impact fees for transit should also be considered, consistent with the recommendations in the Basin Transit Plan. Partnerships with the Oregon Institute of Technology and local businesses, to improve accessibility and reduce parking needs, should also be explored.

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TABLE 8-2
KLAMATH FALLS URBAN AREA TSP
PROJECT FUNDING RESPONSIBILITY AND POSSIBLE SOURCES - SHORT TERM (1 - 5 YEARS)

Project (Number)			Cost	STIP/ CIP?	Responsibility					Possible Local Funding Sources
					ODOT	City	County	Private	BTS	
Streets										
Southside Expressway	Washburn Interchange	(1.1)	\$0	y						SDC, timber receipts
	Tingley Lane	(1.2)	\$280,000		x					
	Hwy 97/Washburn	(1.4)	\$1,218,000		x					
Alameda Bypass	Access Management	(3.1)	\$487,500		x	x				Bond
Laverne Ave	Washburn - Bisbee	(4.1)	\$1,658,000				x			
	Bisbee - Summers	(4.2)	\$0							SDC, local gas tax, bond, timber receipt
Biehn St		(18)	\$1,700,000	y		x	x			SDC, local gas tax, bond, timber receipt
Campus Dr		(19)	\$456,000	y		x	x			SDC, local gas tax, bond, timber receipt
Daggett Ave		(22)	\$215,000			x		x		SDC, local gas tax, bond, timber receipt
Bristol Ave		(30)	\$1,500,000	y						SDC, LID
Homedale Rd	Shasta - City Limit	(31.1)	\$2,000,000	y			x			SDC, timber receipts
	'A' Canal Bridge	(31.4)	\$850,000	y			x			Timber receipts
Memorie Ln/Fargo St		(32)	\$350,000	y			x			Timber receipts
Harlan Dr		(33)	\$520,000	y			x			Timber receipts
Hilyard Ave		(34)	\$2,200,000	y			x			Timber receipts
Madison St		(35)	\$1,800,000	y			x			Timber receipts
Traffic Signals										
Washburn Way/Eberlein Ave		(3)	\$180,000			x				SDC
Avalon St/Shasta Way		(16)	\$180,000			x				SDC
S. 6th St/Washburn Way		(19)	\$95,000		x					
S. 6th St/Avalon St		(20)	\$95,000		x					
S. 6th St/Altamont Dr		(21)	\$95,000		x					
S. 6th St/Summers Ln		(22)	\$95,000		x					
S. 6th St/Hope St		(23)	\$95,000		x					
S. 6th St/Homedale Rd		(24)	\$95,000		x					
S. 6th St/Madison St		(25)	\$95,000		x					
Bicycle Facilities										
A' Canal		(3)	\$240,000				x			CMAQ, LID, HEP
Foothills Blvd		(6)	\$1,510				x			CMAQ, LID, HEP
Oregon Ave, 9th, 11th		(11)	\$670			x				CMAQ, LID, HEP
Homedale Rd		(12.1)	\$770				x			CMAQ, LID, HEP
Pedestrian Facilities										
Washburn Way	(1.2)	(1.3)	\$453,100		x					CMAQ, LID, HEP
Altamont Dr		(2)	\$475,400				x			CMAQ, LID, HEP
Transit Facilities										
			\$172,000						x	CMAQ, LID, HEP
Subtotal			\$17,602,950							
SDC - Systems Development Charge										

SDC - Systems Development Charge
HEP - Highway Enhancement Program

CMAQ - Congestion Management Air Quality
LID - Local Improvement District

IOF - Immediate Opportunity Funds

TABLE 8-3
KLAMATH FALLS URBAN AREA TSP
PROJECT FUNDING RESPONSIBILITY AND POSSIBLE SOURCES - INTERMEDIATE (6 - 10 YEARS)

Project (Number)		Cost	STIP/ CIP?	Responsibility					Possible Local Funding Sources
				ODOT	City	County	Private	BTS	
Streets									
Southside Expressway	Hwy 97/140/66 Interchange	(1.3)	\$2,981,000	x			x		SDC
S. 6th St	Main - Viaduct	(2.1)	\$650,000	x					
	Viaduct - Hwy 39	(2.2)	\$6,695,000	x			x		SDC
Alameda Bypass	Access Management	(3.1)	\$487,500		x				Bond
	S. 6th St Intersection	(3.3)	\$1,678,000	x					
Washburn Way	Eberlein - E. Expwy	(13.2)	\$1,091,000		x				SDC, local gas tax, timber receipts, bond
	SPRR - Airport Terminal	(13.4)	\$618,000			x			Local gas tax, timber receipts, IOF, lottery
	Joe Wright - Washburn	(13.5)	\$493,000			x			Local gas tax, timber receipts, bond
Portland St/Crescent Ave		(15)	\$1,376,000		x				Local gas tax, timber receipts, bond
New E/W Collector		(20)	\$861,000		x		x		SDC, local gas tax, timber receipts
Hwy 97/W. Campus Way		(28)	\$2,000,000	x	x				SDC, IOF, lottery
Homedale Rd	City Limit - Foothills	(31.2)	\$514,000		x				Local gas tax, timber receipts
Old Fort Klamath Rd		(36)	\$252,000		x				Local gas tax, timber receipts
Traffic Signals									
S. 6th St/Patterson St		(3)	\$180,000	x					
Shasta Way/Patterson St		(9)	\$180,000			x			SDC
Shasta Way/Homedale Rd		(10)	\$180,000			x			SDC
Homedale Rd/Foothills Blvd		(12)	\$180,000		x	x			SDC
Homedale Rd/Bristol Ave		(13)	\$180,000			x			SDC
Bicycle Facilities									
OC&E Rail R-O-W		(1.2)	\$30,000		x				CMAQ, LID, HEP
Keno Canal		(4)	\$210,000		x				CMAQ, LID, HEP
Foothills Blvd Connection		(20)	\$41,700			x			CMAQ, LID, HEP
Pedestrian Facilities									
Hope St		(3)	\$104,000			x			CMAQ, HEP
Harlan Dr		(4)	\$401,000			x			CMAQ, HEP
Patterson St		(5)	\$230,300			x			CMAQ, HEP
Hilyard Ave		(6)	\$430,800			x			CMAQ, HEP
Hilyard Ave		(7)	\$118,800			x			CMAQ, HEP
Nevada Ave		(17)	\$208,000		x				CMAQ, LID, HEP
Subtotal			\$22,371,100						

SDC - Systems Development Charge
HEP - Highway Enhancement Program

CMAQ - Congestion Management Air Quality
LID - Local Improvement District

IOF - Immediate Opportunity Funds

TABLE 8-4
KLAMATH FALLS URBAN AREA TSP
PROJECT FUNDING RESPONSIBILITY AND POSSIBLE SOURCES - LONG TERM (11 - 20 YEARS)

Project (Number)				Cost	STIP/ CIP?	Responsibility					Possible Local Funding Sources	
						ODOT	City	County	Private	BTS		
Streets												
Southside Expressway Altamont - Hwy 39				(1.5)	\$986,000		x				(FOR DISCUSSION)	
Alameda Bypass Access Management				(3.1)	\$975,000		x					
Anderson Ave Mixed (Reconstruction)				(5.1)	\$2,259,300			x				
Mixed (New Construction)				(5.2)	\$479,000			x	x			
Hilyard Ave				(8)	\$350,000			x				
Washburn Way E. Expwy - Old Fort Klamath				(13.1)	\$1,124,000			x				
Crescent Ave				(16)	\$1,376,000			x	x			
Spring St				(17)	\$1,363,000		x					
Quarry St				(21)	\$978,000		x					
Lakeshore Dr				(24)	\$1,322,000			x				
Airport East Access				(25)	\$1,950,000					x		
Airport Frontage Rd				(26)	\$1,708,000					x		
Lake Front Prom				(27)	\$781,000					x		
Hwy 97/Alameda Bypass				(29)	\$0					x		
Homedale Rd Foothills - Old Fort Klamath				(31.3)	\$3,569,000	x						
New Collector				(37)	\$1,019,000					x		
Main St Extension				(38)	\$1,028,000		x			x		
Traffic Signals												
S. 6th St/Hilyard Ave				(4)	\$180,000	x						
Biehn St/Lakeport Blvd				(15)	\$180,000		x					
Oregon Ave/Biehn St				(18)	\$180,000		x					
Bicycle Facilities												
OC&E RR to Lake Front Prom				(1.3)	\$174,600		x					
Pedestrian Facilities												
Crosby Ave				(9)	\$148,600			x				
Shasta Way				(10)	\$33,400			x				
California Ave				(12)	\$48,300							
Upham				(13)	\$52,000		x					
9th St				(14)	\$3,700		x					
El Dorado				(15)	\$96,600		x					
Nevada Ave				(16)	\$96,600		x					
Front St				(18)	\$133,700		x					
Lakeport Blvd				(19)	\$312,000		x					
Subtotal					\$33,343,800							
TOTAL					\$73,317,850							

SDC - Systems Development Charge

CMAQ - Congestion Management Air Quality

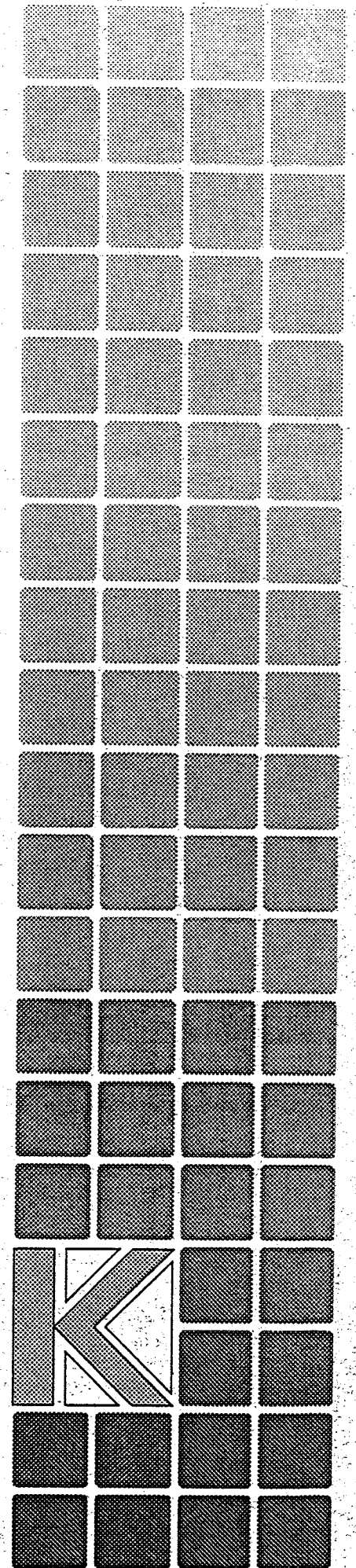
SDC - Systems Development Charge
HEP - Highway Enhancement Program

CMAQ - Congestion Management Air Quality
LID - Local Improvement District

IOF - Immediate Opportunity Funds

Chapter 9

Transportation System Plan



TRANSPORTATION SYSTEMS PLAN

INTRODUCTION

The analysis and evaluation of the five major alternatives was summarized in Chapter 5. Based on that analysis a number of transportation/land use system plan and project improvements are identified and summarized as part of this chapter.

This chapter first focuses on *mobility* - the movement of people and goods/services in the Klamath Falls urban area. Two sections provide a summary of mobility in the TSP. The first section concerns *personal mobility* and includes projects for all modes of travel (transit, bicycle, pedestrian and auto). The second section concerns *goods mobility* and includes general plan recommendations to ensure the efficient movement of goods and services in and through the Klamath Falls area.

Transportation-efficient land use strategies are then summarized, including some general recommendations for the City of Klamath Falls and Klamath County to consider when revising their land use plans and policies. The final section includes several transportation and land use policy improvements which are recommended (to implement the TSP) as part of this chapter. These include policies for coordinated street standards, traffic calming, access management (and coordinated land use action/review) and traffic impact study requirements.

PERSONAL MOBILITY

1. Basin Transit Service - BTS (Intracity Public Transportation)

Basin Transit Service completed and adopted their Transit Development Plan (TDP) in 1995. The TDP recommended restructuring the current fixed-route bus system (termed the "No-Growth Improvement Plan") which was implemented in 1995. The TDP also outlined a ten-year plan identifying future needs, projects, and a funding strategy for future BTS operations and capital equipment purchases (including new vehicle purchases and fleet replacement), and options to expand BTS operations with new and more frequent bus lines and types of service. BTS fixed-route and demand-responsive (dial-a-ride (D-A-R)) public transportation is essential to providing a balanced land use/transportation system in the Klamath Falls urban area. Hence, the TSP recognizes, endorses, and even accelerates the timing of needed future public transportation services as a proactive measure. Below are recommended public transportation system improvements, identified in the TDP, that are included in the Preferred Alternative. These improvements are defined separately for bus and demand-responsive transit service.

Fixed Route

The TDP calls for a sequential expansion of BTS fixed-route transit service to a six-bus system with improved service in the OIT area, and then a nine-bus system to expand from hourly to half-hourly service on most of the BTS routes. Service frequency, as identified in the TDP, is the single most important determinant of the attractiveness of BTS service. Service frequency expansion was identified as a higher priority for BTS than geographical coverage expansion within or outside the Klamath Falls urban area.

Specifically, the Preferred Alternative and TSP recommend the following BTS improvements:

- expanding BTS service in the region by adding a single bus to the existing five-bus system (*to be completed by year 1997*);
- progressively adding three more buses, increasing frequencies on three of five routes to 30 minutes (*to be completed by year 1999*);
- locating and developing a new transit center in the Klamath Mall, Jefferson Square, and Town & Country areas (*already completed*); and,
- periodically replacing existing fixed-route vehicles over the next 5-10 years.

Beyond the ten-year time frame, there will be a need to continue replacing the fleet as buses reach their useful life cycle. Replacing existing vehicles and acquiring new expansion vehicles (to support enhanced service levels) would represent the major capital expenses beyond years 2004 and 2005.

Dial-a-ride (D-A-R)

With the restructuring and expansion of fixed-route bus service, BTS should continue its current D-A-R service for the transportation disadvantaged, particularly in geographic areas not served by buses. Hence D-A-R service, as identified in the TDP, would be available to the general public in those areas outside the bus system (normally measured as ½-mile from the fixed route). This service can be accommodated without D-A-R fleet (van) service expansion. Future capital needs for D-A-R service is confined to fleet replacement, estimated by the TDP over the next 5 - 10 years.

2. Taxi/Shuttle Bus (Charter)/Modal Coordination

The Preferred Alternative includes a multi-modal transportation system, developed and managed to link important travel modes and destinations. At a minimum, individuals should be able to move easily between the airport, Amtrak station, bus terminal, downtown Klamath Falls, major motels and destination resorts like the Running Y. Single ownership and operation of the service is not essential.

However, the system should be coordinated by a single, preferably public, entity. BTS is best suited to coordinate the system and could fill this role if provided the funding to staff and support it. BTS would be particularly strong in facilitating passenger transfer between local public (BTS service), and regional and private transportation facilities. The Preferred Alternative includes the following general recommendations:

- Enhanced taxi service - encourage enhanced and coordinated taxi service to link air, rail, and bus passenger service with local business, lodging and recreation destinations. These services would be paid for by direct users.
- Shuttle-Bus service - encourage enhanced and coordinated shuttle-bus service to link air, rail and bus passenger service with local lodging and recreation destinations. These shuttle buses should be funded and operated by private carriers as either charter or free service.

3. Intercity Rail Passenger

An important element in the management and coordination of growth in the Klamath Falls area is easily accessible transportation to and from areas outside the region. Klamath Falls already has access to intercity rail service through Amtrak's Coastal Starlight train, one of the nation's best revenue producers. The TSP recommends that Klamath Falls support this existing rail service. Through partnership with the State, the Klamath Falls regions should also further the development of increased and improved rail passenger service on Amtrak.

4. Intercity Bus

Passenger transport between neighboring cities improves personal mobility and encourages local and regional commerce. Hence, the Preferred Alternative recommends continued and coordinated support of intercity bus services, particularly between Klamath Falls and Medford (west), but also Bend (north), Lakeview (east) and California (south). These services should be supported by the State.

5. Intercity Air Passenger

As Klamath County grows and as tourism increases, the region should capitalize on the influx of commerce and tourism-related intercity air passenger traffic. As with intercity bus and rail service, the Preferred Alternative recommends that the Region continue to support the current level of air passenger service (provided by Horizon/Alaska and United Airlines), and enhance service as demand increases. Multimodal transportation services (see previous) linking the airport with downtown Klamath Falls, BTS service, area motels, and destination resorts should also be enhanced.

6. Pedestrian

The Klamath Falls TSP includes a pedestrian facilities improvement strategy to increase both pedestrian safety and accessibility. The TSP identifies specific sidewalk improvements which will add 25.3 miles to the existing sidewalk network, primarily along collector/arterial streets. Table 9-1 summarizes the individual projects illustrated in Figure 9-1. Specifically, these projects address the need for increased pedestrian accessibility in downtown Klamath Falls and improved pedestrian safety in the South Sixth Street and Washburn Way areas.

7. Bicycle

Like the proposed pedestrian facilities plan, the inclusion of a bicycle facilities plan in the TSP is mandated under the Transportation Planning Rule. Bicycle improvements identified in both the Klamath Falls Area Bicycle Master Plan (BMP) (November 1994) and the TSP will increase the connectivity of bike paths in the Klamath Falls area for better recreational use and bike lanes for better commuter use.

The BMP identified several goals intended to guide bicycle-related development for the next 20 years:

- Incorporate bicycles into overall transportation and recreation planning.
- Promote bicycle usage in Klamath County by providing and maintaining a safe, convenient, and pleasurable bicycling environment.
- Develop a public bicycle education and safety program.

These goals provide a strong foundation for the discussion of objectives and policy implications for the bicycle system. The specific City and County policies recommended by the BMP, likewise form solid ordinance guidelines. However, the BMP describes only a brief range of projects, ranked by priority level and summarized in Table 9-2. The TSP has modified and expanded these recommendations, suggesting specific projects that will provide a comprehensive bicycle network as summarized in Table 9-3. Both Table 9-3 and Figure 9-2, which illustrates the comprehensive bicycle plan for the Klamath Falls area, reference individual project numbers. Projects identified in the TSP, including those considered as part of street improvements, will create an additional 8.3 miles of bicycle paths and 19.3 miles of new or newly designated bicycle lanes, and 14 foot or wider shared lanes.

Table 9-1
Pedestrian Facility Projects

Number	Project Name	From	To	1 or 2 Sides?	Length (mi)
Projects included in street improvements					
1.1	Washburn Way	Eastside Expwy	Eberlein Ave	2	0.96
1.4	Washburn Way	Hilyard Ave	Joe Wright Rd	2	4.44
4.3	Harlan Dr	Homedale Rd	Madison St	2	0.52
8	Laverne Ave	Washburn Way	Summers Ln	2	2.18
11	Spring St	Esplanade	S. 6th St	2	1.74
20	Biehn St/Campus Dr	Lakeport Dr	W. Campus Way		0.90
21	Homedale Rd	Shasta Way	Old Fort Klamath	2	5.76
22	Bristol Ave	Summers Ln	Homedale Rd	2	1.48
				Subtotal	17.98
Projects not included in street improvements					
1.2	Washburn Way	S. 6th St	Hilyard Ave	2	1.67
1.3	Washburn Way	Eberlein Ave	Shasta Way	1	2.25
2	Altamont Dr	S. 6th St	SSX	2	4.12
4.1	Harlan Dr	Hope St	Homedale Rd	2	1.03
4.2	Harlan Dr	Madison St	Hwy 39	2	2.45
5	Patterson St	S. 6th St	Hilyard Ave	2	2.00
6	Hilyard Ave	Patterson St	S. 6th St	2	3.73
7	Hilyard Ave	Washburn Way	Summers Ln	2	1.03
9	Crosby Ave	Washburn Way	Altamont	2	1.29
10	Shasta Way	Madison St	Patterson St	1	0.29
12.1	California Ave	Main St	Grant St	1	0.03
12.2	California Ave	Addison St	Nevada Ave	2	0.39
13	Upham St	California Ave	Siskiyou St	1	0.45
14	9th St	Upham St	Lincoln St	1	0.03
15.1	El Dorado Ave	Dahlia St	Sloan St	2	0.39
15.2	El Dorado Ave	Sloan St	Van Ness	1	0.45
16	W. Campus Way	Hwy 97	Campus Dr	2	0.84
17	Nevada Ave	Keno Canal	Tunnel St	2	1.80
18	Front St	Hanks St	Nevada Ave	2	1.16
19.1	Lakeport Blvd	Harbor Isles	Biehn Ave	2	1.42
19.2	Lakeport Blvd	Harbor Isles	UGB	2	1.29
				Subtotal	29.01
				TOTAL	46.98

**Table 9-2
Bicycle Facility Projects**

Project Name	BMP Recommendation
High Priority	
6th Street, Klamath Ave to Washburn Way, 1.8 mi.	Stripe bike lanes and improve intersections.
5th Street, Klamath Ave to Broad St, 0.4 mi.	Stripe bike lanes and improve intersections.
Lakeshore Drive, 4.0 mi	Add shoulders wherever possible.
Trail crossings and junctions, various locations	Study the most dangerous connections and design appropriate solutions.
Campus Drive, 0.4 mi	Continue bike lanes from Biehn to OIT parking areas. Modify intersections to provide bicycle-sensitive loops at signals and a clear direction of travel. Provide clear access to the 'A' Canal Trail.
Medium Priority	
Esplanade Street, 0.6 mi	Study the street block-by-block for possible options to improve bicycle, pedestrian, and motor vehicle access.
Shasta Way, 3 segments, 2.2 mi total	Incorporate bike lanes along all sections.
Washburn Way, 'A' Canal Trail to Laverne, 3 segments, 2.3 mi total	Incorporate bike lanes.
Homedale Road, Shasta Way to SSX, 3.0 mi	Incorporate bike lanes.
Hwy 39, Hwy 140 to Henley, 3.4 mi	Widen road, allow shoulders.

PEDESTRIAN PLAN

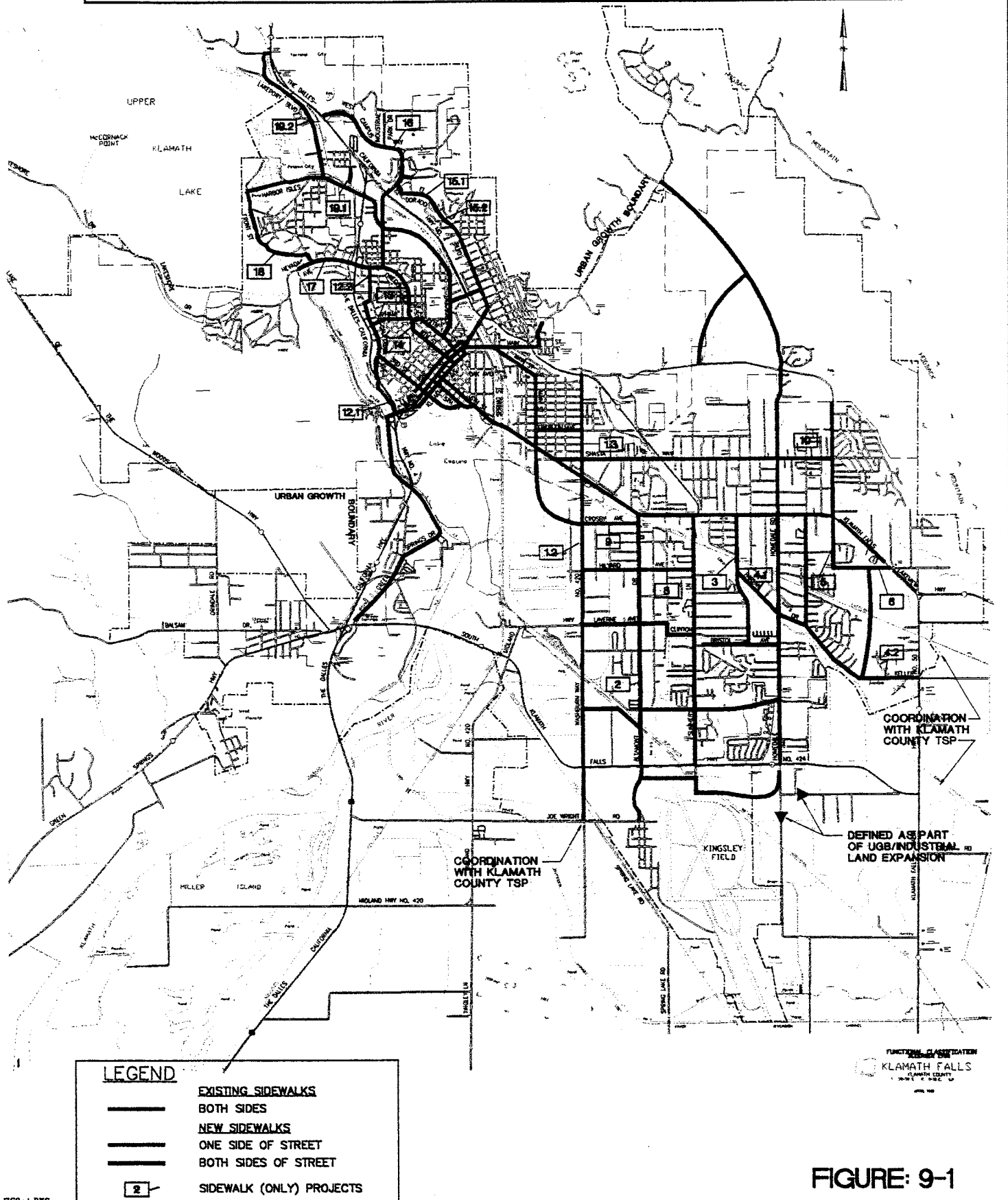


FIGURE: 9-1

Table 9-3
Bicycle Improvement Facilities (TSP)

Project Name	Project Number	From	To	Length (miles)	Associated Street Project
Multi-Use Bicycle Paths					
OC&E Rail R-O-W (replaces the portion already constructed)	1.1	Washburn Way	Hwy 39	3.32	
OC&E Rail R-O-W	1.2	E Main St	Washburn Way	0.23	
OC&E RR to Lake Front Promenade (w/ 100 ft x 14 ft UPRR Bridge (1400 sq. ft.))	1.3	E Main St	Lake Front	0.48	
Lake Front	2	Klamath Ave	S. 5th St	0.48	# 27
"A" Canal	3	Homedale Rd	Hwy 39	1.84	
Keno Canal	4	Nevada Ave	Main St	1.60	
Foothills Blvd Connection	20	Main St	Foothills Blvd	0.32	
			Subtotal	8.27	
Designated Bike Lanes Restriping					
Laverne Ave/Bristol Ave	5	Washburn Way	Homedale Rd	1.83	# 4
Foothills Blvd (restripe to 4 ft bike lanes)	6	Washburn Way	Patterson St	2.60	# 6
Crescent St/Portland St	7	Klamath Union H.S.	El Dorado	0.90	# 15
Biehn St	8	Lakeport Dr	ESX	0.32	# 18
South 6th St	9.1	Viaduct	Main St	1.13	# 2.1
South 6th St	9.2	Washburn Way	Hwy 39	4.28	# 2.2
Washburn Way	10.1	OC&E RR	UPRR	0.97	# 1.1
Washburn Way	10.2	Eberlein Ave	ESX	0.48	# 13.2
Washburn Way	10.3	OC&E RR	Eberlein Ave	0.48	# 38
Oregon Ave, 9th, 11th (restripe to 4/5 ft bike)	11	Nevada Ave	Pine St	1.51	
Homedale Rd	12.1	SSX	Shasta Way	2.70	# 3
Homedale Rd	12.2	Shasta Way	Old Fort	0.79	# 31.1, 31.2
Joe Wright Rd	13	Washburn Way	Airport	0.63	# 13.4, 13.5
East Main St Extension	14	South 6th St	Crosby Ave	0.58	# 38
			Subtotal	18.98	
			Total	27.25	

8. Collector/Arterial/Local Streets

The TSP recommends a detailed program of collector and arterial street improvements, as shown in Figure 9-3 and listed in Table F-1. In addition, the TSP identifies those *local* street projects necessary to support the capacity and functional capabilities of adjacent and intersecting major roadways. Over the next 20 years, these street projects will increase traffic safety and capacity in throughout the urban area and enhance connectivity and circulation in the Washburn Way, South Sixth Street, the Southside Expressway, and the Eastside Expressway corridors. Furthermore, the projects will improve overall system efficiency by establishing a functional roadway classification network that appropriately balances travel demand across the street system (e.g., through traffic on arterial streets, local traffic on local streets).

Any new street construction or street widening project that expands the street system capacity is defined as a capacity improvement. Street upgrades and safety projects (i.e., all non-capacity work) generally include improvements to existing facilities, such as roadway reconstruction or intersection upgrades, that increase the level of safety or efficiency. Street projects that address volume and safety needs incorporate both capacity and street upgrade/safety features. Appendix F describes the type of improvement for each street project in the TSP.

The following descriptions detail, by project number, the purpose and scope of each improvement at a planning level. Prior to project design and construction, specific environmental impacts, grading requirements, and roadway alignments should be analyzed as necessary.

A. Arterial Street Improvements

Arterial roadway improvements will greatly enhance the capacity of the transportation system to efficiently move vehicles through and around the Klamath Falls area. Unless specified otherwise, each of the arterial street projects outlined subsequently include curb, gutter, and storm facilities. Appendix F, Table F-1 summarizes each project, including planning level costs.

South Sixth Street (Project 2)

This project involves various capacity, modernization, beautification and modal improvements between Main Street and Highway 39, and has been divided into two sections:

Section 2.1: Main Street to Viaduct

In this street upgrade and safety project, the 1.13 mile segment of existing roadway will be reconstructed to retain its current four-lane configuration (two lanes in each direction) and separate bike lanes. This project should include beautification treatments, sidewalks, bicycle lanes, and on-street parking where feasible. The cost of estimated improvements

BICYCLE PLAN

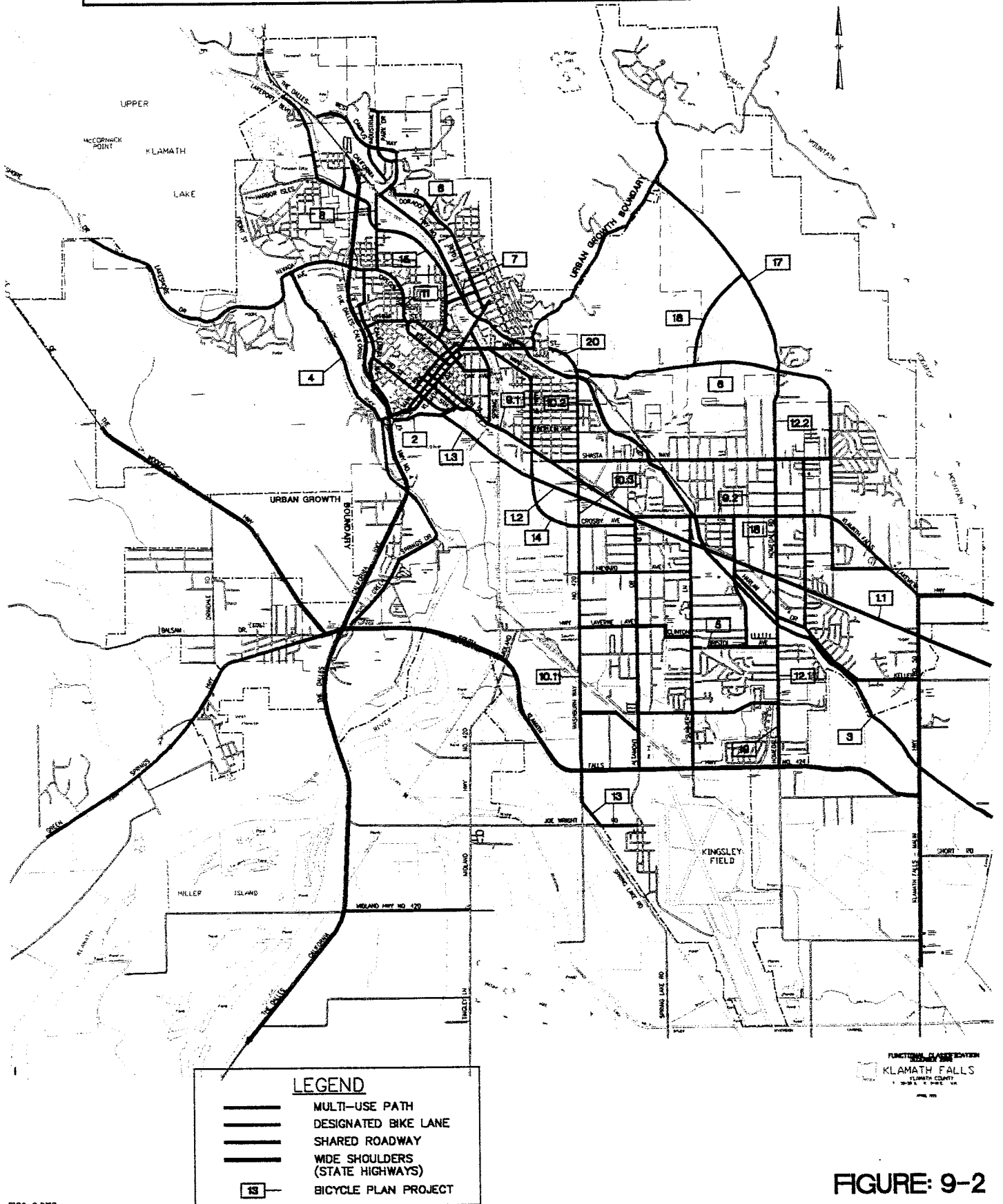
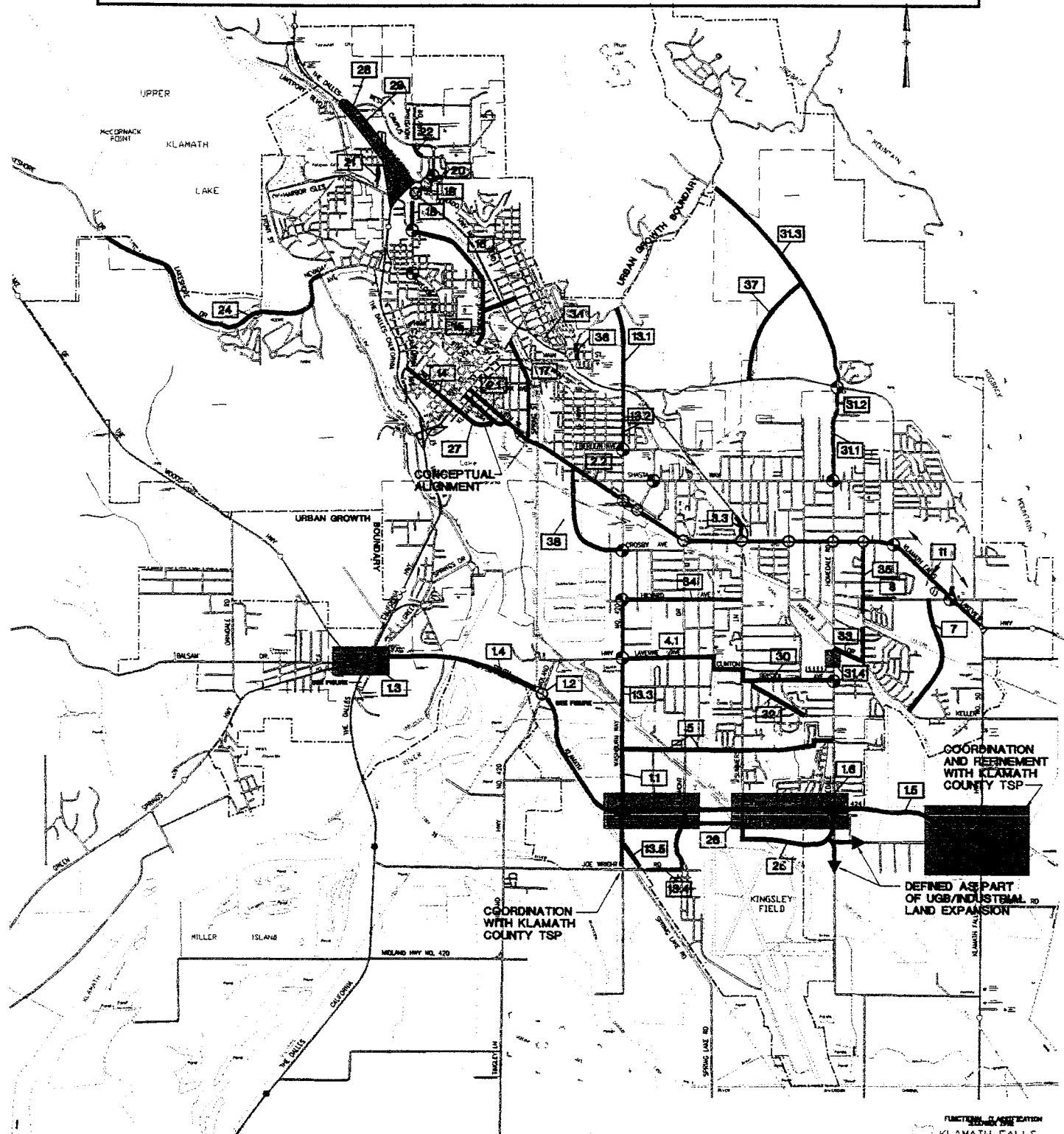


FIG9-2.DWG

FIGURE: 9-2

KLAMATH FALLS URBAN AREA TRANSPORTATION SYSTEM PLAN

FUTURE HIGHWAY AND STREET PLAN



LEGEND

- | | |
|---|-----------------------------|
| XX STREET PROJECT | NEW TRAFFIC SIGNAL |
| STREET RESURFACE/RECONSTRUCTION | SIGNAL REPLACEMENT |
| NEW STREET | NEW INTERCHANGE |
| STREET WIDENING | INTERCHANGE AREA REFINEMENT |
| SPECIAL PROJECTS (ACCESS MANAGEMENT, TRAFFIC CALMING, ECT.) | |

FIGURE: 9-3

KLAMATH FALLS URBAN AREA TRANSPORTATION SYSTEM PLAN



do not include curb, gutter, or storm drainage. It is anticipated that this project will be needed in the 6 - 10 year time period.

Section 2.2: Washburn Way to Highway 39

Another street upgrade and safety project consists of a 4.28 mile segment which will be reconstructed in years 1 - 5 to a five-lane arterial (two travel lanes in each direction and a center turn lane). The new roadway will include sidewalks, curbs, bike lanes, and some parking.

Alameda Bypass (Project 3)

This project combines multiple improvement strategies and has been divided into two sections:

Section 3.1: Portland Street to Main Street

This street upgrade improvement will likely require gradual access management (i.e., driveway access removal) over the next 20 years to improve overall arterial safety. Individual single-family residential uses with direct access to the Alameda Bypass should be eliminated.

Section 3.3: South Sixth Street Crossing

Under this project, the current South Sixth Street/Alameda Bypass intersection will be realigned in years 6 - 10 to enhance safety and capacity conditions. The intersection realignment will eliminate the current off-set alignment of the Alameda Bypass with Summers Lane. This improvement should be completed prior to the extension of the Alameda Bypass from South Sixth Street to Highway 39.

Washburn Way (Project 13)

The majority of Project 13 involves construction of arterial segments. The remaining section (Section 13.1) is described later as a collector street.

Section 13.2: Eberlein Avenue to the Alameda Bypass

This section of Washburn Way should be widened to five lanes to increase roadway capacity. The widening project should provide for both sidewalks and bike lanes on both sides of Washburn Way, and should be constructed in the 6-10 year time period.

Section 13.3: Joe Wright Road to Hilyard Avenue

This portion of Washburn Way will be reconstructed as part of the Southside Expressway/Washburn Way interchange/arterial improvement (see State Highway section below).

Section 13.4: Union Pacific Railroad to Airport Terminal (on Joe Wright Road)

This .34 mile section of Joe Wright Road should be reconstructed as a two-lane, street upgrade/safety improvement. This project will provide better connection to the Klamath Falls Airport in coordination with Section 13.5 (see below).

Section 13.5: Joe Wright Road to Washburn Way

This new street section (.29 miles) will provide direct access between the Washburn Way interchange and Klamath Falls Airport without at-grade arterial crossing of the UPRR. The project should be completed during the 6-10 year time period.

Campus Drive (Project 19)

The 0.13 mile roadway segment of Campus Drive between the Alameda Bypass should be widened to five travel lanes to increase traffic capacity. The roadway will contain a separate path to accommodate pedestrians and bicyclists. These improvements should be completed within the next five years, and is currently under design for construction year 1997.

Airport East Access (Project 25)

Sections 25.1 and 25.2 combined call for a 0.75 mile, five-lane arterial (two travel lanes in each direction and a center turn lane) providing direct access between the Southside Expressway and the new terminal on the east side of Klamath Falls Airport. The project includes sidewalks and bike lanes on both sides of the arterial. This connection will also provide arterial access to lands east of the Airport if they are developed as industrial use.

B. Collector Street Improvements

Appropriately located collector streets support the arterial and local networks by moving traffic efficiently between the two. Unless specified otherwise, the collector street projects outlined include curb, gutter, and storm facilities improvements.

Laverne Avenue (Project 4)

Laverne Avenue should be reconstructed to a two- and three-lane (at major intersections) roadway between Washburn Way and Summers Lane. Street improvements also include sidewalks and bike lanes. This project will greatly enhance east-west system-wide capacity and connectivity in the areas south of South Sixth Street, and provide direct and safer pedestrian and bicycle connections to Peterson and Sterns Elementary schools.

Anderson Avenue (Project 5)

Improvements to Anderson Avenue, including some new street construction, will also result in better east-west connectivity and enhance system capacity. Anderson Avenue improvements include two travel lanes and sidewalks on both sides of the street. This project will likely be needed in the 11-15 time period, prior to the Homedale Road interchange improvement on the Southside Expressway.

Foothills Boulevard (Project 6)

This new 2.51 mile street, completed in June, 1996, connects the Alameda Bypass with Patterson Street. This project includes three travel lanes, but no sidewalks or bike lanes.

New North/South Collector (Project 7)

As new development occurs, this collector will be built to meet increasing capacity demand. The roadway will connect Harlan Drive with Hilyard Avenue (1.09 miles) with two travel lanes and sidewalks.

Hilyard Avenue (Project 8)

This improvement will provide a needed street linkage between Madison Street and Patterson Road, connecting to the existing Hilyard section. Once completed, this connection will provide an alternative route to South Sixth Street to link areas in the eastern portion of the UGB.

Washburn Way (Project 13.1)

It is anticipated that beyond year 2005 Washburn Way should be extended north (approximately 0.77 miles) from the Alameda Bypass to Old Fort Klamath Road. This improvement will provide both capacity and street upgrade/safety improvements serving growth areas to the north.

Third Street (Project 14)

This .58 mile section of Third Street has already been reconstructed by the City of Klamath Falls.

Portland Street/Crescent Avenue (Project 15)

Portions (.9 miles) of Portland and Crescent Streets need to be reconstructed to include two travel lanes, sidewalks and bicycle lanes as a street upgrade/safety improvement. The project will increase system efficiency in the north downtown area upon its completion (anticipated in the 6 - 10 year time frame), and better connectivity for alternate modes to the Klamath Falls High School.

Crescent Avenue (Project 16)

Crescent Avenue should be extended approximately .84 miles from Portland Street to Biehn during the 11-15 year time frame. This project will also include sidewalks and bike lanes, thereby increasing road and alternate mode capacity between the OIT and downtown areas, relieving Biehn Street to some degree.

Spring Street (Project 17)

The 0.87 mile section of Spring Street between Esplanade Street and South Sixth Street should be reconstructed from a two to three-lane cross section (including sidewalks) to

improve industrial access and circulation. These improvements will be needed during the 11 - 15 year time period.

Biehn Street (Project 18)

The reconstruction of Biehn Street (between the Alameda Bypass to Lakeport Boulevard) and the Biehn Street Bridge (over UPRR) is under design for near-term construction. This project will include three travel lanes (and bicycle lanes and sidewalks), and will improve system efficiency and increase the capacity of Biehn Street and the Campus Drive/Biehn Street/Alameda Bypass intersection. This project is needed within the next five years.

New East/West Collector Street (Project 20)

It is anticipated that near-term street and traffic signal improvements on Campus Drive will only extend the functional capacity of Campus Drive for about five years. Beyond year 2005, a new collector street connection between Daggett Avenue and Almond Street and intersecting Campus Drive is likely needed. This new intersection will require a new traffic signal, and enables the City to relocate the interim traffic signal at Dahlia Street. This street improvement is approximately 0.10 miles, and new sidewalks.

Quarry Street (Project 21)

The widening of Quarry Street, including a new and wider railroad underpass, to two lanes plus sidewalks will increase travel connectivity and pedestrian access to lands sandwiched between UPRR and Highway 97. This area currently has very limited access, particularly for emergency vehicles. It is expected that this improvement will be needed beyond year 2005.

Daggett Avenue (Project 22)

This project will extend Daggett Avenue (two lanes and sidewalks) an additional 0.16 miles, from Clover Street to West Campus Way. To be constructed as development occurs, this road will increase travel capacity to adjacent newly developed lands as the need arises.

Airport Frontage Road (Project 26)

Street reconstruction and new construction will be required to develop full street frontage along the Southside Expressway, connecting the west terminal and new east side airport terminal. It is likely that this project will not be needed until after year 2015.

Modoc Site Local Access (Project 27)

As redevelopment and development occurs, the Modoc Site Local Access should be constructed to enhance local circulation and lake front access needs. This project should include two travel lanes (permitting on-street parking), and a separate pedestrian/bicycle path. Specific route alignment, city street connections, and roadway design features should be determined through the site plan development and review process.

Bristol Avenue (Project 30)

Bristol Avenue, between Homedale Road and Summers Lane (0.74 miles) should be widened to 3 lanes with sidewalks, and completed within the next 5 years. This project will increase street carrying capacity, and enhance system-wide circulation and safety.

Homedale Road (Project 31)

Four individual street projects are located along Homedale Road. Each includes new sidewalks.

Section 31.1: Shasta Way to the City Limit

This 0.50-mile segment will be widened to three lanes in years 1 - 5 to improve the traffic circulation in the growing residential area.

Section 31.2: City Limit to Foothills Boulevard

Following Section 31.2, this 0.29-mile portion of Homedale Road will be widened to three lanes to improve traffic circulation and access. It is anticipated that this project will be needed after year 2000.

Section 31.3: Foothills Boulevard to Old Fort Klamath Road

To meet the needs of future development, this 2.09-mile, two-lane roadway will be constructed as development occurs.

Section 31.4: 'A' Canal Bridge

Slated for construction in years 1 - 5, this bridge replacement project will increase traffic safety and efficiency.

Harlan Drive (Project 33)

Harlan Drive, between Madison Street and Homedale Road (.28 miles), should be widened to 2 lanes within the next five years, and include new bike lanes and sidewalks. The additional street and sidewalk improvements will enhance traffic circulation and safety.

Hilyard Avenue (Project 34)

The 1.00-mile segment of Hilyard Avenue between Washburn Way and Summers Lane will be widened within the next five years, and will incorporate new sidewalks. Widening Hilyard Avenue will augment circulation improvements made to Washburn Way, and will help balance the functionality of the street network.

Madison Street (Project 35)

Like Hilyard Avenue, Madison Street will be widened during years 1 - 5 to three lanes (with sidewalks) over the 0.97 miles between South Sixth Street and Harlan Drive. This project will facilitate travel more effectively to and from South Sixth Street.

Old Fort Road (Project 36)

From East Main Street to Gibbs Street (0.16 miles), Old Fort Road should be reconstructed to three lanes and include sidewalks. It is anticipated that this project will be needed sometime between years 2000-2005. This roadway will improve circulation adjacent to the Alameda Bypass corridor and will slightly increase travel capacity.

New Collector (Project 37)

Approximately 0.77 miles of new, two-lane roadway will be constructed between Foothills Boulevard and Homedale Road as development occurs. System capacity will increase in Klamath County, and new sidewalks will be added.

East Main Street Extension (Project 38)

To meet future capacity demand, this street will be constructed during years 16 - 20. A 0.58-mile, three-lane segment with sidewalks, this road will connect East Main Street and Crosby Avenue, relieving some traffic from South Sixth Street.

Lakeshore Drive (Project 24)

Minor improvements to Lakeshore Drive, including resurfacing, minor realignment, and traffic calming, are to be made during years 6 - 10. Current sidewalk, bicycle lane, and storm/gutter/drainage facilities on the 2.32 mile project between the Keno Canal and Marina Drive will not be altered.

C. Local Street Improvements

The TSP does not identify all local street needs within the urban area. However, those projects that specifically complement the function and carrying capacity of parallel and existing collector and arterial streets are identified below.

Memorie Lane and a portion of Fargo Street (Project 32)

During years 1 - 5, this project will widen 0.45 miles of existing roadway between Sturdivant Avenue and Bristol Avenue to two lanes plus sidewalks. Safety and traffic movement efficiency will increase upon project completion.

9. State Highways

The state highway system within the Klamath County region should be improved to better serve inter-modal, inter-city and urban area travel demand. When coordinated with local street improvements and land development, these highway improvements will enhance the functional capacity of the overall roadway system. Below is a description of the needed state highway improvements within the Klamath Falls urban area

Southside Expressway (Project 1)

Between Highway 97 and Highway 39, the Southside Expressway should undergo major improvements to substantially improve safety conditions and increase interchange carrying capacity. Below are specific projects defined for the Southside Expressway. Figure 9-4 illustrates the general location and timing of the specific projects.

Section 1.1: Mile Post 2.3 to Altamont Drive

This project, which includes arterial street Project 13 and the new Washburn Way interchange is under construction and due for completion by year 1998.

Section 1.2: Tingley Lane Intersection

The Tingley Lane intersection will be modified to prohibit side-street through- and left-turn movements to provide needed safety improvements. Figure 9-5 illustrates the recommended improvement. This project will also be needed by year 2000.

Section 1.3: Highway 97/140/66 Intersection

Major realignment of the interchange ramps and Highway 140 should be constructed to better accommodate traffic growth and truck traffic through the Highway 97 interchange. A number of improvement options have been discussed and studied in the past. Figure 9-6 illustrates two of these options, and Figure 9-7 summarizes the recommended improvements. These street and interchange improvements are likely needed some time between year 2000-2005. An interchange refinement study should be completed to identify the land use/transportation issues and impacts, and a final plan for construction of interchange-related improvements.

Section 1.4: Highway 97 to Mile Post 2.3

The 2.3 mile portion of Highway 140 between Highway 97 and milepost 2.3 should be reconstructed. This project should be completed by year 2000, and will substantially increase traffic safety and better accommodate heavy truck movement.

Section 1.5: Altamont Drive to Highway 39

During years 11 - 15, the 2.51-mile segment will be reconstructed to a two-lane facility with bicycle lanes. In coordination with projects outside of the UGB, this roadway will improve through traffic circulation.

Section 1.6: Homedale Interchange

It is anticipated that a new interchange at Homedale Road will be needed between years 2010-2015 to balance the inter-city state highway travel function with anticipated industrial and airport-related growth. Klamath County, the City of Klamath Falls, and ODOT should investigate an appropriate system of parallel and intersecting local and street networks to serve the immediate land uses.

Although outside of the Klamath Falls UGB, this project should be identified and coordinated as part of the Klamath County TSP.

Highway 97/West Campus Way Refinement Plan (Project 28)

Due to the proximity to the UGB and the downhill grade of Highway 97, a new traffic signal at Highway 97 and West Campus Way is likely incompatible with the function of Highway 97. This signal would be needed to accommodate growing travel demand in the OIT area. In lieu of a traffic signal, options for grade-separate interchange improvements have been discussed. Such an interchange improvement requires further investigation of highway design considerations (proximity to Alameda Bypass interchange) and land use/transportation impacts (access and access management issues along Highway 97) to determine long-range solutions to growing problems. These issues should be addressed as part of an overall interchange refinement study to also include the Highway 97/Alameda Bypass interchange). However, some type of capacity improvement is needed at the current intersection between the years 1995-2000.

Highway 97/Alameda Bypass (Project 29)

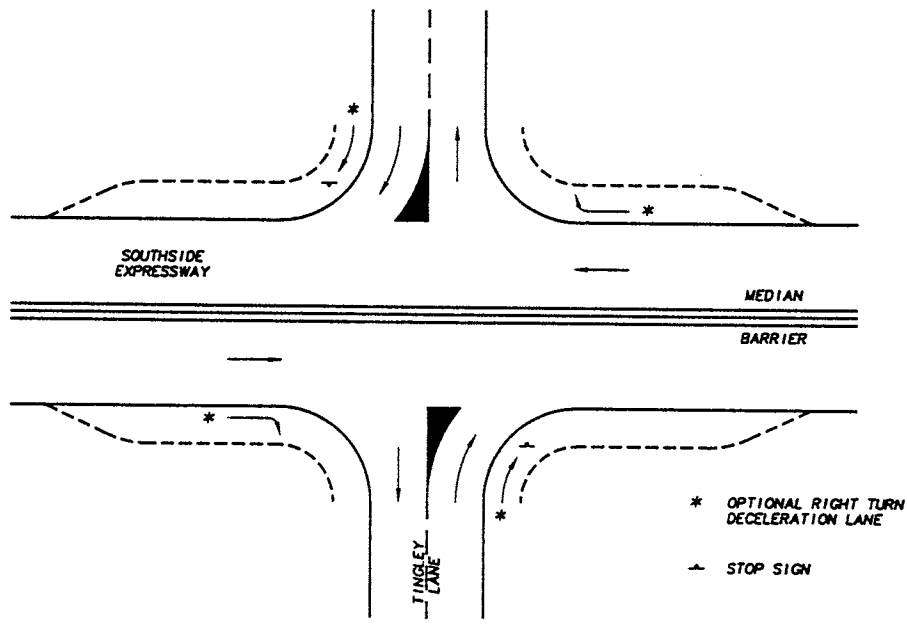
The current interchange bridge structures have a finite lifetime. The current interchange configuration and design includes two design deficiencies:

1. There is no return connection that compliments the northbound Highway 97 to eastbound Alameda Bypass movement (other than substandard u-turns on Highway 97 north of the interchange); and,
2. The primary design movement on the southbound Highway 97 approach to the interchange is towards the Alameda Bypass instead of continuing on Highway 97.

The combination of these design issues, plus those issues defined as part of project 28 above, indicate that future interchange improvements should be studied in greater detail in an interchange refinement study.

GOODS MOBILITY

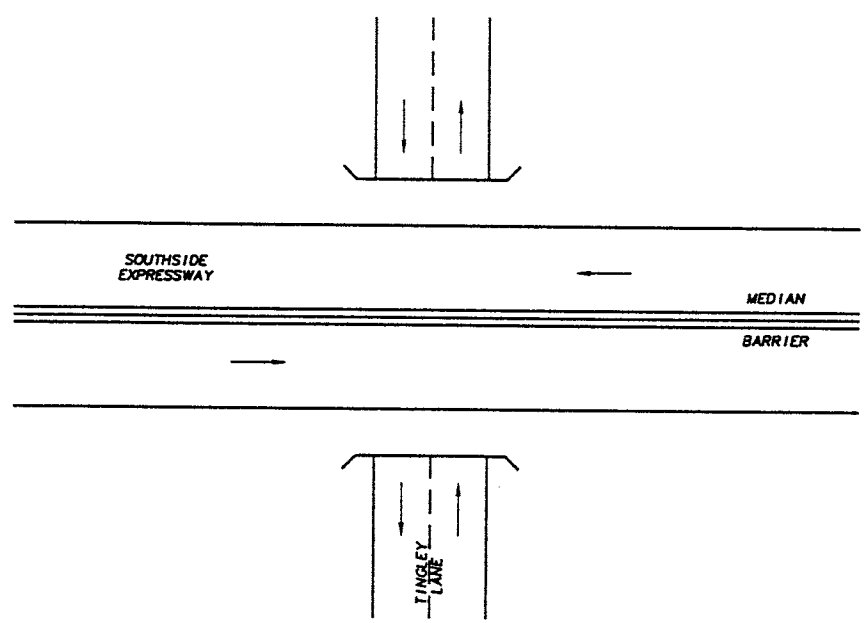
Klamath Falls is recognized in the Oregon Transportation Plan as a potential intermodal center for the state. Coordination with improvements at the airport and with major roadway access improvements are important to fully develop the potential of Klamath Falls as a transportation hub for the state. The City and County land use plans should recognize the importance of these supportive transportation modes and should include provisions to protect and accommodate facilities from conflicting land uses.



MEDIAN CLOSURE

NTS

1



GRADE SEPARATION

NTS

2

DATE	BY	REVISION	CHK

DRAWN BY: CAB

DESIGNED: AJM

CHECKED BY:

APPROVED BY:

WHPACIFIC

2400 S.E. Washington Avenue
SEASIDE, OR 97138

Phone (503) 598-6400 Fax (503) 598-7775

Planning • Engineering • Surveying

Landscape Architecture • Environmental Services

KLAMATH FALLS TSP

SECTION #1.2

TINGLEY LANE RECOMMENDED

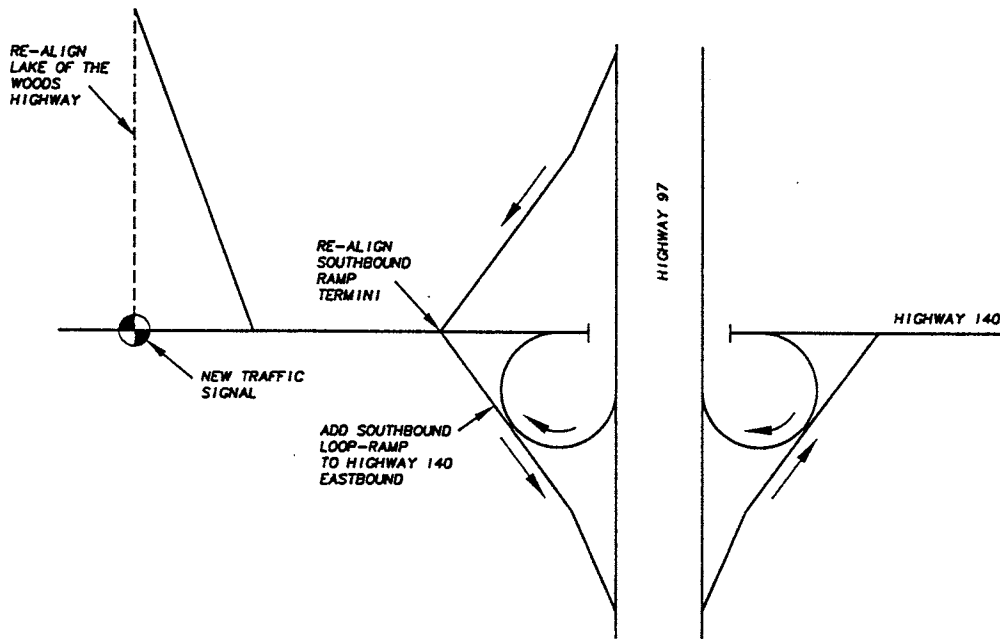
LONG TERM SAFETY IMPROVEMENTS

KLAMATH FALLS OREGON

SCALE: NOT TO SCALE	PROJECT NO. 4-2964-1801	FILE NAME: PKLAEX05.DWG	FIGURE: 9-5
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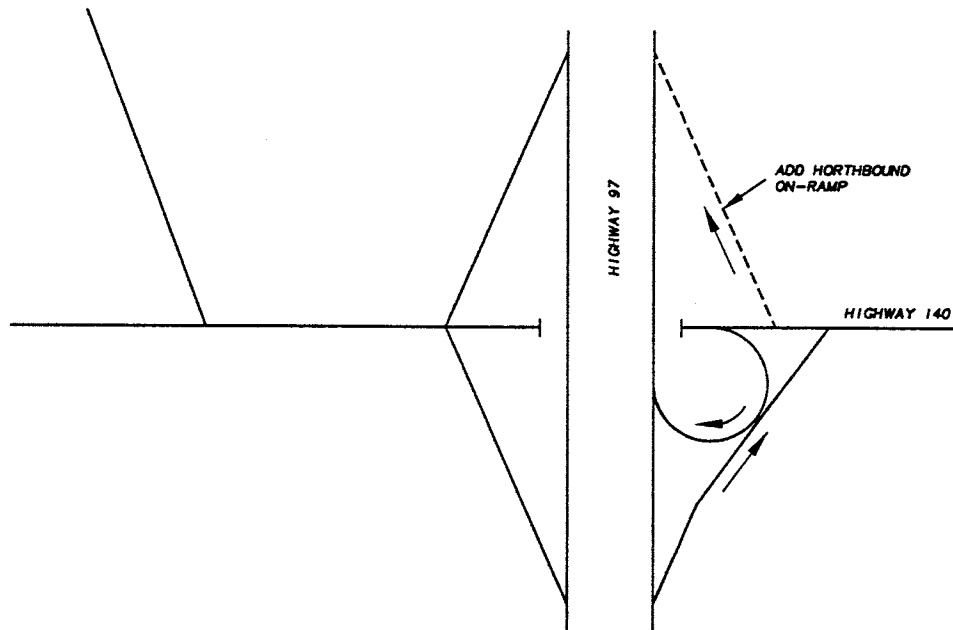
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LAST EDIT: L_E



OPTION 1
NTS

1



OPTION 2
NTS

2

DATE	BY	REVISION	CHK

DRAWN BY: CAB
DESIGNED: AJM
CHECKED BY:
APPROVED BY:

WHPACIFIC
9000 S.W. Harbor Avenue
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Phone (503) 596-5400 Fax (503) 596-5771
Planning • Engineering • Surveying
Landscape Architecture • Environmental Services

KLAMATH FALLS TSP HWY 97/140/66 INTERCHANGE IMPROVEMENT OPTIONS

KLAMATH FALLS

OREGON

SCALE:
NOT TO SCALE

PROJECT NO.
4-2964-1801

FILE NAME:
PKLAEX04.DWG

FIGURE:
9-6

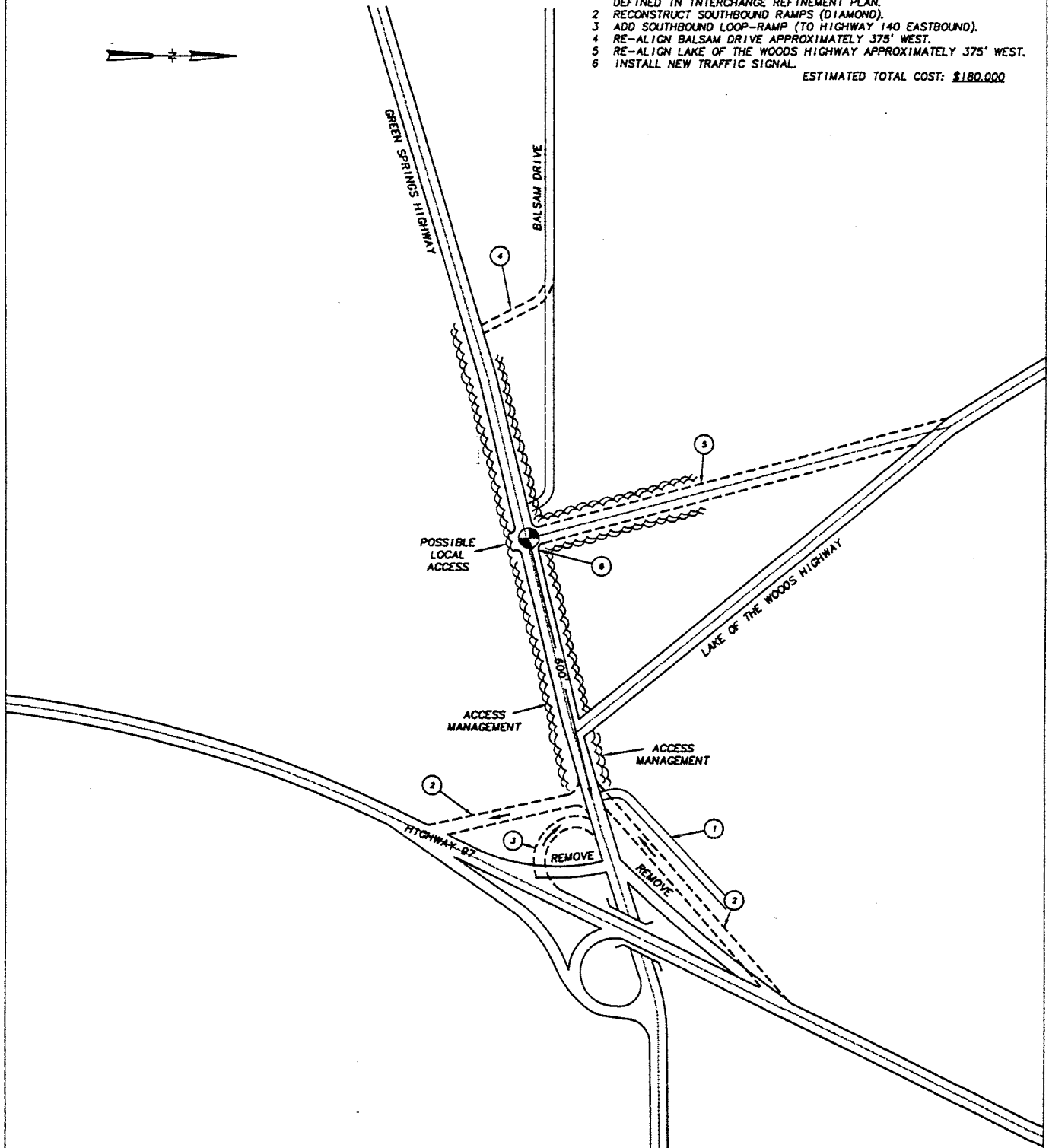
PLOT DATE: X/X/X

LAST EDIT: L_E

NOTES:

- 1 CLOSE DELAP PIT ROAD - LOCAL ACCESS IMPROVEMENTS TO BE DEFINED IN INTERCHANGE REFINEMENT PLAN.
- 2 RECONSTRUCT SOUTHBOUND RAMP (DIAMOND).
- 3 ADD SOUTHBOUND LOOP-RAMP (TO HIGHWAY 140 EASTBOUND).
- 4 RE-ALIGN BALSAM DRIVE APPROXIMATELY 375' WEST.
- 5 RE-ALIGN LAKE OF THE WOODS HIGHWAY APPROXIMATELY 375' WEST.
- 6 INSTALL NEW TRAFFIC SIGNAL.

ESTIMATED TOTAL COST: \$180,000



DATE	BY	REVISION	CHK

DRAWN BY: CAB
 DESIGNED: AJM
 CHECKED BY:
 APPROVED BY:



**KLAMATH FALLS TSP
 SECTION #1.3
 HWY 97/140/66 INTERCHANGE
 RECOMMENDED IMPROVEMENTS**

KLAMATH FALLS

OREGON

SCALE: NOT TO SCALE	PROJECT NO. 4-2964-1801	FILE NAME: PKLAEX03.DWG	FIGURE: 9-7
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PLOT DATE: X/X/X

LAST EDIT: L/E

The US 97 corridor was recognized as an Access Oregon Highway route in the early 1990s. It was given this designation in recognition of its importance as a major economic link for central Oregon communities, as a tourism route, and as a significant truck route connecting Washington and California. With increasing truck traffic on US 97, the City and County should explore the potential of the highway in its evolving role as a major interstate route, and the improvements necessary to integrate truck traffic needs with the needs of the community. This could include taking a lead role in developing a partnership with the Federal government, and the Departments of Transportation for Washington, Oregon and California to explore needed improvements and to identify potential funding sources.

At the same time improvements to accommodate additional traffic on US 97 is being explored, opportunities to work with railroads to improve rail freight service to off-load demands on US 97 should also be considered. Below is a summary of the railroad issues and strategy as part of the Klamath Falls Urban Area TSP.

1. Railroad (Freight) Strategy

The strategy for integrating the railroad transportation mode into the Klamath Falls Urban Area TSP includes identifying the interests of the community, shipper/receivers and the railroad(s). The confluence of these interests can determine the direction Klamath Falls might consider taking. Each interest is outlined below.

Klamath Falls is directly interested in:

- Creating jobs;
- Siting an intermodal facility;
- Attracting industrial development; and
- Developing the area southeast of the airport for industrial development but also removing the BNSF railroad as it conflicts with the airport development.

The community interests are consistent with respect to the desire to foster economic development, with the exception of removing the BNSF track. Siting an intermodal facility is dependent upon the confluence of the interests of both industry and the railroads. Attracting industry is a function of the interests of the shippers and/or receivers.

As far as transportation is concerned, rail shippers and receivers are interested in the following:

- Lowest cost;
- Least damage to product;
- Quick or at least timely delivery;
- Flexibility in scheduling;

- Access to markets;
- Multiple modes of transport;
- Access to the most appropriate mode for particular raw materials and/or product;
- Access to a single mode of transportation to final destinations; and
- Within a given mode, access to more than one provider (relates to several of the above).

The railroads in the region are interested in the following:

- Main line hauls as opposed to terminal/switching operations;
- Single line hauls from Vancouver, B.C. (or at least Seattle) to southern California;
- Unit trains of bulk commodities and/or containers;
- Long hauls;
- Large annual volumes on the line;
- Use of existing physical plant as opposed to new investment;
- Carriers prefer to use their own yards unless traffic is low enough that the cost of maintaining a separate yard is prohibitive. At the present time the SP yard is at capacity (see Chapter 3); and
- Currently, railroads are trying to arrange train schedules, where they can, so that crews can travel to a transfer point and either catch a train on its way back home or switch crews with an inbound train, all within an 8 hour time frame (the 8 hour rule).

Figure 9-8 illustrates the current national, Class I rail carriers in the western United States.

Within the past year (1995) the BN and UP have exchanged trackage rights whereby the BN can use the Bieber to Stockton segment of UP track and the UP can use the Bieber to Bend segment of the BN. These arrangements mean that the BN, by virtue of its merger with the Santa Fe, now has a single line from Vancouver to Mexico, as discussed in Chapter 3. The UP, if it is successful in acquiring the SP, will have a single line from Seattle to Mexico. Therefore there is a strong possibility that there will be two, healthy, Class I carriers, with single line capability from Puget Sound to Mexico, both running trains through Klamath Falls.

All of these interests relate to “economic development” and, in the case of transportation, relate to attracting businesses that wish to have effective and competitive means of moving their materials, equipment, personnel, and products. Not all types of businesses can effectively use rail so a fundamental decision must be made as to what kind of industry is to be encouraged.

Siting an Intermodal Facility

The term “intermodal” means a transportation system that carries a containerized cargo from origin to destination by using more than one type of carrier in the process. With respect to customers being attracted by an intermodal capability, Klamath Falls has access to all modes of transportation except water. This is a significant exception however because much intermodal product, bulk and container, travels by ship or barge. Also there is little product (except passengers) that lends itself to a rail/air interchange. Therefore the intermodal mode that remains most likely is truck/rail.

The following elements are among those that should be present when considering the viability of an intermodal freight hub.

1. Freight produced within the region should be a "value added" product intended for the consumer market.
2. The hub should be able to develop its service volume within 150 miles of the center.
3. Products historically should have been sold in truckload size quantities.
4. Markets for these products should be greater than 1000 - 1200 miles from the hub.
5. Region should have strong local motor carrier base: a) competitive local pricing; b) markets @ less than 1000 miles controlled by regional carriers.
6. Strong market opportunities in addition to the Northwest and California.
7. Facility should be able to create additional marketplace opportunities for existing businesses.
8. Facility should be able to attract new and/or additional business types to the area.
9. Viable access to at least one and preferably two or more rail carriers.
10. Existing rail operation (physical plant) should be convertible to hub center without interrupting ongoing, "conventional" rail traffic

The problem in generating an intermodal hub is one of precedence: Industrial customers who have intermodal as a selection criteria will not come if no facility is present and the railroads will not build a facility unless they are assured of a return on the investment, generated by an assured volume of business. Only items 9 and 10 can be influenced by the carriers themselves. The other elements are a function of the level of economic activity in the region. For example, both the BN and the SP have abandoned their intermodal facilities in Eugene because of its proximity to Portland. These criteria provide a sense of the challenge that faces Klamath Falls in developing such a facility. If this type of activity is to be pursued in the future, at least it can be said that the status quo with respect to the railroads' access and physical plant should be maintained.

Attracting Industrial Development

The elements that will attract industry are described under shippers/receivers, above. From a customer standpoint, all of these interests are better served by more competition. Some are more important than others, depending on a particular product, but for any given criteria, experience has shown that a desire to compete for the contract improves the performance. For many years in the not too distant past the trucking industry made great inroads into the railroads' customer base as a direct result of the railroads' neglect of these interests. The railroads have been making recent strides toward recapturing this business and improved performance is the key. The message is that anything a community does to lessen the competitive position of a carrier will ultimately have a negative effect on the ability to attract customers for whom transportation is important.

A multi-modal capability, in which shippers can choose more than one mode of transportation, offers a further inducement for a business to choose a locality. This attribute is already present with truck, rail, and air. Additionally, two railroads (BNSF and UPSP), for the first time, can provide single line

service along the entire west coast, all passing through Klamath Falls. Operating scenarios that could develop, some of which are already happening, include:

- The UPSP, because the Portland yards are at capacity, could choose to route traffic originating, say, south of Salem/Albany, through Klamath Falls and east over the Modoc Line.
- The UPSP could decide to relieve the congestion that the SP currently experiences in Roseville, CA by routing eastbound traffic, from Portland and north, over the Modoc Line.
- The UPSP could pick up traffic from the Central Oregon and Pacific (CORP), which is the old SP Siskiyou Line, and route it through Klamath Falls.
- Klamath Falls, which was the “end of the line” for the BN, is now on the main line from Vancouver to Mexico for the BNSF, either from Eugene or Wishram. This fact alone, and especially considering the 8 hour rule, could make the Klamath Falls yard a more important place.

Area East of the Airport

The airport is currently bracketed by the BN and the SP. In terms of competition and flexibility for industry, this arrangement is unique in providing direct access to the main lines of two Class I railroads, both with yards nearby, and both with probable single line haul capability from Canada to Mexico and to the eastern gateways. Because the BN, in particular, interferes with the preferred access to the airport, different alternatives for relocating the tracks as described in Chapter 3. None of these alternatives would be attractive to a railroad as active as these may become and moving the tracks would probably make industry access more convoluted in the process.

In summary, the railroad picture is in a state of flux for the region and a number of possibilities exist that could change the role that Klamath Falls plays in the railroads' operating scenarios. At least it seems probable that the rail service to and from the area will become more accessible, flexible, and competitive. In either case it would seem prudent to “wait and see” as far as forcing change on any of the carriers at this time or proactively trying to create a hub center on speculation.

2. Air Freight

Air carrier service is available at the Klamath Falls International Airport (Kingsley Field) by American Eagle and Horizon Air. Because of the topography, climate and compatible land use, the Klamath Falls area has an opportunity for an intermodal freight airport that could serve as a reliever for other congested West Coast airports. The current improvements to the airport and implementation of the Airport Master Plan will continue to move the airport in that direction.

WATER

Although the Klamath River flows through the urban area, the river is generally too shallow to allow for effective water transportation. Water transportation is limited to recreational use of the river, and Klamath Lake and Ewauna Lake. This asset, however, should be recognized as an integral part of the region's land use/transportation system and form.

PIPELINE

Currently, pipeline transportation in and throughout the Klamath Falls urban area includes transmission lines for electricity, cable television and telephone (including fiber-optic) services, as well as pipeline transport of water, sanitary sewer, and transmission lines for natural gas.

The next century promises to be one in which information access will help define continued success and economic vitality. Such access is not only important to the continued economic vitality of the region, but it can also have a significant effect on transportation, air quality, and infrastructure investment decisions that will need to be made by the community. The City of Klamath Falls and Klamath County should enhance their capabilities to develop and operate an infrastructure that provides links for electronic communication via telecommuting and satellite communications. These opportunities will affect the overall quality of life that can be provided, the potential for an improved and more diversified economic base, and enhanced health and education-related benefits of the Klamath Falls region.

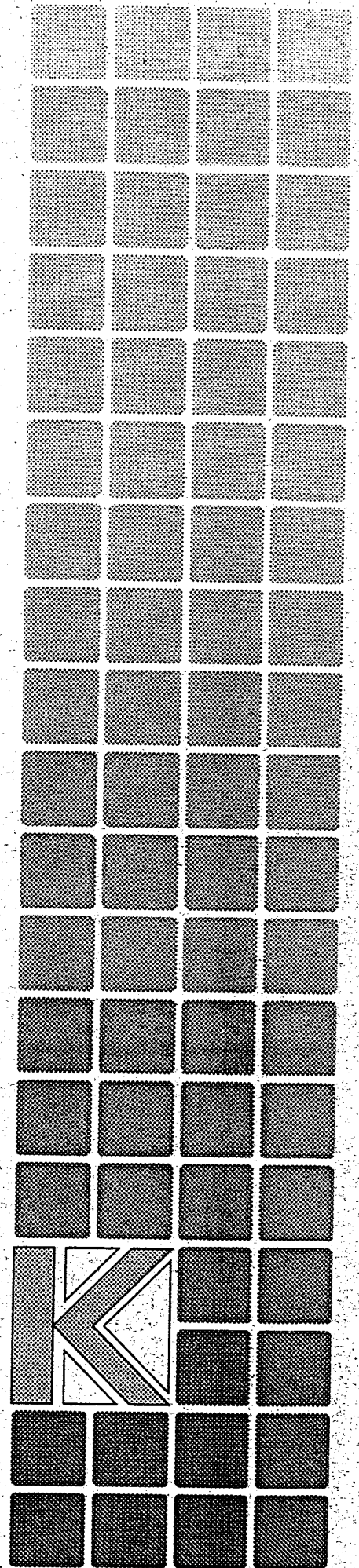
UTILITIES COORDINATION

The cost to move private utilities is an expense to the tax payer/rate payer, and should be minimized at every opportunity. Utility improvements will be coordinated with roadway improvements to the extent possible. Where this is not possible, utilities should be responsible for the full cost of returning the transportation facility to its original condition. Emphasis should be placed on two-way communication and a partnership between the jurisdictions and the private utilities to minimize costs for all transportation improvements.

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Chapter 10

Recommended Transportation and Land Use Policies



RECOMMENDED TRANSPORTATION & LAND USE POLICIES

AIR QUALITY

ODOT has completed their analysis and established air quality conformity of the current State Transportation Improvement Plan (Draft 1998-2001). The transportation policies and projects developed as part of the Klamath Falls Urban Area TSP supports, is consistent with, and will advance the Oregon statewide air quality planning goals. These goals are intended to demonstrate attainment and maintenance of air quality standards consistent with Federal law.

TRANSPORTATION-EFFICIENT LAND USE POLICIES

The Transportation Planning Rule (TPR; OAR 660 Division 12) sets forth the standards and procedures for developing transportation system plans (TSP's). Within Metropolitan Planning Organizations (MPOs), the TPR outlines a process under which local governments with populations larger than 1,000,000 are required to develop land use alternatives for their TSP's (660-12-035)(2). The TPR states that the land use alternatives process is optional for other jurisdictions in the state, including the Klamath Falls urban area.

Although no land use alternative is required for the Klamath Falls Urban Area, the TSP planning process included an examination of transportation-related effects of changing land uses (see Chapter 6-Evaluation of Alternatives). The process indicated that, with certain land use changes, a better balance of land use and transportation system components resulting in better mobility for a greater cross-section of the Klamath Falls population - particularly for non-auto travelers (pedestrians, bicyclists, and transit riders). A variety of land use concepts were defined that focused on reducing the length of vehicle trips (which usually is accomplished by shortening the distances between areas of housing and areas of employment or shopping). These concepts included:

- increased residential densities along transit corridors and near major commercial and employment centers;
- increased intensity of retail and office use through establishment of minimum floor area ratios (FARs);
- placement of neighborhood commercial activities closer to area residents;
- balancing housing and jobs; and,
- establish maximum parking limits for office and institutional uses.

The assessment of land use concepts summarized in Chapter 6 focused on land use plan changes that would likely result in increased opportunities for walking or biking between home and work, and between home and shopping areas. Of the concepts listed above, maximum parking limits likely will have the least positive effect, while adding housing near commercial areas may have the best effect. Specifically, the strategy of converting the land east of downtown and between 6th Street and the

shore of Lake Ewauna into housing may have the single best effect on linking housing, employment, and shopping. These areas are close to downtown and relatively close to employment centers in the northern portion of the community and south of downtown. The proximity to these activity areas will increase convenience, shorten trip lengths, and make alternative modes more viable.

TRANSPORTATION SYSTEM MANAGEMENT (TSM) PLAN AND POLICIES

As the City of Klamath Falls and Klamath County continues to develop, the collector/arterial 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 collector/arterial 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 among all users of the street system, and hence provide safer and more efficient traffic operation, and
2. Minimize local cost for transportation improvements needed to provide additional capacity and/or access improvements along unmanaged roads.

Recommended Access Management Plan

One of the objectives of the Klamath Falls Urban Area TSP 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 over the 20-year planning horizon (1995-2015). The TSP will serve as the land use and transportation plan; access management strategies and review policies and procedures, which will guide future development and growth within the urban area, will complement the plan. 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 1991 Oregon Highway Plan and National Highway System (NHS).

The recommended access management plan for arterials and highways within the urban area focuses on three specific areas described below.

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 arterials will not be affected by the recommended Access management Plan until either a land use action is proposed,*

a safety or capacity deficiency is identified that requires specific mitigation, or a major construction project is begun on the roadway.

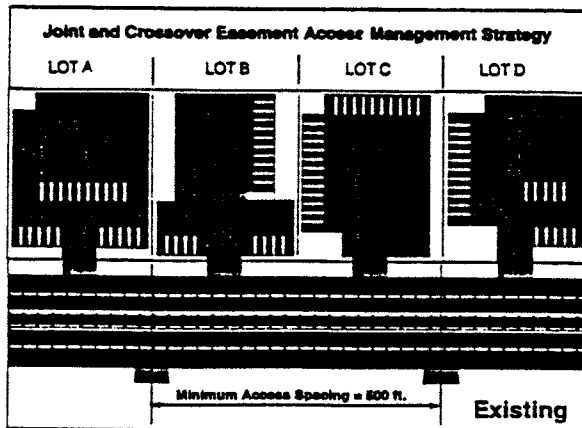
Future Land Use Actions and Review Policy

Future land use actions (zone changes, comprehensive plan amendments, redevelopment, and/or new development) will be required to 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 either 500-foot (*Category 4 highways and 5-lane arterials*) or 300-foot (*Category 5 highways and 3-lane arterials*) and 150-foot (*Category 6 highways*) spacing (centerline-to-centerline) between either existing private or public access points on both sides of the roadway and to the north and south 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 an access variance from either the City or County and/or ODOT. In addition, according to the 1991 OHP, the impact in traffic generation from proposed land uses must allow a LOS of "C" to be maintained for *Category 4* segments and a LOS of "D" to be maintained for *Category 5* and *Category 6* 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).

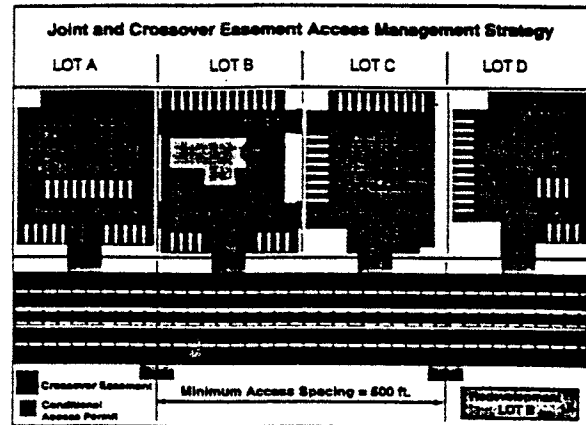
Access variances may be provided to parcels whose frontage, topography, or location would otherwise preclude issuance of a conforming access point. Access variances will include a condition that requires the land owner to work in cooperation with adjacent land owners to provide either joint access points, front and rear crossover easements, or a rear-access upon future redevelopment. An approved access variance will provide the parcel with a *conditional access permit*. 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 or County will then have the right to either relocate the conditional access driveway to align with an opposing driveway, eliminate the access and provide crossover access, or consolidate the 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 10-1 is an illustration of how the conditional access policy and process would bring existing and future accesses into access spacing compliance over time.

Table 10-2 shows the sequence of land use actions and condition process by which the City or County and ODOT can meet the access management guidelines set forth by the 1991 Oregon Highway Plan. It should be noted that not every parcel can or should be accessed through the process illustrated in Figure 10-1 and described in Table 10-1. 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 concrete pre-mix facility would be inappropriate).

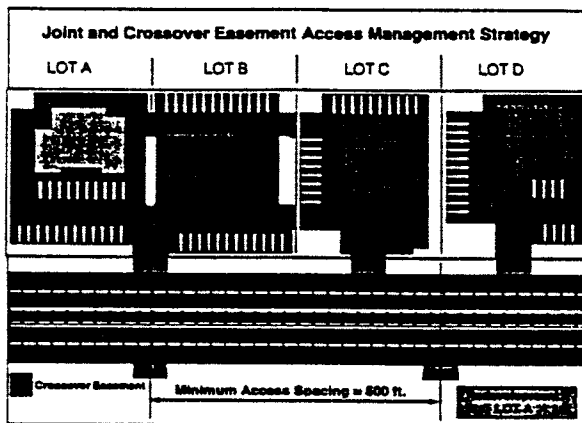
PROPOSED ACCESS MANAGEMENT STRATEGY



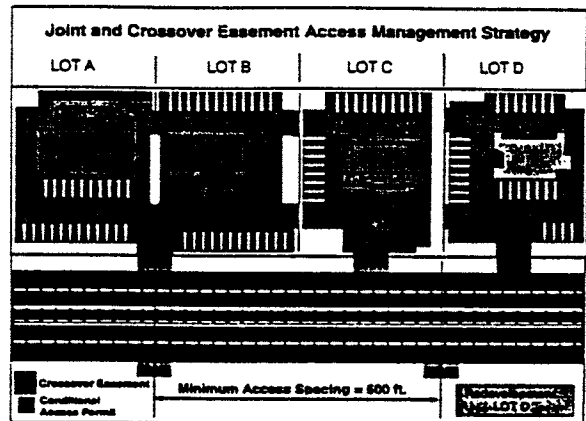
Step 1



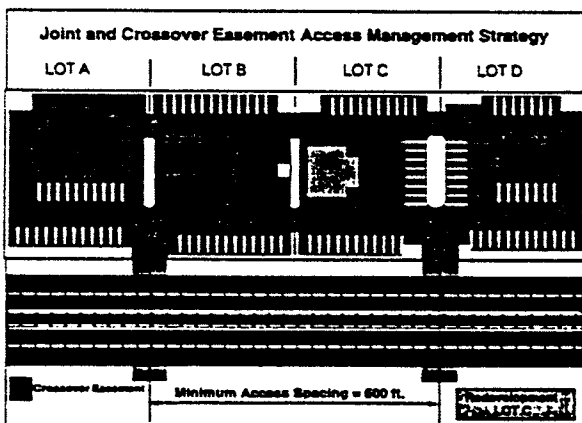
Step 2



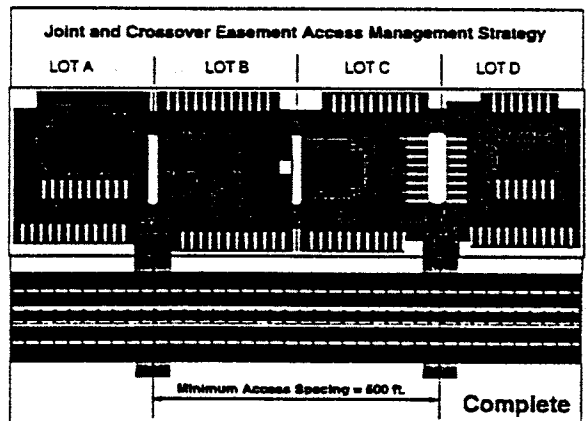
Step 3



Step 4



Step 5



Step 6

FIGURE 10-1

**Table 10-1
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. <i>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.</i>
2	<i>REDEVELOPMENT OF LOT B</i> - At the time that Lot B redevelops,, the local jurisdiction would review the proposed site plan and make recommendations to ensure that the site could promote future crossover or consolidated access. Next,, the local jurisdiction would issue conditional permits for the development to provide crossover easements with Lots A and C,, and the City of Pendleton and/or ODOT would grant a conditional access permit to the lot. <i>After evaluating the land use action,, the participating jurisdiction 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</i>
3	<i>REDEVELOPMENT OF LOT A</i> - At the time Lot A redevelops,, the City of Pendleton 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 Pendleton 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. <i>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.</i>
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. <i>By using the crossover agreement and conditional access permit process,, the City of Pendleton and ODOT will be able to eliminate another access point and provide the alignment with the opposing access points.</i>
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

To provide an efficient process for implementing the recommended access management plan, a detailed review procedure is recommended, as described below.

All land use actions that either propose direct or indirect access to a state highway or an arterial will need to provide the appropriate governing jurisdiction (*Klamath County and/or City of Klamath Falls*) with the information outlined below. The governing jurisdiction will then inform ODOT of the intended land use action and provide pertinent review material. 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 review to the appropriate jurisdiction (*City of Klamath and/or Klamath Falls County*), prior to receiving an access or zoning permit. At a minimum, the site plan shall illustrate:

- 1) The location of existing access point(s) on both sides of the road within 500 feet in each direction for *Category 4* segments or *5-lane arterials* and 300 feet for *Category 5* segments and *3-lane 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/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 access variances;

B) Proposed land use actions, new developments, and/or redevelopment will need to provide traffic impact studies to the respective local reviewing jurisdiction(s) and ODOT

if the proposed use:

- 1) directly accesses a state highway; or,
- 2) requires a comprehensive plan amendment; or,
- 3) there is a recognized traffic safety or operations deficiency in the vicinity of the proposed land use action;

and the proposed use exceeds the thresholds defined as:

- Trip Generation Threshold - 50 newly generated trips (inbound and outbound) during the adjacent street peak hour; **or**,
- Mitigation Threshold - installation of any traffic control device and/or construction of geometric improvements that will affect the progression or operation of traffic traveling on, entering, or exiting the (state) highway; **or**,
- Heavy Vehicle Trip Generation Threshold - 20 newly generated heavy vehicle trips (inbound and outbound) during the day.

A traffic study will not be required of a proposed land use action **if** it is an allowed outright or conditional use **and** it does not exceed the thresholds defined above.

ODOT, after consultation with the City and County, will be responsible for determining if the aforementioned conditions and thresholds are met thereby determining the need for a traffic impact study. All traffic impact studies will need to be prepared by a registered professional engineer in accordance with ODOT's development review guidelines.

Jurisdiction Review Items

To provide a thorough land use application review, it is recommended that each jurisdiction use the following criteria in reviewing an application.

- A. 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 standard 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), 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 Access Variances

Access variances will be reviewed by the City of Klamath Falls and/or Klamath County and the Oregon Department of Transportation for proposed driveways that do not meet the recommended access spacing criteria. Variances may be allowed under the following conditions:

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

An approved access variance 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 County and City will then have the right to either relocate the conditional access driveway to align with an opposing driveway, eliminate the access and provide crossover access, or consolidate the access with an adjacent parcel.

Recommended Conditions of Approval and Necessary Improvements to Evaluate

As part of every land use action, the City of Klamath Falls or Klamath County 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.

1. *Crossover easement agreements* will be required on all compatible parcels (topography, access, and land use) to facilitate future access between adjoining parcels.
2. *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.
3. *Right-of-way dedications* will be required to facilitate the future planned roadway system in the vicinity of the proposed development.
4. *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 Oregon State Highway minimum requirements for a traffic report. ODOT views these as the minimum considerations to be dealt with by Professional Traffic Engineering Consultants in their analysis of traffic impacts resulting from new developments adjacent to state highways.

1. The analysis shall include alternates other than what the developer originally submits as a proposal for access to state highways, city streets, and county roads.
2. The analysis of alternate access proposals shall include:
 - a. 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).
 - b. 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.
 - c. Trip Generation shall be calculated using the Institute of Transportation Engineers' manual "TRIP GENERATION - 5th Edition" or other, more current, and/or applicable information.
 - d. A determination of the need for a traffic signal based on warrants in the "Manual on Uniform Traffic Control Devices."
3. The recommendations made in the report should be specific and shall be based on a minimum level of service 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.
4. 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.
5. The report shall include an analysis of the impacts to neighboring driveway access points and adjacent streets affected by the proposed new development driveways.
6. The report should include a discussion of bike and pedestrian usage and the availability of mass transit to serve the development.

TRANSPORTATION DEMAND MANAGEMENT (TDM) PLAN

Transportation Demand Management (TDM) is a mixture of policies and strategies intended to reduce the number of vehicle trips on the roadway system by either encouraging use of alternate modes (transit, bicycle, pedestrian, etc.), or adjusting the land use/transportation relationship to minimize overall vehicle travel. With reduced vehicle trips, the land and transportation resources (both public and private) might be better utilized to delay or even avoid the larger and more expensive public infrastructure improvements needed to accommodate the expected growth in travel demand across the Klamath Falls urban area. Another possible benefit of a successful TDM plan is the reduced need for parking spaces, thereby increasing available building and landscaping space in the study area. TDM plan improvements can also provide less obvious (but equally important) environmental improvements. Fewer vehicle trips will, in combination with other programs of this nature, improve regional air quality, and decrease consumption of fossil fuels.

TDM Measures

Candidate measures for a TDM program can be listed in a range that extends from “minimal” to “highly aggressive” measures. How a particular measure is categorized varies by interpretation. For example, people who are avid transit riders may view 100 percent subsidy of transit passes as a very small measure, whereas local government, major employers and service providers like Basin Transit Service may view the subsidy as a very large investment. Similarly, TDM efforts (e.g. parking meters/pass with restricted parking use) which might be considered minimal in a downtown city core location (central business district), could be considered very aggressive in a less dense location such as the OIT Campus and South Sixth Street corridor areas. These urban density and traffic conditions are, however, likely to change within the Klamath Falls urban area the future. Hence, the aggressive TDM measures might likely become more acceptable in the distant future.

The range of TDM measures considered as part of the Klamath Falls urban area TSP are defined separately below.

Minimal

Typical minimal TDM efforts include: 1) distribution of transit and carpool information in student registration packets, or at new employee orientations; 2) provision of transit/carpool information at centers located at major travel destinations and work/school places; and, 3) provision of outdoor bicycle racks.

Moderate

Typical moderate TDM efforts include: 1) provision of preferred carpool/vanpool spaces (without registration and confirmation); 2) designation of a part-time staff member to act as Employee Transportation Coordinator; 3) provision of bicycle storage lockers; 4) encouragement of employees and students to register in carpool matching system (the sponsor and structure of such a program would need to be defined); 5) development and initiation of public awareness through programs like an annual “Transportation Fair” or “Alternative Transportation Mode” Day.

Aggressive

Typical aggressive TDM efforts include: 1) automatic enrollment of employees and students in a carpool/vanpool matching system; 2) designation of a full-time staff member as an Employee Transportation Coordinator; 3) requiring monthly and randomly-confirmed registration for preferred carpool/vanpool parking; instituting student and staff parking fees (as a diss-incentive to driving alone); 4) providing discounts at the OIT bookstore, or in tuition fees for commuting via alternative modes of transportation; and, 5) providing a monthly subsidy for transit passes (the highest tax free subsidy allowed by the IRS is \$60/month).

Highly Aggressive

Example of highly aggressive TDM efforts include: 1) installing new bus routes (like the recommended expansion of the BTS system Route #5 for direct service along the Alameda Bypass between the South Sixth Street area); 2) implementing a "transportation cost allowance" system for employees and students; 3) requirement that all employees (employed by companies of 50 or more employees) and students pay for assigned parking spaces on a monthly basis at a rate equal to or more than twice the Basin Transit bus pass rate (for OIT faculty and students this program would require additional parking charges to those fees already assessed); and, 4) re-structuring land use plans and ordinances to require land development that generates a greater number of internal study area vehicle trips and non-vehicle trips..

TDM PLAN

The primary objective of the Klamath Falls urban area TSP is to reduce the number of vehicle trips generated in the UGB area. Because the TSP addresses both current deficiencies and anticipated growth throughout the UGB over the next 20 years, the TDM plan should target reduction in both current and future vehicle trip generators and an increased use of alternative modes for travel within the urban area. As such, a number of TDM goals should be established to guide development of a successful TSP plan. The following goals serve as a basis for further consideration and discussion by the major stakeholders of the region:

- Reduce the rate of daily vehicle trips generated in the Klamath Falls urban area by 5 percent over the next twenty years.
- Increase the use of alternative modes for commuting in the Klamath Falls urban area, particularly by bus.

In order to accomplish these goals, the TDM Plan includes recommendations for a parking management plan, bicycle and pedestrian improvements, and a Basin Transit service expansion plan. These measures are intended to be used as a framework to accomplish the goals of the TDM Plan. It is anticipated that as development continues and the attitudes and expectations of transportation system users change, the specific measures used to implement the plan may need to be modified. For these reasons the major stakeholders in the region will need to continue to meet and oversee the implementation of the plan, and to make recommendations on improvements to the plan for the future.

Parking Management

A parking management plan should be defined to better identify and serve the variety of developments in the Klamath Falls urban area. The focus of the plan should target larger developments or employers (50 employees or more) and OIT as the candidates where the greatest impacts and benefits of managed parking can be achieved. An important element of any managed parking plan is a well-defined fee administration and monitoring program. A successful TDM parking management program will create both a financial incentive for alternate mode use (e.g. bus pass subsidy) and a disincentive to "drive-alone" travel (e.g. increased or new parking fees). Many of the suggested parking plan measures (defined below) will require a defined and coordinated regulatory program amongst the major stakeholders in the study area. These measures can effectively be placed in the Klamath Falls urban area within the next 10 years.

Bus Pass Program

Create an incidental fee funding source to support a Basin Transit bus pass program, thus enabling students and employees a reduction in the overall cost of a monthly BTS bus pass. Some bus subsidy measures have already been enacted by OIT as an example. Areawide subsidy will likely take time for full community support. Hence, these TDM measures should be planned for implementation in the latter 10 years of the TSP plan period (2005-2015).

Parking Preference Program

Develop parking preference (carpools and vanpools) and fee program for major employment sites (50 employees or more) in the study area. These TDM measures can effectively be implemented over the next 10 years.

Facility Improvements

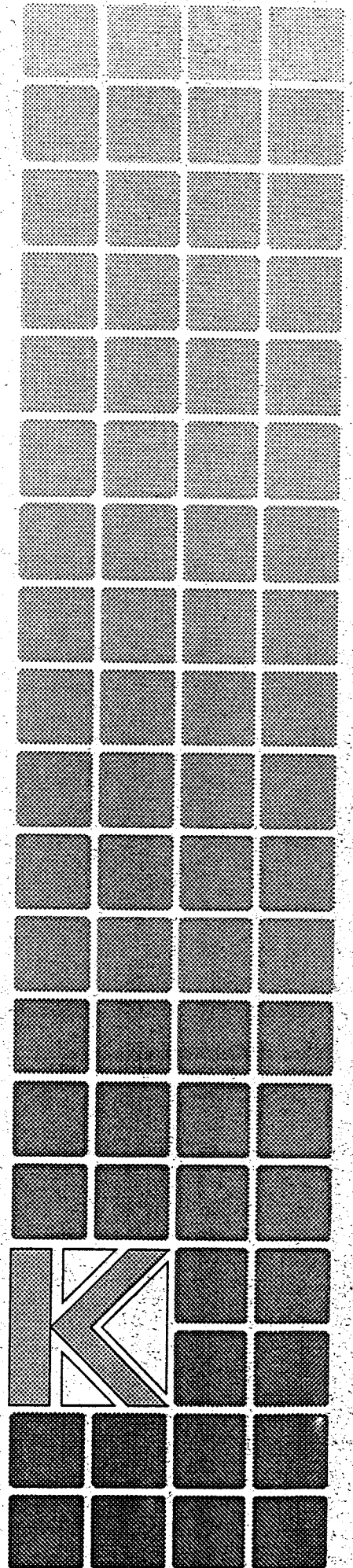
Bicycle and pedestrian facility improvements will be developed in the study area as part of those TSP improvements identified in other parts of this TSP. They include better bicycle and pedestrian system components, expanded BTS bus service, and better policies that guide new development in the orientation, density and placement of transportation-efficient land uses. These measures can effectively be implemented over the next 20 years.

Basin Transit Service Expansion

The Basin Transit Development Plan (1996) identifies an option for the placement of an additional route (Route #5) to the current bus system. The new route would serve the OIT area with connections to the South Sixth Street and downtown Klamath Falls areas. This new route service will require the purchase of an additional bus, thereby expanding the Basin Transit fleet from five to six buses. Route #5 would provide hourly service, and increase bus frequency in the OIT area from 2 to 3 trips per hour (in each direction) during the typical weekday. This TDM measure should be implemented by year 2000.

Chapter 11

Transportation Planning Rule Compliance



TRANSPORTATION PLANNING RULE COMPLIANCE

INTRODUCTION

In April 1991, the Land Conservation and Development Commission (LCDC), with the concurrence of the Oregon Department of Transportation (ODOT), adopted the Transportation Planning Rule (TPR), OAR, 660 Division 12. The TPR requires local jurisdictions to prepare and adopt a Transportation System Plan by May 1997. Outlined below is a list of recommendations and requirements for a TSP for an urban area with a population above 25,000 outside of metropolitan planning organization (MPO) areas, and how each of those are/will be addressed in the Klamath Falls Urban Area TSP.

DEVELOPMENT OF A TRANSPORTATION SYSTEM PLAN

TPR Recommendations/Requirements

Public and Interagency Involvement

- Establish Advisory Committees.
- Develop informational material.
- Schedule informational meetings, review meetings and public hearings throughout the planning process. Involve the community.

Klamath Falls Urban Area TSP Compliance

A project Management Team and an Advisory Committee were established at the outset of the project. Membership on the Management Team included member of the city, county, Basin Transit, and ODOT staff. Membership on the Advisory Committee included representatives from the public and various interest groups.

A newsletter was developed as a communication tool for use throughout the planning process. Three newsletter issues were published and 100-200 copies were distributed via direct mail to a list of interested stakeholders and by placing them at strategic locations within the community (such as the City Hall, library, schools, and various retail establishments)..

A total of three public informational meetings were held throughout the planning process. The meetings were advertised by direct mail to interested parties, distribution of the newsletter, and through the local news media.

■ Coordinate Plan with other agencies.

Coordination with local government agencies was accomplished by adding them to the project mailing list, individual project briefings/meetings, and participation on the project Management Team and Advisory Committee.

Review Existing Plans, Policies, Standards, and Laws

■ Review and evaluate existing comprehensive plan.

The following plans were reviewed as part of the development of the TSP: *1991 Oregon Highway Plan*, (June 1991); *City of Klamath Falls Comprehensive Plan*; *City of Klamath Falls Development Ordinance*; *Klamath County Comprehensive Plan*; *Klamath County Land Development Code*; *Statewide Transportation Improvement Program* (1996-1999); *Klamath County Bicycle Master Plan*; and *Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA)*.

■ Land use analysis - existing land use/vacant lands inventory.

Development of the forecast of transportation needs was based on population and employment numbers obtained from Klamath County, the City of Klamath Falls and ODOT.

■ Review existing ordinances - zoning, subdivision, engineering standards.

Existing City and County Ordinances and Standards were reviewed for adequacy in the development of the Klamath Falls Urban Area TSP.

- Review existing significant transportation studies.

Significant transportation studies reviewed as part of the Pendleton TSP include the above mentioned comprehensive plans and their associated transportation elements, the *Oregon Transportation Plan*, (September 1992), *Oregon Bicycle Plan*, (April 1992), *Oregon Rail Passenger Policy and Plan*, (1993); *Klamath Falls Eastside Expressway Alternatives Analysis*, (1996); *Basin Transit Service, Transit Development Plan*, (1995); *Campus (OIT) Area Traffic Impact Analysis*, (1996).

- Review existing capital improvements programs/public facilities plans.

The City of Klamath Falls, Klamath County and the State of Oregon Capital Improvement Plans were reviewed as part of the TSP development.

- Americans with Disabilities Act requirements.

The ADA requirements will be reviewed and acknowledged as part of the TSP development.

Inventory Existing Transportation System

- Street system (number of lanes, lane widths, traffic volumes, level of service, traffic signal location and jurisdiction, pavement conditions, structure locations and conditions, functional classification and jurisdiction, truck routes, number and location of accesses, safety, substandard geometry)
- Bicycle ways (type, location, width, condition, ownership/jurisdiction).
- Pedestrian ways (location, width, condition, ownership/jurisdiction).
- Public Transportation Services (transit ridership, routes, frequency, stops, fleet, intercity bus, special transit services).

An inventory of the existing street network, traffic volumes, traffic control devices, accident history, and level of service is provided in Chapter 3 of the TSP (to be updated).

A summary of the existing bicycle route system is given in Chapter 3.

An inventory of existing sidewalks along collector and arterial streets and separate walkways is listed in Chapter 3.

A summary of the existing public transportation system is given in Chapter 3.

- Intermodal and private connections. A summary of all intermodal and private carrier transportation services and/or connections is presented in Chapter 3.
- Air transportation. A summary of existing air (passenger and cargo) service is provided in Chapter 3.
- Freight rail transportation. A summary of freight rail transportation services is provided in Chapter 3..
- Water transportation. A summary of water transportation services is provided in Chapter 3.
- Pipeline transportation. A summary of the existing pipeline transportation system is provided in Chapter 3.
- *Environmental* constraints. Within the Klamath Falls UGB there are significant environmental constraints affecting the development and general conclusions of the TSP. They include: Upper Klamath Lake, Lake Ewana, Keno Canal, Klamath River, and the steep terrain in various parts of the UGB.
- Existing population and employment. As outlined in Chapter 3 of the TSP, the current population in the Klamath Falls Urban Area is approximately 40,000 (1990); the employment is approximately 14,040.

Determine Transportation Needs

- Forecast population and employment. Population and employment forecasts were developed by the project team based on the Comprehensive Land Use Plans for the City of Klamath Falls and Klamath County. These forecasts were also reviewed by the Management Team and Advisory committee.

- Determination of transportation capacity needs.
- Other roadway needs (safety, bridges, reconstruction, operation/maintenance).
- Freight transportation needs.
- Public transportation needs (special transportation needs, general public transit needs).
- Bikeway needs

Future p.m. peak hour traffic assignments were developed using ODOT's EMME/2 travel demand forecasting computer program based on population and employment forecasts spatially distributed within the study area in a discreet number of transportation analysis zones. Operational analyses were conducted on critical roadway segments using p.m. peak hour level of service volume thresholds to determine the levels of service, deficiencies and improvement needs under future conditions.

Improvements aimed at addressing circulation and safety deficiencies are summarized in Chapter 9.

The recommended TSP in Chapter 9 will provide for adequate freight movement by rail and highway.

The transit plan recommended Chapter 9 will provide adequate public transit facilities and services.

Future bicycle and pedestrian improvements are to be made within the UGB, both as part of the roadway network and as separate facilities, to provide cyclists and pedestrians with full accessibility to Collector/Arterial street system in the Klamath Falls Urban Area.

Develop and Evaluate Alternatives

- Update community goals and objectives.
- Establish evaluation criteria.

Goals were established as part of the TSP development (see Chapter 2).

Evaluation criteria will be established as part of the TSP development (see Chapter 6).

- Develop and evaluate alternatives (no-build system, all build alternatives, transportation system management, transit alternative/feasibility, improvements /additions to roadway system, land use alternatives, combination alternatives).

Chapter 6 identified five transportation/land use alternatives to assess the long-term transportation needs including: 1) Do-Nothing ("No-Build") Alternative, 2) "Stay-The-Course" (Build), 3) Transportation System Management, 4) Transit-Transportation Demand Management (TDM). A number of options aimed at addressing specific circulation and capacity needs in the South Sixth Street Corridor were also discussed in Chapter 6.

A combination of the alternatives was chosen (See Chapter 9) to mitigate the future capacity deficiencies and to address future circulation needs. VMT reduction requirement is not applicable to the Klamath Falls Urban Area (See OAR 660-12-035(4)(a)-(c). However, the recommended transportation system improvements will very likely result in less reliance on the auto and a net reduction in VMT/capita by providing more direct connections within the community and less reliance on the automobile for travel and circulation.

Produce a Transportation System Plan

- Transportation goals, objectives and policies.
- Streets plan element (functional street classification and design standards, proposed facility improvements, access management plan, truck plan, safety improvements).
- Public transportation element (transit route service, transit facilities, special transit services, intercity bus and passenger rail).

Specific recommendations regarding transportation goals and policies are outlined in Chapter 9 and 10.

The streets plan element is outlined in Chapter 9, and shown in Figure 9-3.

The public transportation element is outlined in Chapter 9.

- | | |
|--|---|
| ■ Bikeway system element. | The bicycle plan will be outlined in Chapter 9. |
| ■ Pedestrian system element. | The pedestrian plan is outlined in Chapter 9. |
| ■ Airport element (land use compatibility, future improvements, accessibility/connections/conflicts with other modes). | The airport element is outlined in Chapter 9. |
| ■ Freight rail element (terminals, safety). | The rail element is outlined in Chapter 9. |
| ■ Water transportation element (terminals). | Since the Klamath River unnavigable for shipping purposes, water transportation service for the Klamath Falls Urban Area is provided by the Ports of Portland, and Coos Bay, Oregon. |
| ■ Transportation System Management element (TSM). | Access Management Strategies for Klamath Falls Urban Area are outlined in Chapter 10. |
| ■ Transportation Demand Management element (TDM). | The alternatives analysis included the evaluation of transit and TDM measures. The implementation of these strategies is forwarded as one of the elements of the recommended TSP. The Recommended TDM Plan is provided in Chapter 10. |

IMPLEMENTATION OF A TRANSPORTATION SYSTEM PLAN

Plan Review and Coordination

- Consistent with ODOT and other applicable plans.

Adoption

- | | |
|------------------|---|
| ■ Is it adopted? | <i>To follow.</i> Scheduled for adoption in June/July 1997. |
|------------------|---|

Implementation

- Ordinances (facilities, services and improvements; land use or subdivision regulations).

Recommended ordinance language modifications are included in Appendix G. The proposed TSP is not intended to fully comply with Section 045 of the TPR. Subsequent Comprehensive Plan and ordinance amendments will be adopted by the City and County at a later date that will constitute compliance with this section of the TPR.

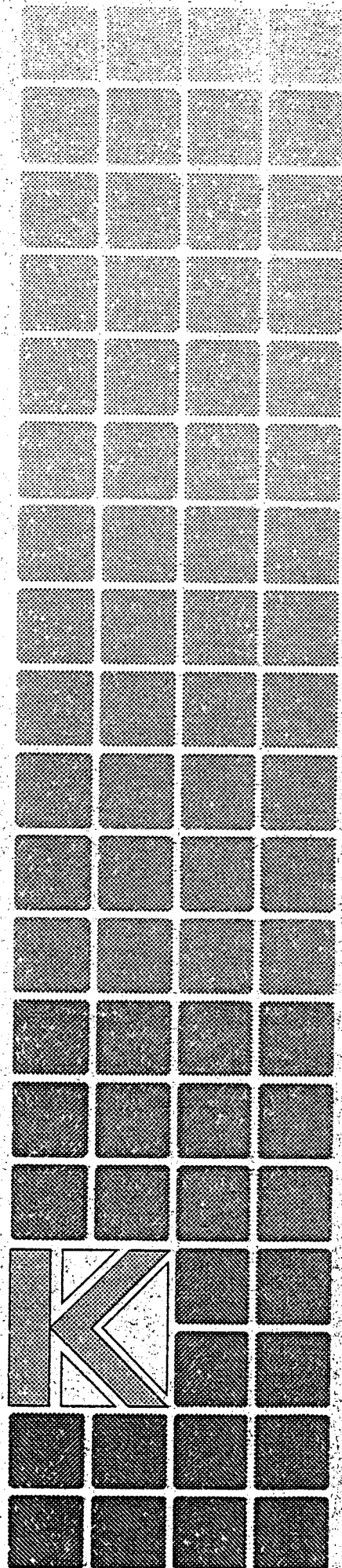
- Transportation financing/capital improvements program.

The transportation finance plan will be summarized in Chapter 8.

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Appendix A

Glossary of Terms



GLOSSARY OF TERMS

This glossary has been compiled to provide additional clarification on the transportation and land use terms used in this report.

Access

A means of approach to provide vehicular or pedestrian entrance or exit to a property. This may not necessarily include all movements.

Access Classification

A ranking system for roadways used to determine the appropriate degree of access management. Factors considered include functional classification, the appropriate local government's adopted plan for the roadway, subdivision of abutting properties, and existing level of access control.

Access Connection

Any driveway, street, turnout or other means of providing for the movement of vehicles to or from the public roadway system.

Access Management

The process of providing and managing access to land development while preserving the regional flow of traffic in terms of safety, capacity, and speed.

Access Spacing

The distance between access locations, measured from the closest edge of pavement of the first access to the closest edge of pavement of the second access along the edge (either side) of the traveled way.

Arterial

This classification of roadway provides for through traffic movement between areas and across the city with direct access to abutting property. It is subject to required control of entrances, exits, and curb use.

Average Car Occupancy (ACO)

The average number of persons in a typical car under prevailing traffic conditions. ACO rates typically vary significantly according to the type of trip being made. Thus, ACO rates associated with home-to-work travel are usually much lower than ACO rates associated with recreational travel.

Buildout

A condition in which the maximum allowed land use intensity exists (or is assumed to exist) on every available land parcel within the study area.

Bus

A heavy vehicle involved in the transportation of groups of people on a for-hire, charter, or franchised transit basis. Buses are further categorized as intercity or local transit buses. Intercity buses operate in a traffic stream without making stops to pick up or discharge passengers on a subject roadway facility. Local transit buses make such stops within the confines of the subject roadway facility.

Capacity

The maximum hourly rate at which persons or vehicles can reasonably be expected to traverse a point or uniform section of a lane or roadway during a given time period under prevailing roadway, traffic, and control conditions.

Centroid

The simulation of the transportation analysis zones in an area-wide zone structure in the travel model simulation network. The centroids are connected to the simulation network by "centroid connectors". These centroid connectors represent the aggregate local street system that connect the zonal land uses to the collector-arterial simulation network.

Channelization

The use of physical barriers or pavement markings to force or encourage vehicles to travel in prescribed paths.

Collector

This classification of roadway provides for traffic movement between major arterials and local streets, with direct access to abutting property.

Conditional Access

An access granted to a parcel that will be relocated or eliminated at the time alternative access is provided.

Control Conditions

The types and specific design of control devices and traffic regulations present on a given facility. The location, type, and timing of traffic signals are critical control conditions affecting capacity. Other important controls include STOP and YIELD signs, lane use restrictions, turn restrictions, and similar measures.

Corner Clearance

The distance from an intersection of a public or private road to the nearest access connection, measured from the closest edge of the pavement or curb of the intersecting road to the closest edge of the pavement or curb of the connection along the traveled way.

Corridor Overlay Zone

Special requirements added onto existing land development requirements along designated portions of a public thoroughfare.

Cross Access

A service drive providing vehicular access between two or more contiguous sites so the driver need not enter the public street system.

Crossover Easement (Access)

A legal agreement that allows for access to one parcel through the access of another.

Deed

A legal document conveying ownership of real property.

Delay

The time lost while traffic is impeded by some element over which the driver has no control.

Directional Distribution

The directional split of traffic during the peak or design hour, commonly expressed as percent in the peak and off-peak flow directions.

Diverging

The dividing of a single stream of traffic into two or more separate streams.

Directional Median Opening

An opening in a restrictive median that provides for specific movements and physically restricts other movements. Directional median openings for two opposing left or "U-turn" movements along a road segment are considered one directional median opening.

Easement

A grant of one or more property rights by a property owner to or for use by the public or another person or entity.

External Station

The representation of a major port of entry or exit to the study area in the travel model simulation network.

Facility Type

Roadway facilities are generally classified into one of two categories: 1) *Uninterrupted flow facilities* have no fixed elements, such as traffic signals, external to the traffic stream that cause interruptions to traffic flow. Traffic flow conditions are the result of interactions among vehicles in the traffic stream, and between vehicles and the geometric and environmental characteristics of the roadway. 2) *Interrupted flow facilities* have fixed elements causing periodic interruptions to traffic flow. Such elements include traffic signals, stop signs, and other types of controls. These devices cause traffic to periodically stop (or significantly slow) irrespective of how much traffic exists.

Fixed-Route Transit

Fixed route transit is the technical term used to describe what typically is thought of a "bus route". Fixed route transit operates on a defined, published route with a described schedule. In comparison, *demand-responsive transit* operates within a defined area responding to the call of the transit rider; "dial-a-ride" is an example of demand-responsive transit service and taxis are a private-sector example of demand-responsive transit.

Flow Rate

The equivalent hourly rate at which vehicles pass over a given point or section of a lane or roadway during a given time interval less than one hour, usually 15 minutes.

Frontage Road

A public or private drive that generally parallels a public street between the right-of-way and the front building setback line. The frontage road provides access to private properties while separating them from the arterial street.

Full Median Opening

An opening in a restrictive median that allows all turning movements from the roadway and the intersecting road or access connection.

Functional Classification

A system used to group public roadways into classes according to their purpose in moving vehicles and providing access.

Grade Separation

A crossing of two highways, or a highway and a railroad, at different vertical levels. This may include an *overpass*, in which the subject facility passes over an intersecting highway or railroad; and an *underpass*, in which the subject facility passes under an intersecting highway or railroad.

High-Capacity Transit (HCT)

Transit system capable of moving large numbers of passengers per each hour of operation in the peak direction. Typical HCT's include exclusive busways, light- and heavy-rail systems and commuter-rail systems.

Interchange

A system of interconnecting roadways in conjunction with one or more grade separations, providing for the movement of traffic between two or more roadways on different levels.

Intersection

The general area where two or more highways join or cross, within which are included the roadway and roadside facilities for traffic movements in that area.

Joint Access (or Shared Access)

A driveway connecting two or more contiguous sites to the public street system.

Lot

A parcel, tract, or area of land with boundaries that have been established by some legal instrument. A lot is recognized as a separate legal entity for purposes of transfer of title, has frontage on a public or private street, and complies with the dimensional requirements of property codes.

Lot Frontage

That portion of a lot extending along a street right-of-way line.

Land Use

The type of activity associated with a specific geographic area. Land use categories can be broad (e.g., residential, retail, office, industrial, and recreational) or they can be very specific (e.g., single family residential, convenience market, or elementary school). In order to estimate trip generation characteristics for a specific geographic area, it is necessary to know both the type and intensity of land use (e.g., single family residential land use at a development intensity of eight units per acre).

Level of Service

A qualitative measure describing operational conditions within a traffic stream, and their perception by motorists and/or passengers. A level of service definition generally describes these conditions in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience, and safety. Six levels of service are defined with letter designations, from A to F. Level of service A represents the best operation conditions and level of service F the worst. Level of Service D represents the level that is normally considered, for signalized intersections, near the minimum acceptable for an urban area, level of service E represents operating conditions at or near the capacity level, and level of service F is used to define forced or breakdown flow conditions. See appendix for full definitions of level of service.

Local Street

This classification of roadway provides for direct access to abutting land and for local traffic movement.

Merging

The converging of two or more separate streams of traffic into a single stream.

Modal Split

The allocation of travel between modes of transportation (i.e. passenger cars, bus, pedestrian, bicycle).

Mode

The means by which travel is accomplished. Alternative modes of travel include walking, bicycling, auto, bus, and light rail.

Nonrestrictive Median

A median or painted centerline that does not provide a physical barrier between traffic traveling in opposite directions or turning left, including continuous center turn lanes and undivided roads.

Passenger Car Equivalence

The representation of larger vehicles, such as trucks and buses, as equal to a quantity of passenger cars for use in level of service and capacity analyses. The magnitude of the equivalency is dependent upon vehicle size and weight, vehicle operating characteristics, vehicle speeds, and roadway characteristics such as grade.

Ramp

A length of roadway providing an exclusive connection between two highway facilities.

Recreational Vehicle

A heavy vehicle, operated by a private motorist, and involved in the transport of recreational equipment or facilities.

Ridesharing

A broad category of transit which involves increasing the *ACO* for small capacity vehicles (2 through 20 passenger capacity) through matching passengers with similar travel requirements with drivers who regularly make trips matching those requirements. Ridesharing includes carpooling (a driver and one or more passengers in a automobile) and vanpooling (a driver and 7 or more passengers in a passenger van or mini-bus).

Right-of-Way

A publicly-owned strip of land within which the entire road facility (including travel lanes, medians, shoulders, sidewalks, planting areas, bicycle lanes, and utility easements) must reside. The right-of-way is usually defined in feet, and it is not necessary that the paved roadway be centered within this strip of lane.

Roadway Conditions

The geometric characteristics of the street or highway, including: the type of facility and its development environment, the number of lanes (by direction), lane and shoulder widths, lateral clearances, design speed, and horizontal and vertical alignments.

Service Flow Rate

The maximum hourly rate at which persons or vehicles can reasonably be expected to traverse a point

or uniform section of a lane or roadway during a given time period under prevailing roadway, traffic, and control conditions while maintaining a designated level of service. As to capacity, the service flow rate is generally taken for a 15-minute time period.

Speed

A rate of motion expressed as distance per unit time, generally as miles per hour or kilometers per hour. In characterizing the speed of a traffic stream, some representative value must be used, as there is generally a broad distribution of individual speeds that may be observed in the traffic stream. The speed measure that is normally used in this regard is *average speed*. Average travel speed is computed by dividing the length of the highway or street segment under consideration by the average travel time of vehicles traversing the segment.

Traffic Analysis Zone

A geographic area that is relatively homogeneous with respect to the type of land use activities that exist or are allowed. Taken together, traffic analysis zones define all land area within the study area. The boundaries of traffic analysis zones can be defined somewhat arbitrarily. However, they are usually similar in size to one another, and they are typically not bisected by significant roadways or transportation barriers (e.g., rivers or lakes). In a traffic analysis zone, an area of aggregate land uses is identified for the purpose of determining trip generation in a travel forecasting model. Zones group together a number of housing units or employees (by type) in an area instead of single trip generators (one dwelling unit, an office building, shopping center, etc.).

Traffic Conditions

The characteristics of the traffic stream using the facility. This is defined by the distribution of vehicle types in the traffic stream, the amount and distribution of traffic in available lanes of a facility, and the directional distribution of traffic.

Traffic Control Device

A sign, signal, marking or other device placed on or adjacent to a street or highway by authority of a public body or official having jurisdiction to regulate, warn, or guide traffic.

Transfer Facilities

Places and structures designed to facilitate the transfer of persons from one mode of travel to another or, in the case of bus transfer facilities, from one bus to another. Thus, park-and-ride lots are usually located adjacent to transfer facilities so as to minimize the total walking distance involved in transferring from one travel mode to another.

Travel Demand Forecasting

The practice of predicting the future demand for travel on a particular physical transportation system. To be useful, these forecasts must incorporate estimates of the *amount* of travel that will occur (i.e., the trip generation potential), the *distribution* of that travel (i.e., the ultimate destination of each generated trip), and the *mode* by which the travel occurs (i.e., auto, bus, light rail, or walking/bicycling).

Trip Assignment

The allocation of all travel between a particular origin and a particular destination to the alternative available travel routes. Usually, trip assignment procedures attempt to assign traffic to the most direct route between a specific origin and destination pair that minimizes total travel time and avoids significant congestion.

Trip Distribution

The allocation of generated trips among all possible destinations.

Trip Assignment

The allocation of all travel between a particular origin and a particular destination to the alternative available travel routes. Usually, trip assignment procedures attempt to assign traffic to the most direct route between a specific origin and destination pair that minimizes total travel time and avoids significant congestion.

Trip End

A one-way vehicular movement between a single origin and a single destination. Thus, for example, a round trip between home and a shopping center would consist of two trip ends: one trip end is defined by the vehicular travel from home to the shopping center, and the other trip end is defined by the vehicular travel from the shopping center to home.

Trip Generation

The number of vehicle trip ends produced by a specific type and intensity of land use. Normally, trip generation characteristics are estimated on a daily and/or a peak hour basis.

Trucks (Heavy Vehicles)

Any vehicle with more than four tires on the roadway that is not otherwise classified as a recreational vehicle or a bus.

Urban Growth Boundary (UGB)

The politically-defined boundary around a metropolitan area outside of which no urban activities may occur. It is intended that the UGB be defined so as to accommodate all projected population and employment growth within a twenty-year planning horizon. A formal process has been established for periodically reviewing and updating the UGB so that it accurately reflects projected population and employment growth.

Volume

The total number of vehicles that pass over a given point or section of a lane or roadway during a given time interval; volumes may be expressed in terms of annual, daily, hourly, or sub-hourly periods.

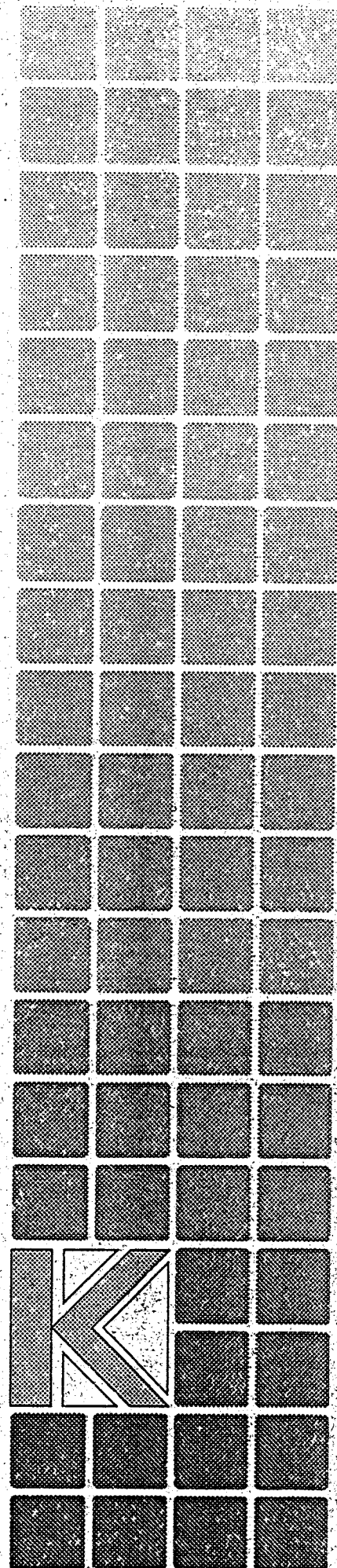
Weaving

The crossing of two or more traffic streams traveling in the same general direction along a significant length of highway, without the aid of traffic control devices. Weaving areas are formed when a merge area is closely followed by a diverge area, or when an on-ramp is closely followed by an off-ramp and the two are joined by an auxiliary lane.

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Appendix B

Plans and Policies Review



1. FEDERAL/STATE POLICIES

1.1 Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) Possible Application To The Klamath Falls Study

ISTEA sets maximum funding levels for federal-aid highway and transit programs through the fiscal year 1997. The funding levels set by ISTEA can be reduced by congress each year as part of the appropriation process. Funding levels are proposed to increase significantly in later years of the act. Urban areas are guaranteed a larger portion of the federal transportation dollars and will play a stronger role in how what kind of transportation projects the money will be spent. This applies to the MPO areas¹.

For the Klamath Falls area, the prioritization of projects and funding will not change significantly from past practice in that the Klamath County priorities must compete with statewide priorities and needs.

The major programs funded under ISTEA that apply to the Klamath Falls area include:

- National Highway System - Which includes the interstate system and other major highways. These other major highways are those routes designated in the Oregon Highway Plan as "statewide" significant routes.
- Surface Transportation Program - Funds under this program can be used for any transportation project on any road except those classified as local or rural minor collector. The act sets aside 10 percent of this fund for safety improvements, 10 percent for transportation enhancement activities, 50 percent to be distributed to areas within the state based upon the states relative share of population between urbanized areas over 200,000 population and other areas, with the remaining 30 percent available to use in any area of the state.
- Bridge Program - Provides for inspection, maintenance, rehabilitation or replacement of bridges on any highway system.

¹ Metropolitan Planning Organizations (MPO) coordinate transportation planning in urbanized areas (with populations greater than 50,000) and are appointed by the Governor. By 1997, the Klamath Falls urban area may or may not exceed a population of 50,000, but at such a time can choose to become an MPO.

Safety - As stated above, 10 percent of the surface Transportation Program funds are set aside for safety projects.

Although there are a number of other programs funded by ISTEA, such as Congestion Mitigation, IVHS and Mass Transit, these programs would not apply to the Klamath Falls area. Transit funding is possible under the National Highway System Program which allows up to 50 percent of the funds in this program can be shifted to transit projects at the states discretion.

Also ISTEA places restrictions on the program funds that would benefit the single occupant vehicle. These restrictions apply primarily to the MPO areas and in clean air non-attainment areas. As such, they should be considered when identifying future transportation projects for the Klamath Falls area.

In order for any project needed to balance the transportation requirements with the land use, a thorough description of the project, benefits, estimated cost and alternatives must be prepared for each project in order to compete with the statewide needs. In addition, the potential funding sources must be identified for each project.

1.2 Summary of the Oregon Transportation Plan As It Applies to the Klamath Falls Urban Area

The Oregon Transportation Plan (OTP) contains a policy element which defines the goals, policies and actions for the state over the next forty years. It is a direction to 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.

The second part of the OTP defines the system element of the plan. It 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 transportation commission on September 15, 1992 at the meeting in Roseburg. 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 goals and policies stated in the plan define a balanced and efficient transportation system and a system that promotes accessibility to all potential users.

The OTP defines the minimum level of service for commercial airports and recognizes that the standard generally has been met within the state but leaves some more sparsely populated areas without commercial air service. The plan states that these areas should have access to air/taxi

services. The plan further defines that air service connection between Portland and other west coast hubs and other areas of Oregon should be provided whenever commercially viable (three round trip planes per day of 19 passengers as a minimum measure of commercial viability) or whenever intercity air connections are more economical than providing operating assistance to other modes. It defines these areas as Astoria, Eugene, Newport, Coos Bay/North Bend, Roseburg, Bend/Redmond, Medford, Klamath Falls and Pendleton.

The OTP is part of an ongoing transportation planning process within the Oregon Department of Transportation. ORS 184.168(1) requires the state agencies to use the OTP to guide and coordinate transportation activities.

The Oregon Transportation Plan and the modal plans must comply with the state agency coordination program and the state-wide planning goals. The LCDC's Transportation Planning Rule which implements Goal 12 (transportation) requires ODOT to identify a system of transportation facilities and services adequate to meet identified state transportation needs 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.

1.3 Summary of the 1991 Oregon Highway Plan as it applies to the Klamath Falls Urban Area

The Oregon Highway Plan (OHP), adopted by the Oregon Transportation Commission in 1991, outlines the policies which enable the Department of Transportation to better manage the highway system for the period 1991-2010. The adopted policies at the OHP that pertain to the Klamath Falls urban area TSP include:

- Level of Importance (LOI)
- Access Management
- Access Oregon Highway (AOH)

LEVEL OF IMPORTANCE (LOI) POLICY

Background and Purpose

The Oregon State Highway Division (OSHD) has devised a "level of importance" 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 basic premise of the level of importance concept is that a higher level of service is needed for the more important routes. Interstate routes, for example, will maintain a higher level of service than district routes.

Interstate Highways

The primary function of highways in this level is to provide connections and links to major cities, regions of the state, and other state. A secondary function in metropolitan areas is to provide connections and links for regional trips within the metropolitan area. Connections are primarily with roadways that serve areas of regional significance or scope.

Included in this level are highways on the federal interstate system.

The management objective is to provide for safe and efficient high-speed continuous-flow operation in urban and rural areas.

Statewide Highways

The primary function of highways in this level is to provide connections and links to larger urban areas, ports and major recreation areas that are not directly served by interstate highways. Statewide highways provide links to the interstate system and alternate links to other states. A secondary function is to provide links and connections for intra-urban and intra-regional trips. Connections are primarily with roadways that serve areas of regional significance or scope.

Included in this level are Access Oregon Highways (AOH), US 101 (Coast Highway), highways on the National Highway System (excluding interstate highways) and other significant routes that connect the interstate system to urban areas, ports and major recreation areas throughout the state. Statewide routes generally serve centers of 5,000 or more population, have route lengths of 50 miles or more, do not parallel other statewide routes within 25 miles, connect at each end with interstate routes, statewide routes or major recreational areas, and carry at least 500 vehicles per day.

The management objective is to provide for safe and efficient high-speed continuous-flow operation in rural areas and high to moderate-speed operations with limited interruptions of flow in urban and urbanizing areas.

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 these highways from a statewide perspective has diminished. They now serve a similar function to county roads and city streets.

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.

Table B-1 summarizes the LOI designation for state highways in the Klamath Falls urban area.

Level of Service (LOS) Standards

The LOI policy includes operational level of service (LOS) standards as summarized in Table B-2. These standards are to be used by OSHD in 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 transit way 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.

ACCESS MANAGEMENT POLICY

Purpose

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 the highway. 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 levels of service identified in the LOI Policy. It will be used by the OSHD to carry out its responsibilities for managing access under statutes and administrative rules. It will also be used by the OSHD to guide the design of highways and coordination with local comprehensive planning

Table B-1
LEVEL OF IMPORTANCE DESIGNATION
KLAMATH FALLS AREA HIGHWAYS

LEVEL OF IMPORTANCE	KLAMATH FALLS AREA HIGHWAY	
Statewide	HWY 97	The Dalles-California Hwy
	HWY 39	Klamath Falls-Malin Hwy (Eastside Bypass/South Sixth)
	HWY 140	Lake of the Woods Hwy (terminates at Hwy 97)
Regional	HWY 39	Klamath Falls-Lakeview Hwy (east of Klamath Falls-Malin Hwy)
District	HWY 39	Klamath Falls-Lakeview Hwy (South Sixth Street west of Eastside Bypass)
	HWY 66	Green Springs Hwy
	HWY 140	South Klamath Falls Hwy (South Side Bypass)
	HWY 420	Midland Hwy (Tingley Ln./Washburn)

Policy

The OHP Access Management Policy standards are defined by roadway category in Table B-3. Each category is defined below.

**Table B-2
OPERATING LEVEL OF SERVICE STANDARDS**

**LEVELS FOR DESIGN HOUR OPERATING CONDITIONS
THROUGH A 20-YEAR HORIZON²**

Level of Importance	Type of Area Highway Is In				Special Considerations	
	Urban ³ Parts of Metropolitan Areas ⁴	Urban Parts of Other Cities ⁵	Urbanizing ⁶ Areas and Rural Development Centers ⁴	Rural Areas ⁷	Special Transportation Areas ⁸	Within Exclusive Transit Corridor ⁹
Interstate	D	C	C	B	NA	D/E ¹⁰
Statewide	D	C	C	B	E	E
Regional	D	D	C	C	E	E
District	E	D	D	C	E	E

Shaded cells indicate LOS standards for the Klamath Falls urban area.

- ² Operating standards are not design standards. Operating standards 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.
- ³ Urban areas are those areas within an urban growth boundary that are generally developed at urban intensities as allowed by the comprehensive plan.
- ⁴ Metropolitan areas include Portland, Salem, Eugene, Medford, Ranier (part of Longview-Kelso) urban areas.
- ⁵ Urbanizing areas are those within an urban growth boundary that are undeveloped or are developing. They may include vacant lands and areas developed well below urban intensities as allowed by the local comprehensive plan.
- ⁶ Rural development centers are concentrations of development outside of urban growth boundaries. Included are rural unincorporated communities.
- ⁷ Rural areas are areas outside of urban growth boundaries but not including rural development centers.
- ⁸ Special Transportation Areas (STAs) are compact areas in which growth management considerations outweigh this policy. STAs include central business districts, transit-oriented development areas and other activity or business centers oriented to non-auto (principally pedestrian) travel. They do not apply to whole cities or strip development areas along individual highway corridors.
- ⁹ Exclusive transit corridors are corridors within which the highway runs generally parallel to an exclusive transit way, such as a light rail line or exclusive busway.
- ¹⁰ LOS 'D' applies when the facility is located in an urbanizing area. LOS 'E' applies in an urbanized area.

Table B-3
ACCESS MANAGEMENT CLASSIFICATION SYSTEM

Category	Access Treatment	LOI ¹	Urban/ Rural	Intersection				Signal Spacing ²	Median Control
				Public Road		Private Drive ³			
				Type ⁴	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	At grade/Intch	½-2 Mi	None	NA	½-2 Mi	Full
			R	At grade/Intch	1-5 Mi	None	NA	None ⁵	Full
3	Limited Control (Expressway}	Statewide	U	At grade/Intch	½-1 Mi	Rt Turns	800'	½-1 Mi	Partial
			R	At grade/Intch	1-3 Mi	Rt Turns	1200'	None ⁵	Partial ⁶
4	Limited Control	Statewide/ Regional	U	At grade/Intch	1/4 Mi	Lt/Rt Turns	500'	½ Mi	Partial/None ⁷
			R	At grade/Intch	1 Mi	Lt/Rt Turns	1200'	None ⁵	Partial/None ⁷
5	Partial Control	Regional/ District	U	At grade	1/4 Mi	Lt/Rt Turns	300'	1/4 Mi	None
			R	At grade	½ Mi	Lt/Rt Turns	500'	½ Mi	None
6	Partial Control	District	U	At grade	500'	Lt/Rt Turns	150'	1/4 Mi	None
			R	At grade	1/4 Mi	Lt/Rt Turns	300'	½ Mi	None

¹ 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.

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

³ 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.

⁴ 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.

⁵ On 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.

⁶ Partial median control will allow some well-defined and channelized breaks in the physical median barrier. These can be allowed between intersections if no deterioration of highway operation will result.

⁷ Use of physical median barrier can be interspersed with segments of continuous left-turn lane or, if demand is light, no median at all.

Category 1:

These highway segments provide for efficient and safe high speed and high volume traffic movements, on interstate, interregional, intercity, and some intracity routes in the largest urbanized areas. The segments do not provide direct land access. Access control and other methods will be used on nearby cross streets in the area of interchanges to protect the operation of those interchanges. This category will apply to all interstate highways and other highways that function like freeways.

Category 2:

These highway segments provide for efficient and safe high speed and high volume traffic movements, on interstate, interregional, intercity and longer distance intracity routes. They should not provide direct land access. This category is distinguished by highly controlled connections, and medians. Traffic signals should be avoided and where they must be installed, their effect on mainline traffic flow should be minimized. Grade separations should be considered for high volume cross streets or other cases where signals are not appropriate. Some category 2 facilities may be developed into category 1 facilities over time. This category includes many of the statewide facilities.

Category 3:

These highway segments provide for efficient and safe medium to high speed and medium to high volume traffic movements, on interregional, intercity and longer distance intracity routes. The segments are appropriate for areas which have some dependence on the highway to serve land access and where financial and social costs of attaining full access control would substantially exceed benefits. This category includes some of the statewide facilities.

Category 4:

These highway segments provide for efficient and safe medium to high speed and medium to high volume traffic movements, on higher function interregional and intercity highway segments. They also may carry significant volumes of longer distance intracity trips. They are appropriate for routes passing through areas which have moderate dependence on the highway to serve land access and where the financial and social costs of attaining full access control would substantially exceed benefits. This category includes a small part of the statewide facilities and most regional facilities.

Category 5:

These highway segments provide for efficient and safe medium speed and medium to high-volume traffic movements, on intercity, intracity and intercommunity routes. There is a reasonable balance between direct access and mobility needs within this category.

Category 6:

These highway segments provide for efficient and safe slower to medium speed and low to high-volumes traffic movements, on intracity and intercommunity routes. This category will be assigned only where there is little value in providing for high speed travel. Providing for reasonable and safe access to abutting property is a major purpose of this access category.

2. KLAMATH COUNTY POLICIES

2.1 Klamath County Comprehensive Plan Policies

Goal 2 - Land Use Planning

This goal aims to establish a land use planning process for the County as a basis for all decisions and actions related to use of land and to ensure an adequate factual base for such decision and actions.

Twelve policies are included to direct compliance with State planning guidelines and ensure a land use plan that is acceptable to land owners while striving to provide for growth and ensure efficiency through land use/transportation coordination. Policies 2, 4 and 5 of this goal relate directly to transportation by encouraging self-contained pockets of commercial development, rail oriented development and encouraging access control on major arterials to ensure traffic flow.

Goal 12 - Transportation

Goal 12 of the Comprehensive Plan Policies deals with Transportation. The goal includes 14 policies which are intended to "encourage a safe, convenient and economic transportation system that will:

1. Consider all modes of transportation including mass transit, air, water, pipeline, rail, highway, bicycle, and pedestrian;
2. Be based upon an inventory of local, regional and state transportation needs;
3. Conserve energy;
4. Conform with local and regional comprehensive land use plans.

The objectives of the Transportation goal as listed in the Comprehensive Plan Policies are to:

1. Encourage coordination with all transportation agencies to plan, construct, and maintain the transportation network.
2. Coordinate street and highway development so as to enhance over-all County development.

3. Encourage proper design and transportation facilities to ensure maximum safety.
4. Encourage interrelationships of streets and highways with other modes of transportation.
5. Strive for equality of service to and from all parts of the County.
6. Plan for the separation of pedestrian ways and vehicle traffic ways to ensure maximum protection and convenience.
7. Coordinate proposed plans for truck routes with all related committees, boards, and agencies to minimize traffic hazards and attempt to ensure that such routes are compatible with adjacent land uses.
8. Coordinate airport locations with existing and future transportation routes as well as land use.
9. Encourage a balanced system of transportation between air, rail and land for efficient movement of people and goods.
10. Encourage efficient development and/or expansion of rail services to existing and future industrial land uses.

2.2 Street System Functional Classification/Standards

The County's Comprehensive Plan Atlas (1978) identifies three roadway classifications:

1. Arterial Street - Principal/Minor
2. Collector Street - Major/Minor
3. Local Roads

Klamath County Public Works Department standard drawings identifies three roadway types:

1. Collector Street
2. Local Street
3. Paved Road - Urban Area

The Collector street is shown with a width of 40 feet curb-face to curb-face within a 60 foot right-of-way. Local streets are 36 feet back-of-curb to back-of-curb, also within a 60 foot right-of-way.

Street Classification Definitions (Comprehensive Plan)

Arterials: Carry long-distance high-speed traffic between cities and larger town.

Collectors: Serve small towns connecting them to the arterial network and collecting traffic from the bottom level system of local roads.

Local Roads: Provide land access and serve individual farms and other rural land uses.

3. CITY OF KLAMATH FALLS DOCUMENTS

3.1 City Comprehensive Plan

The Transportation Element of the Public Facilities and Services Group of the city's comprehensive plan covers the following aspects of transportation: *history, current conditions, problems and future alternatives, goals, policies and implementation measures*. The three transportation goals are:

- to develop and maintain a safe, convenient, and economic transportation system.
- to provide a timely, orderly and efficient arrangement of transportation facilities and services.
- to provide as much choice as possible.

In addition, 33 Transportation Policies under the five headings of Roadways, Bike and Walkways, Parking, Alternative Modes and Transportation Planning, and 14 Implementation Measures direct the transportation-related aspects of City-wide development. The Comprehensive Plan includes a map showing the Collector and Arterial street system

3.2 Community Development Ordinance:

Bikeways: The City ordinance provides clear and detailed design standards for bikeway provision including minimum width, design speeds, grades, surfacing and drainage details, and requires grade separation of bikeways on busy arterial streets under certain bike-traffic conditions. The ordinance requires a minimum width of six feet for a one-way bikeway, and eight feet for a two-way bikeway. The general design speed is 20 m.p.h. The standard bridge or crossing structure width is twelve feet.

Sidewalks: To be installed according to the determination of the City Planning Commission.

3.3 City of Klamath Falls Street Standards

The City has an Arterial street standard: right-of-way is 80 to 120 feet, with roadway width 48 to 60 feet.

The typical section shown for a collector street has a roadway width of 41 feet from back-of-curb to back-of-curb, within a 60 foot right-of-way. No lane designation is shown but the section could accommodate parking on both sides of the road with 12 foot travel lanes, and is shown with a minimum cross-section grade of 2 percent. The section is essentially identical to the County standard (40 feet face to face) except that the travel lane width is not specifically shown in the City plan.

The standard section shown for a minor street is as used by the County except that travel lane width is not specified. Roadway width is 36 feet back-of-curb to back-of-curb and right-of-way is 60 feet.

3.4 Klamath Falls International Airport (Kingsley Field)

The Klamath Falls International Airport Master Plan was prepared in 1993 for the City of Klamath Falls. Many of the improvements at the airport will be funded by the Federal Aviation Administration (FAA). In order to qualify for funding, projects must be identified in an approved airport master plan. The Master Plan is prepared according to FAA guidelines and was accepted by the FAA upon completion to be used in guiding the growth of the airport.

The 1993 Plan has several features which will have an impact on the development of the airport and the surrounding road system. The following is a brief summary of the more significant features:

1. Airport Access: access to the airport is shown rerouted via Washburn Way which parallels (but does not require crossing) the Southern Pacific Railroad tracks. Altamont Drive is shown as "to be closed".
2. Ultimately the airline terminal is to be relocated to the northeast side of the airport and a new terminal access road built off Summers Lane and Homedale Road.
3. Development off the ends of runway 7/25 will be height- and use-limited by the FAR Part 77 Approach Surfaces and Runway Protection Zones (RPZ's). Heights will be imposed by FAR Part 77 Approach Surfaces which rise at a ratio of 20:1 starting at a point 200 feet off the end of the runway.

4. TRANSPORTATION SYSTEM IMPROVEMENT PROJECTS

Improvement Projects from the following sources were reviewed and those pertaining to Klamath Falls Urban area are discussed:

ODOT Statewide Transportation Improvement Program 1995-1998

Klamath County Construction Plan 1993-1995

City of Klamath Falls Street Improvement Projects List

4.1 ODOT STATEWIDE TRANSPORTATION IMPROVEMENT PROGRAM 1995-1998

Construction Projects

The following projects apply to the Klamath Falls study area:

1995

Highway 97- North Klamath Green Springs Interchange - This project involves upgrading the bridge railing and redecking one bridge structure. Cost: 2.32 million dollar safety enhancement project.

Highway 97 - Riverside Street - Installation of protective screening Cost: \$42,000 Safety

Highway 39 (Klamath Falls-Malin) BNNR Undercrossing Bridge MP110.9 - Replace bridge structure. Cost: \$310,000 modernization

Klamath "A" Canal Bikeway - The project involves the construction of a bikeway from South Sixth Street to the OC&E Railroad. Cost is \$49,000 for an enhancement project.

Oregon California & Eastern Railroad - Construct a bikeway and parking areas along the OC&E Railroad right of way. Cost \$317,000 Enhancement project.

Downtown Transportation Center on Pine Street - The project involves a geothermal snow-melt system and the provision of pedestrian, transit and bikeway facilities. Cost is \$70,000, enhancement project.

1996

Highway 140 (South Klamath Falls Highway at Washburn Way) - The project involves the construction of a folded diamond interchange. Cost \$5.386 million - modernization project.

Washburn Way between Hilyard Avenue and Laverne Avenue - The street is to be widened to 5 lanes, and a signal is to be installed at the intersection of Washburn Way and Hilyard Avenue. Cost is \$1.249 million - modernization project.

Main Street - Pedestrian Amenities - Construct bike racks and curb cuts. Cost \$27,000 enhancement project.

Washburn Way - Laverne Avenue to Joe Wright Road - Construction of a continuous left-turn lane with two and four travel lanes. Cost: \$1.883 million. Modernization Project.

1997

Highway 39 - "A" Canal Bridge - Replacement of structure. Cost: \$1.079 million Bridge Project.

1998

no projects

Reconstruction Projects

Highway 140 (Klamath Falls - Lakeview) Olene to OC&E Undercrossing - Determine feasibility of realignment along abandoned railroad. Cost \$44,000

Transit Projects

1995

Basin Transit - Annual operating assistance Cost \$1.076 million - Operations Section

Basin Transit - Purchase of one modified van and related equipment. Cost \$ 50,000 Acquisition.

Klamath Basin Senior Citizens - Purchase of one modified van and related equipment. Cost \$ 50,000 Vehicle Acquisition.

Reach Inc. - Purchase of one modified van and related equipment. Cost \$ 38,000 Vehicle Acquisition.

1996

Basin Transit Service - Annual Operating Assistance Cost \$807,000 Operations

Reach Inc. - Purchase of one modified minivan and related equipment. Cost \$ 26,000 Vehicle Acquisition.

1997

Basin Transit Service - Annual Operating Assistance Cost \$807,000 Operations

Basin Transit Service - Purchase of one modified minivan, related equipment and new fareboxes for bus fleet. Cost \$ 77,000 - Purchase

Reach Inc. - Purchase of one modified minivan and related equipment. Cost \$ 26,000 Vehicle Acquisition.

1998

Basin Transit Service - Annual Operating Assistance Cost \$807,000 Operations

Basin Transit Service - Update Transportation Plan. Start Rideshare Program. Purchase six transit Coaches and related equipment. Cost \$1.270 million. Purchase

Reach Inc. - Purchase of one modified minivan and related equipment. Cost \$ 26,000 Vehicle Acquisition.

4.2 Klamath County Construction Plan 1993-1995

1994

Madison Avenue (South Sixth Street to Shasta Way) - Widen to three (3) lanes with curbs and sidewalks.

1995

Foothills Boulevard (Patterson Street) - South Sixth Street to Washburn Way. Construct base and pave approximately 3.5 miles.

1996

Washburn Way - Widen to five (5) lanes (Laverne Avenue to Southside Expressway = 140). Widen to three (3) lanes (Southside Expressway to Joe Wright Rd.). (Note: Above projects correspond to ODOT project 137 [1996]).

4.3 City of Klamath Falls Street Improvement Projects List

1994 - 1995

East Main Street/Orchard to Main - Grind and overlay roughly half of East Main Street. Completed September 1994.

Biehn Street Railroad Bridge - Replace structure by summer of 1995.

Third Street/Pine Street to California Avenue - Road reconstruction. This project is dependent on funds availability and should be completed within 2 years (Summer 1996).

5. OTHER DOCUMENTS/POLICIES

5.1 Klamath 2002 Vision Statement Policies

The Klamath 2002 committee is a group of concerned local citizens committed to implementing a long-range plan to ensure the successful economic and social development of the City and the Region. The 2002 report was put together by these citizens to document the proposals adopted by the committee to ensure the long-term implementation of the vision. The report has two sections dealing with transportation issues: *Airport Development* and *Surface Transportation*.

AIRPORT DEVELOPMENT

Klamath 2002 views the airport and the community as two mutually dependent entities, and states as a goal that it "would like to see the airport be the Keystone of the community's economic development, while limiting any impacts to the environment that the citizenry values." The Klamath 2002 group recognized that there is great potential for the airport (which has the second largest runway in the Pacific Northwest Region) to become a major west coast air-freight center to

supplement the existing airports which are at or nearing capacity. The Klamath 2002 group identified four major airport topics requiring further investigation and eventual implementation. They are:

- zoning
- operations
- utilization
- facilities

Lists of "Proposals for Action" are presented under each topic, together with implementation time periods and process owners. The Proposals are presented here:

1. Airport Zoning

- 28a. Redefine Urban Growth Boundary and Create the Airport Development Zone: to prevent encroachment which may restrict future development and expansion.
- 28b. Identify use of ADZ and Incentives for New Business: benefits of the transportation gateway and air-freight possibilities.

2. Airport Operations

- 28c. Creation of an Airport District: to involve county residents in financial process and operation of the airport
- 28d. Creation of an Airport Board: for successful management.
- 28e. Scheduling of Monthly and Quarterly Meetings: to ensure the Board remains cognizant of customers' and citizens' requirements.

3. Airport Utilization

- 28f. Promote General Aviation: fly-ins, airshows etc.
- 28g. Acquire a Free Trade Zone Organizer/Developer.
- 28h. Develop a Free Trade Zone.
- 28i. Increase the Commercial Airline Support/Activity: increase by 500 percent - Federal funding depends on airport utilization.

4. Airport Facilities.

- 28j. Develop an Airport Access Road (west)
- 28k. Develop an Airport Access Road (east)
- 28l. Develop a full Perimeter Road.
- 28m. Develop a Centralized Fuel Storage Area.
- 28n. Program and Fund Removal of Excess buildings.

- 28o. Design and Install a DEQ Approved Storm Water Drainage System.
- 28p. Acquire Land Surrounding Airport.
- 28q. Develop an Air Cargo Facility.
- 28r. Develop additional hangar Area for General Aviation.
- 28s. Design and Install Computer Access Control System.
- 28t. Expand Aircraft Ramp Facilities.
- 28u. Develop an Agricultural Spray Ramp.
- 28v. Develop a Business Industrial Park (west).
- 28w. Develop a Business Industrial Park (east).
- 28x. Plan and Instal an Underground Utility System.
- 28y. Provide Adequate Parks and Recreational Facilities for the Airport.
- 28z. Improve Runway Capacities.
- 28aa. Improve Taxiways to Provide a Parallel System to all Runways.
- 28bb. Expand Long-Term Parking Facilities.
- 28cc. Expand/Improve Passenger Terminal Building for Additional Airline Passengers.
- 28dd. Improve Luggage Handling Facilities.

SURFACE TRANSPORTATION

This section of the Klamath 2002 document is introduced in the following goal statement:
"By the year 2002, achieve recognition as a transportation center for Southern Oregon"

In addition, the following *Mini Vision Statements* were presented:

- By 2002, all transportation services will be coordinated to provide the best quality, most efficient, convenient, cost-effective intermodal transportation in Southern Oregon.
- By 2002, all modes of transportation in Klamath County will be integrated and coordinated so that accessibility and movement will be simplified throughout the area.
- By 2002, Klamath County will improve facilities for all service, air-freight and transit.
- By 2002, land use developments will be designed with access to all modes of transportation, including bicycle, transit, walkways, etc.

In addition, some 24 *Proposals for Action* are presented, covering Roads, Streets and Highways; Public Transportation; and High Speed Rail. The Proposals are presented here:

1. Road, Streets and Highways

- 29a. Examine Highway Funds Allocation
- 29b. City-County reconsider integration of city streets and county roads to cooperative arrangements similar to those before the pre-1957 abandonment.
- 29c. Accelerate the impending improvement from "development of four-lane construction for that section of US-97 southerly from Modoc Point to the California Border.
- 29d. Continue improving US-97 to four lanes , north and south, possibly similar to the concrete/bituminous construction north of Modoc Point.
- 29e. Provide a five lane highway along present alignment of Washburn Way from Oregon 39, southerly to Oregon 140. Provide curbs and sidewalks; connect at each end with suitable interchange.
- 29f. Improve Oregon 140 from Lakeshore Drive intersection to the foot of Seldom Creek Hill, to the standards promised for entire route, and which now only exist from Oregon 62 in Jackson Co. to foot of Seldom Creek Hill.
- 29g. Upgrade the intersection of Or 39 and Or 140.
- 29h. Widen and improve to standard specifications that section of Or 39 from the Merrill-Lakeview junction, southerly to the California border.
- 29i. Realign and improve to standard specifications that portion of Or 140 from the Merrill-Lakeview junction easterly to the Swan Lake intersection.
- 29j. Rename those highway s which now exist as "the Dalles-California, Klamath Falls-Malin, Klamath Falls-Lakeview, Lakeview-Burns" etc., to more marketable names similar to the Central Oregon Highway, Crater Lake Highway, Pacific Highway, etc.
- 29k. Cooperate with Nevada and California in selecting and assigning a federal highway number to that portion of what is now Oregon 140 (Nevada 140 and US-199) from Winnemucca, Nevada, at Interstate 80 westerly to its intersection with US 101 at Crescent City, Ca.
- 29l. Provide recessed ORANGE reflectors in the center lines of present sections of Oregon Highways 39, 140, 58 and 62, and US-97.
- 29m. Upgrade state city and county signage to (in most cases) larger signs with light reflecting legends. Erect especially large, clear, legible and friendly signs at state boundary crossings for inbound traffic.
- 29n. Provide signage to increase public awareness of alternate forms of transportation such as Amtrak, local public transit, Greyhound intercity buses and Klamath Falls International Airport.

2. Public Transportation

- 29o. Maintain current level of intra-city bus service by ensuring a local stable funding source.
- 29p. Develop strong park&ride, carpool and ride share programs to outlying communities.
- 29q. Develop centralized dispatching system to coordinate all transportation services.

- 29r. Develop car pool and ride share programs through centralized dispatching system to coordinate trips from Klamath County to Rogue and Willamette Valleys.
- 29s. Foster public transportation services which will be convenient, accessible, economical and encourage multi-modal transportation choices.
- 29t. Provide mobility to citizens with transportation needs in Klamath County.

3. High Speed Rail

- 29u. Promote Oregon Institute of Technology as a resource center for research into a high speed rail system.
- 29v. Encourage use of Klamath County as a connecting route between San Francisco Bay area and Portland/Vancouver.
- 29w. Lobby for location of high speed rail facility in Klamath County.
- 29x. Work with regional and state leaders to ensure routing of western north-south high speed rail through Klamath County, bearing in mind that control and maintenance facilities for the system could encourage further economic development in Klamath County.

5.2 ODOT Travel Demand Forecast Model (QRS-II)

The current travel demand forecasting model for the Klamath Falls urban area was developed by the Oregon Department of Transportation using the QRS-II software program. ODOT's model is of sufficient detail to cover the Klamath Falls urban area collector/arterial street network. Basic model data inputs (trip generation rates, trip distribution and assignment exogenous variables) are derived from national travel characteristic averages. ODOT is currently in the process of converting the Klamath Falls area model data to the EMME/2 software program that will enable the consultant team to better test future land use/transportation system alternatives as part of the TSP.

5.3 Klamath County Overall Economic Development Plan

The Klamath County Economic Development Association (KCEDA) produced this document to assist in guiding development in the county, and deals with transportation aspects in BACKGROUND INFORMATION under Infrastructure and Economic Development Activities, and in the DEVELOPMENT STRATEGY section under Financing and Course of Action.

The Transportation section in BACKGROUND INFORMATION presents an inventory of Aviation Facilities (including the Klamath Falls International Airport and three other airports in Klamath County), Highways and Road Systems, Public Transportation and Railroads.

In the DEVELOPMENT STRATEGY section, under Program and Project Selection, Transportation issues are dealt with in six items. The beautification of access points into the area, including the airport and highway accesses is listed as an important strategy. Improvements to US Highway 97 and Oregon Highway 58 to encourage their use, upgrading of County roads, the enhancement of Air

service through Klamath Falls, the promotion of intermodal transportation and the development of public transportation service to areas outside the Urban Growth Boundary are all listed as strategy items.

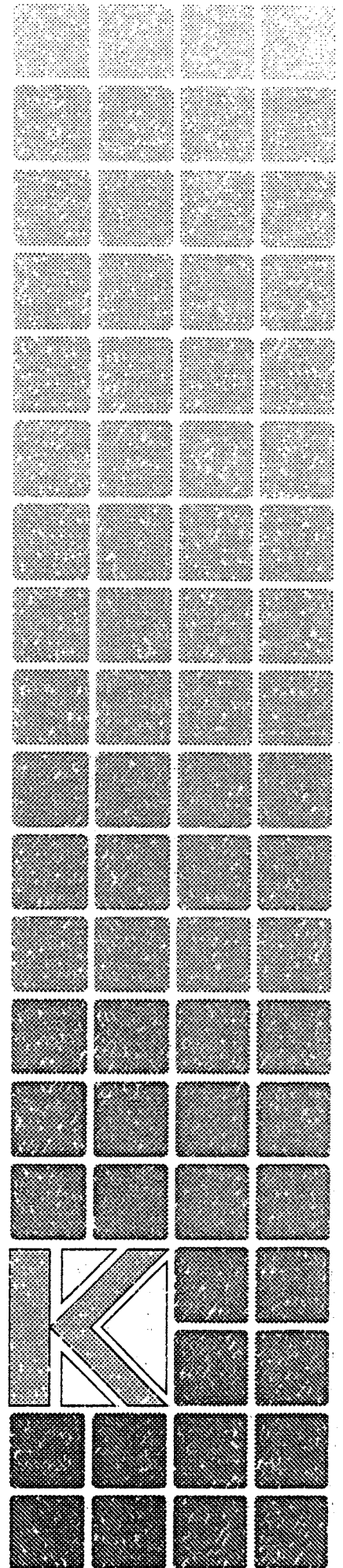
In the Course of Action section, the following items relating to the Urban Area are listed under transportation:

1. Continue on an on-going basis, the identification and prioritization of critical state and federal highway projects crucial to development in the region.
3. Promote the construction of Foothills Boulevard as planned to alleviate the congestion in the Klamath Falls south suburbs.
4. Obtain, if necessary, an Urban Growth Boundary expansion from the state LCDC to allow for the expansion of airport facilities.
5. Continue development of a more appropriate entrance to the airport facilities.
6. Develop an Air Park - public taxiway access and infrastructure.
7. Expand and improve utilization of existing public transportation services.
8. Develop strong park-and-ride, carpool or demand-responsive service to outlying areas.
9. Support consistent, frequent intercity bus service to the I-5 corridor.
10. Enact a South Sixth Enhancement Plan that will turn this major east-west arterial into a safer, fully multi-modal transportation corridor, and at the same time will increase patronization and improve community appearance through design guidelines for area business.
11. Enact a Transportation System Plan and Transit Development Plan for the Urban area which will decrease congestion, provide alternatives to the automobile, improve air quality, and promote development of the area's freight hub capacities.
12. Support county and city efforts in their addressing the state's Transportation Planning Rule.

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Appendix C

Stakeholder Interviews



STAKEHOLDER INTERVIEWS

INTRODUCTION

The objective of interviewing approximately 30 stakeholders in the Klamath Falls Urban Area was to determine the various concerns and desires of some of the land and business owners and residents from the area in order to adequately establish the goals and evaluation criteria which will be used in the Transportation System Plan Study. Improvement strategies developed as a part of the plan process can then be evaluated according to these criteria, ensuring local involvement in determining the optimal improvement strategy.

Summary Issues from Stakeholder Interviews

The following is a list of summarized issues which came out of the Stakeholder Interviews. They have been categorized into 12 subheadings.

1. Circulation and Congestion

- Improved east-west connections needed, particularly to the north of Klamath Falls
- Congested routes include: Alameda bypass; South Sixth Street; Shasta Way; Washburn Way
- Signal progression needs to be improved on Alameda Bypass and South Sixth Street
- Highway 97 offers a more attractive north-south truck route than I-5 due to less severe grades - saves time and fuel and is less weather affected in winter.
- Shasta Way is used to avoid congested South Sixth Street
- Two-way traffic should be considered downtown
- The Highway 140/Highway 97 interchange tends to back up significantly at times
- Access management is required on the major arterials to avoid a Bend Highway 97 situation from developing.

2. Safety Issues

- A major problem throughout is uncontrolled property access - particularly South Sixth Street, and the southside bypass.
- Intersections presenting safety hazards include:
On the Southside Bypass: Washburn, Altamont, Summers Lane, Homedale, Highway 39, Tingley Lane.
On Washburn Way: Shasta Way, South Sixth, Crosby, Hilyard, Laverne and Joe Wright Road.

Altamont/South Sixth Street, and Highway 39/Keller Road (sight distance), Kit Carson Way/Campus Drive

- Washburn Way needs signals and street lighting.
- Pedestrian crossing safety problems exist at the following locations:
 - Main Street and Klamath Avenue to the west of 3rd Street (near 97 interchange - speeds)
 - Alameda Bypass and South Sixth Street
- Highway shoulders are required on Highway 140 to the east of Highway 39 where residential developments are resulting in an increase in pedestrian and bike volumes.
- The Highway 39 exit from Highway 97 northbound requires improved signing of the lane-drop to prevent last minute lane changes.

3. Pedestrian/Bicycle Issues

- Generally walking and biking facilities in the urban area are good - the paths connect areas of interest. The potential for bike commuting is limited by the severe winters.
- East Main Street is regarded as a pedestrian hazard.
- Sidewalks are required at the new development to the north of town in the vicinity of OIT (Eldorado Avenue)
- The bike path on the abandoned OC&E railroad should be enhanced aesthetically & needs to be surfaced.

4. Transit

- Basin Transit Service provides excellent service for a community of this size. It could do with increased support from the public.
- The largest increase in population in the area is amongst the elderly and retired, indicating the potential for a significant increase in transit ridership.
- The downtown Bus Station is in very poor condition.

5. Rail

- The recent closure of Burlington Northern's multimodal loading facility could have significant economic impacts.
- Both Burlington Northern and Southern Pacific are reducing service in the area and this could have a negative economic impact.
- Amtrak provides a beneficial service to the community, but the station needs significant improvement.
- A combined BN/SP rail hub would be a great benefit to the community.
- A rail hub could be located to the south of the airport.

6. Air

- Good north-south air connections exist, and are improving, with people being attracted from Medford.
- Both freight and passenger service could be improved, and pricing needs to be more competitive.
- Airport expansion is going to be necessary for healthy economic development of the region. Good potential exists with the foreign trade zone.
- Airport access needs to be improved from a safety standpoint, and to improve the image of the airport.
- The airport area has potential to become a significant intermodal freight hub (rail/air/truck).

7. Roadway Improvements

- Proposed Washburn/Southside Bypass interchange design should be reviewed with a view to improving airport access via this interchange.
- Washburn Way needs signals, widening, street lights
- The intersection of the Southside Bypass and Highway 97 ramps needs street lighting and/or illuminated signs.
- The "T" intersection of the Southside Bypass and Highway 39 needs lighting.
- Highway 140 east needs shoulders & bike lanes.
- Residential street standards for existing platted subdivisions with no streets - what are they and how can they be enforced?
- The City and County need an improved process for identifying and prioritizing roadway improvements.
- The state's right-of-way beautification requirements need to be adhered to and carried through to major County and City streets.
- Street construction and maintenance funding needs to be put on a solid footing - no fixed formula or program to fund them now and no idea of how much money is needed.

8. Transportation Connectivity

- Access onto the southside expressway needs to be carefully controlled to maintain the function of this facility.
- Proposed Southside Bypass extension to the east will be a huge benefit.

9. Heavy Vehicles/Truck Traffic

- Heavy vehicle traffic not perceived to be a problem in Klamath Falls.

- Truck routes are well established and are well adhered to.
- Truck traffic is likely to increase in the future.
- Truck service in the area is good despite relatively few established carriers, but rates tend to be high.

10. Parking

- Parking provision in Klamath Falls is good, both in downtown and elsewhere, with the downtown parking district having done a good job of providing off-street parking.
- The installation of diagonal parking may have safety problems with regard to bicycle operations and the high numbers of light trucks.
- Courthouse parking has been a problem in the past, but should improve with the new courthouse.

11. Neighborhood cut-through traffic

- This issue does not appear to be a problem in the area.

12. Other Issues

- Hazardous waste sites need to be included in the plan development to ensure they do not present a problem in the future.

Interview Notes:

The interviews that were conducted have been summarized below, with the date and telephone number of each interview provided.

Name: Earl E. Kessler
Organization: Klamath County Public Works Director
Phone Number: 884-4696
Date: August 24, 1994

Critical Issues: A new east-west arterial on the north side of town.

Vehicle Circulation: The TSP must identify where major arterials will be located in the future. It is especially important to create new east-west connections across the community. Klamath Falls is bisected by railroad tracks and a canal which has prevented these connections in the past. Currently, there are only three east-west connections: Shasta Way, South Sixth, and the Southside Expressway. Foothills Boulevard to the north is being planned as a new east-west connection. Mr. Kessler believes

at least one additional east/west connection would be needed to the north to connect to Old Fort Road.

Foothills Boulevard is a controversial project. It extends across the north part of town and would provide a second entrance into the new development areas currently served by Homedale Road. Mr. Kessler recently opposed a new mobile home park along Homedale Road given that it will further increase traffic on this two-lane county road. Homedale Road currently serves property inside the city limits on the north side of town, but the residents must travel out of the city onto Homedale Road to reach Shasta Way or South Sixth. Mr. Kessler believes that Foothills Drive needs to be improved and that Homedale Road needs to be widened prior to additional development occurring in this area. Mr. Kessler also noted that the North Hills area has great potential for continued residential development and that it offers excellent views and is an attractive area to live in.

Road Improvements: The process for road improvements was discussed. Mr. Kessler noted that the County has a formula for identifying which streets are improved. Road improvement requests go to the seven-member County Roads Advisory Committee. He noted that there is a "master" agreement with incorporated cities in the County regarding the transfer of forestry receipts to the cities for road maintenance and improvement. He stated that 98% of the funds for road improvement come from forestry receipts and that 2% are state funds. He noted that no general funds go to road improvement. It was noted that the County's philosophy has been that property owners need not pay additional fees through local improvement districts or other mechanisms to have roads improved. Recently, Madison Street was widened and improved with sidewalks installed

Road Standards: Mr. Kessler believes that County and City standards are generally consistent. He noted that sidewalks are required for new development if lots are under 20,000 square feet. Curbs are required but sidewalks are eliminated for lots that are 20,000 square feet to an acre in size. For lots over one acre in size, a 24-foot paved surface is required with graveled shoulders. These standards apply to development inside the urban growth boundary and are included in Article 17 of Chapter 7 of the County Development Code.

Mr. Kessler noted that generally upon annexation the City takes over jurisdiction of roadways. He said that as development has occurred in the urban growth boundary, developers have requested water service from the City. To receive water service, property owners are required to sign consent to annexation forms. The consent forms will evidently allow the City to annex much of this area. Mr. Kessler said that many lots in the urban growth boundary are currently being partitioned with new units being constructed to the back of original dwellings. This infill development has resulted in the desire for new services by area residences. Recently, two lighting districts have been established in the urban growth boundary. Mr. Kessler believes that annexation will be requested when property owners want higher levels of police service.

How to be involved: Mr. Kessler is Public Works Director and will be involved through out the process.

Name: Bill Coles, Interim District Manager; District 11
John Thomasson, Permit Specialist.
Organization: ODOT
Phone Number: 883-5662
Date: August 24, 1994

Critical Issues: Safety and access control.

Safety: The critical issue for ODOT is safety. Safety is primarily addressed through access control, installation of traffic lights, and by assuring that through-traffic needs are satisfied. Mr. Coles noted that it was important that the Southside Expressway be viewed as a bypass to the community. It was noted that development pressure exists for driveway access onto the Southside Expressway. John Thomasson said that ODOT has worked hard to manage access along South Sixth and has been successful in having closed and combined driveways. Mr. Coles said that the pattern of development along South Sixth has created somewhat of a traffic hazard and required additional attention.

Coordination: Mr. Coles said that the proposed transportation plan would provide the City, the County and the State an opportunity to have a common vision for the area. He strongly supported the idea of developing the plan. Mr. Thomasson noted that the State has required beautification of right of ways along State highways as a means of implementing the Klamath 2002 vision. Landscaping has been required along North Highway 97 for new development.

Regarding development referral processes, the City and the County have been cooperative in referring development projects to the State for comment. It was unclear whether this was a courtesy or required under local ordinances.

Transit Service: Mr. Coles noted that the transit service in Klamath Falls area was excellent for a city its size.

Pedestrian and Bikeways: Mr. Coles noted that there was good walking and biking opportunities, especially given the bikeway along the canal.

Improvement Needs: It was noted Washburn is to be widened and street lights installed. With these improvements, the City will be accepting jurisdiction of the facility.

How to be involved: Mr. Coles is the Interim District Manager and will be involved throughout the process.

Name: John Hicks, District Manager, District 11
Organization: ODOT
Phone Number: 883-5662
Date: November 9, 1994

Circulation and Congestion: Access control is vital for the smooth flow of traffic and also for safety. South Sixth Street, the Southside Bypass and Washburn Way all need strict access control measures to ensure flow and safety. The planned Foothills Boulevard will enable drivers to avoid Shasta Way. An intermediate east-west connection will be needed between South Sixth Street and the Southside Bypass as the Altamont area grows. There are currently no obvious through routes in this section. The County is obtaining right-of-way for the planned extension of Highway 140 to the east of Highway 39, and the tie-in with the existing alignment of 140.

Safety: The State's interchange plan for the Southside Bypass is needed to improve safety and continue to enable the bypass to fulfil its function. There will at some time in the future be a further interchange at Homedale Road. This should ultimately provide access to the east side of the Airport, rather than Summers Lane. The Washburn Way widening project will enhance safety on that facility, with the construction of traffic signals at Crosby, Hilyard and Laverne. The intersection of Biehn Street/Campus Drive with Alameda Bypass is a safety location with no easy solution. The intersection of Highway 97 ramps/Southside Bypass has been identified for street lighting improvements and one ramp will be realigned.

Bikes/Pedestrian/Transit: The limited right-of-way on South Sixth Street together with sidewalk widening requirements will make provision for these modes very difficult.

Heavy Vehicles: The intersection of the Southside Bypass/Highway 39 is identified for widening and upgrading due to the problems experienced by heavy vehicles making turns at this location.

Name: Dr. "Bear" Baker, Dean of Engineering Services
Organization: Oregon Institute of Technology
Phone: 885-1100
Date: August 24, 1994

Critical Issues: Improved air travel service.

Air Travel Service: Dr. Baker noted that air travel in and out of Klamath Falls is a critical issue to the College. He noted that he would make better use of his Klamath Falls faculty at the Portland OIT campus if air service was improved and airfares were reduced.

Traffic Signals: Dr. Baker noted that synchronization of signals along the Alameda Bypass and South Sixth were improvements that should occur as part of the planning process. However, he

stated this was a minor concern and generally all transportation systems in the Klamath Falls area worked well. He had no major complaints.

OIT Campus Traffic: Dr. Baker noted that OIT has approximately 2500 students and 250-300 faculty and staff. He said that many of the students are commuter students and that only 700 live on campus. The average age of the student population is 28 years old and many students are displaced workers. They generally have families. He noted that student population was off by 500 students from a high of approximately 3000 students. He said that there is no peak use time at the campus that causes a major traffic problem.

Dr. Baker noted that OIT has a strong desire to grow and that they have the potential to handle 1000 more students. They are currently taking an aggressive approach to attracting students and hope to grow by 40%. He noted that Doug Yates, Dean of Administration, has a Master Plan for the campus.

Traffic Hazards: Dr. Baker noted particular locations in the community where he perceived potential traffic hazards:

- People bypass traffic lights along South Sixth by making left turns from Alameda to Shasta Way following Shasta to Patterson and then going down to Sixth.
- Along the south bypass intersections are dangerous in that he understands that Washburn either needs a light or will be improved with a bypass.
- South Sixth and Alameda present problems for pedestrians crossing.

Pedestrian and Bikeways: Dr. Baker said that bikeways and pedestrian ways were adequate in the community. He did not note that there was a high amount of bicycle use by students at OIT.

Involvement in the process: He noted that Doug Yates should be involved. He said that he has only been at OIT for three months and has been asked by the president of the College to speak to me.

Name: Major Vance, Environmental Manager
Organization: Air National Guard
Phone: 885-6350
Date: August 24, 1994

Critical Issues: Hazardous waste problems near transportation corridors
Entrance to Air Guard facility.

Hazardous Wastes: Major Vance stated that he is responsible for identifying and monitoring all hazardous waste sites in the vicinity of the National Guard Base, including sites that are leased and/or used by the Guard. He said that he has maps of these sites that will be available to the consultant team as part of the planning process. The sites are primarily in the vicinity of the airport.

Air National Guard Facility Plans: Major Vance noted that the Air National Guard has plans to move the entrance into the facility to the west with access off of Washburn and Joe Wright. He said that Lt. Burke, a Civil Engineer (503-885-6361) has a copy of the Master Plan.

Major Vance noted that the National Guard has no ability to predict base expansion or reduction given that it is primarily a political process regarding funding. He noted that the majority of the 400 employees at the base are permanent members of the community, who have chosen to locate in Klamath Falls.

Traffic Issues: Major Vance noted the following issues:

- Improvements are needed along the Southside Bypass and of the Southside Expressway and Washburn.
- There are good north-south arterials. The Alameda Bypass provides a good connection through town.
- The intersection at OIT is hazardous given high speed traffic.
- The Washburn/Alameda intersection is a problem intersection.
- All intersections along the Southside Expressway are hazardous.
- Washburn and Southside Expressway need to be improved.

Major Vance noted that in the future he would like to see trucks removed from Highway 97 through the community. While he didn't believe there was currently a need for Highway 97 to be improved to four lanes it may be necessary in the future. He noted that Highway 140 is a east-west connection that is not as well used as the Highway 97 corridor to the north and south.

Pedestrian and Bikeways: In response to a question regarding parking and bicycle use, he stated that he did not perceive any problems.

Involvement in the process: Major Vance recommended talking to Dr. Lund or Dr. Dick Zibnon ("Dr. Z") at OIT regarding transportation planning. Each of these faculty members teach traffic engineering and may have valuable input in the process. He also recommended contacting former base commander Colonel Harper.

Major Vance stated that he would be willing to be involved in the process and to keep him informed. He recommended contacting Lt. Burke regarding base master planning.

Name: Steve Simon
Organization: Aquaglass
Phone Number: 882-7711
Date: August 24, 1994
Critical Issues: Truck access.

Truck Access: Mr. Simon stated concern regarding truck access to and from the Aquaglass facility and employee access to the facility. Aquaglass is located on a fifty acre site along the Southside Expressway. The Aquaglass facility was built in 1992. They currently have 150 employees with expansion plans to double to 300 employees over the next three years. Currently there are eleven trucks per day that access the site. The firm owns twelve tractors and 24 trailers. The service area for the manufacturing facility are the thirteen Western states and provinces.

Mr. Simon felt the highest priority is to maintain access for through traffic on major through fares such as Highway 97. He said Highway 97 should be a two-lane facility in each direction. He noted that truck traffic will continue to increase in the area.

Traffic Issues: The proposed Washburn bypass improvements are critical to the health of the company and the region. Mr. Simon felt that access management on all major facilities throughout the Klamath Falls area was a very important concern. Regarding access management, Mr. Simon felt that leadership is a key issue and that tough political decisions need to be made to manage access.

Economic Development: Mr. Simon noted that there were many opportunities for additional industrial development in the vicinity of Aquaglass near the airport. He said that growth will continue in this area, it was just a matter of time before development would occur. He described the locational advantages of Klamath falls and stated that highway 97 access to the south and to the north was easier year-round than Interstate-5. He noted that there were less snow and ice problems on Highway 97 and that truckers would often use Highway 97 rather than Interstate-5.

Road Maintenance: Maintenance of road facilities was identified as an issue. He said that streets and highways need to be maintained with better materials. He noted concern about the stability of bridges in the community.

Traffic Circulation: Mr. Simon stressed the need for a loop road system around Klamath Falls. He said roads should be planned to be wide enough to handle future needs.

Access Management: Mr. Simon stated that turn lanes were necessary for trucks. He said that the need for turn lanes continue to increase as truck length increases from 48-foot trailers to 55-foot trailers. He said that Aquaglass currently does not use double or triple trailers, but that it is a possibility in the future. He noted that RV's tend to be worse than the triples in terms of traffic problems.

Neighborhood Issues: Regarding neighborhood issues, and neighborhood traffic, Mr. Simon felt that the network of streets was pretty good. He felt that certain specific areas of concern needed to be corrected.

Pedestrian and Bikeways: Mr. Simon felt that the existing bikeway was a benefit to the community. Mr. Simon is a recreational bicyclist. He did not feel that bicycle commuting was a realistic alternative for transportation in Klamath Falls given the severe winters.

Transit Service: Mr. Simon felt that transit systems should be self-supported and he noted that buses were very empty. He recognized that air quality was affected by vehicle use but that a numerous vehicles would be needed to be kept off the roads to be equal to air quality problems caused by one bus.

Traffic Congestion: Mr. Simon noted that there is congestion on South Sixth and Washburn. He said that red lights on Sixth need to be synchronized. Other opportunities for traveling through town such as a loop road need to be developed.

How to be involved: Mr. Simon stated he would like to be kept informed of the progress on the transportation systems being planned and he wants to be put on a mailing list.

Name: Doug Yates, Dean of Admissions
Organization: Oregon Institute of Technology
Phone: 885-1100
Date: September 19, 1994

Critical Issues: Development pressure on the north side of town; lack of sidewalks.

Development Issues: Future transportation problems will occur because of development pressure near the college. Access to the area is off of Campus Drive. There are not enough alternative access points from Highway 97 that serve the OIT area. Campus Drive is congested at 8 AM, Noon, and 5 PM. The access road to the north serving the College Industrial Park is not well used. The college will continue to grow and needs will increase. An overpass would be a desirable solution.
Safety: The Washburn/South Side Expressway and the Joe Wright area are safety problems. People underestimate speeds and numerous accidents have occurred including fatal accidents.

Traffic Issues: The Highway 97/Esplanade intersection requires more enforcement to prevent running the signals. Synchronization of lights along Sixth is an issue. Two-way traffic in downtown should be considered.

Pedestrian and Bikeways: The existing bike paths are good and are also used by walkers. The paths connect areas of interest.

Sidewalks are a problem along Eldorado. The City should form an LID to install walks in this area on at least one side of the street. The area includes apartments and needs sidewalks. Lower density single family areas don't have the same need for sidewalks.

Transit Service: Transit works well for OIT but it is not heavily used. It is important to the college that service be accessible and low cost.

Involvement in the process: Mr. Yates wants to be added to a mailing list.

Name: Frank Ganong, Sr.
Organization: Former Retail Mall Manager
Phone: 882-3461
Date: September 21, 1994

Critical Issues: Congestion along Shasta Way and South Sixth

Traffic Issues: Mr. Ganong suggested that congestion along South Sixth and Shasta Way impacts residential areas and commercial businesses in the area. He noted that South Sixth currently carries more traffic than the designed capacity. He also noted that Washburn Way is somewhat congested.

Improvements: Mr. Ganong stated that previous plans had addressed an extension of highway 140 easterly to the Pine Grove area. He said this would enhance commuter trips and truck traffic. Mr. Ganong is the former shopping mall manager and notes that the new Fred Meyer has brought more traffic into the central area of the community and has changed traffic patterns. Mr. Ganong noted that construction of Foothills Blvd. on the north side of town was an important and needed improvement.

Pedestrian and Bikeways: Mr. Ganong stated that the canal bikeway is a huge success. He noted that people use it for biking and walking. It connects the college to shopping areas.

Transit Service: Transit service in the area has never been successful. It is good for people who need it, especially senior citizens, but it is not well used.

Parking: Merchants downtown have free off-street parking. Klamath Falls is in a much better situation than Bend in terms of parking availability.

How to be Involved: Mr. Gonong will follow progress on the plan through newspaper reports.

Name: Rick Vaughn
Organization: Jeld-Wen
Phone: 882-3541
Date: September 21, 1994

Critical Issues: Freight shipping by air, rail, and motor truck.

Air Service: Air freight service is not readily available in Klamath Falls. Jeld-Wen ships by ground to Portland if air service is needed.

Rail Service: Two major railroads service the Klamath Falls area. The intermodal ramp for railroad service has recently closed. This has reduced options for shipping.

Truck Service: Truck service is the mainstay for industry in the area, although Klamath Falls is not in a prime spot for trucking. Industries must draw on a pool of trucks from metro areas and rates are higher in Klamath Falls for shipping out of the area since inbound trucks are not necessarily loaded with goods.

Improvements: Four-lane access is desirable to the area for truck traffic.

Traffic Safety: Traffic congestion can be a problem along major thoroughfares. Limited access points improve safety in these areas. Rock-barrier walls on the north side of Klamath Falls can be improved.

Pedestrian and Bikeways: Bike trails benefit the community and help reduce congestion.

Parking: Parking is not a problem in Klamath Falls.

How to be Involved: Mr. Vaughn wants to be added to any mailing lists.

Name: Larry Howard
Organization: Merle West Medical Center
Phone: 883-6150
Date: September 21, 1994

Critical Issues: Access for industry.

Rail Service: Mr. Howard stated that Burlington and Southern Railroads were scaling back in the area and he feared negative economic impacts.

Truck Service: Highway 58 is a major truck route. Efforts need to be continued to improve highway service to the area.

Transit Service: Keeping Basin Transit and dial-a-ride are important for industry. New industry that is considering location in the area uses transit service as part of their locational criteria.

Air Service: Klamath Falls has good north-south air service. Schedules and pricing are important to industry. Obtaining money for airport expansion is essential. The free trade zone in the vicinity of the airport makes new industry and expansion more viable.

Traffic Issues: South Sixth Street is congested. The Southside Expressway provides relief to congestion but improvements are needed for safety reasons.

Pedestrian and Bikeways: More bike paths would be an asset in the area.

How to stay involved: Mr. Howard wants to be added to any mailing lists.

Name: John Hancock.
Organization: Fairgrounds Manager
Phone: 883-3796
Date: September 22, 1994

Critical Issues: Traffic safety along the Southside Expressway, especially at Tingley Lane.

Air Service: Air service is adequate, although connections to other markets would be beneficial.

Train Service: AmTrak has served the area for years. Continued service is beneficial to the area.

Improvement Needs: Mr. Hancock did not note any major changes that were needed. He emphasized the need for road maintenance programs. He noted that future growth patterns will dictate where traffic improvements are needed.

Traffic Safety: Mr. Hancock said that the Southside Expressway/Tingley Lane interchange is a traffic hazard. He noted that there have been a number of fatal accidents at that location and that improvements are needed. He stated that improvements to this intersection are needed more than the planned Washburn Way improvements. He also noted that safety improvements are needed at the Altamont interchange.

Parking: Parking near the old courthouse was a problem. As the courthouse is rebuilt new parking areas should be established.

Sidewalks and Bikeways: The community has a good bikeway system that connects OIT to the playgrounds and shopping areas. There has been a large investment in bikeways and he has concerns about additional expenditures.

Involvement in the process: Mr. Hancock wants to be added to any mailing list for the project.

Name: Dave Maxwell
Organization: Modoc Lumber
Phone Number: 884-3177
Date: September 13, 1994

Modoc Lumber is located in downtown Klamath Falls on Klamath Avenue between 2nd and 4th Avenues. The plant has a rail spur connection direct to the BN and SP lines. Log deliveries are made by truck in general. Product is shipped from the site by road (90%) and rail (10%).

Rail: Historically, all product was moved out by rail, but service has deteriorated in the past, leading to increased use of trucking companies. BN provides fair service, but SP has a long way to go. SP keeps no cars in the yard - they must come from Denver and can take two weeks. Currently poor transit times for both railroads! Products shipped by rail are wood chips bound for Weyerhaeuser (Springfield) and wood products (lumber) bound for California and Florida. The mode of transportation is chosen by the customer. Stockton, Ca is about the closest destination that is viable for rail transportation for lumber products. Mr. Maxwell foresees no major potential increase in the market served by rail -i.e. predominantly in the midwest and southeast - so it is unlikely that rail operations will increase. Mr Maxwell sees a rail hub as a good benefit to the area. He has no ideas on location, but thinks the potential location to the south of airport a good one. He said the mode of transportation is up to the customer so the railroad has to gain support from that area before the company would use rail more frequently. They have three intermodal transportation customers, in Maine, Wisconsin and Iowa. For BN shipments, trucks are loaded in town yard (since closed!!) must go to Portland? For UP? shipments, trucks are loaded in Bend.

Trucking: With respect to truck traffic in general, it has increased greatly in the last few years, and Highway 97 needs a lot of attention to ensure it can provide service. The main benefit of truck transportation is the superior service offered - guaranteed delivery times and also far quicker delivery times. Mr Maxwell said trucks are well catered for in Klamath Falls and are not perceived to be a problem in residential areas as they tend to stay on their routes. Trucks are not a problem in core area downtown. They tend to stay on the by-passes and keep out of congested areas.

Name: Larry Swan
Organization: US Forest Service
Phone Number: 883-6708
Date: September 14, 1994

Congestion: The majority of problems relate to urban sprawl. South Sixth Street and Washburn Way are highly congested. Washburn Way has been slightly better planned and is better able to cope with the traffic volumes it carries.

Access to Highways/destinations in urban area: Access to and from Highway 97 is very difficult especially to downtown. Highway 39 offers the major access to downtown and traffic is very heavy. Destinations to the east are poorly served from Highway 97, north and southbound. The intersection of Highway 39 and South Sixth Street is a major congestion point. Traffic is funnelled from three highways into this intersection.

Traffic Safety: Shasta Way: to the east of the eastside bypass, it carries very large traffic volumes on a residential street. Washburn Way: the unsignalized intersection at Walmart makes access difficult and dangerous. Washburn Way carries high volumes at high speeds. Highway 140: to the east of town, the highway shoulders disappear, but housing developments are being built and pedestrian and bicycle traffic is not catered for. As developments are built and population increases, this road will become more dangerous.

Parking: The city is currently installing diagonal parking on Klamath Avenue. This is seen as a potential safety problem. Diagonal parking is ill-suited to bicycle lanes, and this situation is compounded due to the high numbers of light trucks, the drivers of which find it difficult to back out of diagonal parking due to the blind spot in a light truck.

Pedestrian/Bicycle Traffic: Canal A provides a good bike route. OC&E right-of-way provides a good bike and pedestrian path to the southeast. Highway 140 to the west of town provides a good bike route. Downtown has no provision for bicycles and most streets are dangerous. Pedestrian traffic downtown is fairly high and supported by traffic signal timing. East Main Street is dangerous for pedestrians.

Name: Drew Honzel
Organization: Columbia Plywood
Phone Number: 882-7281
Date: September 14, 1994

The plant is located in the city on Highway 97 ordering the Klamath River to the south of town.
Rail: Incoming product is delivered by rail from New England, the upper mid-west states and Northeast Canada. Both BN and SP are used depending on the source. Outgoing product is destined

for the mid-west, southwest and south central states. BN and SP are used to rail two-thirds of the produce. All destinations in the northwest are served by flatbed truck and this accounts for approximately one third of the plant produce. Ninety percent of rail-shipped outgoing product uses intermodal transportation, i.e. truck or container. BN loading service for intermodal transportation was closed in Klamath Falls on September 1, 1994. Currently, trucks must be loaded in Portland. SP trucks are loaded in Roseville, Ca. Container shipments would be convenient, but are unlikely due to the investment required. Both the company (Columbia Plywood) and the market are increasing, so increased rail operations should be planned for. Outbound product is shipped by truck when time constraints require. All destinations in the mid-west and the southern states are served by inter-modal transportation. A rail hub in Klamath Falls is a good idea. Location to the south of the airport sounds convenient.

Trucking: The highway 39 exit from Highway 97 is poorly signed. Quick lane changes are required to avoid a compulsory lane exit. This is a safety hazard.

Name: Dave Machado
Organization: Klamath Veneer
Phone Number: 882-6664
Date: September 14, 1994

Rail: The plant is located to the northwest of town on Klamath Lake. Incoming product is primarily logs delivered by truck. Outgoing products are wood chips and veneer. All products are bound for in-state locations and are transported by the railroads. Southern Pacific is the carrier. Availability of cars from SP is a problem - there are frequent delays. Outgoing product could be shipped by truck (both wood chips and veneer), but cost is the primary factor in using rail. No inter-modal transportation is used by the company. Mr Machado knew of no specific trucking problems in Klamath Falls and had no specific safety concerns.

Name: Jim Noud
Company: Reddaway Trucking
Phone Number: 882-5614
Date: September 14, 1994

The depot is located on Hilyard Avenue, east of Broadmore Street. Reddaway Trucking provides "less than truckload" transportation and transports everything that UPS cannot. Clients include offices, hospitals and mills. On a daily basis approximately 100,000 pounds of goods come into Klamath Falls from west coast locations. Seventy percent of these goods come from Portland, Eugene and Salem.

Congestion/Circulation: Washburn Way is not a quality transportation facility. It requires street lighting and signalization. The east side bypass also requires signalization. Intersection locations that require attention are those on Washburn Way and the southside bypass. Klamath Falls is growing quickly and transportation facilities need to keep pace with growth. Destinations to the east of Klamath Falls are not well served by transportation links. Trucks travelling from the west on Highway 140 as well as north/south traffic on Highway 97 use the Green Springs interchange and the southside bypass as far as Highway 39 where they turn north and travel for 1.5 mi and then must turn east on Highway 140. Both intersections on Highway 39 are a safety problem and may require signals. A Highway 140 west-to-east bypass is needed. This should keep trucks out of South Sixth Street, which they use to avoid making the jog on Highway 39.

Safety: The Laverne Avenue, Hilyard Avenue and Crosby Avenue intersections on Washburn Way are all safety hazards. The Altamont Drive intersection on South Sixth Street has had a number of deaths. There are many elderly and retired people moving to the area and this compounds safety problems, especially with truck traffic/auto interaction. There are speed problems on Hilyard Avenue. Downtown traffic has been reduced as a result of the earthquake, but it has all moved to the southeast area.

Truck Traffic: When I-5 was closed due to a hazardous waste spill some time ago, the intersection of Highway 97 and Highway 140 was backed up for two miles. This intersection needs attention. Truck traffic on Highway 140 is fairly high with trucks coming from Medford (the Reddaway Hub is located in Medford).

Name: Ted Swan
Organization: Basin Transit (Board Member)
Phone Number: 884-7306 (H)
Date: September 15, 1994

Transit: Current transit usage is growing slowly but steadily. The primary users are the elderly, teenagers and working people who don't drive. The quickest growing population group in town is amongst the elderly with many retired people moving to the area, and this should lead to a continued increase in transit usage. Residential developments going up in the area should take more cognisance of transit provision - especially those catering to the elderly and retired. BTS is working to try to minimize required walking distance for transit riders - both children and the elderly. Developments could help with this in early planning stages. There is a move to expand transit service linking Klamath Falls with areas such as Malin and Medford (Rogue Valley Transit).

Name: Dave Henley
Organization: Albertson's
Phone Number: 882-7239
Date: September 15, 1994

Trucking: Albertson's receives about 15-20 truck deliveries per day. These all take place before 11 a.m. The majority of these deliveries come from downtown. No significant problems experienced.

Name: Rich Bogatey
Organization: Bogatey's and Downtown Redevelopment representative
Phone Number: 884-8811
Date: September 15, 1994

Safety: Traffic speeds on Highway 39 through downtown need to be reduced to minimize the danger to pedestrians, and to increase pedestrian friendliness and encourage more pedestrians downtown. Traffic in the downtown region (esp. Main Street and Klamath Avenue) is slower moving than on the bypasses and circulates well, however speed and safety (esp pedestrian) problems exist on Main Street and Klamath Avenue, particularly to the west of 3rd Street toward the interchange, with westbound vehicles on Main Street.

Parking: The downtown parking district has worked to ensure a good supply of customer parking by dedicating lots throughout the downtown area. A problem remains in providing sufficient employee parking. A new plan dealing with employee parking is being brought before the City Council in October.

Heavy Vehicles: Generally there is no problem with heavy vehicles in the downtown area - no through traffic to speak of, as it all uses the bypasses. Transit access to downtown is good, and well used by the elderly. It is tough to try to encourage employees to ride transit in a town of this size, but they are trying. There is a plan to rebuild the transit station on Pine street (ODOT STIP).

Name: Gerald Hamilton
Organization: Director of secondary curriculum - City School District
Phone Number: 883-4700
Date: September 16, 1994

Circulation/Congestion: The school district operates approximately 40 school buses and vans from the depot on S Alameda Avenue. There currently appear to be no major operational or safety problems. The school buses generally load and offload children at entrances different from those used by private automobiles to avoid pedestrian conflicts, and this works well. Congestion problems have

been minimized at most of the schools - not aware of any problem locations. The school bus system serves all the areas needing service very well - there are areas where the school district lies within the minimum required distance of the school and bus service is not required.

Pedestrians: With regard to kids walking to school - there are no major safety problems. Districts have been set up to eliminate the need for the kids to cross major arterial streets. Sidewalks appear to be provided in those areas where there are children who walk to school - can't think of any major shortcomings in that regard. In regard to high school children using public transportation for school, they generally don't mix well with seniors and may tend to discourage them from using public transit.

General: A priority should be a good plan for wintertime road clearing to ensure safe access to the schools - this has historically been a problem with snow clearing being somewhat haphazard.

Name: Joe Keller
Organization: Keller Construction
Phone Number: 882-1209 (H)
Date: September 16, 1994

Circulation/Congestion: The site of their major development lies on Harlan Drive between Highway 39 and Madison Street. Access and circulation are good. Mr. Keller felt that Madison Street should be widened to the same extent as Summers Lane and Homedale Road, with a two way center left turn lane. The offset intersection of Highway 39 with the eastside bypass and Summers Lane is not synchronized and is not more than 250' apart which leads to congestions problems. Also, traffic progression on South Sixth street is poor with actuated signals appearing to favor the side streets rather than ensuring progression on the highway.

Safety: The intersection of Highway 39 and Keller Road has sight distance problems due to the hills south of Keller Road, and the high traffic speeds on Highway 39. In addition, the intersections of Washburn Way, Summers Lane and Homedale Road. There have been several accidents at these locations in the recent past.

Name: Bob Binson
Organization: Wayerhauser Hardboard Plant Scheduler
Phone Number: 884-2297
Date: September 16, 1994

Rail: The plant is located southwest of Klamath Falls off Highway 66, and is served by a BN spur line. Of the incoming product, logs, wood chips and resin are transported exclusively by road. Wax comes in by rail car from California, but this involves only one tanker car in 2-3 weeks. Outgoing

product - hardboard - is shipped roughly 35 percent by truck and 65 percent by rail. Weyerhaeuser has 42 Southern Pacific cars painted in its colors and dedicated to its use, and 98 percent of the outbound rail product is shipped on these 48' flat cars via Southern Pacific, to eleven western states. There is no use of inter-modal transportation. When time constraints dictate, trucks may be used to transport the product, but there is a large added cost which must be borne by the customer. Also, when product is going to a Weyerhaeuser facility which is not served by rail, trucks are used. In addition, most northwest locations are served by truck including Portland, Seattle and Boise, where the distance is too short to make rail viable. The main issues the railroads need to work on are keeping cars in good condition - they have lost loads due to cars floors in poor condition and loading can be very dangerous - they cannot afford to have liability cases. The condition of the delivered product has been a problem in the past with damage occurring en-route. Have also had problems with timing of deliveries and have subsequently made agreements where the railroad guarantees delivery within an average delivery timeframe.

Trucking: As far as trucking is concerned, there are numerous firms which have been weeded out as unable to provide consistent service, leaving a few reputable firms who have worked hard to accommodate the client, and are able to react quickly to demand when the plant is busy.

Name: Steve Carson
Organization: Bear Cat, Inc.
Phone Number: 884-8872
Date: October 19, 1994

Bear Cat, Inc. is located on Broadmore Street off Washburn Way between Hilyard and Onyx. The business operates 29 truck+trailer tankers which transport asphalt, road oils, diesel and gas. Business is seasonal, with the trucks making approximately 40 trips per day to the depot.

Traffic Safety: The whole length of Washburn Way is a safety hazard. There are no traffic lights between South Sixth Street and the Southside Bypass. Mr Carson feels lights are needed at two locations at least to break up the flow and allow access onto the street. It is near impossible to get onto Washburn from Hilyard. the intersections with Laverne, Crosby and Hilyard all experience huge delays.

The Southside Bypass is another safety hazard, with many fatalities having occurred there. The proposed interchange at Washburn has been delayed too long already - it needs to be built immediately to prevent further loss of life. Mr Carson has heard the design has been cut back somewhat to reduce cost - he thinks that extra money spent for safety would be well spent. Sight distance is a problem at Tingley Lane, Washburn, and a number of the other intersections.

Street lighting is needed to improve safety at the intersection of Highway 97 and the Southside Bypass, and at Midland Road/Highway 97. Improved signing is required for vehicles wanting to get from the Southside Bypass onto Highway 97.

Name: Bob Stewart
Organization: Klamath Pacific
Phone Number: 884-6184
Date: October 19, 1994

Klamath Pacific operates 16 trucks making some 130 trips per day to their two sites which are located on Highway 97 5 miles north of the center, and off Highway 39 some 10 miles southeast of the town center. They haul concrete products, asphalt and rock.

Circulation & Congestion: Washburn Way seems to be carrying more traffic than it was designed to carry. He's heard up to 14,000 vpd. Needs an alternative, and at least a signal, preferably at Laverne.

Traffic Safety: Washburn Way and the Southside Bypass are safety locations needing prompt attention, as there have been many fatalities. Also, Highway 140 east to Lakeview is narrow with severe ditches. Highway 39 south is also too narrow. Safety at the intersection of Highway 39 and the Southside Bypass would benefit greatly from street lighting.

Name: Webb Molin
Organization: May-Slade Oil
Phone Number: 884-4117
Date: October 19, 1994

May-Slade Oil, located on Spring Street between South Sixth and Main Streets, operates 6 full-size truck/trailer combinations and 5 smaller local delivery trucks. The trucks make approximately 25 trips to the depot per day.

Traffic Safety: The Southside Bypass is a major safety problem with many deaths having occurred since it was opened. Otherwise, the company sees no major safety or operational problems in the Klamath Falls area.

Name: Dan Brown
Organization: Circle D.E. Lumber
Phone Number: 884-1701
Date: October 21, 1994

The company has depots located on Tingley Lane south of the Southside Bypass, and on Crosby between Washburn and Altamont. They operate 10 trucks, but use a number of local carriers to haul lumber for them.

Circulation & Congestion: The intersection of Crosby and Washburn Way has reached the point where it needs a traffic signal to improve safety.

Access to Highways/destinations in urban area: The Southside Express needs to be extended to the east to tie in with Highway 140 to avoid the jog north. In addition, a future eastside bypass is going to be required to enable north to east movements.

Traffic Safety: Intersections of Tingley Lane and Washburn Way with the Southside Bypass are both extremely dangerous and need attention before more lives are lost. Sight distance deficiencies add to the safety problem at the Tingley Lane intersection.

Street lighting is needed at the intersection of Highway 97 and the Southside Bypass.

Rail: The company used rail transportation in the past but stopped due to inflexibility of the rail operators.

Name: Jim Keller, City Manager
Jerry Zimmer, Airport Manager
Bill Nebeker, City Planner
Organization: City of Klamath Falls
Phone Number: 883-5316
Date: October 12, 1994

Airport Area Development: This City views the airport area as a critical element in the growth of the city. The opportunity for intermodal transportation connections between rail, air, and truck can come together in that area. The Foreign Trade Zone (FTZ) may also be a factor when looking at recruitment for companies with international markets.

Bus/Rail Transportation Terminals: The existing intercity bus and rail terminals are very inadequate and run down and reflect poorly on the community. Plans are needed to upgrade those facilities.

Local Street Standards: There are streets platted within old subdivisions which have not been built. Homes are being built along those platted but un-built streets and creating problems from a maintenance and access standpoint.

Local Street Maintenance: The concept of property owners maintaining the residential street in front of their own home is one which deserves some consideration.

Bikeway System: The rails to bike trails conversion of the abandoned rail line has not been done well. Funds are needed to complete the job and upgrade the trail.

HWY 97 Corridor: How does it function in the broad sense of its connection between California, Oregon, and Washington.

Access Management: Some form of rational access management is needed to prevent a repeat of the access problems which can be seen on Hwy 97 in Bend.

Name: Col. Scott Powell, Col. Bob Burk
Organization: Oregon Air National Guard
Phone Number: 885-6302
Date: October 12, 1994

Airport Access: The OANG is a major employer in the area with over 450 employees working at the base. The current plans for access to the airport via the proposed Washburn Way Interchange may not improve access to the airport. As presently designed, it will add two rail road crossings which could create a problem when the crossings are occupied. It is also more circuitous requiring more 90 degree turns and stops at stop signs. Refinement of the plan to eliminate the rail crossings and the 90 degree turns should be considered.

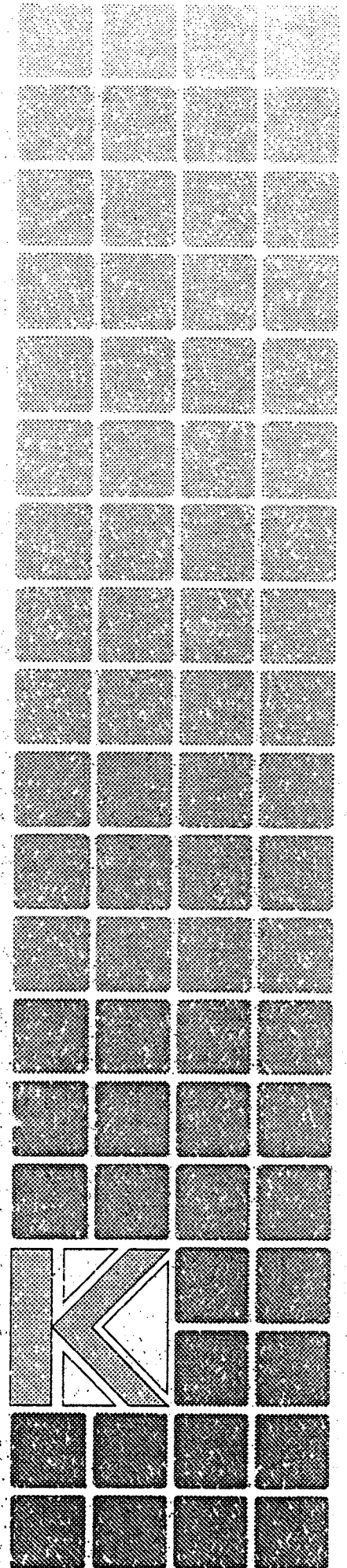
Emergency access to the airport is an important consideration. The closure of Altamont may be a negative from that standpoint.

Airport Area Development: The Guard takes up a lot of space on the airport. The weapons storage requires a large clear area, and the motor pool takes up a large area and is not as close as it might be for a compact base.

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Appendix D

Level of Service Definitions



LEVEL OF SERVICE

Level of Service (LOS) is a concept developed to quantify the degree of comfort (including 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. Six grades are used to denote the various LOS from A to F.

Signalized Intersections

The six LOS grades are described qualitatively for signalized intersections in Table D-1. Additionally, Table D2 identifies the relationship between level of service and average stopped delay per vehicle. Using this definition, a "D" LOS is generally considered to represent the minimum acceptable design standard.

Unsignalized Intersections

The calculation of LOS at an unsignalized intersection requires a different approach. The 1985 Highway Capacity Manual includes a methodology for calculating the LOS at two-way stop-controlled intersections. For these unsignalized intersections, LOS is defined differently than for signalized intersections in that it is based upon the concept of "Reserve Capacity" (i.e., that portion of available hourly capacity that is not used). A qualitative description of the various service levels associated with an unsignalized intersection is presented in Table D-3. A quantitative definition of LOS for an unsignalized intersection is presented in Table D-4.

The reserve capacity concept applies only to an individual traffic movement or to shared lane movements. Once the capacity of all the individual movements has been calculated and their LOS and expected delays determined, an overall evaluation of the intersection can be made. Normally, the movement having the worst LOS defines the overall evaluation, but this may be tempered by engineering judgement. An "E" LOS is generally considered to represent the minimum acceptable design standard.

It should be noted that the Draft Traffic Impact Study guidelines has differing levels of LOS for the minimum acceptable design standard for all intersections (both signalized and unsignalized) depending upon the relative contribution of project traffic to the signal warrant.

Past experience with the unsignalized analysis procedure indicates this methodology is very conservative in that it tends to overestimate the magnitude of any potential problems that might exist. This is especially true for minor street left turn movements. For example, the *Highway Capacity Manual* methodology does not take into account the effects of vehicle flow platoons that result from upstream signalization. Vehicles traveling in platoons tend to create greater gaps in the traffic flow

that sometimes provide additional capacity for the side closest to the signal. Therefore, the results of any unsignalized intersection analysis should be reviewed with this thought in mind. Generally, LOS E for the minor street left turn movement is considered to be acceptable for an unsignalized intersection, although it also indicates that the need for signalization should be investigated.

All-Way Stop Controlled Intersections

There is no accepted procedure for a level of service analysis of an all-way stop controlled intersection. The procedure used for determining LOS for a four-way or three-way stop controlled intersection differs from that described for unsignalized intersections. This methodology, which is being reviewed by the Unsignalized Intersection Committee of the Transportation Research Board, uses a capacity estimation method based on headways observed at all-way stop controlled intersection in the western United States. The procedures incorporate several important variables, including volumes distribution, number of lanes on each approach, and the percentage of right and left turns at the intersection. Intersection performance is measured in parameters similar to signalized intersections: delay, volume/capacity ratio, and level of service using a scale of "A" through "F". Approach delay on any given leg of the intersection is calculated using the following equation:

$$D = \exp(3.8 \times \frac{SV}{C})$$

Where	D	=	vehicle delay on a given approach (sec/veh)
	SV	=	subject approach volume (vph)
	C	=	calculated approach capacity (vph)
	exp	=	base of natural logarithms

In this equation, the quantity SV/C is simply the volume-to-capacity ratio on the approach under consideration. Table D-5 presents the LOS criteria for all-way stop controlled intersections.

Table D-1 Level of Service Definitions (Signalized Intersections)

<i>Level of Service</i>	<i>Traffic Flow Characteristics</i>
<i>A</i>	<i>Very low average stopped delay, less than five seconds per vehicle. This occurs when progression is extremely favorable, and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.</i>
<i>B</i>	<i>Average stop delay is in the range of 5.1 to 15.0 seconds per vehicle. This generally occurs with good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.</i>
<i>C</i>	<i>Average stopped delay is in the range of 15.1 to 25.0 seconds per vehicle. These higher delays may result from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear in this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.</i>
<i>D</i>	<i>Average stopped delays are in the range of 25.1 to 40.09 seconds per vehicle. The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle length, or high volume/capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.</i>
<i>E</i>	<i>Average stopped delays are in the range of 40.1 to 60.0 seconds per vehicle. This is considered to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high volume/capacity ratios. Individual cycle failures are frequent occurrences.</i>
<i>F</i>	<i>Average stop delay is in excess of 60 seconds per vehicle. This is considered to be unacceptable to most drivers. This condition often occurs with oversaturation. It may also occur at high volume/capacity ratios below 1.00 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such high delay levels.</i>

Note: A signal cycle failure is considered to occur when one or more vehicles are forced to wait through more than one green signal indication for a particular approach.

Table D-2 Level of Service Criteria (Signalized Intersections)

<i>Level of Service</i>	<i>Stopped Delay per Vehicle (Seconds)</i>
<i>A</i>	≤ 5.0
<i>B</i>	5.1 to 15.0
<i>C</i>	15.1 to 25.0
<i>D</i>	25.1 to 40.0
<i>E</i>	40.0 to 60.0
<i>F</i>	> 60.0

Source: Transportation Research Board. "Highway Capacity Manual". Special Report 209 (1985)

Table D-3 General Level of Service Descriptions (Unsignalized Intersections)

<i>Level of Service</i>	<i>General Description</i>
<i>A</i>	■ Nearly all drivers find freedom of operation ■ Very seldom is there more than one vehicle in the queue
<i>B</i>	■ Some drivers begin to consider the delay an inconvenience ■ Occasionally there is more than one vehicle in the queue
<i>C</i>	■ Many times there is more than one vehicle in the queue ■ Most drivers feel restricted, but not objectionably so
<i>D</i>	■ Often there is more than one vehicle in the queue ■ Drivers feel quite restricted
<i>E</i>	■ Represents a condition in which the demand is near or equal to the probable maximum number of vehicles that can be accommodated by the movement ■ There is almost always more than one vehicle in the queue ■ Drivers find the delays to be approaching intolerable levels
<i>F</i>	■ Forced flow ■ Represents an intersection failure condition that is caused by geometric and/or operational constraints external to the intersection

Table D-4 Level Service Criteria (Unsignalized Intersections)

<i>Reserve Capacity (pcph)</i>	<i>Level of Service</i>	<i>Expected Delay to Minor Street Traffic</i>
≥ 400	A	Little or no delay
300-399	B	Short traffic delays
200-299	C	Average traffic delays
100-199	D	Long traffic delays
0-99	E	Very long traffic delays
*	F	*

- * When demand volume exceeds the capacity of the lane, extreme delays will be encountered with queuing which may cause severe congestion affecting other traffic movements in the intersection. This condition usually warrants improvement to the intersection.

Source: Transportation Research Board. "Highway Capacity Manual". Special Report 209 (1985)

Table D-5 Level of Service Criteria (All-Way Stop Controlled Intersections)

Level of Service	Average Delay per Vehicle to Minor Street Traffic
A	< 5 seconds
B	5 to 10 seconds
C	10 to 20 seconds
D	20 to 30 seconds
E	30 to 45 seconds
F	> 45 seconds

Table D-6
Intersection Levels of Service (LOS) (PM Peak Hour)
Existing and Future (2015) Conditions

Signalized Intersections	1990			2015 "Do-Nothing"		
	V/C	Delay	LOS	V/C	Delay	LOS
South Sixth Street/Washburn	0.59	24.5	C	0.67	25.3	D
South Sixth Street/Altamont	0.50	9.8	B	0.48	9.8	B
South Sixth Street/Summers Lane	0.87	19.4	C	0.97	26.2	D
South Sixth Street/Alameda Bypass	0.72	16.3	C	1.07	45.2	E
South Sixth Street/Homedale	0.53	20.5	C	0.82	21.9	C
South Sixth Street/Lakeview Junction	0.45	17.5	C	0.56	19.0	C
East-Side (Alameda Expressway Bypass)/ Campus	1.03	54.0	E	1.10	69.6	F
East-Side (Alameda Expressway Bypass)/ Esplanade	0.64	20.3	C	0.85	25.3	D
East-Side (Alameda Expressway Bypass)/Main	0.68	20.0	C	0.81	23.9	C
East-Side (Alameda Expressway Bypass)/ Campus	0.63	14.7	B	0.80	22.1	C
East-Side (Alameda Expressway Bypass)/Shasta	0.53	23.1	C	1.02	44.2	E
6th/Main	0.33	6.9	B	0.36	7.0	B
5th/Main	0.43	2.1	A	0.30	2.8	A
5th/Klamath	0.39	7.2	B			
6th/Klamath	0.40	6.5	B	0.43	6.6	B
Shasta/Patterson (4-way stop)	0.55	5.2	B	0.72	8.6	B

Note: Shaded cells are intersections where on-going evaluation is being conducted.

Table D-6 (continued)
Intersection Levels of Service (LOS) (PM Peak Hour)
Existing and Future (2015) Conditions

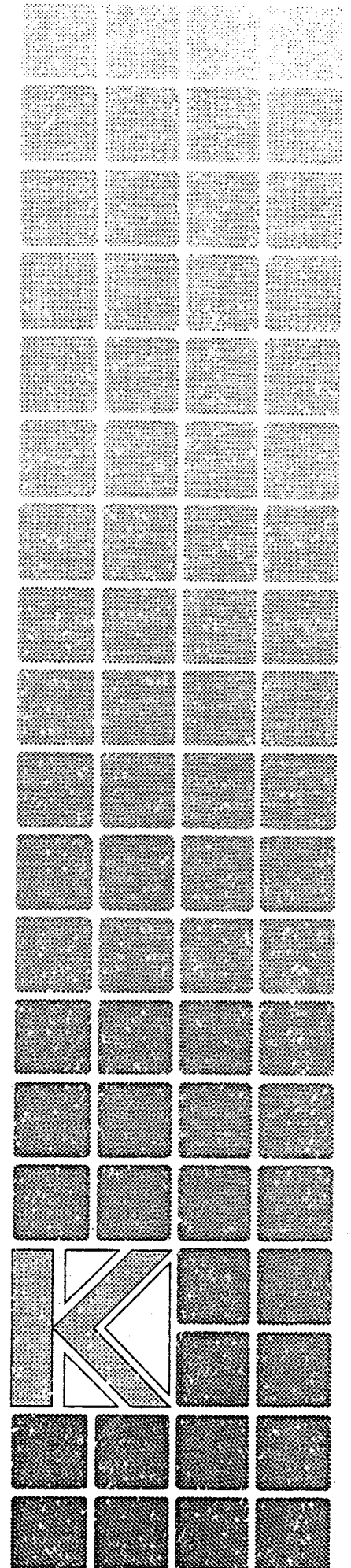
Unsignalized Intersections	1990		2015	
	Res. Capacity	LOS	Res. Capacity	LOS
South Sixth Street/Patterson	125	D	-43	F
East-Side (Alameda) By-Pass/Portland	77	E	40	E
US 97 SBND Ramp/Nevada	624	A	474	A
US 97 NBND Ramp/Nevada	597	A	470	A
US 97 SBND Ramp/Main	553	A	396	B
US 97 NBND Ramp/Main	442	A	319	B
US 97 SBND Ramp/Route 140	-57	F	-350	F
US 97 NBND Ramp/Route 140	574	A	168	D
Route 66/Route 140	171	D	42	E
Shasta/Homedale	121	D	-64	F
Shasta/Madison	159	D	-66	F
Washburn/Crosby	47	E	-48	F
Washburn/Hilyard	52	E	-34	F
Washburn/Edison	4	E	-208	F
Washburn/Laverne	180	D	-333	F
Southside Expressway/Washburn	173	D		
Southside Expressway/Altamont	210	C	110	D
Southside Expressway /Summers	133	D	98	E
Southside Expressway/Homedale	335	B	80	E
Southside Expressway/Highway 39	442	A	203	C

Note: Shaded cells are intersections where on-going evaluation is being conducted.

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Appendix E

Land Use Data



Klamath Falls Urban Area

1990 Population and Employment w/ Revised Trip Genera file: i:\project\29641801\qprodatat\1990REV.wb2

TAZ	RESIDENTIAL			EMPLOYMENT							TOTAL
	SFDU	MFDU	Other	Industrial	Retail	Service	Educ	Gvmt	Special	Other	
1	0	0	0	0	0	0	0	0		0	0
2	0	0	0	0	0	0	0	0		0	0
3	0	0	0	0	0	0	0	0		0	0
4	0	0	0	0	0	0	0	0		0	0
5	0	0	0	0	0	0	0	0		0	0
6	0	0	0	0	0	0	0	0		0	0
7	0	0	0	0	0	0	0	0		0	0
8	0	0	0	0	0	0	0	0		0	0
9	0	0	0	0	0	0	0	0		0	0
10	0	0	0	0	0	0	0	0		0	0
11	0	0	0	0	0	0	0	0		0	0
20	17	0	0	18	1	8	0	10		0	37
21	35	0	0	599	3	28	0	0		22	652
22	76	5	0	5	25	6	0	0		0	36
23	0	0	432	55	0	0	358	77	150	0	640
24	10	26	43	0	138	192	0	100	820	16	1266
25	218	26	0	15	0	7	0	0		0	22
26	622	41	0	5	31	42	138	39		0	255
27	584	37	0	27	11	36	0	0		24	98
28	485	13	0	1	7	1	30	62		1	102
29	147	4	0	0	4	7	0	0		0	11
30	3	0	0	0	0	0	0	21		0	21
31	48	25	0	48	0	30	47	0		34	159
32	842	212	0	10	17	101	23	0		38	189
33	17	33	0	4	66	411	0	40		44	565
34	23	42	0	118	186	294	5	187		20	810
35	107	15	0	0	1	29	0	88		0	118
36	301	12	0	3	4	12	27	0		2	48
37	458	53	58	7	0	169	65	0		7	248
38	940	35	0	2	46	32	0	0		1	81
39	315	44	0	27	36	61	65	0		66	255
40	43	40	0	244	58	16	0	19		189	526
41	45	130	0	282	71	105	0	145		38	641
42	0	0	0	0	2	0	0	0		21	23
43	2	0	0	13	147	11	0	0		66	237
44	98	126	0	1	204	139	2	8		18	372
45	307	138	164	8	7	25	52	74		8	174
46	29	64	0	0	11	2	0	101		0	114
47	4	0	0	0	0	15	0	20		3	38
48	0	0	0	0	0	0	0	0		0	0
49	92	18	55	1	10	1	0	0		0	12
50	428	6	13	3	4	67	0	0		2	76
51	656	43	5	34	218	86	0	4		80	422
52	142	22	4	28	50	29	0	39		12	158
53	322	49	0	1	8	4	148	0		4	165
54	220	21	8	54	13	2	63	55		13	200
55	0	0	0	250	105	45	0	46		47	493
56	233	0	119	83	9	28	0	3		5	128
57	3	0	0	416	0	22	0	0		0	438
58	319	8	0	0	0	0	0	0		1	1
59	85	0	0	0	2	0	0	0		18	20
60	31	11	0	22	6	0	0	0		0	28

Klamath Falls Urban Area

1990 Population and Employment w/ Revised Trip Genera file: i:\project\29641801\qprodatat\1990REV.wb2

TAZ	RESIDENTIAL			EMPLOYMENT							TOTAL
	SFDU	MFDU	Other	Industrial	Retail	Service	Educ	Gvmt	Special	Other	
61	44	0	0	6	0	0	0	0		0	6
62	63	0	0	1066	1	0	44	0		0	1111
63	18	0	0	48	0	2	0	0		2	52
64	74	0	0	58	23	3	0	0		6	90
65	310	13	18	10	0	9	0	0		10	29
66	570	25	20	3	9	0	2	0		1	15
67	466	0	0	0	0	0	0	2		1	3
68	246	5	0	1	4	0	44	0		0	49
69	245	38	0	0	0	5	9	0		6	20
70	406	19	0	5	42	28	48	0		38	161
71	259	16	0	1	0	8	50	0		32	91
72	599	3	0	32	2	12	0	7		8	61
73	157	0	0	5	0	3	0	0		32	40
74	2	0	0	0	0	0	0	0		0	0
75	43	0	0	5	0	7	0	0		3	15
76	12	0	0	0	0	0	0	0		0	0
77	33	16	0	0	8	16	0	0		0	24
78	53	0	0	2	0	1	0	0		0	3
79	11	0	0	0	1	0	0	0		0	1
80	12	0	0	0	0	0	0	0		0	0
81	85	3	0	4	0	1	124	0		0	129
82	31	0	0	1	13	8	0	465		30	517
83	33	0	0	2	0	0	0	0		52	54
84	24	0	0	0	0	0	0	0		0	0
85	24	0	62	0	0	4	0	18		24	46
86	66	0	0	0	2	6	0	0		9	17
87	21	0	0	1	3	0	0	0		0	4
88	105	15			12	12					24
89					36	21				5	62
90		32			514	57					571
91					352	69				7	428
92	76	14	45								0
93	221	34	6	32	13	23				10	78
94	29	2			60	6					66
95	27			1	23					1	25
96	283	26	10	18	1					1	20
97	17			31	47	48				50	176
98	24				45	31				47	123
99	52	61				23					23
100	456	70		1	1	4				14	20
101	114	18			6	3					9
TOT	13618	1709	1062	3717	2719	2473	1344	1630	970	1189	14042

2015 Population and Employment

ZONE	Residential			Employment							
	SFDU	MFDU	Other	Industrial	Retail	Service	Educ	Govt	Special	Other	Total
1	0	0	0	0	0	0	0	0		0	0
2	0	0	0	0	0	0	0	0		0	0
3	0	0	0	0	0	0	0	0		0	0
4	0	0	0	0	0	0	0	0		0	0
5	0	0	0	0	0	0	0	0		0	0
6	0	0	0	0	0	0	0	0		0	0
7	0	0	0	0	0	0	0	0		0	0
8	0	0	0	0	0	0	0	0		0	0
9	0	0	0	0	0	0	0	0		0	0
10	0	0	0	0	0	0	0	0		0	0
11	0	0	0	0	0	0	0	0		0	0
20	57	0	0	18	1	8	0	10		0	37
21	170	0	0	659	3	28	0	0		22	712
22	76	55	0	5	25	56	0	0		0	86
23	0	400	432	462	25	20	421	77	150	0	1155
24	10	66	43	0	238	322	0	125	1000	16	1701
25	283	26	0	15	0	7	40	0		0	62
26	672	81	0	5	31	42	138	39		0	255
27	634	37	0	52	11	36	0	0		24	123
28	485	13	0	1	7	1	30	72		1	112
29	217	4	0	0	4	7	0	0		0	11
30	53	0	0	0	0	0	0	21		0	21
31	58	25	0	45	0	30	47	0		34	156
32	842	212	0	10	17	99	23	0		38	187
33	17	33	0	4	102	481	0	77		44	708
34	23	42	0	111	217	270	5	187		20	810
35	107	15	0	0	1	29	0	88		0	118
36	301	12	0	3	4	12	27	0		2	48
37	458	53	58	7	0	165	79	0		7	258
38	940	35	0	2	44	31	0	0		1	78
39	315	44	0	29	35	61	65	0		77	267
40	43	40	0	230	56	16	0	19		206	527
41	45	130	0	266	56	100	0	175		38	635
42	0	0	0	94	50	0	0	50		21	215
43	2	0	0	36	113	29	0	0		10	188
44	98	126	0	1	229	181	32	8		25	476
45	307	188	164	8	287	74	81	74		8	532
46	129	114	0	0	11	2	10	101		0	124
47	204	0	0	0	0	15	0	20		3	38
48	200	58	0	0	0	0	0	0		0	0
49	318	102	100	1	15	1	35	0		0	52
50	488	6	13	3	4	66	0	0		2	75
51	656	43	5	34	218	132	0	4		80	468
52	145	22	4	11	37	43	0	39		2	132
53	485	67	0	1	3	3	148	0		4	159
54	175	13	8	51	13	3	63	55		13	198
55	41	0	0	301	268	92	0	66		48	775
56	283	0	119	113	7	28	0	3		16	167
57	35	0	0	436	0	22	0	0		0	458
58	419	48	0	0	48	0	0	0		1	49
59	125	0	0	0	2	0	0	0		3	5
60	31	11	0	2	1	0	0	0		0	3

2015 Population and Employment

ZONE	Residential			Employment							
	SFDU	MFDU	Other	Industrial	Retail	Service	Educ	Govt	Special	Other	Total
61	54	0	0	1	0	0	0	0		0	1
62	63	0	0	866	1	0	44	0		0	911
63	18	0	0	48	0	2	0	0		2	52
64	74	0	0	290	8	3	0	20		56	377
65	330	13	18	78	0	9	0	30		10	127
66	600	25	20	3	8	0	2	0		1	14
67	241	61	0	0	1	0	0	2		1	4
68	556	45	0	1	4	0	44	0		0	49
69	410	86	0	0	0	3	40	0		6	49
70	506	19	0	5	161	28	48	0		58	300
71	259	16	0	1	0	22	50	0		74	147
72	599	3	0	2	2	12	0	7		8	31
73	475	47	0	5	0	11	35	0		51	102
74	72	0	0	0	0	0	40	0		0	40
75	343	100	0	5	0	7	0	0		3	15
76	32	0	0	0	0	0	0	0		0	0
77	83	16	0	0	0	13	0	0		0	13
78	63	0	0	2	0	1	0	0		0	3
79	21	0	0	0	1	0	0	0		0	1
80	32	0	0	0	0	0	0	0		0	0
81	85	3	0	67	0	1	124	0		64	256
82	51	0	0	11	13	106	0	480		50	660
83	33	0	0	2	0	0	0	0		52	54
84	24	0	0	0	0	0	24	0		0	24
85	24	0	62	25	0	4	0	18		24	71
86	46	0	0	0	2	6	0	0		9	17
87	21	0	0	1	3	0	0	0		0	4
88	105	15	0	0	12	11	0	0		0	23
89	0	0	0	0	29	52	0	0		5	86
90	0	32	0	0	570	76	0	0		0	646
91	0	0	0	0	398	90	0	0		10	498
92	76	14	45	0	0	0	0	0		0	0
93	218	34	6	17	13	36	0	0		10	76
94	29	2	0	0	70	17	0	0		0	87
95	84	0	40	1	48	7	0	0		2	58
96	215	16	10	13	1	0	0	0		1	15
97	17	0	0	35	121	99	0	0		48	303
98	24	0	0	0	117	66	0	0		48	231
99	327	61	0	0	0	23	0	0		0	23
100	752	160	0	25	6	4	0	0		14	49
101	206	40	0	0	29	2	0	0		0	31
	17115	2929	1147	4520	3801	3223	1695	1867	1150	1373	17629

TOTAL DWELLIN 21191

TOTAL EMPLOYEES => 17629

2015 Population and Employment - Transportation-Efficient Land Use

TAZ	RESIDENTIAL			EMPLOYMENT							
	SFDU	MFDU	Other	Industrial	Retail	Service	Educ	Gvmt	Special	Other	Total
1	0	0	0	0	0	0	0	0		0	0
2	0	0	0	0	0	0	0	0		0	0
3	0	0	0	0	0	0	0	0		0	0
4	0	0	0	0	0	0	0	0		0	0
5	0	0	0	0	0	0	0	0		0	0
6	0	0	0	0	0	0	0	0		0	0
7	0	0	0	0	0	0	0	0		0	0
8	0	0	0	0	0	0	0	0		0	0
9	0	0	0	0	0	0	0	0		0	0
10	0	0	0	0	0	0	0	0		0	0
11	0	0	0	0	0	0	0	0		0	0
20	198	22	3	18	1	8	0	10		0	37
21	170	0	0	659	3	28	0	0		22	712
22	76	55	0	5	25	56	0	0		0	86
23	141	422	435	462	25	20	421	77	150	0	1155
24	151	88	46	0	238	322	0	125	1000	16	1701
25	225	21	0	33	19	38	46	14		10	160
26	534	64	0	23	50	73	144	53		10	353
27	634	37	0	52	11	36	0	0		24	123
28	485	13	0	1	7	1	30	72		1	112
29	217	4	0	0	4	7	0	0		0	11
30	53	0	0	0	0	0	0	21		0	21
31	128	36	2	32	0	21	34	0		24	111
32	669	168	0	28	36	130	29	14		48	285
33	87	44	2	3	73	344	0	55		31	506
34	93	53	2	79	155	193	4	134		20	585
35	177	26	2	0	1	21	0	63		0	85
36	239	10	0	21	23	43	33	14		12	146
37	528	64	60	5	0	118	56	0		5	184
38	993	43	1	2	39	27	0	0		1	69
39	385	55	2	21	25	44	46	0		55	191
40	113	51	2	164	40	11	0	14		147	376
41	115	141	2	190	40	71	0	125		38	464
42	53	8	1	82	44	0	0	44		18	188
43	55	8	1	31	99	25	0	0		9	164
44	151	134	1	1	200	159	28	7		22	417
45	360	196	165	7	251	65	71	65		7	466
46	92	81	0	14	26	27	16	112		8	203
47	145	0	0	14	15	40	5	31		11	116
48	142	41	0	14	15	25	5	11		8	78
49	226	73	71	15	30	26	40	11		8	130
50	347	4	9	17	19	91	5	11		10	153
51	656	43	5	34	218	132	0	4		80	468
52	145	22	4	11	37	43	0	39		2	132
53	388	54	0	7	9	13	150	5		7	191
54	140	10	6	58	22	13	65	60		16	234
55	94	8	1	301	268	92	0	66		48	775
56	283	0	119	113	7	28	0	3		16	167
57	35	0	0	436	0	22	0	0		0	458
58	419	48	0	0	48	0	0	0		1	49

2015 Population and Employment - Transportation-Efficient Land Use

TAZ	RESIDENTIAL				EMPLOYMENT							Total
	SFDU	MFDU	Other		Industrial	Retail	Service	Educ	Gvmt	Special	Other	
59	125	0	0		0	2	0	0	0		3	5
60	31	11	0		2	1	0	0	0		0	3
61	54	0	0		1	0	0	0	0		0	1
62	63	0	0		866	1	0	44	0		0	911
63	18	0	0		48	0	2	0	0		2	52
64	59	0	0		296	14	13	2	25		59	409
65	264	10	14		84	6	19	2	35		13	159
66	480	20	16		9	14	10	4	5		4	46
67	193	49	0		6	7	10	2	7		4	36
68	445	36	0		7	10	10	46	5		3	81
69	328	69	0		6	6	13	42	5		9	81
70	506	19	0		5	161	28	48	0		58	300
71	259	16	0		1	0	22	50	0		74	147
72	599	3	0		2	2	12	0	7		8	31
73	475	47	0		5	0	11	35	0		51	102
74	72	0	0		0	0	0	40	0		0	40
75	343	100	0		5	0	7	0	0		3	15
76	32	0	0		0	0	0	0	0		0	0
77	83	16	0		0	0	13	0	0		0	13
78	63	0	0		2	0	1	0	0		0	3
79	21	0	0		0	1	0	0	0		0	1
80	32	0	0		0	0	0	0	0		0	0
81	85	3	0		67	0	1	124	0		64	256
82	51	0	0		11	13	106	0	480		50	660
83	33	0	0		2	0	0	0	0		52	54
84	24	0	0		0	0	0	24	0		0	24
85	24	0	62		25	0	4	0	18		24	71
86	46	0	0		0	2	6	0	0		9	17
87	21	0	0		1	3	0	0	0		0	4
88	175	26	2		0	12	11	0	0		0	23
89	53	8	1		0	29	52	0	0		5	86
90	53	40	1		0	570	76	0	0		0	646
91	53	8	1		0	398	90	0	0		10	498
92	129	22	46		0	0	0	0	0		0	0
93	218	34	6		17	13	36	0	0		10	76
94	29	2	0		0	70	17	0	0		0	87
95	84	0	40		1	48	7	0	0		2	58
96	172	13	8		19	7	10	2	5		4	47
97	70	8	1		35	121	99	0	0		48	303
98	77	13	7		0	117	66	0	0		48	231
99	262	49	0		6	6	33	2	5		3	55
100	602	128	0		31	12	14	0	5		17	79
101	167	32	0		7	32	11	0	5		1	56
Total	17115	2929	1147		4520	3801	3223	1695	1867	1150	1373	17629

TOTAL DWELLING 21191

TOTAL EMPLOYEES => 17629

KLAMATH FALLS URBAN AREA TRANSPORTATION ANALYSIS ZONES

KLAMATH FALLS
TRAVEL MODEL ZONE REFINEMENT
(Refer to Appendix E)

ORIGINAL_ZONE	NEW_ZONES/SUBZONES
39	39, 88
43	43, 89
44	44, 90, 91
52	52, 93
54	54, 96
55	55, 97, 98
67	67, 99
69	69, 100, 101
71	71, 94
73	73, 95

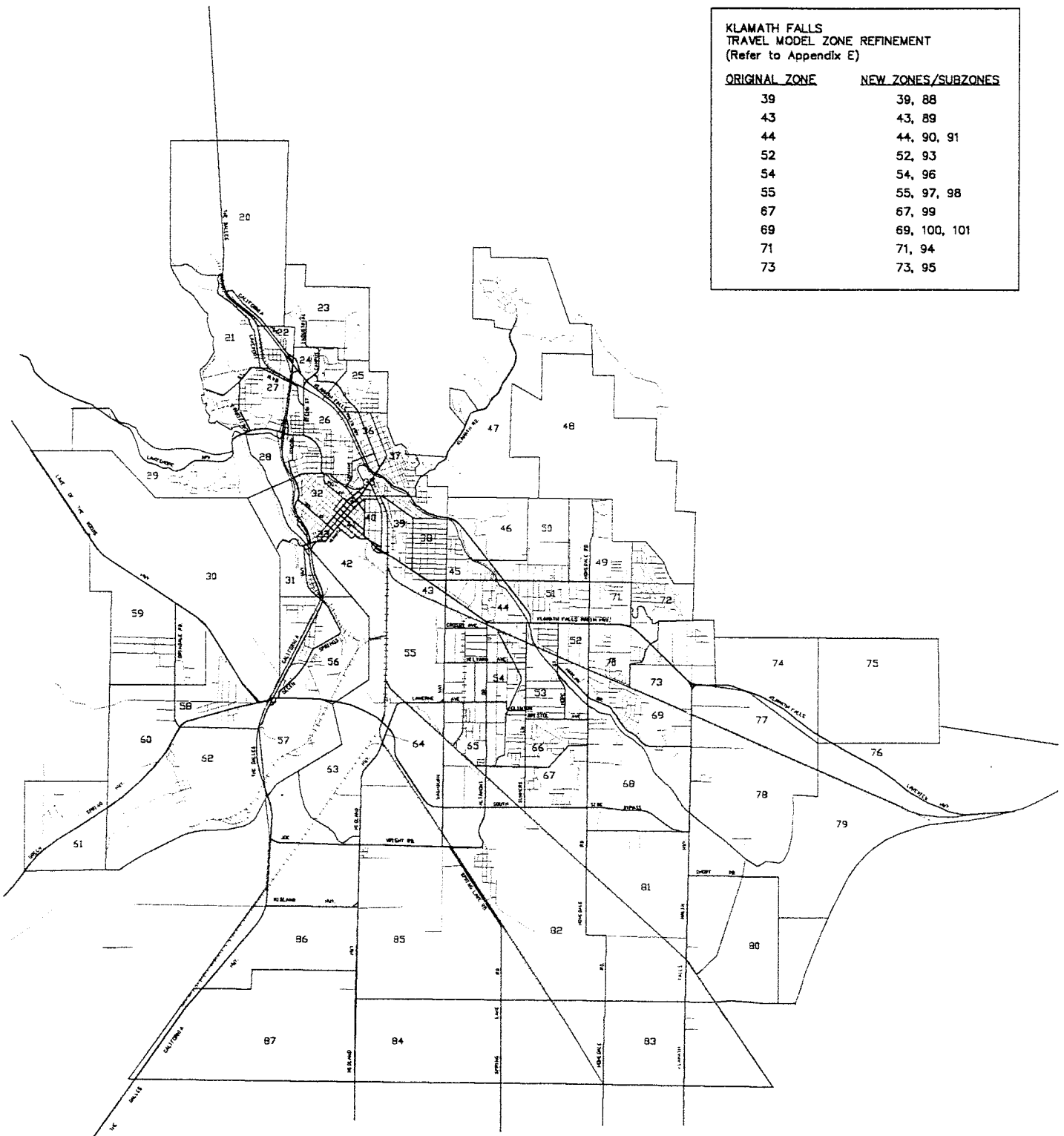
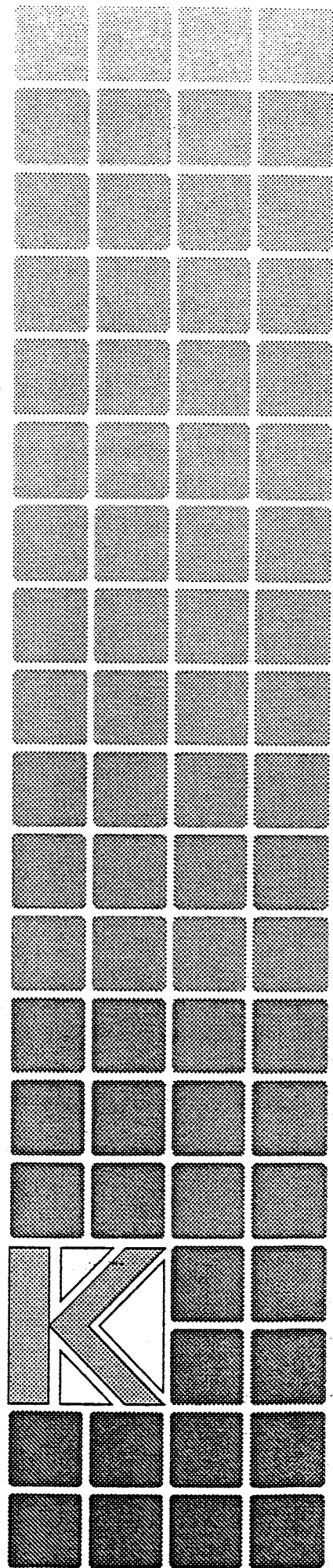


FIGURE 1.DWG



~~Appendix F~~

Detailed Cost Analysis

TABLE F-1 (UPDATED 10/31/97)
KLAMATH FALLS URBAN AREA TSP
FUTURE TRANSPORTATION IMPROVEMENTS

Project No.	Project Name	Facility	Beginning	End	Type of Improvement	Length (mi)	Travel Lanes	Sidewalks?	Bike Lanes?	Curb/Gutter/ Storm ?	Parking?	Pavement Width	Sidewalks	Total Width	Bridge or Rail Crossing?	Available R-O-W	CIP?	Cost	
1	Southside Expressway		Highway 97	Highway 39 (1)	Reconstruction/partial re-alignment							(see ODOT)		(see ODOT)					
	Section 1.1	St Hwy	mp 2.3	Altamont Drive	ODOT project (includes Washburn Street widening - see project	0.97	2	n	y	n	n						yes/no	y	
	Section 1.2	St Hwy			Tingley Lane Intersection (Stage #1)													\$280,000	
	Section 1.3	St Hwy			Highway 97/140/66 Int. Improvements													\$2,981,000	
	Section 1.4	St Hwy	Hwy 97	mp 2.3	Resurface/median control/intersection safety	2.3	4	n	y	n	n						yes	n	\$1,218,000
	Section 1.5	St Hwy	Altamont Dr	Highway 39 (1)	Reconstruction	2.51	2	n	y	n	n						yes	n	\$986,000
	Section 1.6	St Hwy			Homedale Interchange													\$9,000,000	
	Section 1.7	St Hwy			Conduct Rail XX Improvement Feasibility Study													*	
	Section 1.8	St Hwy			Hwy 39 Interchange (1) (5) (outside UGB)														
	Subtotal																	\$14,465,000	
2	South Sixth Street		Main St	Highway 39 (1)	Reconstruction/system management/beautification							varies		varies					
	Section 2.1	Maj Art	Main St	Viaduct	Resurface/system management/beautification	1.13	2/dir	y	y	n	y						yes	n	\$650,000
	Section 2.2	Maj Art	Viaduct	Highway 39 (1)	Reconstruction/system management/beautification	4.28	5	y	partial	y	y/n	varies		varies			yes	n	\$6,695,000
	Subtotal																	\$7,345,000	
3	Alameda Bypass																		
	Section 3.1	Maj Art	Portland	Main St	Access Management (driveway removal)	N/A	(no change)												
	Section 3.3	Maj Art (2)	Re-alignment/South Sixth St Crossing		Re-align intersection with South Sixth St	N/A	5		n	n					1 Bridge	yes		\$1,950,000	
	Subtotal															no	n	\$1,678,000	
																		\$3,628,000	
4	Laverne Ave	Maj Collector	Washburn Way	Summers Ln	New street/street reconstruction/route continuity/safety improvem														
	Section 4.1		Washburn Way	Bisbee St	Street reconstruction	0.91	2/3	y	y	y	n						yes		\$1,658,000
5	Anderson Ave	Min Collector	Washburn Way	Homedale Rd	New street/street reconstruction														
	Section 5.1				Street reconstruction	1.42	2/3	y	y	y	n				1 New RR Xing	yes		\$2,259,300	
	Section 5.2				New street construction	0.29	2/3	y	y	y	n					no		\$479,000	
	Subtotal																	\$2,738,300	
6	Foothills Boulevard	Maj Collector	Washburn Way	Patterson St	New street construction (completed June 1996)	2.51	3	y	y	y	n					no (4)		completed	
7	New N/S Collector Street	Min Collector	Harlan Dr	Hilyard Ave	New street construction	1.09	2	y	n	y	n					no(4)		\$1,437,000	
8	Hilyard Avenue	Min Collector	Madison St	Patterson St	New street construction	0.26	2	y	n	y	n					yes		\$350,000	
9																			
10																			
13	Washburn Way																		
	Section 13.1	Maj Collector	Alameda Bypass	Old Fort Klamath Rd	New street construction/street widening	0.77	2/3	n	n	y	n					no		\$1,124,000	
	Section 13.2	Maj Art	Eberlein Ave	Alameda Bypass	Street widening to 5 lanes	0.48	5	y	y	y	n					no		\$1,091,000	
	Section 13.3	Maj Art	Joe Wright Rd	Hilyard Ave	Street widening (funded through Street project #1)	2.22	2/5	y	y	y	n					yes/no		(see #1)	
	(Joe Wright Rd) Section 13.4	Maj Art	SPRR	Airport Terminal	New street/street reconstruction	0.34	2	n	n	y	n					yes	n	\$618,000	
	Section 13.5	Maj Art	Joe Wright Rd	Washburn Way	New street construction	0.29	2	n	n	y	n					no	n	\$493,000	
	Subtotal																	\$3,326,000	
14	3rd Street	Min Collector	Klamath Ave	California Ave	Street reconstruction	0.58	2	y	n	n	n					yes		completed	
15	Portland St/Crescent Ave	Min Collector	El Dorado Ave	11th St	Street reconstruction	0.90	2	y	y	y	n					yes		\$1,376,000	
16	Crescent Ave	Min Collector	Portland St	Biehn St	New street	0.84	2	y	y	y	n					no		\$1,376,000	
17	Spring Street	Maj Collector	Esplanade St	S. Sixth St	Street reconstruction	0.87	2/3	y	n	y	n					yes		\$1,363,000	
18	Biehn Street (5)	Maj Collector	Lakeport Blvd	Alameda Bypass	Street/bridge widening (under design/construction)	0.32	3	y	y	y	n				1 Bridge	yes		\$1,700,000	
19	Campus Drive	Maj Art	Alameda Bypass	Dahlia St	Street widening (under design/construction)	0.13	5	y (3)	y (3)	y	n					yes		\$456,000	
20	New E/W Collector Street	Maj Collector	Daggett Ave	Almond St	New street construction	0.10	2/3	y	n	y	n					no		\$861,000	

TABLE F-1 (UPDATED 10/31/97)
KLAMATH FALLS URBAN AREA TSP
FUTURE TRANSPORTATION IMPROVEMENTS

Project No.	Project Name	Facility	Beginning	End	Type of Improvement	Length (mi)	Travel Lanes	Sidewalks?	Bike Lanes?	Curb/Gutter/ Storm ?	Parking?	Pavement Width	Sidewalks	Total Width	Bridge or Rail Crossing?	Available R-O-W	CIP?	Cost
21	Quarry Street	Min Collector	Lakeport Dr	Acosta Ave	Street widening/RR underpass widening	0.19	2	y	n	y	n				1 RR underpass	no		\$978,000
22	Daggett St	Min Collector	Clover St	W. Campus Way	New street construction	0.16	2	y	n	y	n					no (4)		\$215,000
24	Lakeshore Drive	Collector	Keno Canal	Marina Dr	Street resurface/minor realignment/safety enhancement with Traffic Calming	2.32	2	n	n	n	n					no/yes		\$1,322,000
25	Airport East Access	Maj Art	Southside Expwy	New Terminal	New street construction/street reconstruction													
	Section 25.1				Street reconstruction	0.23	5	y	y	y	n					no(4)		\$599,000
	Section 25.2				New street construction	0.52	5	y	y	y	n					no(4)		\$1,351,000
	Subtotal																	\$1,950,000
26	Airport Frontage Road	Min Collector	Altamont Dr	New Terminal	New street construction/street reconstruction													
	Section 26.1				Street reconstruction	0.64	2	y	y	y	n					no(4)		\$975,000
	Section 26.2				New street construction	0.48	2	y	y	y	n					no(4)		\$733,000
	Subtotal																	\$1,708,000
27	Modoc Site Local Access	Min Collector	Klamath Ave	S. 5th St	Street circulation w/ Lakefront redevelopment	0.42	2	y (3)	y (3)		y					no(4)		\$781,000
28	Hwy 97/W. Campus Way	St Hwy			Intersection Area Improvements (\$1-\$2 million - rough est) (5)													\$2,000,000
29	Hwy 97/Alameda Bypass	St Hwy			New interchange (\$8-10 million - rough estimate) (5)													
30	Bristol Ave	Maj Collector	Homedale Rd	Summers Ln	Street widening	0.74	3	y	n	y	n							\$1,500,000
31	Homedale Rd		South Sixth St	Old Fort Klamath Rd	New street construction/street widening													
	Section 31.1	Maj Collector	Shasta Way	City Limit	Street widening	0.50	3	y	y	y	n					no(4)		\$2,000,000
	Section 31.2	Maj Collector	City Limit	Foothills Blvd	Street widening	0.29	3	y	y	y	n					no(4)		\$514,000
	Section 31.3	Min Collector	Foothills Blvd	Old Fort Klamath Rd	New street construction	2.09	2	y	y	y	n					no(4)		\$3,569,000
	Section 31.4	Maj Collector	A" Canal	A" Canal	Bridge construction										1 Bridge			\$850,000
	Subtotal																	\$6,933,000
32	Memorie Ln/portion of Fargo St	Local	Sturdivant Ave	Bristol Ave	Street widening	0.45	2	y	n	y	n							\$350,000
33	Harlan Dr	Min Collector	Madison St	Homedale Rd	Street widening	0.28	3	y	n	y	n							\$520,000
34	Hilyard Ave	Min Collector	Washburn Way	Summers Ln	Street widening	1.00	3	y	n	y	n							\$2,200,000
35	Madison St	Min Collector	South Sixth St	Harlan Dr	Street widening	0.97	3	y	n	y	n							\$1,800,000
36	Old Fort Klamath Rd	Maj Collector	East Main St	Gibbs St	Street reconstruction	0.16	3	y	n	y	n					yes		\$252,000
37	New Collector	Min Collector	Foothills Blvd	Homedale Rd	New street construction	0.77	2	y	n	y	n					no(4)		\$1,019,000
38	East Main St Extension	Maj Collector	Main St	Crosby Ave	New street construction	0.58	3	y	n	y	n					no(4)		\$1,028,000
TRAFFIC SIGNALS (not including signals already funded through street projects, See Table A-4)																		
																		\$2,465,000
OTAL																		\$69,100,300

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NOTES

- (1) Coordination with ODOT/Klamath County project outside UGB.
- (2) Cross-section may not include bike lanes and sidewalks
- (3) Includes separate bicycle/pedestrian path
- (4) R-O-W dedication anticipated as condition of development
- (5) Refined costs to be determined in Interchange Refinement Plan
- * Cost not determined at this time.

TABLE F-2 (UPDATED 4/11/97)
KLAMATH FALLS URBAN AREA TSP
FUTURE TRANSPORTATION IMPROVEMENTS

		Cost Allocation											
Project No.	Project Name	Cost	Type of Improvement	Modification Type (%)		Schedule (% by quarter)				Responsibility (% by Jurisdiction)			
				Capacity	Upgrades & Safety	1-5	6-10	11-15	16-20	ODOT	City	County	Private
1	Southside Expressway		Reconstruction/partial re-alignment										
	Section 1.1		ODOT project (includes Washburn Street widening - see project #13)		(Under design/construction)								
	Section 1.2	\$280,000	Tingley Lane Intersection (Stage #1)		100%	100%				100%			
	Section 1.3	\$2,981,000	Highway 97/140/66 Int. Improvements	50%	50%		100%			95%			5%
	Section 1.4	\$1,218,000	Resurface/median control/intersection safety		100%	100%				100%			
	Section 1.5	\$986,000	Reconstruction		100%			100%		100%			
	Section 1.6	\$9,000,000	Homedale Interchange		100%				100%	50%	10%	40%	
	Section 1.7 *		Conduct Rail XX Improvement Feasibility Study										
	Section 1.8		Hwy 39 Interchange (1) (5) (outside UGB)										
	Subtotal	\$14,465,000											
2	South Sixth Street		Reconstruction/system management/beautification										
	Section 2.1	\$650,000	Resurface/system management/beautification		100%		100%			100%			
	Section 2.2	\$6,695,000	Reconstruction/system management/beautification	15%	85%		100%			95%			5%
	Subtotal	\$7,345,000											
3	Alameda Bypass												
	Section 3.1	\$1,950,000	Access Management (driveway removal)		100%	25%	25%	25%	25%		100%		
	Section 3.3	\$1,678,000	Re-align intersection with South Sixth St	50%	50%	100%				100%			
	Subtotal	\$3,628,000											
4	Laverne Ave		New street/street reconstruction/route continuity/safety improvement										
	Section 4.1	\$1,658,000	Street reconstruction	50%	50%	100%						100%	
5	Anderson Ave		New street/street reconstruction										
	Section 5.1	\$2,259,300	Street reconstruction		100%				100%			100%	
	Section 5.2	\$479,000	New street construction	90%	10%			100%				50%	50%
	Subtotal	\$2,738,300											
6	Foothills Boulevard	completed	New street construction (completed June 1996)										
7	New N/S Collector Street	\$1,437,000	New street construction	100%					100%				100%
8	Hilyard Avenue	\$350,000	New street construction	100%			100%					100%	
9													
10													
13	Washburn Way												
	Section 13.1	\$1,124,000	New street construction/street widening	50%	50%			100%				50%	50%
	Section 13.2	\$1,091,000	Street widening to 5 lanes	100%			100%			100%			
	Section 13.3 (see #1)		Street widening (funded through Street project #1)			100%							
	(Joe Wright Rd) Section 13.4	\$618,000	New street/street reconstruction		100%		100%					100%	
	Section 13.5	\$493,000	New street construction		100%		100%					100%	
	Subtotal	\$3,326,000											
14	3rd Street	completed	Street reconstruction										
15	Portland St/Crescent Ave	\$1,376,000	Street reconstruction		100%		100%				100%		
16	Crescent Ave	\$1,376,000	New street	100%				100%			100%		
17	Spring Street	\$1,363,000	Street reconstruction		100%		100%				100%		
18	Biehn Street (5)	\$1,700,000	Street/bridge widening (under design/construction)	10%	90%	100%					27%	73%	
19	Campus Drive	\$456,000	Street widening (under design/construction)	100%		100%					27%	73%	
20	New E/W Collector Street	\$861,000	New street construction	100%			100%				50%		50%

TABLE F-2 (UPDATED 4/11/97)
KLAMATH FALLS URBAN AREA TSP
FUTURE TRANSPORTATION IMPROVEMENTS

Cost Allocation

Project No.	Project Name	Cost	Type of Improvement	Modification Type (%)		Schedule (% by quarter)				Responsibility (% by Jurisdiction)			
				Capacity	Upgrades & Safety	1-5	6-10	11-15	16-20	ODOT	City	County	Private
21	Quarry Street	\$978,000	Street widening/RR underpass widening		100%			100%			100%		
22	Daggett St	\$215,000	New street construction	100%			100%				100%		
				100%			100%						100%
24	Lakeshore Drive	\$1,322,000	Street resurface/minor realignment/safety enhancement with Traffic Calming	50%	50%		100%					100%	
25	Airport East Access		New street construction/street reconstruction										
	Section 25.1	\$599,000	Street reconstruction		100%		100%						100%
	Section 25.2	\$1,351,000	New street construction		100%		100%						100%
	Subtotal	\$1,950,000											
26	Airport Frontage Road		New street construction/street reconstruction										
	Section 26.1	\$975,000	Street reconstruction		100%		100%						100%
	Section 26.2	\$733,000	New street construction		100%		100%						100%
	Subtotal	\$1,708,000											
27	Modoc Site Local Access	\$781,000	Street circulation w/ Lakefront redevelopment	100%					100%				100%
28	Hwy 97/W. Campus Way	\$2,000,000	New Interchange (\$1-\$2 million - rough estimate) (5)	20%	80%	100%				50%	50%		
29	Hwy 97/Alameda Bypass		New interchange (\$8-10 million - rough estimate) (5)		100%			100%		100%			
30	Bristol Ave	\$1,500,000	Street widening	50%	50%	100%						100%	
31	Homedale Rd		New street construction/street widening										
	Section 31.1	\$2,000,000	Street widening		100%	100%						100%	
	Section 31.2	\$514,000	Street widening		100%		100%				100%		
	Section 31.3	\$3,569,000	New street construction	100%					100%				100%
	Section 31.4	\$850,000	Bridge construction		100%	100%						100%	
	Subtotal	\$6,933,000											
32	Memorie Ln/portion of Fargo St	\$350,000	Street widening		100%	100%						100%	
33	Harlan Dr	\$520,000	Street widening		100%	100%						100%	
34	Hilyard Ave	\$2,200,000	Street widening		100%	100%						100%	
35	Madison St	\$1,800,000	Street widening		100%	100%						100%	
36	Old Fort Klamath Rd	\$252,000	Street reconstruction	20%	80%		100%				100%		
37	New Collector	\$1,019,000	New street construction	100%					100%				100%
38	East Main St Extension	\$1,028,000	New street construction	100%			100%				50%		50%
TRAFFIC SIGNALS (not including signals already installed)		\$2,465,000											
TOTAL		\$69,100,300											

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NOTES

- (1) Coordination with ODOT/Klamath County project outside UGB.
- (2) Cross-section may not include bike lanes and sidewalks
- (3) Includes separate bicycle/pedestrian path
- (4) R-O-W dedication anticipated as condition of development
- (5) Refined costs to be determined in Interchange Refinement Plan

* Cost not determined at this time.

TABLE F-4
KLAMATH FALLS URBAN AREA TSP
FUTURE TRANSPORTATION IMPROVEMENTS

Bicycle Facilities					
Project Number	Project Name	From	To	Length (mi)	Cost
Multi-Use Bicycle Paths (\$130,400 / mi, (1))					
1.2	OC&E Rail R-O-W	E Main	Washburn	0.23	\$30,000
1.3	OC&E RR to Lake Front Promenade	E Main	Lake Front	0.48	\$62,600
	(w/ 100 ft x 14 ft UPRR Bridge (1400 sq. ft.) @ \$80/sq. ft.)				\$112,000
2	Lake Front	Klamath Ave	S. 5th St	0.48	(2)
	(coordinated with Street project #27)				
3	"A" Canal	Homedale Rd	Hwy 39	1.84	\$240,000
4	Keno Canal	Nevada	Main St	1.60	\$210,000
20	Foothills Blvd Connection	Main St	Foothills Blvd	0.32	\$41,700
Designated Bike Lanes Restriping (\$0.11 / lineal ft.)					
5	Laverne Ave/Bristol Ave	Washburn Way	Homedale Rd	1.83	(2)
	(coordinated with Street projects #4 and #30)				
6	Foothills Blvd	Washburn Way	Patterson St	2.60	\$1,510
	(funded through Street project #6)				
	(restripe to 4 ft bike lanes)				
7	Crescent St/Portland St	Klamath Union H.S.	El Dorado	0.90	(2)
	(funded through Street project #15)				
8	Biehn St	Lakeport Dr	ESX	0.32	(2)
	(funded through Street project #18)				
9.1	South 6th St	Viaduct	Main St	1.13	(2)
	(funded through Street project #2.1)				
9.2	South 6th St	Washburn Way	Hwy 39	4.28	(2)
	(funded through Street project #2.2)				
10.1	Washburn Way	OC&E RR	UPRR	0.97	(2)
	(funded through Street project #1.1)				
10.2	Washburn Way	Eberlein Ave	ESX	0.48	(2)
	(funded through Street project #13.2)				
10.3	Washburn Way	OC&E RR	Eberlein Ave	0.48	(2)
	(restripe following East Main extension Project #38)				
11	Oregon Ave, 9th, 11th	Nevada Ave	Pine St	1.51	\$670
	(restripe to 4/5 ft bike lanes)				
12.1	Homedale Rd	Southside Expwy	Shasta Way	2.70	\$770
12.2	Homedale Rd	Shasta Way	Foothills Blvd	0.79	(2)
	(funded through Street projects #31.1 and #31.2)				
13	Joe Wright Rd	Washburn Way	Airport	0.63	(2)
	(funded through Street projects #13.4 and #13.5)				
14	East Main St Extension	South 6th St	Crosby Ave	0.58	(2)
	(funded through Street project #38)				

TABLE F-3
KLAMATH FALLS URBAN AREA TSP
FUTURE TRANSPORTATION IMPROVEMENTS

FUTURE TRANSPORTATION IMPROVEMENTS		Traffic Signals		Project Schedule (Years)	Funding Responsibility			Cost	
Project No.	Project Name	Improvement Type			ODOT	City	County		
		Capacity	Modernization & Safety						
New Traffic Signals									
1	Campus Dr/Dahlia St							\$180,000	(funded by Street project #19) (1)
2	Campus Dr/Daggett Blvd							\$180,000	(funded by Street project #20) (1)
3	S. 6th St/Patterson St	100%		6 - 10	100%			\$180,000	
4	S. 6th St/Hilyard Ave	100%		11 - 15	100%			\$180,000	
5	Washburn Way/Crosby Ave							\$180,000	(funded by Street project #1) (1)
6	Washburn Way/Hilyard Ave							\$180,000	(funded by Street project #1) (1)
7	Washburn Way/Laverne Ave							\$180,000	(funded by Street project #1) (1)
8	Washburn Way/Eberlein Ave	100%		1 - 5		100%		\$180,000	
9	Shasta Way/Patterson St	100%		6 - 10			100%	\$180,000	
10	Shasta Way/Homedale Rd	100%		6 - 10			100%	\$180,000	
12	Homedale Rd/Foothills Blvd	100%		6 - 10		100%		\$180,000	
13	Homedale Rd/Bristol Ave	100%		6 - 10			100%	\$180,000	
15	Biehn St/Lakeport Blvd	100%		11 - 15		100%		\$180,000	
16	Avalon St/Shasta Way	100%		1 - 5		100%		\$180,000	
17	Hwy 140/66							\$180,000	(funded by Street project #1) (1)
18	Oregon Ave/Beihn Ave	100%		11 - 15		100%		\$180,000	
Signal Replacement									
19	S. 6th St/Washburn Way		100%	1 - 5	100%			\$95,000	
20	S. 6th St/Avalon St		100%	1 - 5	100%			\$95,000	
21	S. 6th St/Altamont Dr		100%	1 - 5	100%			\$95,000	
22	S. 6th St/Summers Ln		100%	1 - 5	100%			\$95,000	
23	S. 6th St/Hope St		100%	1 - 5	100%			\$95,000	
24	S. 6th St/Homedale Rd		100%	1 - 5	100%			\$95,000	
25	S. 6th St/Madison St		100%	1 - 5	100%			\$95,000	
Total	(does not include costs already funded through street projects)								
					\$1,025,000	\$540,000	\$900,000	\$2,465,000	

(1) Cost is also included in referenced street project.

TABLE F-4

KLAMATH FALLS URBAN AREA TSP

FUTURE TRANSPORTATION IMPROVEMENTS

Bicycle Facilities

Project Number	Project Name	From	To	Length (mi)	Cost
Shared Roadway					
15	Crescent Ave	Portland St	Biehn St		(2)
	<i>(funded through Street project #16)</i>				
16	New Collector	Foothills Blvd	Homedale Rd		(2)
	<i>(funded through Street project #37)</i>				
17	Homedale Rd	Foothills Blvd	Old Fort Klamath R		(2)
	<i>(funded through Street project #31.3)</i>				
18	Hilyard Ave	Madison	Patterson		(2)
	<i>(funded through Street project #8)</i>				
19	Anderson Ave	Summer Ln	Homedale Rd		(2)
	<i>(funded through Street project #5)</i>				
TOTAL					\$699,000

- (1) Right-of-Way cost not included in estimates - requires public access agreement with private land owner
 (2) Cost already included in referenced street project.

TABLE F-5

KLAMATH FALLS URBAN AREA TSP

FUTURE TRANSPORTATION IMPROVEMENTS Pedestrian Facilities (1)

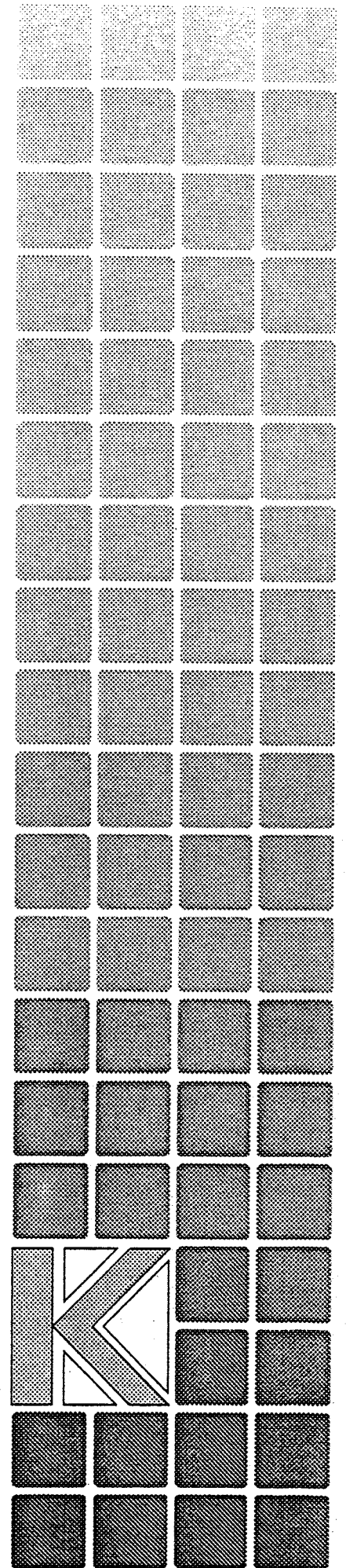
	Project Name	Beginning	End	1 or 2 Sides?			Length (mi)	Cost	
1.1	Washburn Way	Alameda Bypass	Eberlein	2	1.5	2550	0.48		(funded by Street project #13) (2)
1.2	Washburn Way	S. 6th St	Hilyard	2	2.6	4420	0.84	\$193,100	
1.3	Washburn Way	Eberlein	Shasta	1	7	11900	2.25	\$260,000	
1.4	Washburn Way	Hilyard	Joe Wright Rd	2	3.6	6120	2.22		(funded by Street project #13) (2)
2	Altamont Dr	S. 6th St	Southside Expwy	2	6.4	10880	2.06	\$475,400	
3	Hope St	S. 6th St	Bristol	2	1.4	2380	0.45	\$104,000	(coordinated with Bike project #12) (2)
4.1	Harlan Dr	Hope St	Homedale Rd	2	1.6	2720	0.52	\$118,800	
4.2	Harlan Dr	Madison St	Hwy 39	2	3.8	6460	1.22	\$282,200	
4.3	Harlan Dr	Homedale Rd	Madison St	2	1.5	2550	0.26		(funded by Street project #34) (2)
5	Patterson St	S. 6th St	Hilyard	2	3.1	5270	1.00	\$230,300	
6	Hilyard Ave	Patterson	S. 6th St	2	5.8	9860	1.87	\$430,800	
7	Hilyard Ave	Washburn Way	Summers Ln	2	1.6	2720	0.52	\$118,800	
8	Laverne	Washburn Way	Summers Ln	2	0.8	1360	1.09		(funded by Street project #4) (2)
9	Crosby	Washburn Way	Altamont	2	2	3400	0.64	\$148,600	
10	Shasta Way	Madison	Patterson	1	0.9	1530	0.29	\$33,400	
11	Spring St	Esplanade	S. 6th St	2	0.4	680	0.87		(funded by Street project #17) (2)
12.1	California Ave	Main St	Grant St	1	0.1	170	0.03	\$3,700	
12.2	California Ave	Addison	Nevada Ave	2	0.6	1020	0.19	\$44,600	
13	Upham	California Ave	Siskiyou	1	1.4	2380	0.45	\$52,000	
14	9th St	Upham	Lincoln	1	0.1	170	0.03	\$3,700	
15.1	El Dorado	Dahlia	Sloan	2	0.6	1020	0.19	\$44,600	
15.2	El Dorado	Sloan	Van Ness	1	1.4	2380	0.45	\$52,000	
16	W. Campus Way	Hwy 97	Campus Dr	2	1.3	2210	0.42	\$96,600	
17	Nevada Ave	Keno Canal	Tunnel St	2	2.8	4760	0.90	\$208,000	
18	Front St	Hanks	Nevada	2	1.8	3060	0.58	\$133,700	
19.1	Lakeport Blvd	Harbor Isles	Biehn	2	2.2	3740	0.71	\$163,400	
19.2	Lakeport Blvd	Harbor Isles	UGB	2	2	3400	0.64	\$148,600	
20	Biehn St/Campus Dr	Lakeport Dr	W. Campus Way	2	0.6	1020	0.45		(funded by Street project #18/19) (2)
21	Homedale Rd	Shasta Way	Old Fort Klamath	2			2.88		(funded by Street project #31) (2)
22	Bristol Ave	Summers Ln	Homedale Rd	2			0.74		(funded by Street project #33) (2)
TOTAL							25.25	\$3,346,300	

(1) This cost is for sidewalks only and includes mobilization, TP&D and E/C costs.

(2) Cost is also included in the referenced street or bike project.

Appendix G

Comprehensive Plan & Recommended Ordinance Modifications



TRANSPORTATION PLANNING RULE

INTRODUCTION

The Transportation Planning Rule (OAR Chapter 660, Division 12) requires adoption of transportation plans by local governments and amendment of land use regulations to implement the plans. A primary objective of the required amendments is to make new development more pedestrian and transit friendly.

The purpose of this section of the report is to introduce proposed land use ordinance concepts designed to bring the City of Klamath Falls and Klamath County development ordinances into compliance with the rule. Sources used to prepare this report include recommendations of the American Planning Association (APA) Transportation Rule Working Group, Oregon Department of Transportation's (ODOT) Best Management Practices (August 1992 draft), the City of Newberg's [Pedestrian Oriented Commercial Development Workbook], Tri-Met's [Planning and Design for Transit], and the City of Milwaukie's Ordinance Amendments to Implement the Milwaukie TSP.

This section outlines state-mandated requirements and suggests methods to satisfy those requirements. Report sections address the Transportation Planning Rule and the structure of the local land use ordinances. Issues identified by the Transportation Planning Rule are described and recommendations are suggested. New ordinance language has not been developed as part of this report.

I. REQUIREMENTS OF THE TRANSPORTATION PLANNING RULE

The Transportation Planning Rule was originally adopted by the Land Conservation and Development Commission (LCDC) in April 1991. An amendment to the rule in 1993 provided a time extension until May 1994 for local governments to develop implementing measures. Both Klamath County and the City of Klamath Falls are late in meeting rule requirements.

The rule requires each city and county to adopt a Transportation Systems Plan and implementing regulations. It also requires ODOT and regional metropolitan planning organizations to adopt Transportation Systems Plans. The plans must address the following issues:

- a determination of transportation needs;
- a road plan for a network of arterials and collectors;
- a public transportation plan;
- a bicycle and pedestrian plan;
- an air, rail, water and pipeline transportation plan;
- a plan for transportation system management and demand management;

- a parking plan;
- a transportation financing program; and
- policies and land use regulations for implementing the Transportation Systems Plan.

This report focuses on the policies and land use regulations for implementing the Transportation Systems Plan, as noted in the final item above. Section 660-12-045 of the Transportation Planning Rule sets forth issues that must be addressed to implement a Transportation Systems Plan. Key issues are discussed below.

A. PROTECTION OF TRANSPORTATION FACILITIES AND CORRIDORS

Ordinance regulations are required to protect transportation facilities and corridors including:

- access control measures;
- standards to protect future operations;
- a process for coordinated review;
- a process for applying conditions to development proposals;
- a process for providing notice to public agencies; and
- regulations assuring that development standards are consistent with transportation system capacity.

B. LAND USE AND SUBDIVISION REGULATIONS

Land use and subdivision regulations are required for the following:

- bicycle parking for multi-family, commercial, and institutional development;
- sidewalks and bikeways that provide safe and convenient access within new development and from it to nearby residential areas, transit stops, and activities centers; and
- internal pedestrian connections provided in new office parks and commercial developments.

C. TRANSIT FACILITIES

Land use and subdivision regulations are required for transit facilities. Ordinances must provide:

- bus stops and other facilities where appropriate;
- preferential access to transit through building orientation and clustering for new retail, office, and institutional buildings near planned transit stops;
- preferential parking for carpools and vanpools;
- opportunities to redevelop parking areas for transit-oriented use;
- road systems that include pedestrian and bicycle access to identified transit routes; and

- designation of types and densities of land use adequate to support transit.

D. REDUCED RELIANCE ON THE AUTOMOBILE

In Metropolitan Planning Organization (MPO) areas, local governments are required to adopt regulations that reduce reliance on automobiles including:

- allowing transit-oriented development along transit routes;
- adopting a demand management program;
- adopting a parking plan; and
- requiring major industrial, institutional, retail, and office uses to provide a transit stop along transit trunk routes.

E. IMPROVEMENTS FOR BICYCLE AND PEDESTRIAN TRAVEL

Identification of improvements to facilitate bicycle and pedestrian travel in developed areas are required, including:

- improvements providing direct, convenient, and safe bicycle and pedestrian travel within and between residential areas and activity centers.

II. ORDINANCE STRUCTURE

Klamath County and the City of Klamath Falls both use a development code/ordinance for review of new development and land subdivisions. The structure of the City and County ordinances are addressed below. Zoning and development issues are addressed initially and are followed by a description of land subdivision processes. A general discussion of the suitability of the format and structure of the ordinances for addressing Transportation Planning Rule requirements is provided.

A. ZONING/DEVELOPMENT ORDINANCE FORMAT

Klamath County and the City of Klamath Falls both use a staff review process for new development proposals. Each process is addressed briefly below:

1. Klamath County

Article 41 of the County Land Development Code establishes a site plan review process. The process affects all new development and changes in land use. New building permits, excluding interior remodeling, are subject to the site plan review process. The process is considered a Type

I administrative process for the application of clear and objective standards and a Type II administrative process for decisions requiring interpretation of the code.

A Type I process is an administrative decision without notice or hearing. A Type II process requires notice of the decision but no hearing. Both types of decisions can be appealed to the county commissioners.

Article 14 of the Land Development Code provides the planning director and the county sheriff with the authority to enforce zoning ordinance provisions. Development standards are set forth within each zone district and in Chapters 60, 70, and 80 of the code. Standards address issues such as lot size and shape, building heights and setbacks, landscaping, parking, and access. Generally, the standards are clear and objective and do not require a high level of staff discretion or interpretation. Access standards may require some interpretation in certain instances.

2. City of Klamath Falls

Sections 12.805 through 12.855 of the City's Community Development Ordinance set forth the procedures for design review. Design review is required for all new commercial, industrial, and public uses. In addition, multi-family structures with five or more units are subject to design review. Design review is a decision of the planning director with appeals before the planning commission. Notice of a pending decision by the director is mailed to owners of property within 250 feet of the site. Interested parties have the right to request a hearing before the director.

Provisions for enforcement of the Community Development Ordinance are set forth in Sections 10.205 to 10.215. Development standards are included under each zoning district and under Chapter 14, Public Facility Standards. Standards address lot size, setbacks, building height, lot coverage, structure size, and off-street parking and loading. Generally, standards are clear and objective and do not require staff interpretation or discretion.

B. LAND SUBDIVISION PROCEDURES

1. Klamath County

Articles 45 to 46 of the County code set forth procedures for land partitions, lot line adjustments, and land subdivisions. A land partition is processed as a Type III administrative decision and requires notice and a public hearing before the planning director. Lot line adjustments are Type I decisions without hearings or notice. Land subdivisions follow the procedures outlined in Article 26 which requires notice and a public hearing before the planning commission. Review criteria for land partitions and land subdivisions require discretion and interpretation of code requirements and standards. The applicable standards include the Public Works Standards of Chapter 70.

2. City of Klamath Falls

Partition and subdivision requirements are set forth in Chapter 11 of the City ordinance. Partitions are subject to administrative review by the planning director. A hearing before the director may be requested. Subdivision proposals are reviewed at a public hearing before the planning commission. The commission forwards its decision to the city council which makes a final decision to approve, deny, or modify the proposal. The criteria under which partitions and subdivisions are reviewed require some interpretation and discretion. Standards are included in Chapter 14, Private Site and Public Facility Standards.

C. SUITABILITY OF STRUCTURE

The Transportation Planning Rule requires that cities and counties reduce reliance on the automobile and promote alternative modes such as pedestrian, bicycle and transit travel. The rule requires that local development ordinances be consistent with the objectives of the rule. Generally, this has required that new standards and policies be added to local ordinances to assure that new development and new facilities are pedestrian and transit friendly.

In other communities, new standards have been developed to address street widths, sidewalks, building orientation, connections between buildings and developments and other similar design related concepts. These concepts are implemented through design or site review procedures and through subdivision and partitioning procedures. Both Klamath County and the City of Klamath Falls have development review procedures that will allow implementation of new standards. The design/site review procedures for both jurisdictions are conducted in an administrative procedure with or without notice depending on the decision. With minor adjustments related to agency notification and application procedures, the established development review procedures are well-suited for implementing the Transportation Planning Rule requirements.

III. RECOMMENDATIONS - GENERAL ISSUES

Sections G-IV to G-VIII address the specific requirements of the Transportation Planning Rule. Each section provides a statement of the relevant issues, background information, and a recommendation.

A. ISSUE: INCORPORATION OF NEW STANDARDS IN DEVELOPMENT CODES/ORDINANCES

BACKGROUND/OPTIONS: To meet the requirements of the transportation planning rule, new standards need to be added and existing standards need to be modified. Other minor procedural changes also need to be added. Options for each jurisdiction are addressed below.

1. Klamath County

New and modified standards will need to be added to the County Land Development Code. The following sections will need to be amended: Chapters 60, Planning Department Development Standards; Chapter 70, Public Works Department Development Standards; and Chapter 80; Special Use Standards. One other option would be to add a new chapter which specifically addresses the requirements of the rule. This approach is not recommended, however, because it would tend to fragment rather than integrate the new requirements.

2. City of Klamath Falls

New and modified standards will need to be added to Chapter 14, Private Site and Public Facility Standards. In addition some modifications may be needed to the standards listed under particular zoning districts. As noted above, one option may be to create a new section that specifically addresses rule requirements.

RECOMMENDATION: The standards within each jurisdiction's development code should be modified. New separate sections addressing the Transportation Planning Rule should not be adopted.

B. ISSUE: GENERAL APPLICABILITY FOR DEVELOPMENT REVIEW - WHEN TO APPLY STANDARDS

BACKGROUND/OPTIONS: Application of the new standards in the development review process is a key issue. The Transportation Planning Rule requires certain improvements for new commercial, institutional, and multi-family uses. It is clear that any new standards apply to new development, but applicability for redevelopment or remodeling is more complicated. If a building square footage is increased by 25% it is questionable whether the site should fully comply with design requirements or if partial compliance is adequate.

Ashland and Milwaukie have addressed this issue by requiring a percentage of the site to be improved when a building is expanded. In Ashland, if a building is expanded by 25%, then a minimum of 25% of the site must meet the site design standards. In addition, if improvements exceed 50% of the value of land and structures, as determined by the assessor, the full site must be improved. In Milwaukie, an amount equal to at least 10% of the improvement value must be devoted to pedestrian and transit friendly improvements.

Many communities often defer required street or sidewalk improvements through a waiver of remonstrance, which commits the owner/developer to future participation in a local improvement district. This procedure, while common, results in improvements that only are implemented over a very long time frame. By requiring certain improvements in the short term, the City of Klamath

Falls and Klamath County can begin to make the community more pedestrian and bicycle friendly. Priority should be given to improved pedestrian access, bicycle access, and bicycle parking.

In summary, options for addressing applicability include:

1. Only new development must comply.
2. All redevelopment must fully comply.
3. Redevelopment must meet selected standards.
4. Redevelopment over 50% of assessed value must fully comply.
5. Redevelopment under 50% of assessed value must provide a percentage of the permit value toward transportation improvements.

RECOMMENDATION: Amend the design/site review sections of the development ordinances of each jurisdiction to state that standards apply to all new and remodeled development. Development with values over 50% of assessed value must meet full development requirements. Developments below 50% of assessed value must provide an amount equal to a minimum of 10% of the permit value for Transportation Plan related improvements. Priority should be given to sidewalk and bikeway improvements and bicycle parking.

IV. RECOMMENDATIONS - PROTECTION OF TRANSPORTATION FACILITIES AND CORRIDORS, AND SITES.

A. ISSUE: ACCESS CONTROL MEASURES AND STANDARDS TO PROTECT SYSTEM OPERATION AND AIRPORTS

RULE REQUIREMENTS: OAR 660-12-045 (2) (a-c)

BACKGROUND/OPTIONS: Access control is a critical component of maintaining operation of the transportation system. The ODOT manages access control on State Highways 39, 66, 97, and 140. Currently, ODOT relies on ORS 374.310(3) and OAR 734-50-030(2) and -065 to manage access. Guidelines for access are provided in the Access Management Classification System of the 1991 Oregon Highway Plan.

Under the highway plan, Highways 97, 39, and 140 (west of Klamath Falls) are considered a Statewide facilities with limited access control (Category 3 and 4). Depending on the location and specific classification along each highway, public road intersections must be separated by one-quarter to one mile.

Highway 140 (east of Klamath Falls) is a regional facility with partial access control (Category 5). In urban settings, public road intersections are permitted every one-quarter mile and private drives are required to be separated by not less than 300 feet.

The City of Klamath Falls Development Ordinance does not include access standards that specifically address intersection spacing. Section 14.050 (4) of the ordinance states "Access points to an industrial or commercial site from a street shall be located to minimize traffic congestion and hazard. Wherever possible, access points should be so located so as to serve more than one industrial or commercial site or use." These standards require some discretion and interpretation in application. As the transportation plan is developed, access spacing standards for local arterial and collector streets should be established. These standards may depend on local circumstances and may require some degree of flexibility in application.

Sections 71.020 and 71.160 of the County Land Development Code address access and access permits. Each section states that access must be approved by the County Engineer or, for state highways, by the State Highway Division. No specific spacing standards are provided. As noted above, spacing standards should be developed for the urban area.

Another method of maintaining operation of the local transportation system is by obtaining adequate right-of-way for future improvements. The city and county accept dedicated right-of-way as part of the subdivision and partition process. The standards for right-of-way dedication are listed in Section 14.605 of the City Community Development Ordinance and Section 71.040 of the County Code. In addition to the subdivision and partition process, right-of-way dedications should be required as part of the development review process.

Both the city and county have airport protection zoning. Sections 12.600 to 12.610 of the City Development Ordinance address airport hazards. Articles 58.2 to 58.4 of the County Code address airport issues.

RECOMMENDATION: Develop local access spacing standards as part of the transportation plan. Apply the standards as guidelines that are part of the site review process. Include the guidelines in each jurisdiction's development ordinance. Include right-of-way dedication as part of the development review process (see Chapter 10 - Access Management Plan).

B. ISSUE: COORDINATED REVIEW WITH NOTICE TO AGENCIES/ABILITY TO CONDITION

RULE REQUIREMENTS: OAR 660-12-045 (1)(c) and (2) (d-f)

BACKGROUND/OPTIONS: The Transportation Planning Rule requires coordination and consolidation of local decisions regarding transportation facilities, services, and improvements.

The rule is intended to require a clear process for decisions related to new or improved facilities, and consolidation of local government decisions into a single process when multiple jurisdictions are involved.

Section 9 of the Urban Growth Management Agreement adopted in 1981 establishes coordinated review procedures between the city and the county for a variety of land use actions on land outside the city limits but within the UGB. Planned Unit Developments, zone changes and plan amendments require a recommendation from the city as part of the county decision process. Major partitions, conditional use permits, and site plan permits require city comment. The agreement states that the City shall be informed of minor partitions.

Coordination is also promoted by Section 7 of the Urban Growth Management Agreement. The section states that the city and county will cooperatively develop standards to assure an adequate transition from a semi-rural to an urban environment. In addition, the section states that roads shall be compatible with city street alignments and extensions. This implies a need for consistent street standards.

City and county staff regularly refer land development proposals along state highways to ODOT for review and comment prior to final action. City procedures for design review, partitioning and subdivisions do not formally require any notice to ODOT or to Basin Transit, but under the administrative review process, Section 10.815 states that applications may be referred to other agencies. No formal procedure is outlined for referral to ODOT or Basin Transit for county land use actions.

RECOMMENDATION: Amend the City Development Ordinance and the County Development Code to require notice to ODOT and Basin Transit for land use actions. In addition, the Urban Growth Management Agreement should be amended to require a greater level of city involvement in development actions within the UGB. It is recommended that the city make a recommendation on all actions including minor partitions. Through a higher level of referrals and agency coordination, both the city and county can be assured that transportation concerns are being adequately addressed (see also Chapter 10 - Access Management Plan).

V. RECOMMENDATIONS - LAND USE AND SUBDIVISION REGULATIONS

A. ISSUE: BICYCLE PARKING FOR MULTI-FAMILY, COMMERCIAL AND INSTITUTIONAL DEVELOPMENT

RULE REQUIREMENTS: OAR 660-12-045 (3)(a).

BACKGROUND/OPTIONS: Bicycle parking requirements can either be tied directly to the number of automobile parking spaces or to a separate list. It generally is simpler to tie the requirements to existing parking requirements. Key issues include the following.

1. Applicability

The rule requires parking for multi-family development with four residential units. The City of Klamath Falls design review process only applies to multi-family developments of five units or greater. To address this requirement in an adequate manner, the city may want to expand the design review process to include all multi-family development. Exemptions for temporary uses and land extensive uses should be provided.

2. Number and Type

Some jurisdictions provide standards for both short and long term bicycle parking. This results in relatively complex standards. Standards may be applied as a percentage of auto parking. Typical ranges include 5% (Portland) to 20% (Ashland), with a minimum number.

3. Location

The location of a bicycle parking facility influences how often it is used. Typical standards include:

- within 50 feet of main entrance;
- closer to the entrance than the nearest auto space;
- direct access to the right-of-way; and
- dispersed parking for multiple entrances.

4. Amenities

Amenities also influence how often a facility is used. Amenity standards should specify the type of rack to be provided and whether racks are lighted and openly visible. In addition standards should address typical covered parking standards including:

- covered bicycle parking when auto parking is covered;
- covering 50%, if more than 10 spaces are required.

RECOMMENDATION: Include bicycle parking standards as part of Chapter 14 of the City Development Ordinance and Article 68 of the County Land Development Code. Use the concepts listed above and tie the number of spaces to 10% of the auto parking standard.

B. ISSUE: SIDEWALKS AND BIKEWAYS THAT PROVIDE SAFE AND CONVENIENT ACCESS WITHIN AND FROM NEW DEVELOPMENT TO NEARBY RESIDENTIAL AREAS, TRANSIT STOPS, AND ACTIVITIES CENTERS

RULE REQUIREMENTS: OAR 660-12-045 (3)(b)

BACKGROUND/OPTIONS: A primary purpose of the Transportation Planning Rule is to reduce reliance on automobiles and make other forms of transportation, such as walking and bicycling, more accessible. To do so, the rule requires sidewalks and bikeways on arterials and collectors, and separate accessways, where appropriate.

1. Sidewalks

Many developed areas within the Klamath Falls urban area do not have sidewalks. Although the Transportation Planning Rule requires sidewalks only on collectors and arterials, provision of sidewalks on all streets, including local streets, would further enhance opportunities for walking. With this requirement, it is assumed that older neighborhoods without sidewalks eventually will participate in local improvement districts to provide the facilities.

Section 71.050 of the County Code sets forth the level of improvement for streets and sidewalks in the urban area. Concrete curbs, gutters, sidewalks and paved roadways are required for subdivisions where the average lot size is 20,000 square feet or less. Based on a review of code requirements, sidewalks are not required as part of site plan review.

Section 14.720 of the City Development Ordinance addresses sidewalks. The section states that sidewalks shall be provided on either or both sides of streets when the planning commission determines such improvements are necessary. No guidelines or standards are provided for making such a determination.

The APA Transportation Rule Working Group recommended sidewalks on both sides of all streets. The Working Group recommended that sidewalks range from a five-foot width for a setback residential sidewalk on a local street to a ten-foot width for a commercial curbed sidewalk on an arterial.

To enhance pedestrian safety and comfort, sidewalks should be set back from the curb.

2. Bikeways

The rule requires bikeways on arterials and collectors. Bikeways should meet minimum

American Association of State Highway Officials (AASHTO) standards and the standards of the 1992 Oregon Bicycle Plan. To provide five-foot to six-foot-wide bikeways, right-of-way standards should be adjusted where on street parking is desired. As the local transportation system plan is completed, it will be appropriate to identify bikeways on certain local streets. Appropriate right-of-way dedication will be needed on those streets.

Section 14.720 of the City Development Ordinance addresses bikeways as well as sidewalks. The section states that sidewalks or bikeways shall be provided on either or both sides of streets when the planning commission determines such improvements are necessary. No guidelines or standards are provided for making such a determination.

The County Development Code does not require or reference bikeways.

3. Connections/Accessways

Street connections and accessways between developments are important links that promote, rather than prevent, bicycling and walking. One way to create these connections is to limit the use of cul-de-sacs and to require new streets to connect with existing streets. Currently, the city has a 400 foot limit on the length of cul-de-sacs and the county has a 500 foot limit. Both the city and county ordinances make reference to pedestrian accessways but neither address spacing. The County Code does state that the pedestrian way should be not less than 10 feet wide with an improved surface at least 8 feet wide.

Changes suggested to local development ordinances include:

- requiring a future street plan for land within 400 feet on subdivision submittal requirements (add to Section 11.210 of the City Ordinance and Section 46.050 of the County Code);
- limiting or preventing use of cul-de-sacs and restrict cul-de-sac length (amend Section 14.640 of the City Ordinance and Section 71.100 of the County Code);
- providing accessways at a minimum of 600-foot intervals (add to Section 71.050 of the County Code and Section 14.720 of the City Ordinance); and
- requiring accessways to be a minimum of 15 feet wide with a 10-foot-wide paved surface (amend Section 71.050 E. of the County Code and add to Section 14.720 of the City Ordinance).

4. Block and Street Spacing

Block length and spacing between streets influences maneuverability through a neighborhood. Generally, shorter blocks provide easier access. Currently, the County Development Code limits block length to 1,320 feet (Section 71.150). The City

Development Ordinance does not include any limit on block length. The APA Working Group recommends that block perimeters not exceed 1,500 feet. This implies an average block length of about 550 feet if 100-foot-deep lots are provided.

RECOMMENDATIONS: Provide sidewalks on all streets consistent with the APA Working Group recommendations. Amend city and county standards, as appropriate (see Chapter 7 - Recommended Design Standards). Develop bikeways consistent with AASHTO standards. Limit cul-de-sac use and develop new standards for block length and accessways, as noted above. Incorporate changes into the development ordinances.

**C. ISSUE: INTERNAL PEDESTRIAN CONNECTIONS - WALKWAY
CONNECTIONS WITHIN COMMERCIAL AND OFFICE PARK
DEVELOPMENT**

RULE REQUIREMENTS: OAR 660-12-045 (3)(d)

BACKGROUND/OPTIONS: The rule requires provision of internal pedestrian connections in new office parks and commercial developments. Methods for meeting this requirement include:

1. At least one sidewalk connection between abutting developments should be provided.
2. Walkways should be provided to the street for every 300 feet of frontage.
3. Connections should all be direct and driveway crossings minimized.
4. Connections should be linked to the internal circulation of the building.
5. Walkways should be at least five feet wide and should be raised, have curbing, or have different paving material when crossing driveways.

RECOMMENDATION: Amend the development ordinances by incorporating the design standards noted above. A new section addressing site planning standards should be added to each jurisdiction's ordinance.

**VI. RECOMMENDATIONS - LAND USE AND SUBDIVISION REGULATIONS FOR
TRANSIT FACILITIES**

**A. ISSUE: PROVISION OF BUS STOPS AND OTHER FACILITIES, WHERE
APPROPRIATE**

RULE REQUIREMENTS: OAR 660-12-045 (4)(a)

BACKGROUND/OPTIONS: The purpose of this requirement is to allow Basin Transit to request installation of transit facilities associated with new major development when it is along existing or future transit lines. The APA Working Group recommends that major commercial development be defined as uses that generate 1,000 automobile trips per day.

RECOMMENDATION: Use the development review process to require transit facilities when requested by Basin Transit.

B. ISSUE: BUILDING ORIENTATION - PROVISION OF PREFERENTIAL ACCESS TO TRANSIT THROUGH BUILDING ORIENTATION AND CLUSTERING IN NEW RETAIL OFFICE IN INSTITUTIONAL BUILDINGS NEAR PLANNED TRANSIT STOPS

RULE REQUIREMENTS: OAR 660-12-045 (4)(b)

BACKGROUND/OPTIONS: Building orientation is one of the most controversial aspects of the Transportation Planning Rule. In the Portland metropolitan region, this issue was subject of a special METRO committee, which included developers, retailers, and planners. The committee recommended model standards for the Portland metropolitan area addressing orientation and setbacks. Those standards are:

1. Orient the primary building entrance to the street, rather than to an internal parking lot.
2. Exempt buildings and uses that are not pedestrian oriented (e.g., warehouses, automotive service, tire stores).
3. Connect building entrances to the street using a paved sidewalk.
4. Provide maximum setbacks from the street (e.g., no more than 30 feet).
5. Apply orientation standards within 600 feet of planned and existing transit stops.
6. No more than 50% of the frontage on an arterial or collector shall be used for parking.

RECOMMENDATION: Incorporate suggested standards 1 to 5 into the development ordinances. Consider incorporation of standard 6.

C. ISSUE: PREFERENTIAL PARKING FOR CARPOOLS AND VANPOOLS

RULE REQUIREMENTS: OAR 660-12-045 (4)(c)

BACKGROUND/OPTIONS: The APA Working Group recommends that 10% of required parking, but not less than one parking space, be for carpool and vanpool parking. An alternative is to apply the requirement only to new developments with 50 or more employees.

RECOMMENDATION: For large employers (50 employees or more), carpool and vanpool

parking should be provided for 10% of required parking.

D. ISSUE: OPPORTUNITIES TO REDEVELOP PARKING AREAS FOR TRANSIT ORIENTED USE

RULE REQUIREMENTS: OAR 660-12-045 (4)(d)

BACKGROUND/OPTIONS: Along transit routes, opportunities should be provided for developers to redevelop existing parking for transit facilities. This can be accomplished through design procedures and standards. The APA Working Group recommends that within 400 feet of a transit route, the number of parking spaces associated with an existing use may be reduced by up to 10% to provide a transit stop and related amenities.

RECOMMENDATION: Amend the development requirements to meet the APA Working Group's suggested standards.

E. ISSUE: CONNECTIONS FROM NEW DEVELOPMENT TO PLANNED EXISTING AND IDENTIFIED FUTURE TRANSIT ROUTES

RULE REQUIREMENTS: OAR 660-12-045 (4)(e)

BACKGROUND/OPTIONS: The intent of the Transportation Planning Rule provision is to minimize travel distance from new development to transit stops. Improvements may include separate bicycle and pedestrian systems as well as road improvements. Methods of implementing the provision include limiting use of cul-de-sacs, providing sidewalk connections between developments, and providing mid-block accessways. This provision is similar to 660-12-045 (3)(b), which requires safe and convenient access between developments. The recommendations for meeting the rule also are similar.

RECOMMENDATION: Amend the development ordinances to require connections between developments. See ISSUE 6.4 B. above.

F. ISSUE: DESIGNATION OF TYPES AND DENSITIES OF LAND USE ADEQUATE TO SUPPORT TRANSIT

RULE REQUIREMENTS: OAR 660-12-045 (4)(f)

BACKGROUND/OPTIONS: The Transportation Planning Rule requires amendments to zoning and subdivision ordinances that support transit facilities through increased density and intensity of land use. To fully implement this provision, the city and county should prepare a corridor plan for each transit route. The corridor plans should address urban design issues including density and

combined access. Preparing specific corridor plans will allow the city and county to address individual problems and non-conforming uses that may be created through a blanket standard.

RECOMMENDATION: Develop specific corridor plans for transit routes in the community.

VII. RECOMMENDATION - IMPROVEMENTS

A. ISSUE: IMPROVEMENTS TO FACILITATE BICYCLE AND PEDESTRIAN TRAVEL

RULE REQUIREMENT: OAR 660-12-45 (6)

BACKGROUND/OPTIONS: The Transportation Planning Rule requires identification of improvements to facilitate bicycle and pedestrian travel in undeveloped areas. Improvements should provide more direct, convenient, and safe bicycle and pedestrian travel within and between residential areas and activity centers.

Specific improvements should be part of a Transportation System Plan. The standards discussed above will help facilitate development of improvements. One method that has been used in other jurisdictions to create more pedestrian friendly streets is to narrow street width along local streets. Narrowing street width has the effect of slowing traffic and creating a more compact and efficient development pattern. Currently, the required local street width for both the city and county is 36 feet (Section 14.605 of the City Ordinance and Section 71.050 of the County Code). Typical widths for narrower pedestrian friendly streets range from 24 to 28 feet in width.

RECOMMENDATION: Include the improvements as part of the Transportation Systems Plan.

VIII. SUGGESTED ACCESS CONTROL ORDINANCE (for further consideration)

The following policies and ordinance are suggested to support the access management policies identified in Chapter 10 - Recommended Transportation and Land Use Policies.

A. Intent and Purpose

The intent of this ordinance is to manage access to land development while preserving the flow of traffic in terms of safety, capacity, functional classification, and level of service. Major roadways, including highways and other arterials, serve as the primary network for moving people and goods. These transportation corridors also provide access to businesses and homes and have served as the focus for commercial and residential development. If accesses are not properly designed, these roadways will be unable to accommodate the access needs of development and retain their primary transportation function. This ordinance balances the right of reasonable access to private property with the right of the citizens of the City of Klamath Falls and Klamath County and the State of

Oregon to safe and efficient travel.

To achieve this policy intent, state and local roadways have been categorized by function and classified for access purposes based upon their level of importance, with highest priority on the Oregon Highway System and secondary priority on the primary network of regional arterials. Regulations have been applied to these roadways for the purpose of reducing traffic accidents, personal injury, and property damage attributable to poorly designed access systems, and to thereby improve the safety and operation of the roadway network. This will protect the substantial public investment in the existing transportation system and reduce the need for expensive remedial measures. These regulations also further the orderly layout and use of land, protect community character, and conserve natural resources by promoting well-designed road and access systems and discouraging the unplanned subdivision of land.

2. Applicability

This ordinance shall apply to all arterials and collectors within the City of Klamath Falls and Klamath County and to all properties that abut these roadways. The access classification system and standards of the Oregon Department of Transportation shall apply to all roadways on the State Highway System.

3. Conformance with Plans, Regulations, and Statutes

This ordinance is adopted to implement the access management policies of the City of Klamath Falls and Klamath County as set forth in the Transportation System Plan and the State Highway Access Management policies.

4. Definitions

Access. A way or means of approach to provide vehicular entrance or exit to a property.

Access Classification. A ranking system for roadways used to determine the appropriate degree of access management. Factors considered include functional classification, the

appropriate local government's adopted plan for the roadway, subdivision of abutting properties, and existing level of access control.

Access Connection. Any driveway, street, turnout or other means of providing for the movement of vehicles to or from the public roadway system.

Access Management. The process of providing and managing access to land development while preserving the regional flow of traffic in terms of safety, capacity, and speed.

Corner Clearance. The distance from an intersection of a public or private road to the nearest access connection, measured from the closest edge of the pavement of the intersecting road to the closest edge of the pavement of the connection along the traveled way.

Cross Access. A service drive providing vehicular access between two or more contiguous sites so the driver need not enter the public street system.

Easement. A grant of one or more property rights by a property owner to or for use by the public, or another person or entity.

Frontage Road. A public or private drive which generally parallels a public street between the right-of-way and the front building setback line. The frontage road provides access to private properties while separating them from the arterial street. (see also Service Roads)

Functional Area (Intersection). That area beyond the physical intersection of two roads that comprises decision and maneuver distance, plus any required vehicle storage length.

Functional Classification. A system used to group public roadways into classes according to their purpose in moving vehicles and providing access.

Joint Access (or Shared Access). A driveway connecting two or more contiguous sites to the public street system.

Lot. A parcel, tract, or area of land whose boundaries have been established by some legal instrument, which is recognized as a separate legal entity for purposes of transfer of title, has frontage upon a public or private street, and complies with the dimensional requirements of this code.

Lot, Corner. Any lot having at least two (2) contiguous sides abutting upon one or more streets, provided that the interior angle at the intersection of such two sides is less than one hundred thirty-five (135) degrees.

Lot Depth. The average distance measured from the front lot line to the rear lot line.

Lot, Flag. A lot not meeting minimum frontage requirements and where access to the public road is by a narrow, private right-of-way line.

Lot, Through. (also called a double frontage lot). A lot that fronts upon two parallel streets or that fronts upon two streets that do not intersect at the boundaries of the lots.

Lot Frontage. That portion of a lot extending along a street right-of-way line.

Nonconforming Access Features. Features of the property access that existed prior to the date of ordinance adopting and do not conform with the requirements of the code.

Parcel. A division of land comprised of one or more lots in contiguous ownership.

Plat. An exact and detailed map of the subdivision of land.

Private Road. Any roadway for vehicular travel which is privately owned and maintained and which provides the principal means of access to abutting properties.

Public Road. A road under the jurisdiction of a public body that provides the principal means of access to an abutting property.

Reasonable Access. The minimum number of access connections, direct or indirect, necessary to provide safe access to and from the roadway, as consistent with the purpose and intent of this code and any applicable plans and policies of the City of Klamath Falls and Klamath County.

Right-of-Way. Land reserved, used, or to be used for a highway, street, alley, walkway, drainage facility, or other public purpose.

Significant Change in Trip Generation. A change in the use of the property, including land, structures or facilities, or an expansion of the size of the structures or facilities causing an increase in the trip generation of the property exceeding: (1) local - 10 percent more trip generation (either peak or daily) and 100 vehicles per day more than the existing use for all roads under local jurisdiction; or (2) State - exceeding 25 percent more trip generation (either peak or daily) and 100 vehicles per day more than the existing use for all roads under state jurisdiction.

Stub-out (Stub-street). A portion of a street or cross access drive used as an extension to an abutting property that may be developed in the future.

Substantial Enlargements or Improvements. A 10 percent increase in existing square footage or 50 percentage increase in assessed valuation of the structure.

5. Corner Clearance

Corner clearance for connections shall meet or exceed the minimum connection spacing requirements for that roadway.

New connections shall not be permitted within the functional area of an intersection or interchange as defined by the connection spacing standards of this code, unless no other reasonable access to the property is available.

Where no other alternatives exist, the (permitting department) may allow construction of an access connection along the property line farthest from the intersection. In such cases, directional connections (i.e. right in/out, right in only, or right out only) may be required.

6. Joint and Cross Access

Adjacent commercial or office properties classified as major traffic generators (i.e. shopping plazas, office parks), shall provide a cross access drive and pedestrian access to allow circulation between sites.

A system of joint use driveways and cross access easements shall be established wherever feasible and shall incorporate the following:

- a. A continuous service drive or cross access corridor extending the entire length of each block served to provide for driveway separation consistent with the access management classification system and standards;
- b. A design speed of 10 mph and a maximum width of 22 feet to accommodate two-way travel aisles designated to accommodate automobiles, service vehicles, and loading vehicles;
- c. Stub-outs and other design features to make it visually obvious that the abutting properties may be tied to provide cross-access via a service drive;
- d. A unified access and circulation system plan for coordinated or shared parking areas is encouraged.

Shared parking areas shall be permitted a reduction in required parking spaces if peak demands do not occur at the same time periods.

Pursuant to this section, property owners shall:

- a. Record an easement with the deed allowing cross access to and from other properties served by the joint use driveways and cross access or service drive;
- b. Record an agreement with the deed that remaining access rights along the roadway will be dedicated to the City of Klamath Falls and Klamath County and pre-existing driveways will be closed and eliminated after construction of the joint-use driveway;
- c. Record a joint maintenance agreement with the deed defining maintenance responsibilities of property owners.

The City of Klamath Falls and Klamath County may reduce required separation distance of access points where they prove impractical, provided all of the following requirements are met:

- a. Joint access driveways and cross access easements are provided in accordance with this section.

Klamath Falls Urban Area Transportation System Plan

- b. The site plan incorporates a unified access and circulation system in accordance with this section.
- c. The property owner shall enter a written agreement with the City of Klamath Falls and Klamath County, recorded with the deed, that pre-existing connections on the site will be closed and eliminated after construction of each side of the joint use driveway.

The (permitting department) may modify or waive the requirements of this section where the characteristics or layout of abutting properties would make a development of a unified or shared access and circulation system impractical.

7. Access Connection and Driveway Design

Driveway width shall meet the following guidelines:

- a. If the driveway is a one way in or one way out drive, then the driveway shall be a minimum width of 10 feet and shall have appropriate signage designating the driveway as a one way connection.
- b. For two-way access, each lane shall have a minimum width of 10 feet and a maximum of four lanes shall be allowed. Whenever more than two lanes are proposed, a median should be considered to divide the entrance and exit lanes. If used, a median should be a minimum of 8 feet wide.

Driveway approaches must be designed and located to provide an exiting vehicle with an unobstructed view. Construction of driveways along acceleration or deceleration lanes and tapers shall be avoided due to the potential for vehicular weaving conflicts.

The length of driveways shall be designed in accordance with the anticipated storage length for entering and exiting vehicles to prevent vehicles from backing into the flow of traffic on the public street or causing unsafe conflicts with on-site circulation.

8. Requirements for Phased Development Plans

In the interest of promoting unified access and circulation systems, development sites under the same ownership or consolidated for the purposes of development and comprised of more than one building site shall not be considered separate properties in relation to the access standards of this code. The number of connections permitted shall be the minimum number necessary to provide reasonable access to these properties, not the maximum available for that frontage. All necessary easements, agreements, and stipulations shall be met. This shall also apply to phased development plans. The owner and all lessees within the affected area are responsible for compliance with the requirements of this code and both shall be cited for any violation.

All access must be internalized using the shared circulation system of the principle development or retail center. Access shall be designed to avoid excessive movement across parking aisles and queuing across surrounding parking and driving aisles.

9. Emergency Access

In addition to minimum side, front, and rear yard setback and building spacing requirements specified in this code, all buildings and other development activities such as landscaping, shall be arranged on site so as to provide safe and convenient access for emergency vehicles.

10. Transit Access

In commercial or office zoning districts where transit service is available or is planned to be available; provisions shall be made for adequate transit access. Suggested provisions include area for bus pullouts and shelters, and pedestrian access from the stop to adjacent land uses.

11. Nonconforming Access Features

Permitted access connections in place as of (date of adoption) that do not conform with the standards herein shall be designated as nonconforming features and shall be brought into compliance with applicable standards under the following conditions:

- a. When new access connection permits are requested;
- b. Substantial enlargements or improvements;
- c. Significant change in trip generation; or
- d. As roadway improvements allow.

12. Reverse Frontage

Access to double frontage lots shall be required on the street with the lower functional classification.

When a residential subdivision is proposed that would abut an arterial, it shall be designed to provide through lots along the arterial with access from a frontage road or interior local road. Access rights of these lots to the arterial shall be dedicated to the City of Klamath Falls and Klamath County and recorded with the deed. A berm or buffer yard may be required at the rear of through lots to buffer residences from traffic on the arterial. The berm or buffer yard shall not be located with the public right-of-way.

Klamath Falls Urban Area Transportation System Plan

13. Flag Lot Standards

Flag lots shall not be permitted when their effect would be to increase the number of properties requiring direct and individual access connections to the State Highway System or other arterials.

Flag lots may be permitted for residential development when necessary to achieve planning objectives, such as reducing direct access to roadways, providing internal platted lots with

access to a residential street, or preserving natural or historic resources, under the following conditions:

- a. Flag lot driveways shall be separated by at least twice the minimum frontage requirement of that zoning district.
- b. The flag driveway shall have a minimum width of 10 feet and maximum width of 20 feet.
- c. In no instance shall flag lots constitute more than 10 percent of the total number of building sites in a recorded or unrecorded plat, or three lots or more, whichever is greater.
- d. The lot area occupied by the flag driveway shall not be counted as part of the required minimum lot area of that zoning district.
- e. No more than one flag lot shall be permitted per private right-of-way or access easement.

14. Lot Width-to-Depth Ratios

To provide for proper site design and prevent the creation of irregularly shaped parcels, the depth of any lot or parcel shall not exceed 3 times its width (or 4 times its width in rural areas) unless there is a topographical or environmental constraint or an existing man-made feature such as a railroad line.

15. Shared Access

Subdivisions with frontage on the state highway system shall be designed into shared access points to and from the highway. Normally a maximum of two accesses shall be allowed regardless of the number of lots or businesses served. If access off of a secondary street is possible, then access should not be allowed onto the state highway. If access off of a secondary street becomes available, then conversion to that access is encouraged, along with closing the state highway access.

New direct accesses to individual one and two family dwellings shall be prohibited on all but District-level State Highways.

16. Connectivity

The street system of a proposed subdivision shall be designed to coordinate with existing, proposed, and planned streets outside of the subdivision as provided in this Section.

Wherever a proposed development abuts unplatted land or a future development phase of the same development, street stubs shall be provided to provide access to abutting properties or to logically extend the street system into the surrounding area. All street stubs shall be provided with a temporary turn-around unless specifically exempted by the Public Works Director, and the restoration and extension of the street shall be the responsibility of any future developer of the abutting land.

Minor collector and local residential access streets shall connect with surrounding streets to permit the convenient movement of traffic between residential neighborhoods or facilitate emergency access and evacuation. Connections shall be designed to avoid or minimize through traffic on local streets. Appropriate design and traffic control such as four-way stops and traffic calming measures are the preferred means of discouraging through traffic.

17. Subdivisions

A subdivision shall conform to the following standards:

- a. Each proposed lot must be buildable in conformance with the requirements of this Code and all other applicable regulations.
- b. Each lot shall abut a public or private street for the required minimum lot frontage for the zoning district where the lots are located.¹
- c. If any lot abuts a street right-of-way that does not conform to the design specifications of this Code, the owner may be required to dedicate one-half the right-of-way width necessary to meet minimum design requirements.

Further subdivision of the property shall be prohibited unless applicants submit a plat or development plan in accordance with requirements in this Code.

The (approving Department) shall consider a proposed Subdivision upon the submittal of the following materials:

- a. An application form provided by the City of Klamath Falls and Klamath County;

¹ Communities are encouraged to consider reducing lot widths and front yard setbacks to create a more pedestrian friendly street environment. These steps expand development options and can help to slow traffic on residential streets.

- b. () copies of the proposed Subdivision plat;²
- c. A statement indicating that water and/or sanitary sewer service is available to the property; and
- d. Land descriptions and acreage or square footage of the original and proposed lots and a scaled drawing showing the intended divisions and proposed street system shall be prepared by a professional land surveyor registered in the State of Oregon. In the event a lot contains any principal or accessory structures, a survey showing the structures on the lot shall accompany the application.

Review Procedure

- a. The (approving official) shall transmit a copy of the proposed Subdivision to the appropriate (departments or officials) for review and comment.
- b. If the proposed Subdivision meets the conditions of this section and otherwise complies with all applicable laws and ordinances, the (approving official) shall approve the Subdivision by signing the application form.
- c. Upon approval of the Subdivision, the (approving official) shall record the plat on the appropriate maps and documents, and shall, at the applicant's expense, record the plat in the official county records.

18. Site Plan Review Procedures for Access Management

Applicants shall submit a preliminary site plan for review by (name of department responsible for conducting review). At a minimum, the site plan shall show:

- a. Location of existing and proposed access point(s) on both sides of the road where applicable;
- b. Distances to neighboring constructed access points, median openings (where applicable), traffic signals (where applicable), intersections, and other transportation features on both sides of the property;
- c. Number and direction of lanes to be constructed on the driveway plus striping plans;
- d. All planned transportation features (such as sidewalks, bikeways, auxiliary lanes, signals,

² The number of copies required should be based on number of entities that will review the plan under adopted procedures.

etc.);

- e. Parking and internal circulation plans including walkways and bikeways;
- f. A detailed description of any requested variance and the reason the variance is requested.

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

- a. All proposed roads shall follow the natural topography and preserve natural features of the site as much as possible. Alignments shall be planned to minimize grading.
- b. Access shall be properly placed in relation to sight distance, driveway spacing, and other related considerations, including opportunities for joint and cross access.
- c. Residential units shall front on local streets and minor collectors rather than major roadways.
- d. The road system shall provide adequate access to buildings for residents, visitors, deliveries, emergency vehicles, and garbage collection.
- e. An internal pedestrian system of sidewalks or paths shall provide connections to parking areas, entrances to the development, and open space, recreational, and other community facilities associated with the development. Streets shall have sidewalks on both sides. Pedestrian linkages shall also be provided to the peripheral street system.
- f. The access shall be consistent with the access management standards adopted in the Transportation System Plan.

Any application that involves access to the State Highway System shall be reviewed by the Oregon Department of Transportation for conformance with state access management standards.

19. Variance Standards for City/County Facilities

The granting of the variation shall be in harmony with the purpose and intent of these regulations and shall not be considered until every feasible option for meeting access standards is explored.

Applicants for a variance from these standards must provide proof of unique or special conditions that make strict application of the provisions impractical. Applicants shall include proof that:

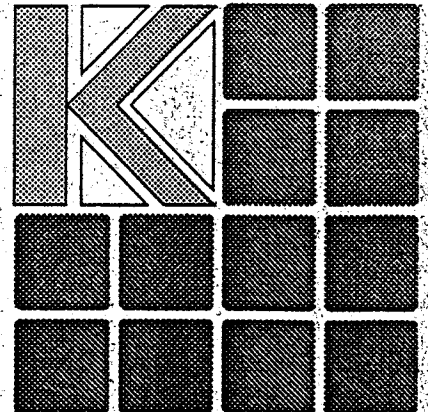
- a. Indirect or restricted access cannot be obtained;
- b. No engineering or construction solutions can be applied to mitigate the condition; and

- c. No alternative access is available from a street with a lower functional classification than the primary roadway.

No variance shall be granted where such hardship is self-created.

Appendix H

Advisory Committee/ Management Team Meeting Minutes



Klamath Falls Urban Area Transportation System Plan

TPAC Meeting #1

Date: Wednesday September 28, 1994
Place: Mt. Mazama Room, OIT
Time: 1:30 p.m.

AGENDA

1. Introductions: Management Team (T.A.)
Consultants (T.A.)
TPAC Members (T.A. or themselves)
2. Introduction to the TSP process and the project (A.M.)
3. Explanation of role of TPAC members in the process (A.M.)
4. Task 1 (Review of Plans and Policies) Draft Overview (A.M. & C.C.)
5. Task 2 (Stakeholder Interviews) Draft Overview (A.M.)
6. Next meeting: Date: October 25, 1994
 1. Update of Policy Review (Final)
 2. Update of Stakeholder Interviews (Final)
 3. Inventory of Transportation System

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Klamath Falls Urban Area Transportation System Plan

Transportation Plan Advisory Committee Meeting Notes - TPAC #1 September 28, 1994

1. Attendance

<u>Name</u>	<u>Representation</u>	<u>Contact No.</u>
John Monfore	Klamath County Planning Commission	884-2241
Alan Eberlein	Chamber of Commerce	883-2100
June Miller	Community-at-Large(Neighborhoods)	884-4538
Bill Nebeker	City Planning	883-5396
Bob Burk	Oregon Air National Guard/Disaster Planning	885-6361
Earl Kessler	Klamath County Public Works Department	883-4696
Jack Newman	City Engineering	883-5363
Joe Riker	Klamath Falls City Planning Department	883-5361
Terry Anthony	Klamath County Planning Department	883-4200
Col. Scott Powell	Vision 2002/Kingsley Field ANG	885-6302
Jim Bryant	ODOT	388-6032x325
Gerald Zimmer	Klamath Falls Airport Manager	883-5372
Ernie Palmer	Basin Transit Manager	883-2877
Andy Mortensen	Kittelson & Associates, Inc.	228-5230
Peter Haliburton	Kittelson & Associates, Inc.	228-5230
Chris Corich	W&H Pacific, Inc.	626-0455

2. Minutes

Terrance Anthony introduced the representatives of the Consultant Team and the TPAC members. Andrew Mortensen introduced the Transportation System Plan project and explained the process. He then explained the importance of the advisory committee and briefly outlined the role of the TPAC members in the process. Mr. Mortensen mentioned the potential need for a chairperson of the TPAC, saying that he was prepared to act as chair if the committee decided against electing a chair, but that it was something the members should consider so a chair could be elected at the next meeting if the committee so decided.

Mr Mortensen then spoke about Task 2 in the scope of work - the review of plans and policies which he described as being about 75 percent complete. He mentioned the review of applicable Federal laws (ISTEA), State law (Oregon Transportation Plan, Transportation Planning Rule), County documents and standards, and City documents and ordinances which cover all modes of transportation and which all have a bearing on the development of this plan.

Mr Mortensen spoke about Task 3 in the scope of work - the Stakeholder Interviews which he described as being approximately 75 percent complete. He presented a draft list of issues which came out of the stakeholder interviews which the group worked through and commented on.

Comments made throughout the meeting expressing various members concerns and interests included:

- What would be the result of a refusal of the committee to cooperate with ODOT's wishes to develop the plan? There were concerns expressed that the State tends to neglect the economic development needs of the region east of the Cascades, and any state plan is likely to be detrimental to the region by favoring the Willamette Valley.
- Potential problems exist with the necessity to cross at-grade railroad crossings to enter the airport presently, and by any of the existing plans for expansion.
- The proposed closure of the Altamont Drive access to Kingsley Field as part of the reconstruction of the Washburn Way/Southside Bypass interchange is not acceptable due to the necessity to ensure more than one access to the airport in the light of evacuation procedures (large fuels and munitions storage depot)
- The possibility of removing a rail line altogether by combining two railroads to the south of the airport was discussed.
- The possible development of a multi-modal freight hub to support the potential for increased trade resulting from NAFTA and the increase in trade with the far east, with an associated increase in usage of the international airport, and foreign trade zone.
- It is necessary to conduct stakeholder interviews with Airport users and service providers to ensure a good understanding of their needs.
- Airport signing needs to be improved as more traffic from out of town begins to use the facility.

- The need to coordinate with the transportation departments of California and Nevada, to ensure connectivity and continuity between the State Plans. This is not the responsibility of this Urban Area Transportation System Plan.
- The Highway 97 Corridor Plan is of importance and relevance to this plan, and TPAC members should be aware of the meeting planned for October 12 at the City Council Chambers.
- Mills Addition is to form a neighborhood association and has experienced through-traffic problems.

3. Next Meeting

The next meeting is to be held on November 30, 1994 at 1.30 p.m. at the Klamath County Public Works conference room, 3735 Shasta Way at the corner of Shasta Way and the Alameda Bypass.

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Klamath Falls Urban Area Transportation System Plan

TPAC Meeting #2

Date: Wednesday November 30, 1994
Place: Klamath County Public Works Offices
Time: 1:30 p.m.

AGENDA

1. TPAC Meeting #1 minutes.
2. TPAC Business:
Chair election?
3. Review Technical Memoranda:
#1 Plans and Policies Review
#2 Stakeholder Interviews
4. Ongoing activities:
1 Inventory Transportation System
2 Identification of Transportation System Needs
3 South Sixth Enhnsncement Plan
4 Public Open House Meeting
5. Next Meeting: December 28, 1994 1:30pm County Public Works Offices.

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Klamath Falls Urban Area Transportation System Plan

Transportation Plan Advisory Committee (TPAC)

Meeting #2 - November 30, 1994

MINUTES

1. Attendance

<u>Name</u>	<u>Representation</u>
Carl Schuck	Klamath County Planning Department
Earl Kessler	Klamath County Public Works Department
John Monfore	Klamath County Planning Commission
Joe Riker	Klamath Falls City Planning Department
Jack Newmann	Klamath Falls City Traffic Engineer
Dave Goss	Klamath Falls Planning Commission
Jon Hicks	ODOT District Manager
Ron Eichelkraut	Public Safety/Fire/Emergency Services
Bob Burk	Oregon Air National Guard/Disaster Planning
June Miller	Community-at-Large(Neighborhoods)
Chuck Dunbar	Klamath Falls Bike/Pedestrian Representative
Jim Bryant	ODOT Region Planner
Andy Mortensen	Kittelson & Associates

2. Tech Memo #1 - Plans and Policies Review

Andy: Emphasized the need to be consistent with the state requirements...helps us to be eligible for federal funding.

Earl: Do we need to be an MPO?

Jon H: Avoid if possible.

John M: Need language on bike/pedestrian for ISTEA funds - enhancement [*comments incorporated in final Technical Memorandum #1*].

Bob B: Is there intermodal ISTEA \$? Should we apply ASAP? While Hatfield is head of appropriations?

Jack N: How does Medford Free Trade Zone affect Klamath Falls?

Jon, Andy: K.F. still has the advantage: air, rail. Fed wants to fund intermodal, not new highways.

Bob B: How do we get feds to listen to us instead of Portland?

Jon H: We are the winners - get more back per \$1 gas tax than Portland.

Andy: Its worth the hassle to plan for and apply for intermodal \$.

Jim B: K.F. air quality: we are in non-attainment [*Technical Memorandum #1 updated to reflect comments*].

- Andy: Section 1.3 (highlight) look at state highways in UGB, develop level of importance/significance.
- Jim B: Attach guidelines from OTP *[comments incorporated in final Technical Memorandum #1 - Appendix "A" - see also attached material]*.
- Jon H: Access-Oregon Highway (AOH) program subordinate to fed highway system. Jon revealed the significance of local highways
140 = statewide
66 = regional
Connections to Nevada?
[comments incorporated in final Technical Memorandum #1].
- Andy: LOS standards (based on LOI)
- Jim B: Include letter characteristics, remove interstate from table *[comments incorporated in final Technical Memorandum #1]*.
- Earl: Page 9 Kelso - Longview - Rainier - part of Portland MPO? (no)
- Andy: Described Access Management Policy & Table 3.
- Andy: Policy of AOH - remove? (no)
- Earl: Leave in: dollars still exist for funding.
- Jon H: AOH will be incorporated into NHS.
- Jim B: 2nd paragraph on page 12 doesn't read right. Page 13 missed objective #1 *[comments incorporated in final Technical Memorandum #1]*.
- Andy: Section 2 - need to be consistent with County, City.
- Jack: May need to look at definition of street, road *[comments noted]*.
- Ron E: 1. Recess blue reflectors for fire hydrant locations.
2. Opticom signal control at major intersections - some will be installed January, 1995.
3. Mills addition street closures.
[comments incorporated in final Technical Memorandum #1 - recommendations of TSP to include Fire Code in County/City roadway/street standards].
- Jim B: Neighborhood Stabilization Plan
- Bill: Close-off certain streets/meet in January/test area first - barricades
- Ron: Emergency vehicle access/circulation problems on Shasta Way, Patterson Street, Beihn Street and S. Sixth Street *[comments noted]*.
- Terry, Bill: Need to be more detailed in summary of City, County plans *[comments incorporated in final Technical Memorandum #1]*.
- Jon H: Page 23 - Airport entrances...is frontage road feasible? *[comments noted]*.
- Joe R: Problem with DEQ air quality standards.
- Jon H: New access off Summers, Homedale (not viable?) *[comments incorporated in final Technical Memorandum #1]*.
- Jon H: Existing plan is to cross the tracks.
- Andy: OTIP summary
- Jon H: Remove 1996 (1) project *[comments incorporated in final Technical Memorandum #1]*.
- Earl: Highway 39/BN undercrossing still in OTIP? (yes, as special project)

- Andy: Basin Transit operations funding in OTIP *[comments incorporated in final Technical Memorandum #1]*.
- Joe: No reference to OTP designation of K.F. as intermodal hub - Amtrak service also missing? *[comments incorporated in final Technical Memorandum #1]*.
- Jack: City standards - sidewalks - page 22 not included *[comments incorporated in final Technical Memorandum #1]*.
- Andy: TPR: Are there local regulations which should be included?
Are local reps in conflict with TPR?
- Jim B: DLCD may revise transit section of TPR - problems with implementation *[comment noted]*.
- Jon H: Page 42 - minor corrections to highway designations needed *[comments incorporated in final Technical Memorandum #1]*.
Page 49 - entrance orientation - facing street may not be best. *[comments noted]*.
- Jim B: Expect more flexibility with new TPR *[comment noted]*.
- Earl: Last page; reduce width of streets as recommendation may be an issue *[comment noted]*.
- Earl: Street width - reduce or no? <discussion> Any new construction must have bike lanes *[comment noted]*.

2. Tech Memo #2 - Stakeholder Interview Summary

- Jon H: Page 6, sentence #2 - Homedale intersection a possibility, not given but it is the only option *[comments incorporated in final Technical Memorandum #2]*.
- Joe R: City agrees with ODOT.
- Jon H: Bill Coles' comments are incorrect - no Washburn widening or lights *[comments incorporated in final Technical Memorandum #2]*.
- Bill N: Page 16 Bogway spelled incorrectly - Vinson too? *[comments incorporated in final Technical Memorandum #2]*
- Jack: Classes for bicycle parking? Include long term/short term bicycle parking @ airport. *[comments noted]*

3. Existing Conditions Overview

- Andy: Weekly p.m. peak hour service - existing data map.
Most signals are still at acceptable LOS...exception is 39 at Campus Drive.
- Jon R: Shilo development.
- Jon H: May need education to encourage use of Industrial Drive.
- Andy: Sidewalk inventory map.
- Chuck: Erie Street still designated collector - dirt road.
Old Fort Road may impact UGB traffic.
- Jon H: Includes Foothills Blvd.

4. Next meeting: Discussed Dec 28th, Jan 11th

January 4th, 1995 @ 1:30 pm County Public Works Offices

Tech Memo #3 to be mailed by Dec. 28th, minutes will incorporate revisions to TMs.

attached: Revisions to Tech Memos 1 & 2

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Klamath Falls Urban Area Transportation System Plan

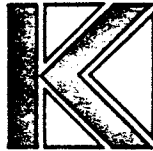
TPAC Meeting #3

Date: Wednesday, January 4, 1995
Place: Klamath County Public Works Offices
Time: 1:30 p.m.

AGENDA

1. TPAC Meeting #2 minutes.
2. Review Technical Memorandum:
#3 Inventory of Existing Conditions
4. Ongoing activities:
 - Inventory Transportation System
 - Identification of Transportation System Needs
 - South Sixth Enhancement Plan
5. Next Meeting: March 22 or 29, 1995 1:30pm County Public Works Offices.

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Klamath Falls Urban Area Transportation System Plan

Transportation Plan Advisory Committee (TPAC)

Meeting #3 - January 4, 1995

MINUTES

1. Attendance

<u>Name</u>	<u>Representation</u>
Joe Riker	Klamath Falls City Planning Department
✓ Dave Goss	Klamath Falls Planning Commission
Carl Schuck	Klamath County Planning Department
Earl Kessler	Klamath County Public Works Department
Jon Hicks	ODOT District Manager
Jim Bryant	ODOT Region Planner
✓ Ron Eichelkraut	Public Safety/Fire/Emergency Services
Bill Nebeker	City Planning
Terry Anthony	Klamath County Planning Department
✓ Col. Scott Powell	Vision 2002/Kingsley Field ANG
Ernie Palmer	Basin Transit Manager
✓ Trey Senn	Klamath County Planning Department
Andy Mortensen	Kittel & Associates

2. Andy: Review of meeting #1 minutes and changes to Tech Memo 1 and 2.
Carl: Klamath County policies
1) didn't get
2) Goal II - Transportation services to public facilities
Joe: County Comp Plan doesn't reference new 1994 Airport Master Plan, BTS....
Andy: Also Fire District standards - what else?
City, County musts update Comp Plans themselves!
Also address ADA regs, etc.
Andy: (role of goals, objectives) how to address?
* Ron: Opticon devices included in goals?
Joe: Keep in/get it in.
Andy: Should be an objective
Jon: Put under safety
* Joe: ODOT/DEQ continuity rules should be included.
Jim: Put under statewide planning goals.

Jon: Look at ODOT documents...make separate goal.

* Jim: Integration of Transportation and Land Use should be included.

Joe: Break this into commercial/industrial, residential

Scott: 97 not identified as freight corridor on OTP

Andy: Include as objective?

Scott: Dr. Wolf wants 97 id. As such (?)

Andy: Please send comments on goals/objectives

Jon: Page 6 of goals, Highway 140 not 66

Ernie: Greyhound petitioned to abandon Klamath Falls route.

Andy: (Looked into this...) Should it be a goal?

* Ernie: It will happen eventually - need support from Planning documents.
Goal: Lakeview to Grants Pass

Andy: Maps to be enlarged - Figures 1, 2, 3 etc.
Need to inform Andy of changes!

Earl: Page 5 Altamont is 2 lane not 3.
Add Crest - collector (Co) 2-lane.
Page 6 Harlan is arterials also
Homedale is arterial plus 2-3 lanes.
LaVerne = state/counts
Mille Is. Is slate
Patterson is arterial also
Washburn is arterial plus state/county city
Add Tingley Lane collector plus state/county and 2-lane

Andy: Figure 2 doesn't include flashing amber

Earl: Shasta x Eastside is missing signal

Dave: Portland Street is flashing, not full signal.

Andy: Figure 3 (explained categories)
Poor = 1st 10 years
Fair = 1st 20 years Some reconstruction
These areas will need further study at some point.

Jon: Entire Southside Express needs to be listed 'poor'. Washburn - Eastside
Bypass deteriorating quickly and also to Lakeview Junction.

Andy: Other comments on pavement conditions are welcome. This info. Will be
important input to TSP - priorities.

Bill: Put criteria into document?

Andy: No - Just a visual inspection - more study needed.

Andy: Pedestrian/map Figure 4

Ernie: Change color black = UGB = both sides = confusing

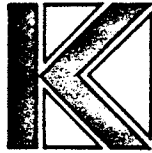
Earl: Shasta Way, Madison to Patterson: sidewalk isn't there.

Andy: Bicycle map is missing - will get from Earl - ASAP

Ernie: Some changes - Stewart Lennox to Figure 6
TDP will drastically change routes!!

Andy: Rail:

Ron: Problem leaving munitions in boxcars on SP siding - hazard
Andy: Frank is looking at Santa Fe takeover + implications.
Making recommendations for rail hub, E-W connections.
Terry: (Jerry Zimmer's comments....)
Jon: Figure 7, LOS problem with South Sixth, 39 intersection....also Crosby?
Andy: Page 22, 23 replacement, also Appendix B
Andy: Ongoing projects....
Next meeting, February 22, 1995, Wednesday @ 1:30, here.
Give him comments any time.
Ernie: Will Kittelson & Associates be issuing revised documents?
Andy: No - additions in minutes
Joe: Use federal hole.



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Klamath Falls Urban Area Transportation System Plan

TPAC Meeting #4

Date: Wednesday, March 22, 1995
Place: Klamath County Public Works Offices
Time: 1:30 p.m.

AGENDA

1. TPAC Meeting #3 minutes.
2. TSP Goals and Objectives (Final)
3. Review Draft Technical Memorandum:
#4 Identification of Transportation System Needs
4. Identification of Future Transportation/Land Use Alternatives
5. Ongoing activities:
 - Transportation Demand Modelling
 - Refinement of the Identification of Future Alternatives
 - South Sixth Enhancement Plan
 - Airport Area Detailed Planning
6. Next Meeting: April 26, 1995 1:30pm County Public Works Offices.

Attachments

Minutes of TPAC Meeting #3 (January 4, 1995)
Draft Technical Memorandum #4 - Identification of Transportation System Needs

KLAMATH FALLS URBAN AREA TRANSPORTATION SYSTEM PLAN

Transportation Plan Advisory Committee (TPAC) Meeting Minutes - March 29, 1995

ATTENDANCE

<u>Name</u>	<u>Representation</u>
Carl Shuck	Klamath County Planning Department
Earl Kessler	Klamath County Public Works Department
Joe Riker	City of Klamath Falls Planning Department
Bill Nebeker	City of Klamath Falls Planning Department
Jon Hicks	ODOT
Ernest Palmer	Basin Transit
Ron Eichelkraut	Public Safety/Emergency Services
Bob Burk	Oregon National Guard
Col. Scott Powell	Community-at-large: 2002 Group
June Miller	Community-at-large: Neighborhoods
Trey Senn	KCEDA
Terry Anthony	Klamath County Planning Department
Andy Mortensen	Kittleson & Associates

DISCUSSION

Mr. Mortensen began by describing the meeting packets mailed to TPAC members prior to today's meeting: TPAC meeting #3 minutes, and draft, incomplete (due to lack of data) TSP Technical Memorandum #4: *Existing and Future Transportation System Needs* (missing pieces to be distributed before next TPAC meeting).

Mr. Mortensen asked for comments on meeting #3 minutes. No comments were made.

Mr. Mortensen continued by describing what materials will be ready for the next TPAC meeting. The TSP Goals and Objectives are still in draft form; the final will be ready by next meeting. TPAC members were asked to look over the Goals and Objectives and comment to Mr. Mortensen before the next meeting. Also, Final Tech Memo #4 will also include deficiencies in transit system, pedestrian and bicycle systems, alternative modes and intermodal systems.

Mr. Mortensen then went into an long discussion concerning tech memo #4. Its focus presently is on auto capacity on arterial/collector system. Base information for future predictions derived from ODOT employment/demographic data and growth projections. Assumes no future significant transportation system improvements (Foothills Drive project will be deleted from present model) for a no build alternative. No build alternative will be used for comparisons with other alternatives.

Mr. Hicks asked why Table 1 concerning intersection LOS was using 1990 data. Mr. Mortensen explained that the most recent existing actual count data was from 1990, but the transportation model uses a calculated 1995. Regardless, projections are still 20 years from today.

Mr. Mortensen continued describing tech memo #4. Figure 4-5 *Future Levels of Service* shows overcapacity intersections in routes of Washburne, Shasta Way, East S. 6th Street; approaching capacity on Campus Way, Eastside Bypass and its intersection with S. 6th Street. Deficiencies at 97/Lake of the Woods interchange and Southside Express Way at Washburne and Summers intersections. Mr. Hicks questioned why Patterson and 6th was listed as overcapacity in future. Mr. Mortensen responded that it will be the case only if it is left unsignalized. Mr. Riker expressed concern about congestion relief for Campus Way and its unusual peak times. Mr. Mortensen stated that unfortunately, the traffic model only predicts daily traffic volumes. Areas that experience unusually high peak times or outside usually rush hour will need special attention.

Mr. Mortensen continued by saying the Management Team will begin to look at ODOT figures (traffic volumes, population and employment growth) to uncover discrepancies and develop more realistic figures. For example, tech memo #3 states that more than 1/2 of the future housing growth now expected to be in NE area, while the rest will be in the SE and NW. TPAC members also felt that growth would occur in the SW, NE, and outside the UGB on 66. Mr. Anthony also felt that the area projected population figures were low. Employment figures probably don't reflect the Modoc closure. Mortensen agreed that all these points should be looked at further and adjusted to make more realistic baseline data. Mr. Mortensen added that population/employment projection figures etc. had not yet been compared to see if they make sense.

Mr. Mortensen then described how maps 4-3 *Existing Daily Traffic* and 4-4 *Future Daily Traffic* will be used to project what effects the various alternatives would have on the traffic system. He then described alternatives: do-nothing, stay-the-course (build your way out of congestion), landuse/transportation coordination, improved transit service, and transportation system management. He expects that the final recommendation will include a combination of alternatives.

Mr. Mortensen continued by saying after the meeting, other non-auto deficiencies identified in stakeholder interview process will be looked at by the consultant, including a cost estimate to correct those deficiencies. That information will then be presented to the TPAC to find out which ones the group wants to address in the TSP. Mr. Hicks asked if a cost analysis of the alternatives would be included. Mr. Mortensen responded that projects related to all the alternatives will include some general level of cost/benefit analysis to help in evaluating those alternatives.

Mr. Mortensen concluded his overview of tech memo #3 and the future #4 and reiterated that comments made today by the TPAC members would be incorporated into the process. Additional comments and corrections about tech memo #3 were then added by TPAC members.

- ▶ City of Klamath Falls Comp Plan adopted on April 20, 1981 and acknowledged by LCDC in June, 1984. Klamath County Comp Plan adopted in February, 1984 and acknowledged by LCDC in June of 1985 (Page 4, paragraph 2). Both plans are currently under review.
- ▶ To clarify parts of tables 1 and 2 concerning levels of service at intersections, Mr. Mortensen explained that V/C means volume to capacity. A ratio of 0.85 or above gets into a LOS of D or worse.
- ▶ Mr. Anthony expressed doubt about auto volume on S. 6th just east of Washburne indicated on Figure 4-4. Mr. Mortensen said that this is an anomaly of the computer model that can't be rectified without reconfiguring the whole model. However, the upcoming revised figures for the S. 6th plan should mitigate this problem somewhat. He also added that parts of Shasta Way are probably overforecasted. Mr. Hicks said that Laverne also looked very overforecasted.
- ▶ Mr. Palmer asked when the cut-off point would be in supplying revised data for the plan. Mr. Mortensen didn't know but said that obviously it couldn't be past the development of the final plan. Mr. Palmer suggested that a cut-off date be set. Mr. Mortensen added that this plan should be a living document if it is remain relevant and that he had discussed with the Management Team that some sort of guidelines should be developed to determine when traffic impact studies should be required any future developments.

Mr. Mortensen then discussed ongoing activities. He reiterated that staff is and will continue to revise the base data to be used for the transportation model. He also emphasised that all the alternatives will include quantifiable data that will help the TPAC better assess the alternatives.

The second ongoing activity Mr. Mortensen discussed concerned the South Sixth Street Plan. The plan has had a lot of activity in the last few months and Mr. Hicks and Mr. Anthony have met with the Corridor Business District Committee recently. High interest in the project has motivated staff to find better ways of getting information out to the public within the next couple of weeks. The Executive Committee of the South Sixth Street Plan will meet next month and be presented with draft recommendations for transportation system improvements. The next step will be to work on alternative mode development and urban design features. Ms. Miller asked if plans had yet been made for section between Washburne and the overpass. Mr. Mortensen responded that no plans or recommendations had been made yet; only base information has been gathered and they are now in the analysis.

The final ongoing activity Mr. Mortensen discussed was the Airport Area Detailed Planning. He explained that his company is in the process of assessing what is needed to perform a detailed evaluation of the area. Mr. Anthony asked Mr. Riker for an update of the project. Mr. Riker responded that the city was waiting for a proposal from Kittelson and Associates.

Mr. Kessler asked if the plan will include evaluation of airport access and its relation to air quality. Mr. Mortensen responded that he still didn't know enough about the airport to comment on that, but if the law requires such and evaluation, it will be done. Mr. Riker added that DEQ has a new

air quality model and is waiting for EPA's blessing to use it. Mr. Hicks feels that the permit for AquaGlass will be the biggest issue there. Mr. Mortensen asked Mr. Hicks if the air quality issue will preclude or steer road improvements or access developments for the interchange project. Mr. Hicks responded he didn't think so with the new model, but couldn't say for certain. Mr. Kessler added that he didn't believe the AquaGlass air quality issue should affect the interchange project, but may affect the airport access process.

Col. Powell asked if the Kittleson & Associates were under contract with the city to do the Airport Plan. Mr. Mortensen responded that the city has only requested a scope of work. Col. Powell continued by asking where the authority of the TPAC ends and the that of the Airport Plan begins on a map. Mr. Mortensen responded he didn't actually have a complete perspective on this but suggested how that could technically be done: Do a detailed evaluation of all of the user's and access needs in and around the airport area and then look at that information in light of the general guidelines of the TSP. Then determine what best serves the needs of the airport and the region's overall demand. When evaluation of detail plan seems to work well with the TSP, pass that plan by the TPAC. However, Mr. Mortensen conceded that the decision of how to work the two plans together really needs to be made by some policy making body and he's not sure who that would be.

Col. Powell expressed his concern about the Special Airport Access meeting on February 23.. He felt it was poorly organized and pointless. Mr. Mortensen responded by saying he did prepare a draft strategy plan for the airport and had hoped to be learn enough in the meeting about the issues of the airport to develop a scope of work, but conceded that he knew little of the details of the airport, was poorly prepared, and apologized for any inconvenience to the attendees.

Col. Powell added that overall, he is impressed with work of the consultant and believes the ultimate TSP will be very good for the community. However, he just wanted to express his feelings that meetings like the last one should be better prepared and not waste the valuable time of many busy people.

Mr. Burk asked if the state was the entity contracting Kittelson & Associates to do the TSP. Mr. Mortensen responded yes, but it is was being done through county. Mr. Burk continued by asking if Kittelson and Associates had done other TSP's for other communities. Mr. Mortensen responded yes, but not with the same transportation situation as Klamath Falls. Mr. Burk continued by asking if the TSP plan suppose to be for all transportation systems in Klamath Falls? Mr. Mortensen responded yes. Mr. Burk said he felt that Kittelson & Associates work on the TSP seemed to be excluding important transportation components concerning the airport, like rail, etc. Mr. Mortensen stated that the State transportation plan designates Klamath Falls as a regional hub, so important it is important to include all systems that will enhance the Klamath Falls area, including the airport.

Mr. Mortensen added that the TSP is the general plan: one that the detailed airport plan should be able to work well with. Mr. Riker also pointed out differences between the two plans: the TSP is limited to the UGB, whereas the airport plan will affect a wider region. Mr. Hicks chimed in saying that all these transportation plans overlap with other plans: the city's with the county's TSP,

the county's TSP with the states, etc..

Col. Powell added that the Airport Access meeting included many solicitous remarks by the city to the Air National Guard. He was insulted by that and found that totally unnecessary. He feels that the group needs to be completely honest with each other to be effective.

Mr. Senn pointed out that many of the goals and objects of the plan might warrant inclusion of telecommunications. He said there is a great interest in the community concerning this issue and asked if the TSP would deal with this issue. He pointed out use of ISTEA funds in Portland for telecommunication to reduce VMT's as an example (he thinks this region is eligible for the same funds). Mr. Hicks responded that ODOT is required by law to assist in business or community driven infrastructure projects wanting to use state right of ways and would be glad to help in any way it can.

The conclusion of the meeting included two suggestions. Mr. Hicks asked that the agenda specify what TPAC members are suppose to do in preparation for each meeting and what they need to do after each meeting. Mr. Senn suggested that the nuances of the plan should be left for the Management Team meetings and that the TPAC meetings should deal with more with policy oriented issues. Mr. Mortensen responded that he would try to implement these changes in the future.

The next TPAC meeting will be April 26, 1995 at 1:30 PM at the County Public Works Offices. Materials to be prepared for the meeting will include the final tech memo #4, a map of deficiencies, and either a map of alternatives or a categorical description of alternatives.



KITTELSON & ASSOCIATES, INC.
TRANSPORTATION PLANNING/TRAFFIC ENGINEERING

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Klamath Falls Urban Area Transportation System Plan

NOTICE OF MEETING

TPAC Meeting #5

Date: Wednesday, April 26, 1995
Place: Klamath County Public Works Offices
Time: 1:30 - 3:30 p.m.

FAX:

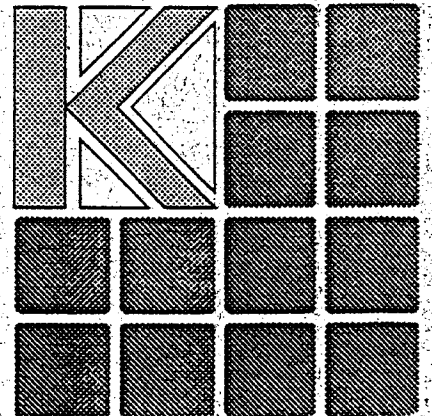
Joe Riker	Klamath Falls City Planning Department	883-5390
Dave Goss	Klamath Falls Planning Commission	883-7475
Carl Schuck	Klamath County Planning Department	885-3334
<i>Francis</i> Earl Kessler	Klamath County Public Works Department	882-3046
Jon Hicks	ODOT District Manager	883-5889 5589
Jim Bryant	ODOT Region Planner	385-0476
Ron Eichelkraut	Public Safety/Fire/Emergency Services	884-6920
Bill Nebeker	City Planning	883-5390
Terry Anthony	Klamath County Planning Department	882-7648
Col. Scott Powell	Vision 2002/Kingsley Field ANG	630 830-6187
Ernie Palmer	Basin Transit Manager	884-6287
Trey Senn	Klamath County Planning Department	882-7648
Gerald Zimmer	Klamath Falls Airport Manager	883-5376

AGENDA

1. Minutes.
2. Feedback from Technical Memorandum #4 (Identification of Transportation System Needs)
3. New land use and population data.
4. Preliminary alternative strategies.
5. Ongoing activities:
 - Transportation Demand Modelling
 - Refinement of the Identification of Future Alternatives
 - South Sixth Enhancement Plan
 - Airport Area Detailed Planning
6. Next Meeting: June 7, 1995 1:30pm County Public Works Offices.

Appendix I

Draft TSP Review and Response



KLAMATH FALLS URBAN AREA TRANSPORTATION SYSTEM PLAN

Transportation Plan Advisory Committee (TPAC) Meeting Minutes - April 26, 1995

ATTENDANCE

<u>Name</u>	<u>Representation</u>
Joe Riker	City of Klamath Falls Planning Department
Bill Nebeker	City of Klamath Falls Planning Department
Jon Hicks	ODOT
Ernest Palmer	Basin Transit
Ron Eichelkraut	Public Safety/Emergency Services
June Miller	Community-at-large: Neighborhoods
Jim Bryant	ODOT
Jon Monfore	Weyerhaeuser
David Beam	KCEDA
Terry Anthony	Klamath County Planning Department
Andy Mortensen	Kittelson & Associates

DISCUSSION

The meeting's main discussion was intended to cover 2 topics: (1) Management Team's updated population and employment projection and allocation process and how this data will be used to reestablish a future base-case estimate of future traffic conditions in the region, and; (2) Identify in general the alternatives to be assessed based on the aforementioned updated data.

Upcoming meeting dates were announced:

- May 4 - South 6th CDBC to review draft circulation and access plan recommendations.
- May 23 - South 6th CDBC Executive Committee to review alternative modes and visual enhancement possibilities.
- May 23 - TSP Open House, 7:00 PM at the County Fairgrounds.
- June 13 - Final CDBC meeting to review draft final report.
- June 13 - SSEP Open House, 7:00 PM at the County Fairground.
- June 14 - TPAC meeting, to discuss refinement of future traffic volume forecasts in the evaluation of the alternatives.

A series of newsletters and local press concerning the TSP process will be distributed periodically in the next few months. A series of 1 page flyers concerning the SSEP will be sent out almost weekly for the next couple of months as well, addressing project clarification, draft circulation and

access recommendations, alternative modes, visual enhancement, and the draft plan.

Population forecasts for the region in the next 20 years were then discussed. Draft Tech Memo #4 estimated a future population of 45,700 in Klamath Falls urban area. Review by the Management team came up with the figure of 47,000 to 48,000 (or 1.3% annual growth) by the year 2015 and the consultant recommended that this figure be used from now on. There were no objections to the use of this new figure.

Mr. Mortensen then moved on to discussing the various potential alternatives to be analyzed for the TSP and their relationship to future growth in the area. He began the discussion concerning the land use alternative. Future growth, at present, will occur in areas recognized for such use in the comprehensive plans. One of the alternatives will include recommendations of changing land use strategies that relocating zones to make better use of transportation systems (i.e. intensive residential development and/or mixed commercial/residential land uses along transit supported corridors). Consultants suggestions to technical staff has been an alternative that take 20% of the net future projected population growth of the region (specifically areas where suburban, large lots are expected) and place that development in areas of more intensive development along transit corridors. The consultant suggested that areas already developed with intensive commercialization, like South 6th, could located residential development behind the businesses, as long as they are located within a 1/4 mile (reasonable walking distance) of a transit corridor like South Sixth. It was later pointed out that this type of alternative would also, to some degree, continue to aggravate congestion problem on streets like South Sixth and Shasta Way unless many of those new area residents use mass transit.

Other areas subject to growth in the future, that are outside the urban area but will affect the urban area, such as the Running Y Ranch were discussed. It was agreed that these developments will affect the urban area, but until those projects become closer to fruition, the effects of those developments cannot be accurately assessed: they are essentially a "wildcard" at this point.

The group continued on about the impacts of developments that occur far away from adequate, existing infrastructure and amenities that ultimately get paid for by the taxpayer. Evaluations of these impacts should be made, such as a traffic impact analysis, before the development is put into place. It was suggested that System Development Charges (SDC) be enacted, so that developer will either: (1) create developments where existing services are present (edge or infill), or; (2) be directly charged for installation of services, if the developer chooses to build far away from existing services. The consultant said he will bring examples of how other communities have enacted legislation intended for such an affect.

The consultant explained that this type of legislation can be complicated and politically difficult and would need to be specifically tailored to the characteristics of the Klamath Falls area. However, one committee member suggested that the basis of all these types of charges should be on what the affects would be on any given system (i.e. sewage system).

Different methodologies for calculating charges would need to be developed for impacts on different systems. All SDCs need to be tied to a plan that spells out what projects the SDCs will be paying for (in the instance of transportation, the consultant suggested that plan to be projects described in the TSP). Other details of such charges that would need to be worked out would include what size of developments would be charged and how the impact costs will be assessed to a developer so that it is a equitable amount. It was also suggested that such SDC charges should be consistent between the City of Klamath Falls and Klamath County and that the two entities should begin preliminary discussion about the use of SDCs.

The consultant concluded by saying he will now report back to the Management Team the new population total based on new area forecasts, pass off the consultants assumptions of where the aforementioned reallocation of the 20% of future growth should be as a land use alternative, and more definition on the alternatives that the consultant is analyzing. In June, the net result of all these assessments will be reported back to the TPAC.

The consultant updated the group on two projects. First, the airport detailed plan proposal is still being worked on by the consultant. The South Sixth Street Enhancement Plan is finishing up with the access management portion of the plan and moving on to beautification. However, there is still significant opposition, mostly due to misinformation of the plan's purpose and the consultant is working hard to correct that misinformation.

The meeting was concluded about 2:45 PM.



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Klamath Falls Urban Area Transportation System Plan

TPAC Meeting #6

Date: Wednesday, October 4, 1995
Place: Klamath County Public Works Offices
Time: 1:30 p.m.

AGENDA

1. TPAC Meeting #5 minutes.
2. Transportation System Plan Project Update
 - New TPAC Members
 - Schedule
3. Future Improvement Needs:
 - Campus Way/Eastside Bypass Area (conceptual)
 - South Sixth Enhancement Plan
4. Ongoing activities:
 - Transportation Demand Modeling
 - Refinement of the Identification of Future Alternatives
5. Next Meeting: **October 18, 1995**
1:30pm
County Public Works Offices

Attachments

Minutes of TPAC Meeting #5 (April 26, 1995)



Kittelson & Associates, Inc.
610 S.W. Alder, Suite 700
Portland, Oregon 97205
(503) 228-5230 FAX (503) 273-8169

Klamath Falls Urban Area TSP

Date:

Project Number: 1307

To: TPAC Member

From: Andy Mortensen, Kittelson & Associates, Inc.

MEETING NOTICE

Klamath Falls Urban Area TSP

TPAC Meeting #7

Date: Tuesday, April 23, 1996
Place: Klamath County Public Works Offices
Time: 1:00 p.m.

AGENDA

1. Model Refinement and TSP Schedule Update
2. Draft Alternatives Analysis
3. Transportation System Needs
4. Next Meeting Date/Topic: May 28-30 (Recommended Improvements/Costs/Funding Options)

Discussion materials and previous TPAC meeting minutes will follow under separate cover by mail.

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 SUBJECT TPAC NTL 4/23/96

DATE

PROJECT #

PROJECT NAME

BY

SHEET #

OF

1:00 PM

SIGN-UP SHEET

<u>Name</u>	<u>PH #</u>
Carl Shuck	
CARL Shuck	883-4200
Jim BRYANT (ODOT)	388-6437
David Downs	883-4202
RON KROOP	883-5363
June Miller	884-4538
FRANCIS ROBERTS	883-4696
Randy Bednar	883-5662
Joe Riker	883-5361
Andy Mortensen (Kittelison)	(503) 228-5230
Ron K. Eichelkraut KCFD#1	885-2056



Kittelson & Associates, Inc.
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Klamath Falls Urban Area TSP

Date:

Project Number: 1307

To: TPAC Member

From: Andy Mortensen, Kittelson & Associates, Inc.

AGENDA

Klamath Falls Urban Area TSP TPAC Meeting #8

Date: Tuesday, June 4, 1996

Place: Klamath County Public Works Offices

Time: 1:00 p.m.

AGENDA

Attachment

1. Alternatives Analysis Summary / Rail Plan Strategy

Technical Memorandum #5

2. Transportation System Improvement Costs

Technical Memorandum #5

3. Funding Sources

Draft Technical Memorandum #7

4. DEQ - TSP/Air Quality (attainment)

5. Next Meeting Date/Topic: June 27, 1996 Financial Plan - Implementation Strategy

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Date: Novemeber 27, 1996

To: Transportation Plan Advisory Committee

From: Andy Mortensen, W&H Pacific, Inc.

Subject: Klamath Falls Urban Area TSP TPAC Meeting
Tuesday, December 13, 1996 at 1:30 AM - Klamath County Public Works
Offices

AGENDA

1. Technical Memorandum #6 - Preferred Alternative (attachment)
2. Technical Memorandum #7 - Financial Plan (attachment)
3. TSP Financial Plan Work Session and Public Meeting Schedule

I:\project\29641801\wpdata\mt\ac1203.mem



Kittelsohn & Associates, Inc.
610 S.W. Alder, Suite 700
Portland, Oregon 97205
(503) 228-5230 FAX (503) 273-8169

Date: April 11, 1996

Project Number: 1307

To: Daniel Downs
Klamath County
1435 Esplanade Ave
Klamath Falls, OR
97601

Joe Riker
City of Klamath Falls
P.O. Box 237
Klamath Falls, OR
97601

Jim Bryant
ODOT-Region 4
63034 OB Riley Rd
Bend, OR
97701

Ernie Palmer
Basin Transit
1130 Adams St.
Klamath Falls, OR
97601

FAX: (503) 885-3644

(503) 883-5390

(503) 385-0476

(503) 884-6287

From: Andy Mortensen, Kittelson & Associates, Inc.

Subject: Management Team Meeting - April 23, 1996

Draft Alternatives Analysis and Transportation System Needs

MEETING NOTICE

Klamath Falls Urban Area TSP Management Team

Date: Tuesday, April 23, 1996
Place: Klamath County Public Works Offices
Time: 11:00 a.m.

AGENDA

1. Model Refinement and TSP Schedule Update
2. Draft Alternatives Analysis
3. Transportation System Needs
4. TPAC Meeting Agenda
5. Next Meeting Date/Topic: May 28-30 (Recommended Improvements/Costs/Funding Options)

Discussion materials will follow under separate cover by mail next week.



Kittelsohn & Associates, Inc.
610 S.W. Alder, Suite 700
Portland, Oregon 97205
(503) 228-5230 FAX (503) 273-8169

Date: April 11, 1996

Project Number: 1307

To: **Daniel Downs** **Joe Riker** **Jim Bryant** **Ernie Palmer**
Klamath County City of Klamath Falls ODOT-Region 4 Basin Transit
1435 Esplanade Ave P.O. Box 237 63034 OB Riley Rd 1130 Adams St.
Klamath Falls, OR Klamath Falls, OR Bend, OR Klamath Falls, OR
97601 97601 97701 97601

FAX: (503) 885-3644 (503) 883-5390 (503) 385-0476 (503) 884-6287

From: Andy Mortensen, Kittelson & Associates, Inc.

Subject: Discussion Materials for Management Team Meeting - June 4, 1996

AGENDA
Klamath Falls Urban Area TSP
Management Team

Date: Tuesday, June 4, 1996
Place: Klamath County Public Works Offices
Time: 11:00 a.m.

AGENDA

Attachment

- | | | |
|----|--|--|
| 1. | Alternatives Analysis Summary / Rail Plan Strategy | Technical Memorandum #5 |
| 2. | Transportation System Improvement Costs | Technical Memorandum #5 |
| 3. | Funding Sources | Draft Technical Memorandum #7 |
| 4. | DEQ - TSP/Air Quality (attainment) | |
| 5. | TPAC Meeting Agenda | |
| 6. | Next Meeting Date/Topic: | June 27, 1996 Financial Plan - Implementation Strategy |

MEETING NOTICE
Klamath Falls Urban Area TSP
Management Team

Date: Tuesday, July 18, 1996
Place: Klamath County Public Works Offices
Time: 11:00 a.m.

AGENDA

1. Eastside Expressway Completion - Preliminary Reconnaissance Scope of Work
2. Draft TSP Direction
3. Transportation Commission Agenda
4. Next Meeting Date/Topic: To be announced

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Date: **October 10, 1996**

To: **Management Team**

	<u>Phone #</u>	<u>Fax #</u>
Carl Shuck, Klamath County	(541) 883-4200	(541) 885-3644
Francis Roberts, Klamath County	(541) 883-4696	(541) 882-3046
Ron Kroop, City of Klamath Falls	(541) 883-5363	(541) 883-5395
Joe Riker, City of Klamath Falls	(541) 883-5361	(541) 883-5390
Jim Bryant, ODOT -Region 4	(541) 388-6437	(541) 385-0476
Randy Bednar, ODOT - District 11	(541) 883-5662	(541) 883-5589
Ernie Palmer, Basin Transit	(541) 883-2877	(541) 884-6287

From: **Andy Mortensen, W&H Pacific, Inc.**

Subject: **Klamath Falls Urban Area TSP Management Team Meeting**
 Tuesday, October 29, 1996 at 1:00 PM - Klamath County Public Works Offices

AGENDA

1. Eastside Expressway Alternatives Analysis
2. TSP Schedule for:
 - Draft Preferred Alternative
 - Financial Plan
 - Draft TSP
 - Public Meetings

Date: June 26, 1997

To: Management Team

	<u>Phone #</u>	<u>Fax #</u>
Carl Shuck, Klamath County	(541) 883-4200	(541) 885-3644
Francis Roberts, Klamath County	(541) 883-4696	(541) 882-3046
Ron Kroop, City of Klamath Falls	(541) 883-5363	(541) 883-5395
Cameron Gloss, City of Klamath Falls	(541) 883-5361	(541) 883-5390
Jim Bryant, ODOT -Region 4	(541) 388-6437	(541) 385-0476
Randy Bednar, ODOT - District 11	(541) 883-5662	(541) 883-5589
Ernie Palmer, Basin Transit	(541) 883-2877	(541) 884-6287

From: Andy Mortensen, W&H Pacific, Inc.

Subject: Klamath Falls Urban Area TSP Management Team Meeting
Tuesday, July 1, 1997 at 10:00 AM - Klamath County Public Works Offices

AGENDA

1. TSP Issues for Final Consensus (Attached).
2. TSP Meeting Schedule.
3. Other.

Issues (for final consensus)

- Drop Eastside Extension project from TSP list.
- City / County support of ODOT with nearer-term and more aggressive access management policies on South Sixth Street in lieu of dropping Eastside Expressway project, possibly including new parallel support routes. Eastside Expressway re-alignment (project 3.2) should be re-prioritized to 1-5 years in TSP.
- Separate County / City street design standards, ODOT street standards as identified in Highway Design Manual..
- Revise description of Delaware project / renaming it to Hilyard as shown on maps.
- Street standards should show 10% maximum grade on local streets not 13%.
- Clarification of County roadway funding source in Financial Plan chapter.
- Homedale/Southside Expressway interchange - remove "closure" of Summers Lane from project description.
- Parallel and support streets not identified as specific projects on Southside Expressway.
- Lakeshore Drive study findings / TSP "project" revision (if any) - not a "local" street.
- Financial Plan has inconsistent cost summaries.
- "Datedness" of some TSP chapters (e.g. Reno Air service now gone, "Dan O'BRIEN Way" instead of West Campus Way, etc.).
- Executive Summary to include "next step" where City and County need to adopt TSP as part of their Comprehensive Plans, with due consideration of land use plan impacts.
- Correct some of the functional classification inventory, accurately listing street jurisdiction.
- Provide traffic volume maps of alternatives.
- Need a constructive dialogue to address Financial Plan shortfall.
- Access management policies need to be specified for all state highways, by segment.
- Address air quality issues in TSP, either by text or appendix.
- Bike lanes as 6' standard in Table 7-1 and Figure 7-3 .
- Street standards street lighting for local streets should be at pedestrian scale - reduced mounting height to 12'.
- Current design "deficiencies" instead of "flaws" at the Highway 97/Eastside Expressway interchange. Not "illegal" u-turns on Highway 97 but "substandard."



Klamath County - Board of Commissioners

LOCATION: 409 PINE STREET, 2ND FLOOR
MAIL: 403 PINE STREET, SUITE 300
KLAMATH FALLS, OREGON 97601-6391
PHONE # (541) 883-5100 FAX # (541) 883-5163

May 8, 1997

Francis Roberts, Director
Klamath County Public Works
3735 Shasta Way
Klamath Falls, OR 97601

RE: OUR RECENT CONVERSATION CONCERNING KLAMATH FALLS URBAN AREA TRANSPORTATION SYSTEM PLAN

Dear Francis:

The Klamath County Board of Commissioners would like to go on record as having opposition to some elements of the TSP Plan. We are opposed to the following:

1. The closing of Altamont Drive to left turn traffic from Oregon 140. We feel that ODOT has totally disregarded public testimony, their own signed agreement and they have not shown it is truly a safety issue. It is fundamentally wrong to impact a business with out some sort of compensation to the business owner.
2. Item 3.2 referred to as "new alignment via OC&E railroad grade." We are opposed to this bike path being turned into a road for numerous reasons. It will cost too much, it will have to cross streets, and we consider these bike paths a vital part of our way of life in Klamath County.
3. Item 24 "Lakeshore Drive." We are in agreement with the improvement of this road with minor realignment on the west end of the road where it intersects with Highway 140. We would not be in favor of purchasing any private property to widen the road.
4. Item 1.6 "Homedale Interchange/Close Summers Lane." We could support the Homedale Interchange if it could be shown it is needed to service the growth at the airport. We have reservations about closing Summers Lane. If you follow through with the proposal for Altamont and close Summers Lane, where do the County school buses go? And how would you funnel the traffic which uses Summers Lane which is one of our most highly developed roads?

Sincerely,

Al Switzer, Chairman

William R. Garrard
Commissioner

M. Steven West
Commissioner

CITY OF KLAMATH FALLS

226 S. 5TH STREET - P.O. BOX 237
KLAMATH FALLS, OREGON 97601
Sister City - Rotorua, New Zealand
FAX (541) 883-5390 - TDD (541) 883-5324

May 9, 1997

Francis Roberts
Public Works Director
Klamath County
3735 Shasta Way
Klamath Falls, OR 97601

Re: Transportation System Plan -
Eastside Expressway Extension

Dear Francis:

The purpose of this letter is to respond to the County's concern regarding one of the projects identified in the Transportation System Plan (TSP); specifically the extension of the Eastside Expressway (Alameda Bypass) using the OC&E Right-of-Way (ROW) (Project 3.2). We share your concern that a "line" on a plan, especially this line as a potential major transportation corridor in an already developed area creates considerable interest and anxiety.

As our collective investigation demonstrated, there is cause for concern that projected future traffic volumes on South Sixth Street will lead to unacceptable Levels of Service during peak commuting hours. Regrettably, our search for a feasible alternative did not yield an "easy to build" solution. The Eastside Expressway extension on the OC&E ROW was selected as the best overall alternative. Since the OC&E - ROW is protected and the rate of traffic growth is not known with any certainty, we concur with deleting Project 3.2 from the TSP at this time. Hopefully working together with ODOT, we can make enough capacity improvements on South Sixth Street coupled with demand management actions to preclude the need for this difficult project.

We look forward to jointly bringing the final TSP to adoption and working together to implement the most needed projects.

Sincerely,



Ron H. Kroop
Public Works Director

c: Todd Kellstrom Jim Bryant
 Jim Keller Andy Mortensen
 Cameron Gloss
 Randy Bednar

Klamath Falls Urban Area Transportation System Plan

Final TPAC Meeting

Date: Tuesday, July 1, 1997
Place: Klamath County Public Works Offices
Time: 1:30 p.m.

AGENDA

1. TSP Issues for Final Consensus (Attached).
2. TSP Meeting Schedule.
3. Other.

I:\PROJECT\29641801\WPDATA\MT\MT0626-2.MEM



STATE OF OREGON

INTEROFFICE MEMO

Department of Transportation
Transportation Development Branch
Mill Creek Office Park
555 13th Street NE
Salem, Oregon 97310
(503) 986- 4170 FAX (503) 986-4174

File Code: PLA

Date: 5/29/97

TO: Mark DeVoney, Region 4

FROM: Erik H. East, Corridor and General Planning Unit

SUBJECT: Comments on Klamath Falls TSP

Here are my comments on the TSP. I hope they are helpful.

1. There are some good strategy statements in the draft for influencing state and federal policy in ways that would directly benefit the Klamath Falls transportation system. It is important that the city focus its influence in these areas where the benefits could accrue with little or no direct cost to the city. Amtrak's Coast Starlight is a relative high performer but needs much support if it is to continue both nationally and locally.
2. The plan lists two growth scenarios. The preferred plan is based on which of these two? I am assuming that the modest growth scenario is the more realistic of the two.
3. Given the more modest growth scenario, the proposed improvement program seems ambitious for a community that is expected to grow at a rate of about 2.5 % per year, or less than 5,000 people in 20 years.
4. There is a large backlog of pavement deficiencies identified in the plan. Since Measures 47 and 50 will further restrict use of property taxes as a source of funding for things like street maintenance, this backlog needs to be specifically addressed in the plan.

My observation is that the city will need to use more of its road funds to maintain existing streets. The plan seems to focus only on improvements. Have maintenance costs been adequately accounted for in the financial plan? How wise is it to continue to build new roads while the rest of the system is deteriorating? The plan appears to need more balance.

July 30, 1997

Cameron Gloss
Planning Director
City of Klamath Falls
226 South 5th Street
PO Box 237
Klamath Falls, OR 97601

DEPARTMENT OF
LAND
CONSERVATION
AND
DEVELOPMENT

Carl Shuck
Planning Director
Klamath County
334 Main Street
Klamath Falls, OR 97601

Re: Klamath Falls Urban Area Transportation System Plan
April 21, 1997 Draft

Dear Messrs. Gloss and Shuck:

The Department of Land Conservation and Development has completed its review of the above referenced material. Our review of the draft document is intended to assist the city and county complete their Transportation System Plan (TSP) and meet the requirements of the Transportation Planning Rule (OAR 660-12).

The following Compliance Recommendations identify major deficiencies and recommend appropriate actions to meet outstanding Transportation Planning Rule (TPR) requirements; Comments are of an advisory nature to strengthen the TSP's usefulness as a local planning document.

1. **Determination of Transportation Needs (660-12-030)**

Compliance Recommendations: The TSP must demonstrate how the transportation system will serve future land uses and projected population and employment growth consistent with the acknowledged comprehensive plan as required in TPR 660-12-030(3)(a). Chapter 4 and Appendix E identify which areas of the city were projected to be developed/redeveloped within the planning period and include the dwelling unit and employment model inputs which form the basis for traffic forecasts. However, the TSP should include some additional information to further clarify the analysis:

John A. Kitzhaber
Governor



1175 Court Street NE
Salem, OR 97310-0500
(503) 373-0050
FAX (503) 362-6705

◆The current and future population and employment broken down by the area currently within the city limits and those areas outside of the city limits but within the UGB. Include maps showing developed/vacant areas and land use plan/zoning designations.

◆The 2015 model inputs show significant changes in housing and employment in a number of TAZs which are not shown on Figure E-1. TAZs 88 through 101 must be represented on Figure E-1. TAZs 1 through 20 are also not shown in the figure but do not have any development allocated; please explain or remove from the table.

◆TAZ 92 shows all development being eliminated within its boundaries during the planning period. Please include an explanation.

Comments: The summary of all reviewed documents in *Appendix B, Plans and Policies Review* is excellent and provides the policy and technical background necessary to allow the reader to ascertain how state, regional, and local needs are accommodated in the TSP per TPR 660-12-030(1)(a) and -030(2).

2. **Road Plan for a System of Arterials and Collectors (660-12-020)**

Compliance Recommendations: TPR 660-12-035(3) states that the transportation system shall be appropriate to serve the land uses and minimize adverse economic and social impacts. Extensive modeling of alternatives was done to meet this requirement and the scope of work. However, only the projected volumes of the "Do-Nothing" alternative was included. Inclusion of projected volumes for the other four alternatives tested is needed to demonstrate the need for and relief provided by recommended improvements such as South Sixth Street.

3. **Standards for the Layout of Local Street and Other Important Non-Collector Street Connections (660-12-020)**

Compliance Recommendations: A key requirement of the TPR is providing increased local street connections for additional automobile and non-vehicular opportunities (TPR 660-12-020(2)(b) and -045(3)). Appendix G of the TSP details some common implementation techniques such as limiting block length or perimeter, requiring through streets to adjacent parcels with few exceptions, and restricting cul-de-sacs. As the TSP states that few local streets are specifically identified for improvement, standards and regulations to address connections between streets and to neighborhood destinations that will reduce excessive out-of-direction travel are needed.

4. **Public Transportation Plan (660-12-020)**

Compliance Recommendations: The TSP does a good job of describing current and future service provision and considers techniques for increasing ridership. However, it should also

address transit friendly development land use and subdivision regulations as required in TPR 660-12-045(4) as the identified population of approximately 44,000 within the UGB exceeds the urban area population threshold of 25,000. Revise Chapter 10 and Appendix G to include the appropriate measures and adopt regulations as noted in 10. below.

5. **Bicycle and Pedestrian Plan (660-12-020)**

Compliance Recommendations: TPR 660-12-045(3) and -045(6) requires that non-vehicular access to major activity centers be provided. Include a map showing the major activity centers such as schools, Oregon Institute of Technology, major shopping centers, etc. to strengthen the analysis of the bicycle and pedestrian plans and demonstrate TPR compliance..

Comments: The proposed road, bicycle, and pedestrian facilities on Campus Drive is a good example of improvements which meet TPR objectives of increasing travel opportunities for all modes at activity centers.

6. **Air, Rail, Water, and Pipeline Transportation Plan (660-12-020)**

Compliance Recommendations: The *Klamath 2002 Vision* and the *Klamath County Overall Economic Development Plan* both identify the airport as the "keystone" to economic development. Stakeholder interviews also emphasized expansion of the airport and connections to it from other components of the transportation system. The TSP should expand the discussion of the airport master plan prepared in 1993 and indicate how the planned transportation system will support the airport and its "movement of goods and services to support industrial and commercial development" as required in TPR 660-12-030(1)(c).

Comments: The discussion of the rail system and potential strategies to enhance its regional position is excellent.

7. **System Alternatives and Evaluation of Impacts (660-12-035)**

Compliance Recommendations: The TSP clarify the link between the analysis of future needs that was done and the selection of the preferred alternative as required in Work Program Task 6 and TPR 660-12-035. Include an expanded discussion of alternative strategies considered and the criteria used to select the preferred alternative. Note how the preferred alternative minimizes the number and cost of improvements, maximizes non-vehicular travel, facilitates development of the urban area to support improved air quality, and minimizes energy consumption consistent with Work Program Task 6.

8. **Policies and Land Use/Subdivision Regulations (660-12-045)**

Compliance Recommendations: Table 7-1 provides reduced width and a variety of pavement and right-of-way widths for local residential streets consistent with TPR 660-12-045(7). We

Messrs. Gloss and Shuck
July 30, 1997
Page 4 of 4

recommend that a 28 foot curb-to-curb width with parking allowed on both sides be the standard section within the urbanized and urbanizing area. Sufficient off-street parking is generally provided in newer residential neighborhoods and there is rarely extensive utilization of on-street spaces to hinder automobile and emergency vehicle travel. Narrower streets have a number of benefits including lower maintenance costs, reduced traffic speeds, and allow for the inclusion of parking strips with street trees, which improve aesthetics and also reduce traffic speeds.

9. **Transportation Financing Program (660-12-040)**

Comments: The description of possible funding sources is good. Prioritizing improvements based on the likely funds as defined in this section would increase the TSP's effectiveness in setting direction for areas within the urban growth boundary.

10. **Adoption (660-12-015)**

Compliance Recommendations: TPR 660-12-015(4) states "Cities and counties shall adopt regional and local TSPs ... as part of their comprehensive plans." Language changes throughout the plan to eliminate words like "recommended" and "suggested" to reflect its status as part of the city and county's guiding documents would be appropriate. Incorporation of the TSP into the Comprehensive Plans should be done as part of the TSP adoption process. Amendments to regulations may be done subsequently but a schedule for their consideration/adoption should be established as part of the TSP adoption ordinance.

The Department appreciates the opportunity to comment on the draft plan. Please contact me at 373-2145 if you have any questions about our comments and recommendations.

Sincerely,



Elizabeth L. Ledet, AICP
Transportation/Land Use Planner

cc: Jim Bryant, ODOT Region 4
Jim Knight, DLCD
Jim Sitzman, DLCD
Brent Lake, DLCD
Andy Mortensen, W&H Pacific

MAY 12, 1997

COMMISSIONERS PRESENT:

Chairman Goss
Commissioner Harris
Commissioner Doveri
Commissioner Yaden
Commissioner Miller
Commissioner Baker
Commissioner Wachter

STAFF PRESENT:

Ron Kroop, Public Works Director
Deirdre Sessler, Planner
Cameron Gloss, Director of Planning
Joe Riker, Community Development Director
Jeff Ball, City Attorney
Trish Wilson, Recording Secretary

The minutes from the April 14, 1997 Planning Commission were approved.

Chairman Goss called the Planning Commission meeting for May 12, 1997, to order at 7:00 PM and read the public hearing procedures into the record.

PUBLIC HEARING - STREET NAME CHANGE

PROPOSAL: Name change for a portion of Hunter Court in Basin View Estates, to Hunter Lane. Located in the North Hills Subdivision, Tract 1301.

Deirdre Sessler read the Staff Report into the record.

Chairman Goss asked there would be any homes addressed off of Hunter Lane.

Deirdre Sessler stated no.

Commissioner Doveri asked that if there were not any homes addressed off of this section of road, why is there a concern with changing the name.

Ron Kroop stated that there is a concern when a call is received at 911, the address will come up on a computer screen and it searches for the nearest intersection; if the intersection has the same name, it will loop around searching for the intersection. If the name is changed to something else, the computer will find the intersection of Hunter Court and Hunter Lane.

Chairman Goss asked for proponents; there were none. He then asked for opponents; none stepped forward.

Chairman Goss closed the public hearing. There was no further discussion from the Commission.

MOTION: COMMISSIONER YADEN MOVED TO RECOMMEND TO CITY COUNCIL THE NAME CHANGE OF A PORTION OF HUNTER COURT TO HUNTER LANE, IN THE NORTH HILLS SUBDIVISION. COMMISSIONER DOVERI SECONDED THE MOTION AND WITH ALL COMMISSIONERS PRESENT VOTING AYE, THE MOTION WAS CARRIED.

PUBLIC HEARING - CDO AMENDMENT

PROPOSAL: Amendment to the Community Development Ordinance, Chapter 10, Section 10.010, amending the Historical Significance definition; Chapter 14, Section 14.768(1), Historical Significance and Section 14.773(3)(c), placement of signs. Located in the Downtown Business Zone.

Deirdre Sessler read the Staff Report into the record.

Commissioner Doveri asked if the use of stucco was addressed in the Design Review Standards. He does not feel that it should be used downtown.

Deirdre Sessler stated that it was not yet, but the Design Review Commission would be addressing the use of stucco in the future.

Chairman Goss asked for proponents. None stepped forward, he called for opponents; none stepped forward. He then closed the public hearing.

Commissioner Doveri stated that he did not see a problem with the proposed changes; if they were not done, the city would loose more buildings.

There was no further discussion from the Commission.

MOTION: COMMISSIONER YADEN MOVED TO RECOMMEND TO CITY COUNCIL THE COMMUNITY DEVELOPMENT ORDINANCE AMENDMENTS. COMMISSIONER DOVERI SECONDED THE MOTION AND WITH ALL COMMISSIONERS VOTING AYE, THE MOTION WAS CARRIED.

OTHER MATTERS:

Study Session on the Draft Klamath Falls Urban Area Transportation System Plan.

Cameron Gloss stated that for the last two years the City, along with Klamath County and the Department of Transportation have been working on a Transportation System Plan for Klamath Falls. The state has required that all communities come up with a transportation system plan and Klamath Falls is one of the front runners right now, with an adoption date hopefully by the end of summer. Andy Mortensen from W&H Pacific has been the consultant on the project.

Chairman Goss read a letter from Ron Kroop, Public Works Director, to Francis Roberts, County Public Works Director regarding the proposal to use the OC&E Rail Road bike path as an eastside expressway extension, project 3.2 in the draft proposal of the Transportation Systems Plan (TSP). The City would like to delete this project from the Plan. Mr. Kroop hopes that in working with the Department of Transportation, enough capacity improvements can be made on South 6th Street, coupled with demand management actions to preclude the need for the extension proposal.

Cameron Gloss stated that there was also concerns with Lakeshore Drive and the County is in the process of evaluating and working with a consultant to look at potential improvements to Lakeshore Drive. The study has not been released to the public and he anticipates that it will be released in the next few weeks. At this time, he does not really know the exact improvements that are being proposed. This item was put in the TSP to identify that there may be some public improvements associated with Lakeshore Drive. Until the study comes out in a few weeks, its hard for Staff to say what those improvements will be. He further stated there are no dates certain yet for the public meetings.

Andy Mortensen of W&H Pacific gave the Commission a broad overview on what the TSP is and reviewed the key projects that need to be completed over the next 20 years to meet the demands on traffic and the community.

Commissioner Miller asked if the identified projects were prioritized.

Mr. Mortensen stated that they were and Tables 8-7, 8-8 and 8-9 summarized the projects. He further stated that the Eastside Expressway Extension project would be deleted from the Plan.

Commissioner Yaden asked what the alternative would be if this project were removed.

Mr. Mortensen stated that in taking it out he would suggest that a more a rigorous access management plan be adopted for South 6th Street.

Commissioner Baker asked if the Plan addressed the Stewart Lennox area and the possible siting of the co-generation project.

Chairman Goss stated that he agreed with Commissioner Baker that this could be a traffic problem in the future.

Ron Kroop stated that the co-gen will only employ about 20 people. It could have near vicinity activity such as businesses wanting to locate near the co-gen project, but the zoning in the area does not allow for industrial uses.

Commissioner Baker stated that Zone Changes could be applied for and hopefully the co-gen project will generate business in the area. He is concerned that traffic through the Stewart Lennox neighborhood will increase.

Cameron Gloss stated that the co-gen site is outside the Urban Growth Boundary and urban facilities are usually not extended outside the UGB. The area surrounding is residential. He would not anticipate industrial development on the west side of the highway. There is potential east of the highway for development if the co-gen is successful.

Commissioner Baker stated that potential is there and if he lived in Stewart Lennox, he would want to know how it was going to be addressed in the TSP.

Mr. Mortensen stated that Section 9 addresses the Southside Expressway.

Commissioner Yaden stated that he would like to know what is going to be done with South 6th Street, other than restricting access. He would like to see better signage on the Southside Expressway, showing that people don't have to take South 6th Street to get to Highway 97.

Mr. Mortensen stated that when the improvements are done on the Expressway, it will help de-emphasize the use of South 6th Street, but its a ways away.

Ron Kroop stated that the majority of traffic on South 6th Street is local traffic.

Mr. Mortensen stated that when they measured the traffic, anywhere from 5% to 8% was nonlocal traffic.

Commissioner Wachter stated that whose idea was it to remove the expressway extension, it was a few years out.

Ron Kroop stated that there are a number of citizens in Klamath Falls concerned about the very attractive, recently completed bike path, being turned into a road. The County felt that other actions such as the upgrade of South 6th could forestall the need for this extension. The City shared the same concern.

**Minutes of the Planning Commission Meeting
May 12, 1997**

Commissioner Miller asked Staff what the plans were for the Modoc property and the impacts it will have on downtown traffic.

Cameron Gloss stated that he is working with a consultant and they are doing the background work right now and in the next couple of months will be doing workshops in Klamath Falls and will get some public input on the types of land use mix that would be appropriate for the area and the amount of traffic that will be generated. This will help Staff know more clearly, what the impacts will be on the traffic downtown.

Commissioner Doveri asked if any consideration had been given to the continuation of Spring Street to the Southside Bypass..

Mr. Mortensen stated that this area is in a floodplain and was not considered.

Commissioner Yaden stated that extending Foothills through Moyina Heights down to Highway 39, should be thought through some more. There needs to be other routes instead of using South 6th Street.

Chairman Goss stated that transportation planning is a very important part of land use planning; he would like to know if the Commission should be looking at land use policies that relate to transportation.

Ron Kroop stated that the adoption of the TSP, will be a road map on which land use considerations related to transportation can be properly evaluated.

Jim Bryant from the Department of Transportation, spoke to the Commission on their part in the TSP and what some of their projects will be.

With no other matters discussed, the meeting was adjourned.

LATRICIA M. WILSON
RECORDING SECRETARY, PLANNING COMMISSION

Appendix J

Financial Plan Summary

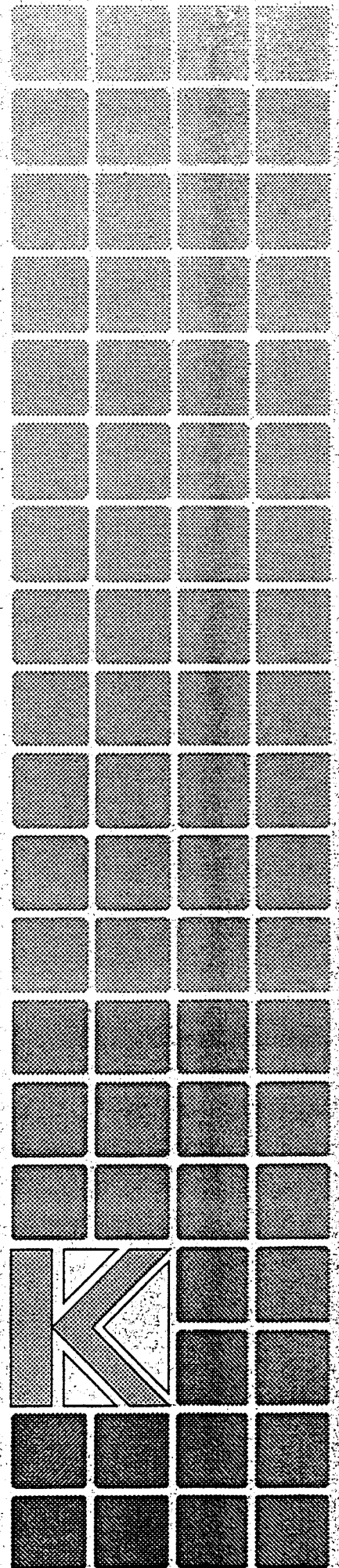


Table J-1

**Klamath Falls Area Transportation System Plan
Summary of Road-Related Transportation Funding Programs: Federal Sources**

Program Name	Description
Intermodal Surface Transportation Efficiency Act (ISTEA)	ISTEA is designed to provide flexibility in federal funding of transportation projects. ISTEA established several funding programs including the 1) National Highway System; 2) Interstate Program; 3) Surface Transportation Program; 4) Congestion Management and Air Quality Improvements Program; and 5) National Scenic Byways Program.
Surface Transportation Program (STP)	The Surface Transportation Program was authorized by Title I of the ISTEA. The STP funds are allocated to the State and suballocated to cities and counties on a formula basis by the Oregon Transportation Commission. STP funds may be used for any road that is not functionally classified as a local or rural minor collector and must be included in the Transportation Improvement Program to receive STP funds.
Transportation Enhancement Program (Part of STP)	The ISTEA includes provisions that require the State to set aside a portion of its Surface Transportation Program (STP) funds for projects that will enhance the cultural and environmental value of the State's transportation system. Eligible transportation enhancement projects must be directly related to the intermodal transportation system. This program funds enhancements including pedestrian and bicycle facilities; preservation of abandoned railway corridors; landscaping and other scenic beautification; control and removal of outdoor advertising; acquisition of scenic easements and scenic or historic sites; scenic or historic highway programs; historic preservation; rehabilitation and operation of historic transportation buildings, structures or facilities; archaeological planning and research; and mitigation of water pollution due to highway runoff.
Highway Enhancement System (HES)	The FHWA Highway Enhancement System Program provides funding for safety improvement projects on public roads. Safety improvement projects may occur on any public road and must be sponsored by a county or city. To be eligible for Federal aid, a project should be part of either the annual element of a Regional Transportation Plan or the annual listing of rural projects by ODOT, although they do not have to be part of the approved State Highway Improvement Program to receive HES funding.

Table J-1 (Continued)
Klamath Falls Area Transportation System Plan
Summary of Road-Related Transportation Funding Programs: Federal Sources

Program Name	Description
Community Development block Grants (CDBG)	Community Development Block Grants (CDBG) are administered by the Department of Housing and Urban Development (HUD) and potentially be used for transportation improvements in eligible areas.

Table J-2

**Klamath Falls Area Transportation System Plan
Summary of Road-Related Transportation Funding Programs: State Level**

Program Name	Description
State Highway Fund	The State Highway Fund composed of gas taxes, vehicle registration fees, and weight-mile taxes assessed on freight carrier. In 1994, the state gas tax was \$0.24 per gallon. Vehicle registration fees were \$15 annually. Revenues are divided as follows: 15.57 percent to cities, 24.38 percent to counties, and 60.05 percent to ODOT. The city share of the State Highway Fund is allocated based on population. ORS 366.514 requires at least one percent of the State Highway Fund received by ODOT, counties and cities be expended for the development of footpaths and bikeways. ODOT administers the bicycle funds, handles bikeway planning, design, engineering and construction, and provides technical assistance and advice to local governments concerning bikeways.
Special Public Works Fund (SPWF)	The State of Oregon allocates a portion of revenues from the state lottery for economic development. The Oregon Economic Development Department provides grants and loans through the SPWF program to construct, improve and repair infrastructure to support local economic development and create new jobs. The SPWF provides a maximum grant of \$500,000 for projects that will help create a minimum of 50 jobs.
Transportation Access Charges	The most familiar form of a transportation access charge is a bridge or highway toll. Transportation access charges are most appropriate for high-speed, limited access corridors; service in high-demand corridors; and bypass facilities to avoid congested areas. Congestion pricing, where drivers are charged electronically for the trips they make based on location and time of day, is the most efficient policy for dealing with urban congestion. It not only generates revenue for maintenance and improvements; but also decreases congestion and the need for capital improvements by increasing the cost of trips during peak periods. The Oregon Revised Statutes allow ODOT to construct toll bridges to connect state highways and improve safety and capacity. The Statues also allow private development of toll bridges. Recent actions by the Oregon legislature provide authority for developing toll roads. State authority for congestion pricing does not exist; new legislation would be required.
Immediate Opportunity Fund (IOF)	Financed at a level of \$5 million per year to a maximum of \$40 million through FY96. The fund is to support specific economic developments in Oregon through the construction and improvement of roads and is restricted for use in situations that require a quick response and commitment of funds. It is anticipated that the maximum amount available for a single project is \$500,000 or 10 percent of the annual program level. This fund may be used only when other sources of financial support are unavailable or insufficient and are not a replacement or substitute for other funding sources.

Table J-2 (Continued)
Klamath Falls Area Transportation System Plan
Summary of Road-Related Transportation Funding Programs: State Level

Program Name	Description
OR Transportation Infrastructure Bank	As a pilot program for the USDOT, the Oregon Transportation Commission has made \$10 million available from projects that will not be contracted in FY 1996. The OTIB will make loans for transportation projects and will offer a variety of credit enhancements. Initial loans must be for improvements on federal aid highways, repayments go into an account that will be made available for any mode. Ability to repay will be a key factor in all loans.
Traffic Control Projects	The State maintains a policy of sharing installation, maintenance, and operational costs for traffic signals and luminaire units at intersections between State highway and city streets (or county roads). Intersections involving a State highway and a city street (or county road) which are included on the state-wide priority list are eligible to participate in the cost sharing policy. ODOT establishes a statewide priority list for traffic signal installations on the State Highway System. The priority system is based on warrants outlined in the Manual for Uniform Traffic Control Devices. Local agencies are responsible for coordinating the statewide signal priority list with local road requirements.

Table J-2
Klamath Falls Area Transportation System Plan
Summary of Road-Related Transportation Funding Programs: Local Sources

Program Name	Description
Special Assessments/Local Improvements Districts	Special assessments are charges levied on property owners for neighborhood public facilities and services, with each property assessed a portion of total project cost. They are commonly used for such public works projects as street paving, drainage, parking facilities and sewer lines. The justification for such levies is that many of these public works activities provide services to or directly enhance the value of nearby land, thereby providing direct and/or financial benefit to its owners. Local Improvement Districts (LIDs) are legal entities established by the City to levy special assessments designed to fund improvements that have local benefits. Through a local improvement district (LID), streets or other transportation improvements are constructed and a fee is assessed to adjacent property owners.
Systems Development Charges (Impact Fees)	Systems Development Charges (SDCs) are fees paid by land developers intended to reflect the increased capital costs incurred by a municipality or utility as a result of a development. Development charges are calculated to include the costs of impacts on adjacent areas or services, such as increased school enrollment, parks and recreation use, or traffic congestion. Numerous Oregon cities and counties presently use SDCs to fund transportation capacity improvements. SDCs are authorized and limited by ORS 223.297 - 223.314.
Local Gas Tax	A local gas tax is assessed at the pump and added to existing state and federal taxes. Tillamook, The Dalles and Woodburn are Oregon cities that have a local gas tax. Multnomah and Washington Counties also have gas taxes.
Local Parking Fees	Parking fees are a common means of generating revenue for public parking maintenance and development. Most cities have some public parking and many charge nominal fees for use of public parking. Cities also generate revenues from parking citations. These fees are generally used for parking-related maintenance and improvements.

Table J-2 (Continued)
Klamath Falls Area Transportation System Plan
Summary of Road-Related Transportation Funding Programs: Local Sources

Program Name	Description
Street Utility Fee	Most city residents pay water and sewer utility fees. Street user fees apply the same concept to city streets. A fee would be assessed to all businesses and households in the city for use of streets based on the amount of use typically generated by a particular use. For example, a single-family residence might, on average, generate 10 vehicle trips per day compared to 130 trips per 1,000 square feet of floor area for retail uses. Therefore, the retail use would be assessed a higher fee based on higher use. Street services fees differ from water and sewer fees because usage cannot be easily monitored. Street user fees are typically used to pay for maintenance more than for capital projects.
Vehicle Registration Fees	Counties can implement a local vehicle registration fee. The fee would operate similar to the state vehicle registration fee. A portion of the County fee would be allocated to the City.
Property Taxes	Local property taxes could be used to fund transportation, although this is limited by Ballot Measure 5 and 47.
Revenue Bonds	Revenue Bonds are bonds whose debt service is financed by user charges, such as service charges, tolls, admissions fees, and rents. If revenues from user charges are not sufficient to meet the debt service payments, the issuer generally is not legally obligated to levy taxes to avoid default, unless they are also based by the full faith and credit of the insuring governmental unit. In that case, they are called indirect general obligation bonds. Revenue bonds could be secured by a local gas tax, street utility fee, or other transportation-related stable revenue stream.

Table J-3: Currently Used Revenue Sources For Counties (millions of 1995 dollars)

Facility	Revenue Source	Importance (not 100%)	3-Year Trend	Dedication	Rate
Streets/Bridges/Sidewalks/ Bike Lanes	Oregon Highway Trust Fund	46% of total or \$139.	Growing about 1.75% per year.	Constitutionally Limited	24¢/gal. + wt. mile; \$30/registration fee.
	Federal Forest	29% or \$90	For 2/3 of Counties that get these funds, declining especially rapidly for Eastern Oregon	Funds are split 25/75 between schools and roads in Oregon.	Varies w/National Forest.
	General Fund Transfers	<1% or \$1.	Varies but assume growth @ 3%/yr. but not used by all cities.	May be used for any purpose.	Varies widely.
	Special Property Tax Levies	4% or \$15.	Increasing, only used by about 18 cities.	May be used for purpose described in election.	Varies widely.
	Improvement District Assessments	0.7% or \$2.	Increases when local development increases.	Must be used for adjacent streets and sidewalks.	Varies with construction cost & local ordinances.
	S y s t e m s D e v e l o p m e n t C h a r g e s / T r a f f i c I m p a c t F e e s	1% or \$3.	Varies but increases when local development increases, only used by about 8 counties.	May be used for construction of new streets.	Varies with construction cost & local ordinances. Rates generally higher in Portland Metro area.
	Interest Earnings	6% or \$18.	Varies w/current interest rates.	H a v e s o m e Constitutional limits as Highway Fund.	Used as general street revenue.
	Local Gas Tax	3% or \$7.8	Little changed.	H a v e s o m e Constitutional limits as Highway Fund.	Used by Multnomah (3¢) and Washington (1¢) Counties.
	Private Contributions	<1% or \$0.6	Varies widely.	Contributions related to specific development.	Negotiated individually.

Table J-3: (Continued) Currently Used Revenue Sources For Counties (millions of 1995 dollars)

Facility	Revenue Source	Importance (not 100%)	3-Year Trend	Dedication	Rate
	Misc. - fees, fines, sale of property.	2% or \$7.	Gradual growth.	General revenues used for streets.	Varies widely by County.
	Federal - FHWA+Misc.	9% or \$30.	Some programs stable but others vary each year.	Used mainly for new construction w/some rehab.	Based on federal allocation to Oregon.
	Misc. State Revenues	1% or \$3.	Varies, no trend.	Used mainly for economic development.	Specific grants to individual counties.
Off-street Bike Paths	Misc. general funds & ISTEA	??	Varies from year to year.	ISTEA & General Funds used for construction, General Funds used for maintenance & repair.	Varies from year to year.

Table J-4: Currently Used Revenue Sources For Cities (millions of 1995 dollars)

Facility	Revenue Source	Importance (not 100%)	3-Year Trend	Dedication	Rate
Streets/Bridges/Sidewalks/ Bike Lanes	Oregon Highway Trust Fund	51% of total road or \$89.	Growing about 1.75% per year.	Constitutionally limited to funding activities that benefit autos & trucks.	24¢/gal. for gas; \$30/biennium registration fee.
	General Fund Transfers	9% or \$15.	Varies but assume growth @ 3%/yr. But not used by all cities.	May be used for any purpose.	Varies widely.
	Special Property Tax Levies	5% or \$7.	Increasing, only used by about 18 cities.	May be used for purpose described in election.	Varies widely.
	Improvement District Assessments	7% or \$12.5.	Varies but increases when local development increases.	May be used for construction of adjacent streets- sidewalks.	Varies with construction cost & local ordinances.
	Systems Development Charges/Traffic Impact Fees	4% or \$7.	Varies but increases when local development increases, only used by about 2 dozen cities.	May be used for construction of new streets.	Varies with construction cost & local ordinances. Rates generally higher in Portland Metro area.
	Utility Franchise Fees	3% or \$4.	Grows roughly w/population and inflation.	Is a general revenue used by some cities for streets.	Statutory limit of 5% of utility gross receipts.
	Interest Earnings	4% or \$6.	Varies w/current interest rates.	Have same Constitutional limits as Highway Fund.	Used as general street revenue.
	Local Gas Tax	0.44% or \$0.7	Unchanged.	Have same Constitutional limits as Highway Fund.	Used by Tillamook, The Dalles, and Woodburn.
	Private Contributions	3% or \$4.3	Varies widely.	Usually contributions are related to specific development street impacts.	Negotiated individually.

Table J-4: (Continued) Currently Used Revenue Sources For Cities (millions of 1995 dollars)

Facility	Revenue Source	Importance (not 100%)	3-Year Trend	Dedication	Rate
	Misc. - permit fees, finds, fines, parking, Motel Tax, other	8% or \$14.5.	Gradual growth.	General revenues used for streets.	Varies widely by City.
	Federal - FHWA+HUD	3% or \$5.6.	Relatively stable	Used mainly for new construction w/some rehab.	Based on federal allocation to Oregon.
	Misc. State Revenues - mainly Lottery funds.	2% or \$3.	Varies, no trend.	Used mainly for economic development capital improvements.	Specific grants to individual cities each year.
Off-street Bike Paths	Misc. general funds & ISTEA	??	Varies from year to year.	ISTEA & General Funds used for construction, General Funds used for maintenance & repair.	Varies from year to year.

Table J-5
Klamath Falls Area Transportation System Plan
Summary of Transit Funding Programs

Program Name	Description
FEDERAL SOURCES	All funds from the Federal Transit Administration (FTA) pay 80 percent of capital costs and require a 20 percent local match.
FTA Section 18	Section 18 is a federally sponsored program for small urban and rural areas (under 50,000 population) to support both capital and operating needs. These funds are dispersed through ODOT and distributed on a population basis.
FTA Section 16	These funds are distributed through ODOT to support the capital needs of nonprofit social service transportation providers. Funding of paratransit vehicles for public agencies is done through FTA Section 16.
FTA Section 9	If the Klamath Falls urban area reaches a population of 50,000, it will no longer be eligible for Section 18 funds but will be eligible for Section 9 funds for urban populations greater than 50,000. Operating assistance is available to a predetermined regional cap based on the size and productivity of the operation. Capital assistance is available with a limit of 80 percent of a capital project. FTA funds are allocated to transit agencies based on a complex formula which includes population, population density, and the number of revenue service hours operated within a year.
FTA Section 3	FTA Section 3 funds are limited to capital purchases and fall into three categories: 1) bus/bus facilities, 2) new rail starts and 3) rail upgrade. As with other FTA grants, the Section 3 Discretionary funds provide 80 percent funding with a 20 percent required local match.
Congestion Management/Air Quality Program (CMAQ)	This program was included in ISTEA for non-attainment areas as defined in the Federal Clean Air Act. Klamath County was considered a non-attainment area in 1991 when ISTEA became law. Now the County has been reclassified as it has come into compliance, however, an area needs to be in compliance with federal clean air standards for five years before it is officially taken off the noncompliance list. This means that Klamath Falls or BTS may be eligible for CMAQ funds with the next authorization scheduled for 1997. ISTEA funds are administered by ODOT and are generally focused on air quality improvements.
STATE SOURCES	
Oregon Public Transit Assistance (In-Lieu Payroll Tax)	This fund source is a local payroll tax disbursed by the state to support transit services. To be eligible for these funds, a transit district must be formed and it must be generating local revenues (i.e., property tax). The amount is determined based on the number of State and Federal employees within the Transit District and is the reimbursement of payroll taxes collected from those employees. There is a restriction on the funds specifying that the amount of money received cannot exceed the amount of funding generated locally through the property tax. These funds can be used to support operations or as local match for federal capital grants.

Table J-5 (continued)
Klamath Falls Area Transportation System Plan
Summary of Transit Funding Programs

Program Name	Description
Special Transportation Funds (STF)	STF are generated through a 2 percent tax on cigarette sales. These funds are available to public and social service nonprofit transit providers. These funds are to be used to support elderly and disabled transit operations only. The funds are collected and allocated directly to counties or transit districts based on population. All of the STF are allocated to Klamath County who splits distribution of the funds between the Basin Transit District and the other elderly and disabled transportation providers in the County.
Special Transportation Grant Program	The <i>Community Transportation Program (CTP)</i> provides grants for passenger transportation services for senior citizens, people with disabilities, and the general public. The CTP combines two programs that were previously run separately; the <i>Special Transportation Grants (STG)</i> program, the <i>Small and Rural Area Capital Assistance Program</i>. The <i>Special Transportation Fund (STF)</i> program provides ongoing revenue to transportation districts to finance transportation services for people over 60 years of age or people with disabilities. The fund may be used for the creation, maintenance or expansion of transportation services for the elderly and disabled. Counties, transportation districts, cities and nonprofit organizations are eligible for these funds. Private passenger transportation companies may also participate through service agreements with local governments. Eligible activities include planning, capital investments, operating assistance, system development, and transportation demand management projects.
LOCAL FUNDS AND SPECIAL TAXES	
Basin Transit District Property Tax	Under Oregon State Statute (ORS 265.530) a property tax can be levied to support transit services after a transit district has been approved by the voters. BTS first levied a dedicated property tax in 1986.
Advertising Revenues	Although advertising on benches and buses is not generally a large revenue generator for small to mid-size transit systems, advertising has generated \$6,000 for BTS. Local merchants and business associations are often interested in advertising on bus stop benches and shelters in the community where they do business. Generally, in these programs the transit operator does not have to pay for the benches and the contractor maintains them as well.
Local Business/University Partnerships	Parking can be a problem at the Oregon Institute of Technology (OIT) and other locations within Klamath Falls. By encouraging transit use, such as providing free passes to students or employees, OIT and other businesses may be able to increase enrollment or employee base without further increasing parking requirements and, in addition, help the Klamath Falls region comply with air quality standards.

Table J-5 (continued)
Klamath Falls Area Transportation System Plan
Summary of Transit Funding Programs

Program Name	Description
Developer Impact Fees	An impact fee is a charge imposed on new development to compensate for its impact on the local transportation infrastructure. A fee is typically assessed on square footage of planned development. Impact fees can be implemented by local ordinance with specific criteria for establishing an impact fee and can be imposed in downtown urban areas or in outlying growth areas. An impact fee is a controversial measure and, like other developer fees, must show a connection between the development and the service provided.
Parking Taxes and Fees	A parking tax or fee could be levied by the City of Klamath Falls and all or a portion of it dedicated to transit uses. Many downtown areas levy parking fees and as the city grows, the levy can be used as a strategy to encourage transit use for trips to the downtown area.

Table J-6
Klamath Falls Area Transportation System Plan
Currently Used Revenue Sources in Oregon

Transit Service Type/Function	Funding Source	Status
Urban Public Transportation (Portland & Eugene) (operating & capital)	1. Local Payroll Tax - operating 2. Federal grants - capital 3. Federal grants - operating 4. Fares & advertising	1. Major Source - \$100 million/yr. Growing - Sensitive to Economic Conditions 2. Major source - \$10 million/yr - Stable 3. Minor source - \$5 million/yr - Declining 4. Minor source - Growing w/ridership
Urban Public Transportation (Salem, Corvallis, Medford, K-Falls)	1. Property tax (typically a taxbase or stand-alone levy w/in \$10 cap for local gov't services) 2. Federal grants - capital 3. Federal grant - operating 4. Fares & advertising	1. Major Source - Growing Slowly 2. Major Source - \$2 million/yr. - Stable 3. Major Source - \$2 million/yr. - Declining 4. Minor Source - Growing w/ridership
Small City & Rural (Astoria, Union County, etc.) (operating & capital)	1. Federal grants - capital & operating 2. Local Property Tax (typically w/in city or county operating levy) 3. Fares, donations & advertising	1. Major Source - Declining 2. Major Source - Stable 3. Minor Source - Stable
Mobility for Seniors & People with Disabilities - (operating & capital)	1. Special Transportation Fund (2¢ state cigarette tax) - operating & capital 2. Social Service Agency grants / contracts - operating 3. Local Property Tax (typically w/in city or county operating levy) 4. Federal grants - capital & operating 5. Fares, donations advertising	1. Major Source - \$5 million/yr. - Declining 2. Major Source - Declining 3. Minor Source - Stable 4. Major Source - Declining 5. Minor - Stable
Intercity Bus (operating & capital)	1. Major Interstate Routes: Fares 2. Branch & feeder routes: Private capital, Fares	1. Sole Source - Declining 2. Private