Fransportation System Plan 2005



Mobility and Access







CHAPTER

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Introduction

In 1994, the City of Prineville developed a transportation system plan (*TSP*) to serve as a guide for the management of existing transportation facilities and the design and implementation of future facilities. After its adoption by the City Council, the plan also constituted the transportation element of the Comprehensive Plan. A major update and revision of the 1994 TSP was completed in 1998. The Draft 1998 TSP update was reviewed by the City Council but not adopted. Since adoption of the Prineville TSP in 1994, and completion of the Draft 1998 TSP update, a number of significant issues have been raised and discussed, including:

- Expansion of the Prineville Urban Growth Boundary (UGB) to include the Hudspeth property and other residential lands in south Prineville.
- New and updated forecasts for population and employment growth in the Prineville urban area, and their consistency with Crook County and State of Oregon projections.
- Partial completion of the Northern Arterial.
- Renewed discussion of traffic control options for Highway 126 corridor improvements in downtown Prineville (e.g. two-way vs. one-way couplet along Third Street, reconfiguration of the "Y" intersection with the possible construction of a roundabout and/or new connection to Second Street.
- Need for a systems development charge (SDC) to help pay for local transportation capacity improvements and keep pace with growth.

Given these issues, and the fact that Prineville's Draft TSP is already six years old, the Oregon Department of Transportation (ODOT) agreed to assist the City of Prineville in revising and updating their transportation plan.

This revised TSP represents a significant update of the Draft 1998 TSP. When adopted by the City Council, this revised TSP will supersede the existing 1994 TSP as the Transportation Element of the Comprehensive Plan and will serve as the new guide for providing transportation facilities within the City of Prineville. The revised TSP includes the following chapters:

Chapter 1 *Introduction* - Describes the planning process and how the transportation system plan was developed and updated. Describes the Goal 12 and the purpose of the Transportation Planning Rule and also defines the requirements specific to the City of Prineville. This chapter also describes other plans, such as the Oregon Transportation Plan and Oregon Highway Plan (1999), which include elements that require consistency with the Prineville TSP.

Chapter 2	<i>Goals and Objectives</i> - Defines the goals and objectives for the transportation planning process.
Chapter 3	<i>Inventory</i> – Summarizes the current inventory of Prineville's transportation system including the location and characteristics for each travel mode.
Chapter 4	<i>Current Transportation Conditions</i> – Evaluates the current transportation system including existing traffic volumes, volume-to-capacity (V/C) ratios, levels of services (LOS) and capacity deficiencies.
Chapter 5	<i>Growth and Travel Forecasts</i> - Forecast future 2025 traffic volumes, levels of service and transportation system deficiencies.
Chapter 6	Alternatives Street System Analysis - Analyzes key street system improvement alternatives.
Chapter 7	<i>The Transportation System Plan</i> - Represents the transportation system plan itself, including elements for all travel modes. This Chapter will replace the Transportation Element of the Prineville Comprehensive Plan.
Chapter 8	<i>Funding Options and Financial Plan</i> - Describes available options and a financial plan, including local funding sources to pay for future transportation improvements.
The revised 7	TSP includes the following appendices:
Appendix A	Summary of Existing Plans and Policies
Appendix B	TPR Compliance Table Provides a table which summarizes (item-by-item) how the revised TSP complies with the requirements of the Transportation Planning Rule.
Appendix C	Major Transportation System Street Inventory
Appendix D	Growth and Travel Forecasts
Appendix E	Transportation Systems Funding Sources
Appendix F	Public Meeting Notices, Agenda and Comments
Appendix G	Draft TSP Review Comments
Appendix H	Recommended Changes to Comprehensive Plan and Land Development Ordinance to Implement the TSP

Transportation System Plan Requirements

The revised Prineville TSP must meet the requirements of Statewide Planning Goal 12 and its implementing division, the Transportation Planning Rule (OAR Chapter 660, Division 12). Goal 12 affects all levels of government, and requires that transportation plans be coordinated among all jurisdictions.

Statewide Planning Goal 12 - Transportation

In the mid-1970s, Oregon adopted 19 Statewide Planning Goals to be implemented in comprehensive plans. The aim of Goal 12, Transportation is "to provide and encourage a safe, convenient and economic transportation system."

Each community, region, and metropolitan area has developed the transportation element of their comprehensive plans according to the following guidelines set forth in Goal 12.

"A transportation plan shall (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) consider the differences in social consequences that would result from utilizing differing combinations of transportation modes; (4) avoid principal reliance upon any one mode of transportation; (5) minimize adverse social, economic and environmental impacts and costs; (6) conserve energy; (7) meet the needs of the transportation disadvantaged by improving transportation services; (8) facilitate the flow of goods and services so as to strengthen the local and regional economy; and (9) conform with local and regional comprehensive land use plans."

To date, the City of Prineville has addressed transportation planning issues through a number of planning documents including the following (*these documents are reviewed in more detail in Appendix A - Review of Existing Plans and Policies*):

- The existing City of Prineville Transportation System Plan (TSP) prepared by David Evans and Associates in 1994;
- The Draft 1998 Transportation System Plan update prepared by W&H Pacific in 1998;
- The City of Prineville Downtown Enhancement Plan prepared by David Evans and Associates in 1997;
- The updated City of Prineville Comprehensive Plan is scheduled for adoption in 1999; and
- The City of Prineville Land Development Ordinance No. 1057 adopted in March, 1998.

• The Prineville Smart Development Code Assistance, prepared by Angelo-Eaton, 2000.

The Transportation Planning Rule

The Transportation Planning Rule *(TPR)* was developed by the Oregon Land Conservation and Development Commission *(LCDC)* and the Oregon Department of Transportation *(ODOT)*, and adopted in April 1991. The TPR implements Goal 12, and applies to all levels of government.

Overview

Essentially, the TPR requires that cities, counties, Metropolitan Planning Organizations *(MPOs)*, and state agencies prepare and adopt TSPs. A TSP is "a plan for one or more transportation facilities that are planned, developed, operated, and maintained in a coordinated manner to supply continuity of movement between modes, and within and between geographic and jurisdictional areas."

The ultimate aim of the TPR is to encourage a multi-modal transportation network throughout the state that will reduce our reliance on the automobile and ensure that local, state, and regional transportation systems "support a pattern of travel and land use in urban areas which will avoid the air pollution, traffic and livability problems faced by other areas of the country."

The TPR affects all jurisdictions, with requirements that vary based on population size and the geographic location of each jurisdiction. It also sets forth a schedule for compliance. Jurisdictions outside of MPOs, such as Prineville, were to have completed their plans by 1997, and then regularly update them thereafter at each periodic review (660-012-0055(5)).

Transportation Planning Rule Requirements for Prineville

The City of Prineville falls into the jurisdictional category of cities with a population between 2,500 and 25,000 that are located outside of a major urban area. In preparing its local transportation system plan, Prineville must "establish a system of transportation facilities and services adequate to meet identified local transportation needs and shall be consistent with regional TSPs and adopted elements of the state TSP." The specific requirements of the TPR, as well as an analysis of the City of Prineville's current levels of compliance, are outlined in Appendix B - TPR Compliance Table.

Oregon Transportation Plan

The Oregon Transportation Plan *(OTP)* was completed and adopted by the Oregon Transportation Commission in September 1992. Several alternative approaches to developing the transportation plan were evaluated as part of the OTP planning process. The preferred plan presented in the OTP followed the Livability Approach, which "depends heavily on the concept of minimum levels of service within each transportation mode to assure appropriate transportation alternatives to all areas of the state."

Inventory

In its inventory of existing facilities, the OTP identifies several transportation facilities of significance in Prineville.

The Ochoco Highway (Highways 126 west of Prineville and 26 through and east of Prineville) is a highway of statewide significance. As defined in the Oregon Highway Plan, the function of a statewide highway is "to provide connections and links to larger urban areas, ports and major recreation areas that are not directly served by interstate highways."

Prineville currently has very limited intercity bus service provided by Oregon Breeze Ways with one connection to Bend and Portland per day. Greyhound Bus Lines no longer provides intercity bus service in Prineville. Limited service for the elderly and disabled is provided by the mini-bus service of the Soroptomist International of Prineville. A truck/rail intermodal freight facility is also identified in Prineville. The City of Prineville Railway owns this facility; however, it has not been operated for several years since all truck/rail transfer operations were moved to Portland.

Minimum Levels of Service by 2012

The minimum levels of service expected to be in place by 2012 set standards for performance for each mode of travel and for all jurisdictions¹. The following levels of service apply to Prineville.

Local public transit services and elderly and disadvantaged service providers should regularly connect with intercity passenger services. Prineville has demand responsive minibus service which will pick up and carry senior citizens to any destination within a five-mile radius of downtown. Connections to the intercity bus are possible with this service.

Intercity passenger service should be available for an incorporated city or groups of cities within five miles of one another having a combined population of over 2,500, and located 20 miles or more from the nearest Oregon city with a larger population and economy. Services should allow a round trip to be made within a day. Greyhound Bus

¹ See also the Oregon Department of Transportation, Public Transportation Plan.

Lines no longer provides service between Prineville and Portland or connections to and from other cities in either Bend, Madras, or Biggs Junction (I-84). There is limited intercity bus (one trip per day) between Prineville, Bend and Portland via *Central Oregon Breeze*.

- Local transit and elderly and disadvantaged services should be coordinated with *intercity bus services*. Prineville's demand responsive minibus service will pick up and deliver senior citizens to the intercity bus services at their convenience.
- Highway freight accessing intermodal truck/rail terminals or moving within Oregon should experience level of service C or better on Oregon highways during off-peak periods. Note: the Oregon Highway Plan was adopted in 1999 and included a significant change in highway policy performance measures, switching from a level of service (A-F) to "volume to capacity" (V/C) measure. Originally, the Ochoco Highway, a highway of statewide importance, was to operate at "level of service C" or better throughout the day with the street system improvements outlined in the Prineville TSP. This performance measure was changed to those V/C ratios summarized in Table 1-1 below, which include categories for the designation of the National Highway System (NHS) routes within and through the Prineville UGB. Both the City of Prineville and Crook County have expressed desire for a revision to the OHP by designating both US 26 and OR 126 as freight routes.
- Branch rail lines within Oregon should be maintained to allow a minimum speed of operation of 25 miles per hour whenever upgrading can be achieved with a favorable benefit-cost ratio. The City of Prineville Railway is classified as a linehaul carrier and is therefore limited to rail yard operating speeds of 20 mph.
- Maximum volume-to-capacity ratios for state highways are included in the Oregon Highway Plan. The improvements outlined in the chapter of this report titled "The Transportation System Plan" would allow all of the highways in Prineville to meet the maximum volume-to-capacity ratios specified in the Oregon Highway Plan (OHP)². See Appendix A – Review of Existing Policies and Plans.
- Bicycle and pedestrian networks should be developed and promoted in all urban areas to provide safe, direct and convenient access to all major employment, shopping, educational and recreational destinations in a manner that would double person trips by bicycle and walking. The bicycle plan presented in the chapter of this report titled "The Transportation System Plan" specifies that bicycle lanes be present on all collector and arterial roadways. In general, the trigger point for adding bike lanes to existing roadways would be daily traffic volumes exceeding 2,500-3,000 vehicles. Roadways which provide direct access to schools would be high priority. Secure convenient bicycle storage available to the public should be provided at all major employment and shopping centers,

²1999 Oregon Highway Plan.

park and ride lots, passenger terminals and recreation destinations. The policies and ordinances necessary to support this requirement will be prepared separately from this report.

The 1999 Oregon Highway Plan

The 1999 Oregon Highway Plan defines policies and investment strategies for Oregon's state highway system for the next 20 years. It further refines the goals and policies of the Oregon Transportation Plan and is part of Oregon's Statewide Transportation Plan. The Highway Plan is reviewed in greater detail in *Appendix A - Review of Existing Plans and Policies*, including state policies that are to be coordinated and adopted within local TSPs.

As required by the TPR,³ and since the adoption of the 1999 Oregon Highway Plan, local jurisdictions, when amending their Comprehensive Plans or TSPs, are to be consistent with the 1999 OHP mobility standards and access management policies⁴. Table 1-1 summarizes the OHP mobility standards for state highways within the Prineville UGB. Also included in **Table 1-1** are suggested mobility standards for local (City) intersections, which will be tested and confirmed as part of the Draft TSP process. Access management policies contained within the OHP are integrated in the Prineville TSP for consistency.

³ Oregon Administrative Rules, (TPR) 660-120-0015.

⁴ Oregon Administrative Rules, 734, Division 51.

וואוויימאס							
			Volume-to-	Capacity	Ratios		
Highway Route No.	From	То		Posted Travel Speed		Highway Category	
			STA2	< 45 mph	> = 45 mph		
US 26	Prineville UGB	OR 126 ("Y")		.80	.75	Region	
OR 27	US 26	First St	.95			District	
OR 27	First St	Prineville UGB		.85	.80	District	
OR 126	Prineville UGB	O'Neil Hwy		.70	.70	State / Expressway	
OR 126	O'Neil Hwy	US 26 ("Y")		.80	.75	State / NHS	
OR 126	Locust St	Knowledge St	.90			State / NHS	
OR 126	Knowledge St	Prineville UGB		.80	.75	State / NHS	
OR 370 (O'Neil)	Prineville UGB	OR 126		.85	.80	District	
OR 380 (Paulina)	US 26	Prineville UGB		.85	.80	District	

Table 1-1 Mobility Standards for Prineville UGB Area - Volume-to-Capacity Ratios for State Highways¹

1. Oregon Highway Plan, 1999.

Special Transportation Areas, adopted by Oregon Transportation Commission, 2004.

3. Traffic on non-state highway approaches that must either stop or yield shall not exceed the V/C for District highways. 2. Special Transportation Areas, adopted by Oregon Transportation Commission, 2004.

TEA-21 and SAFETEA

The Transportation Equity Act for the 21st Century (June 1998), better known as TEA-21, authorizes a six-year federal funding program to include highway, highway safety, transit and other surface transportation programs. TEA-21 builds on the initiatives established in the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 by continuing and improving current programs, and adding new initiatives to meet the nation's challenges to improve safety, protect and enhance communities and the natural environment, and advance economic growth through efficient and flexible transportation. Since 1993, a series TEA-21 "extensions" have been proposed and adopted in the U.S. The first was titled "Safe, Accountable, Flexible, and Efficient Transportation Equity Act of 2003" (SAFETEA). There is current legislation in Congress to finalize a full reauthorization of SAFETEA.

Crook County

Crook County - Prineville Area Comprehensive Plan

The Crook County - Prineville Area Comprehensive Plan was prepared in response to Goal 12, and enacted in 1978. The City of Prineville is preparing its own Comprehensive Plan and expects to adopt it in 2005.

Crook County Transportation System Plan (2003-2005)

The TPR requires coordination amongst county and city transportation system plans. The Crook County Transportation System Plan was prepared for Crook County by H. Lee & Associates in 2003-2005. In same cases, and for some proposed projects in the Crook County TSP, the Prineville UGB planning area is included. A summary of the transportation section of the comprehensive plan and the Crook County TSP are included in *Appendix A -Review of Existing Plans and Policies*.

The Existing City of Prineville TSP

In 1994, the City of Prineville prepared and adopted a TSP to meet the requirements of the TPR. In 1998 the City of Prineville prepared a Draft TSP update. The 1998 Draft TSP includes the following plan elements which are required in order to satisfy the TPR.

- 1. A street system plan for a network of arterial and collector roadways;
- 2. A public transportation plan;
- 3. A bicycle and pedestrian plan;
- 4. An air, rail, water, and pipeline plan;
- 5. Policies and land use regulations for implementing the TSP; and
- 6. A transportation financing program.

In this 2005 TSP, items 1 through 4 are addressed in Chapter 7 of this report titled "The Transportation System Plan." The transportation financing program (Item # 6 above) is presented in Chapter 8 titled "Funding Options and Financial Plan." TPR compliance issues specific to the 2005 TSP are also addressed in *Appendix B - TPR Compliance Table*.

The policies and land use regulations (Item #5 above) are contained in *Appendix H* – *Recommended Changes to Comprehensive Plan and Land Development Ordinance to implement the Transportation System Plan.* Appendix H includes land use and subdivision ordinance amendments to protect transportation facilities for their identified functions. In particular, these amendments included street standards and access control measures. Land use and subdivision ordinance amendments, and direct pedestrian and bicycle parking facilities for safe, convenient, and direct pedestrian and bicycle access within and between residential, commercial, employment, and institutional areas were also addressed.

Revisions to the City of Prineville Transportation System Plan

The City of Prineville has completed a substantial amount of planning to date, including preparation of the 1994 Transportation System Plan and Draft 1998 TSP update. In revising its Draft 1998 TSP, the City will accomplish the following:

- Address changes to the City's Urban Growth Boundary (UGB) which have occurred since the adoption of the TSP;
- Update population and traffic projections;
- Review and update projects to assure that the projects proposed and prioritized in the TSP accurately reflect the growth forecasts, and goals and objectives of the community;
- Address and reconcile adopted City street design, access management and other transportation standards with both Crook County transportation policies and standards and 1999 Oregon Highway Plan Access Management and LOS standards;
- Re-assess funding options and revise the Financial Plan; and
- Address any remaining TPR compliance issues.

The Planning Process

The revised Prineville TSP was developed through a series of technical analyses combined with systematic input and review by the City, the Transportation Advisory Committee, Planning Commission and City Council, and the public. The planning process is described on the following pages and the planning area is described at the end of this chapter.

Developing a Transportation System Plan

Key elements of the process include:

- Involving the community in the planning process
- Reviewing existing plans and transportation conditions
- Defining goals and objectives
- Developing population, employment and travel forecasts
- Developing and evaluating transportation system alternatives
- Developing the transportation system plan
- Developing a funding plan and capital improvement program

Community Involvement

The existing Draft 1998 TSP provided a foundation for the development of the 2005 TSP. Community involvement was an important part of the development of both documents. For the Draft 1998 TSP, community interaction was achieved in two ways: holding open community meetings and meetings with a previously formed Transportation Advisory Committee.

For the preparation of the <u>Draft 1998 TSP</u>, the TAC was reconvened and met four times. The TAC revisited and discussed a wide range of transportation issues with an emphasis on the alternatives for downtown circulation, airport area access, Crooked River crossings, and north/south connections. The reconvened TAC included representatives from the business community, trucking interests, seniors and others.

In addition to the TAC, a Joint Planning Commission/City Council was formed and met four times to aid in the development of the Draft 1998 TSP. A Public Open House meeting was also held prior to each of the Joint Planning Commission/City Council meetings to provide the general public with an opportunity to discuss transportation planning in the City of Prineville. Each round of public meetings was preceded by the preparation and release of a newsletter, which announced the upcoming meeting schedule and identified key issues.

Finally, a Management Team, consisting of ODOT, DLCD, and City staff, met with the consultant on a regular basis over the course of the revised plan development to provide guidance and input into all phases of the process.

In the preparation of the <u>2005 TSP</u>, the TAC was restructured to include representatives from the City, Crook County, ODOT, DLCD, School District and a major industry (Les Schwab). The TAC met six times to review, comment and recommend refinements of the Draft TSP findings. The Draft 2005TSP findings were also presented and discussed with Prineville Planning Commission and City Council, through a series of three separate meetings.

All Prineville residents were invited to attend three separate public information meetings. At each meeting the Draft TSP findings were shared. Public comments and concerns were noted and summarized in refinement of the TSP. Advanced notification of the three public meetings and three Planning Commission/City Council meetings were posted with the following media:

- Central Oregonian Newspaper
- Bend Bulletin
- Crestview Cable

Goals and Objectives

Based on input from the City, the TAC, and the community, a set of goals and objectives were defined for the TSP development process. They are described in the chapter titled "Goals and Objectives".

Future Transportation System Demands

As required by the Transportation Planning Rule, the TSP must address a 20-year forecasting period. The original 20-year travel forecasts developed for the Draft 1998 TSP were based on projections of population and employment by different land use categories within the Urban Growth Boundary. These forecasts were updated in the revised 2005TSP using the methodology described in the chapter titled "Growth and Travel Forecasts."

Street System Alternatives

Once the travel forecasts were developed, a series of street system improvement options were evaluated for key areas of concern. The Improvement Options evaluated included 1) improvements to downtown traffic circulation along the Third Street corridor; 2) improvements to the Highway 126 / 26 intersection; 3) improved opportunities to cross the Crooked River; and, 4) improvements to the north/south collector street system. After comparing the options and sub-options available under each of the Improvement Options with the goals and objectives established at the beginning of the process and with criteria for determining the benefits and costs of each alternative, a recommended street system plan was selected.

Transportation System Plan

The TSP was then developed for each mode of transportation. The street system plan was developed from the alternatives evaluation described above. The bicycle and pedestrian plans were developed based on the requirements set forth by the Transportation Planning Rule. The public transportation, air, water, rail, and pipeline plans were developed based on discussions with the owners and operators of those facilities.

Capital Improvement Program and Funding Analysis

The capital improvement program was developed from the short-term improvements and the recommended street system plan, while the funding analysis examined methods for financing these improvements. These elements are described in the chapter titled "Funding Options and Financial Plan."

THE PLANNING AREA

Prineville is the county seat and the largest city in Crook County. Located about 50 miles east of the Cascade Mountain Range, the city is situated in the geographic center of the state. The planning area, shown on **Figure 1-1**, is bounded by the city's urban growth boundary. The roadway system in the existing Comprehensive Plan consists of five state highways and a system of arterial, collector, and local roads.

Highways 26 and 126 are the two most important highways in Prineville. The Ochoco Highway is a highway of statewide significance. It consists of Highway 126 to the west of Prineville, providing a route through the Cascades to the Willamette Valley, and Highway 26 through and to the east of Prineville, providing access to the eastern half of Oregon and to Idaho. To the west, Highway 26, also known as the Madras-Prineville Highway, provides a direct northwesterly route through the Cascades to Portland, about 150 miles away. Between Madras and Prineville, Highway 26 is designated a highway of regional significance. Both Highway 26 and Highway 126 connect with Highway 97 about 20 miles east of the city for north/south access.

In addition to Highways 26 and 126, three other highways originate or terminate in Prineville. Highway 27, also known as the Crooked River Highway, runs southward to the Prineville Reservoir and beyond. The O'Neil Highway runs westerly from Prineville and terminates about 20 miles away at Highway 97, just north of Redmond. The Paulina Highway also provides access to the Prineville Reservoir before continuing eastward to Paulina and into Grant County.



Figure 1-1: Prineville TSP Planning Area

Background

The following goals and objectives were initially developed as part of the 1994 and 1998 Draft TSP planning processes and were validated by the Transportation Advisory Committee (TAC), Joint Planning Commission/City Council Committee and Management Team as part of the TSP update process. These goals and policies are intended to guide the development of the revised Transportation System Plan. Throughout the planning process, each element of the plan was evaluated against these parameters. Chapter 7, which is the Transportation System Plan itself and will be adopted as the Transportation Element of the Comprehensive Plan, includes those policies which are intended to guide transportation system planning and development into the future.

In August, 2004 the City of Prineville completed the Community Opinion Survey¹. A total of 350 Prineville residents were interviewed in the survey. A number of general questions were asked pertaining to issues that residents feel are critical. As shown in Figure 2.1. We have a state in the survey in

Figure 2-1, "jobs" is the biggest issue in Prineville. "Managing growth" and "traffic" were virtually tied for the second and third major issues facing Prineville residents.

Other open-ended questions in the survey were used to gauge how Prineville residents view growth, how they prioritize tax dollars towards public services, and how Public Works tax dollars should be spent. The community response was:





Growth A majority of Prineville residents want Prineville to retain a "small town/community feel."

Funding Priority The top three funding priorities are for public works (water, sewer and streets); public safety and law enforcement, and planning and growth management.

Public Works Investment The top three public works funding priorities are improving roads, drainage and sidewalks (also building new sidewalks).

The opinions and priorities of Prineville residents were used to refine the TSP goals and objectives.

¹ City of Prineville, Community Opinion Survey, August, 2004. The Results Group.

Overall Transportation Goal

Develop an urban area transportation system which enhances the livability of Prineville and accommodates growth and development through careful management of existing and future transportation facilities. Specific goals for the Prineville TSP include:

GOAL: Reduce congestion, improve circulation, and provide safe side-street access along Highway 126, Third Street, and Main Street.

Objectives

- A. Develop a safe and efficient arterial and collector system which maintains the integrity of the downtown business district and minimizes the impact on street-side parking.
- B. Develop parallel, local streets to state highways to reduce conflict points on the highway system.
- C. Improve intersection operations by enhancing traffic signal operations, installing new traffic signals (where warranted), actuating and coordinating traffic signals, and/or increasing sight distance as needed.
- D. Provide signage directing vehicles to business, industrial, and recreational centers.

GOAL: Provide additional north/south and east/west arterial and collector streets.

Objectives

- A. Provide additional crossings over Ochoco Creek to improve traffic circulation and reduce congestion on Main Street.
- B. Define planned improvements to reduce the number of dead-end streets, skewed intersections, and dog-leg routes, particularly on arterial and collector streets.

GOAL: Improve truck circulation through and around the city.

Objectives

A. Reduce the impact of truck traffic on Third Street and on Main Street.

B. Refine plans and designs, and complete the Northern Arterial route with signage to destinations and highways.

GOAL: Increase the use of alternative travel modes through improved safety and service.

Objectives

- A. Provide additional sidewalks and improve existing sidewalk pavement for pedestrian safety and access.
- B. Provide additional bicycle routes and plan regular maintenance of existing routes for bicyclist safety and access.
- C. Provide pedestrian and bicycle access between subdivisions and neighborhoods, especially when direct motor vehicle access is not possible.
- D. Identify appropriate and economically feasible local and inter-city public transportation services.

GOAL: Preserve the function, capacity, level of service and safety of the transportation system.

Objectives

- A. Adopt access management standards, level of service policies and street design standards (including new standards for "local" streets) which balance the need for access with the need for automobile, pedestrian and bicycle safety and with the need for efficient movement of through traffic and which are consistent and compatible with those standards adopted by ODOT (1999 Oregon Highway Plan) and Crook County.
- B. Work with ODOT to support airport facility improvements (including access to/from the airport and industrial areas) identified in the current airport master plan for Prineville Municipal Airport. (*Note: from the Interim Corridor Strategy for Highway 126*)
- C. Work with ODOT to maintain and upgrade the City of Prineville Railway tracks to allow a minimum speed of 25 mph wherever

upgrading can be achieved with a favorable benefit cost ratio. (Note: from the Interim Corridor Strategy for Highway 126)

Transportation System Inventory

As part of the planning process, an inventory of the existing transportation system in Prineville was conducted. This inventory, which covered the street system as well as the pedestrian system, bikeways, public transportation, rail, air, water, and pipelines, has been updated and revised as part of the TSP update process. In addition to these transportation modes, transportation demand management measures were also reviewed. Lastly, census data was examined to assess trends in commuter travel mode distributions.

The transportation system inventory examined all modes of transportation in Prineville for people and goods. This section describes each mode and, when possible, the approximate usage of that mode.

Roadways

As part of the 2005 TSP update, current traffic conditions on the existing streets and highways were measured and examined (focused on the p.m. peak hour), based either on recent historic counts (since 2002), or directly recorded in January, 2005. Data collection included a physical inventory of the City's arterial and collector roads and a traffic count program that measured volumes at about 25 street or intersection locations. The results of the inventory were used to define existing street capacities based on intersection operations analyses and state and local mobility standards. These data are summarized in Chapter 4, Existing Conditions.

Physical Inventory

The existing street system inventory was conducted for all highways, arterial roadways, and collector roadways within Prineville as well as those in Crook County which interact with city streets. Inventory elements include:

- street classification and jurisdiction
- street width and right-of-way
- number of travel lanes
- presence of on-street parking, sidewalks, or bikeways
- speed limit
- general pavement conditions

Figure 3-1 shows the roadway functional classification and jurisdiction as well as the location of traffic signals. **Appendix C** lists the complete inventory.

Highways. Prineville is served by five state highways: Ochoco Highway, Madras-Prineville Highway, Crooked River Highway, O'Neil Highway, and Paulina Highway. These roadways are managed and maintained by ODOT. The *1999 Oregon Highway Plan (OHP)* classified the state highway system into four categories: Interstate, Statewide, Regional, and District. See Chapter 1 for further discussion of the OHP.



Table 3-1 summarizes the Oregon highway classification within Prineville.

Table 3-1
State Highway Classification

Highway - Description	1999 OHP
Ochoco Highway - Highway 126 to the west of Prineville and Highway 26 through and east of Prineville. It is the focus of the downtown commercial development and carries the greatest amount of traffic in the city.	Statewide
Madras Highway - Highway 26 west of Prineville. Between Madras and Prineville, Highway 26 has a regional classification. (It is classified with statewide importance on all other segments but this one.) This route is the most direct route from Prineville to Portland, about 150 miles northwest.	Regional
Crooked River Highway - (Highway 27) extends south from Highway 26 (Third Street) providing access to the Prineville Reservoir and beyond.	District
O'Neil Highway - runs parallel to Highway 126 between Prineville and Redmond. It serves primarily as access for the adjacent land uses.	District
Paulina Highway - located in the southeast quadrant of Prineville, providing access to the Prineville Reservoir and Grant County.	District

Arterial Roadways. Arterial streets form the primary roadway network within and through a region. They provide a continuous road system which distributes traffic between neighborhoods and districts. Generally, arterial streets are high capacity roadways which carry high traffic volumes with minimal localized activity. Major arterial streets tend to be higher volume, larger capacity roadways than minor arterial streets.

In Prineville, the arterial network consists of state, county, and city streets. Highways 26 and 126 merge on the west side of the City to form a single roadway bisecting Prineville from east to west. Named Third Street within city limits, Highway 26 is the primary corridor of commercial development, and is designated a major arterial street. Main Street is the north-south major arterial. Other major arterial streets include county roads: Lynn Boulevard and Combs Flat Road. Minor arterial streets include: Lamonta Road, Laughlin Road, Tenth Street, Ninth street (west of Main Street), First Street, Harwood Street, Fairview Street, and Juniper Street.

Collector Roadways. Collector streets connect local neighborhoods or districts to the arterial network. Generally, they do not connect together to form a continuous network because they are not designed to provide alternative routes to the arterial street system.

Both Prineville and Crook County have designated collector roads. Within city limits, collector streets include Deer Street and Elm Street, which are the remaining north-south roads crossing Ochoco Creek; roads such as Fifth Street and Court Street, which collect traffic in residential neighborhoods; as well as roads serving schools, industrial districts, and other areas. Outside of the city limits, state roads such as Paulina Highway and O'Neil Highway and county roads such as Juniper Canyon Road, McKay Road, Lamonta Road and Barnes Butte Road collect traffic destined for the City from more remote areas.

Street Layout

Most Prineville roadways are laid out in a grid pattern. Block sizes are typically 330 feet by 330 feet. Several natural features interrupt the grid system, causing discontinuities and odd-shaped blocks. These features include the steep rimrock walls on the west side of the city, Crooked River, Ochoco Creek, and the hills in the northeast quadrant which form Ochoco Heights. Manmade features such as large school lots and the railway also divide up the city.

One of the major circulation barriers is Ochoco Creek and the surrounding park. Ochoco Creek runs east/west through town north of Fourth Street. There are seven creek crossings spaced an average of four to five blocks apart (about one quarter of a mile). Four of these crossing are located downtown: Harwood Street (minor arterial), Deer Street (collector), Main Street (major arterial), and Elm Street (collector). Two others are located east of the commercial core: Juniper Street (minor arterial) and Combs Flat Road (major arterial). The seventh creek bridge was recently constructed as part of the 9th Street extension to US 26. Main Street is the most frequently used crossing.

Bikeways

Prineville has three designated bike routes through town, as shown in **Figure 3-2.** One existing route runs east-west along Highway 26 within the Urban Growth Boundary while the other runs north-south on North Main Street from Ochoco Creek to the Urban Growth Boundary. The third bike route runs north-south on Highway 27 at 3rd Street, connecting with the playing fields south of town.

The east-west bike route is a separate bike path for most of its length. It is begins as a 10-foot wide bike path on the north side of Highway 26, and extends about 1.25 miles. Within the City, the bike lane leaves the highway at West Sixth Street to become a bike path along Ochoco Creek. When the creek crosses Third Street, the bikeway returns to the roadway. From this point eastward, it runs along the shoulder of the roadway. New bicycle lanes were included as part of the 9th Street Extension to US 26, expanding the City's east-west bikeway system.



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The existing north-south route starts at the Ochoco Creek bike path and zig-zags along Elm Street, Fifth Street, and Court Street, sharing the roadway with vehicles before it turns west onto Tenth Street becoming a bike lane, and finally turns north again onto Main Street. It continues northward along Main Street and McKay Road to the Urban Growth Boundary at Barnes Butte Road as bike lanes.

The Highway 27 bike route includes bike lanes that continue southward from 3rd Street. At First Street, it will turn westward, and then it will turn southward again along Main Street, providing bicycle access to the playing fields opposite the fairgrounds.

Pedestrian System

Most of Prineville's arterial and collector roadways, with the exception of the downtown core, do not have any sidewalks for pedestrians, as shown in **Figure 3-3**. Many of the roads which do have sidewalks do not have continuous paved paths on both sides of the road. Some have sidewalks on one side only, while others have pieces of sidewalks along certain parcels but not along others. Often, the paved section switches from one side of the street to the other, forcing the pedestrians to cross back and forth or to walk in the street. Although Prineville does have very wide streets, offering some space between pedestrians and motorized vehicles, a curb and sidewalk provide a visual barrier that is far more comforting to pedestrians.

Some new residential development has been including sidewalks as part of the street. The TSP chapter will address the need for including sidewalks as part of the street standards. In addition to sidewalks in some parts on Prineville, the two separated bike paths can also be used by pedestrians. The Ochoco Creek path is protected from traffic and provides fairly direct access to the Crook County Middle and Elementary Schools on Knowledge Street.



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Public Transportation

Public transportation in Prineville consists of local minibus/van shuttle service, and bus line shuttle service to/from Portland with connection to Redmond and Bend. The city has no local fixed route transit service at this time.

For elderly and disabled residents, the Soroptomists Club sponsors a minibus service. This service operates between 9:00 a.m. and 4:00 p.m. five days a week (Monday through Friday) and on special occasions. It currently has three mini-vans with paid drivers and a two-way radio system. The service is available in areas within five miles of downtown and was established to provide transport to necessary services such as shopping and doctor visits as well as the senior center. It is funded by donations from clients, fares are set at \$1 per one-way trip. Approximately 65 to 70 people use the minibuses each day. Daily minibus service (ADA, chair-left equipped) is also provided to Redmond and Bend for medical trips only. These trips cost \$10 per round trip

Other medical trip service in Central Oregon serving Prineville is provided by Deschutes County and Central Oregon Cabulance, with varying fare schedules.

The Central Oregon Breeze provides intercity bus service between Bend, Prineville and Portland. As of December, 2004, the Central Oregon Breeze schedule includes a single bus departure from Prineville to Portland at about 12:20 p.m., returning at about 5:25 p.m., with continued service to Redmond and Bend. Adult fares at \$40 one-way and \$73 round trip, with additional fuel charges.

Greyhound Bus Lines ceased providing direct and daily bus service in Central Oregon

In addition to public transportation, the Crook County School District operates a school bus system. There are 26 buses (routes), 23 of which serve schools in Prineville as follows:

- All 23 Prineville buses access High School on Lynn Boulevard.
- 11 of those buses access both the Cecil Sly School and the Middle School on Second Street.
- 4 buses serve the Crooked River School at First and Fairview Streets.
- 6 buses serve the Ochoco Grade School at Highway 26 and Fourth Street.
- Three special needs buses may serve all schools on any given day.

All 26 buses leave and return to the bus garage located near the intersection of Lamonta and Lon Smith Roads. The buses are out-bound from the garage between 6:00 a.m. and 8:00 a.m.. They are in town distributing students between 7:30 a.m. and 8:15 a.m.. The buses return to the bus garage between 7:55 a.m. and 8:10 a.m.. The buses leave the garage again around 2:30 p.m. and are distributing students to their homes between 3:20 and 4:30 p.m.. The majority of buses return to the garage around 5:00 p.m. with some returning as late as 6:30 p.m..

Rail Service

The City of Prineville Railway provides transport primarily for the timber products industry in Prineville and Crook County. It was established in 1918, and is city-owned and operated. The tracks extend westward from Prineville, connecting with Burlington Northern/Santa Fe Railroad and Union Pacific Railroad lines near Redmond. This connection allows customers to ship goods to domestic and international destinations.

The railway is classified as an originating/terminating carrier or a line-haul carrier and operates under "Yard Limit" which limits the operating speed to 20 mph. "Yard limits" mean that the railway is operated from a switch list rather than train orders or block signals and can enter any track any time.

Intermodal truck to rail connections are possible for the railway; however, they are not currently in use. The facilities still exist but all intermodal operations were relocated to Portland.

At this time, the railroad provides no commercial passenger service. However, the Crooked River Dinner Train, based in Redmond, uses the tracks for various rail tours (chartered service) through the Crooked River Valley.

At-grade railroad crossings are located throughout the city. Some of these crossings cause occasional commuter delays; however, accidents involving passenger vehicles and railroad cars are very infrequent. The crossings at North Main Street, Lamonta Road and on East Third Street (Hwy 126/26) are all equipped with a "pedestrian flange crossing" or "omni rubber crossing". This enables pedestrians and bicyclists to cross the rails easily by providing a surface level with the top of the rails.

Air Service

In 1995, the City of Prineville annexed the "City-County Airport Area" (Resolution No. 794), thus including the Prineville Municipal Airport within the city limits. The Prineville Municipal Airport, located west of the city, is used by most of the large local business, commercial, and heavy industrial firms as well as the United States Forest Service. It is served by one fixed-base operator. It is a general aviation airport and is included in the National Plan of Integrated Airports (NPIAS). The approach category allows speeds of 91 knots or more but less than 121 knots and airplanes with wingspans up to but not including 49 feet. It has two runways: 10/28 (5000' x 60') and 15/33 (4000' x 40'), both are paved. The Oregon Continuous Aviation System Plan (ODOT, 1997) recommends that Runway 10/28 be increased to 5730' x 75'. There were approximately 30 general aviation aircraft based at the airport in 1994, of these 25 were single engine, 2 were multi-engine, 2 were turbo jets and 1 was "other". There were an estimated 4,500 operations at the airport in 1994, which utilized approximately 4% of the airport's

capacity.1

For commercial passenger service, the Redmond Airport is located about 20 miles west in Deschutes County.

Water Service

Prineville has no waterborne services.

Pipeline Service

Prineville is served by a major natural gas distribution line. This distribution line extends eastward from the main line, which parallels Highway 97 through the north-south central Oregon corridor, and is operated by Cascade Natural Gas.

Transportation Demand Management Measures

In addition to inventorying the transportation facilities in Prineville, the 1994 TSP also reviewed transportation demand management measures that are currently in place.

Alternative Work Schedules

Four major employers account for a significant percentage of the jobs in Prineville. The employer, number of employees, and shift schedules are shown in **Table 3-2.** Most of these employers already stagger the departure times of their workers, which reduces the peak hour traffic and congestion. The departure times from employer to employer are also staggered, further spreading traffic volumes over a longer period of time.

¹ Source: Oregon Continuous Aviation System Plan, Vol. I-III, Oregon Department of Transportation, Aeronautics Section, March 1997.

Table 3-2Shift Schedules of Major Employers

Employer	Number of Employees	Shift Schedules			
_					
Les Schwab Tire Company	912	Staggered departure between 1:00 p.m. and 2:30 p.m.			
Clear Pine Moldings	580	Staggered departure shifts at 2:30 p.m., 3:00 p.m., and 3:30 p.m.			
Wood Grain (formerly American Molding)	300	About 200 employees (day shift) depart at 3:30 p.m., 100 employees arriving (swing shift) between 3:30-4:00 p.m.			
Crook County School District	360	Teachers generally depart between 3:30- p.m. but many stay later. Office employees depart at 5:00 p.m.			
US Government (Ochoco National Forest)	410	Departure at 4:30 p.m.			

Note: The number of employees is based on Chamber of Commerce data from 2004. The shift schedules are based on phone conversations in 2005.

Carpooling

The Central Oregon Rideshare provides ride-matching services to encourage carpooling. The program was developed by the Oregon Department of Energy, ODOT, OSU Extension Service, Central Oregon Community College, and Central Oregon Environmental Center to promote more livable communities.

The Rideshare program began in mid-September of 1993 and has established a database of about 100 people. Interested drivers call a toll-free number, provide information about their trip, and are supplied with a list of others in their general area.

Travel Mode Distribution

Although automobile is the primary mode of travel for most residents in the Prineville area, some alternative modes are used as well. Modal split data is not available for all types of trips; however, the 1980. 1990 and 2000 census data do include statistics for journey to work trips as shown in **Table 3-3**.

	19	980	19	990	20	000
Trip Type	Trips	Percent	Trips	Percent	Trips	Percent
Private Vehicle	1,645	85.8	1,958	90.4	3,844	93.1
Drove Alone	1,330	69.4	1,633	75.4	2,933	71.0
Carpooled	315	16.4	325	15.0	911	22.1
Public Transportation	0	0.0	0	0.0	10	0.2
Bicycle	NA	0.0	10	0.5	34	0.8
Walk	174	9.1	120	5.5	131	3.2
Other	67	3.5	7	0.3	21	0.5
Work at Home	31	1.6	71	3.3	89	2.2
Total	1,917	100.0	2,166	100.0		100.0

Table 3-3Journey to Work Trips

Most Prineville residents travel to work via automobile. The percentage of automobile users has actually increased by more than 7 percent in the last 20 years from nearly 86 percent to more than 93 percent. The number of single-occupancy vehicles is also increasing. In 1980, about 69 percent of the Prineville residents drove to work alone. In 2000, about 71 percent drove alone, a 2 percent shift over the 20-year period. At the same time, carpooling rates have increased more than 5 percent from about 16 percent in 1980 to 22 percent in 2000. There is some reported public transportation commuting as part of the 2000 Census. All of these data, when viewed collectively, indicate a significant growth in commuter trips between Prineville and the Bend/Redmond area, perhaps due in large part to the recent closure of Prineville's lumber mills, and the readily available and affordable new housing in Prineville.

Bicycle usage is fairly low (less than 1 percent) at the present time, but there are currently few roadways with dedicated bicycle lanes on them. In addition to bicycle lanes, bicycle parking, showers, and locker facilities can help to encourage bicycle commuting to work. Pedestrian activity is at a moderate level but walking is decreasing as a mode of travel to work. In years past many citizens have expressed concern about the high traffic volumes, especially on Third Street. They find the traffic volumes intimidating when walking downtown.

Though they are not alternative modes, transportation demand management measures such as carpooling, flexible work hours, and telecommuting also contribute to a reduction in peak hour, single occupancy vehicle activity. Although these trends indicate an increasing dependence on the automobile for work commuting, the growing population and employment opportunities, relatively short travel distances, level terrain, and clear weather conditions are favorable for other modes of transportation – especially for non- work-related purposes. The state-wide emphasis on providing pedestrian and bicycle facilities along with roadways encourages the use of these modes.
2005 Traffic Conditions

For all of the analysis in the TSP the Design Hour Volume (DHV) was established, which usually reflects the evening peak, one-hour period, which generally occurs from 4:30-5:30 p.m. Existing traffic volumes at major intersections within Prineville were originally measured during various months throughout 2002-2004, including additional counts collected in January, 2005. These data were adjusted to 2005 conditions based on seasonalization adjustments and growth rates derived from ODOT's annual traffic volume data. The 2005 two-way, p.m. peak hour traffic volumes are shown on **Figure 4-1**. The widest bandwidth illustrates that the highest volumes occur on Third Street, with about 1,680 vehicles entering and exiting from the "Y" intersection of Highways 26 and 126.

The hourly traffic pattern on Third Street in Prineville is illustrated in **Figure 4-2.** Third Street, west of Harwood Street, is the point where Highways 26 and 126 merge and enter the city. The highest traffic volumes are found between 3:00 p.m. and 6:00 p.m., with over 750 vehicles per hour, westbound and eastbound. From 11:00 a.m. to 2:00 p.m., traffic volumes are steady, with a small peak during the lunch hour, varying between 575 and 700 vehicles per hour in either direction (excluding the peak hour). Traffic volumes grow gradually prior to that period and decrease rapidly after 6:00 p.m.







2005 Street Capacity

Delay-Based Level of Service

Transportation engineers have established various standards for measuring traffic capacity of roadways or intersections.¹ The most often-sited standard is associated with a particular level of service (*LOS*) one wishes to provide. The LOS concept requires consideration of factors of traffic delay, travel speed, frequency of interruptions in traffic flow, relative freedom for traffic maneuvers, driving comfort and convenience and operating cost. Six standards have been established ranging from Level A where traffic flow is relatively free to Level F where the street system is totally saturated or jammed with traffic. **Table 4-1** summarizes the delay-based level of service criteria for signalized intersections, which have been applied, historically, in many Oregon cities and counties over the past several decades.

Volume-to-Capacity Measured Level of Service

As required by the TPR,² and since the adoption of the 1999 Oregon Highway Plan, local jurisdictions, when amending their Comprehensive Plans or TSPs, are to be consistent with the 1999 OHP mobility standards. **Table 4-2** summarizes the OHP mobility standards for state highways and suggested standards for city intersections within the Prineville UGB.

The 1999 OHP mobility standards were established to better address and assess the performance of intersections (both signalized and unsignalized) and driveways. These standards were defined by ODOT as an objective measure of the volume-to-capacity of an intersection, rather than delay to drivers. The highway mobility standards are expressed in V/C ratios, which are defined as "the peak hour traffic volume (vehicles/hour) on a highway section divided by the maximum volume that the highway section can handle." The closer the V/C ratio is to 1.0, the more congested traffic is.

¹ Transportation Research Board, *Highway Capacity Manual*, Special Report 209. National Research Council, 1985.

² Oregon Administrative Rules, (TPR) 660-120-0015.

Level of Service	Traffic Flow	Comments	Maneuverability
A Desirable	Free	Traffic flows freely with no delays.	Drivers can maneuver easily and find freedom in operation.
B Desirable	Stable	Traffic still flows smoothly with few delays.	Some drivers feel somewhat restricted within groups of vehicles.
C Desirable	Stable	Traffic generally flows smoothly but occasionally vehicles may be delayed through one cycle. Desired urban area design level.	Backups may develop behind turning vehicles. Most drivers feel somewhat restricted.
D Acceptable	Approaching Unstable	Traffic delays may be more than one cycle during peak hours but excessive back-ups do not occur. Considered acceptable urban area design level.	Maneuverability is limited during short peak periods due to temporary back-ups.
E Unsatisfactory	Unstable	Delay may be great and up to several signal cycles. Short periods of this level may be tolerated during peak hours in lieu of the cost and disruption attributed to providing a higher level of service.	There are typically long queues of vehicles waiting upstream of the intersections.
F Unsatisfactory	Forced	Excessive delay causes reduced capacity. Always considered unsatisfactory. May be tolerated in recreational areas where occurrences are rare.	Traffic backed up from other locations and may restrict or prevent movement of vehicles at the intersection.

 Table 4-1

 Delay-Based Level of Service Designation for Signalized Intersections

Within Prineville, the mobility standards vary, with unique V/C ratios for each highway category. For highways with posted speeds of 45 miles per hour (mph) or greater, the V/C standard ranges from .75 (Region and Statewide highways) to .80 (District highways). For highways with lower posted speed limits than 45 mph, the V/C standard ranges from .80 to .85, respectively. Between the western UGB and O'Neil Highway, OR 126 is designated a statewide expressway with a V/C ratio of .70. Within the downtown Prineville area, OR 126 from Locust to Knowledge and OR 27 from Third Street to First Street are designated as Special Transportation Areas (STA)³. Within the STA, the V/C mobility standard for Third Street is .90 (Statewide highway) and OR 27 is .95 (District highway).

³ Oregon Transportation Plan – Policy 1B. Definition of Special Transportation Area: The primary objective of managing highway facilities in an existing or future Special Transportation Area is to provide access to community activities, businesses, and residences and to accommodate pedestrian movement along and across the highway in a downtown, business district. An STA is a highway segment designation that may be applied to a highway segment, when a downtown, business district or community center straddles the state highway within an urban growth boundary or in an unincorporated communitydirect street connections and shared on-street parking are encouraged in urban areas and may be encouraged in unincorporated communities. Direct property access is limited in an STA. Local auto, pedestrian, bicycle and transit movements to the business district or community center are generally as important as the through movement of traffic. Traffic speeds are slow, generally 25 miles per hour or less.

підпімауз	nighways and Local streets						
			Volume-to-	Capacity			
Highway Route No.	From	То		Posteo Sp	d Travel veed	Highway Category	
			STA2	< 45 mph	> = 45 mph		
US 26	Prineville UGB	OR 126 ("Y")		.80	.75	Region	
OR 27	US 26	First St	.95			District	
OR 27	First St	Prineville UGB		.85	.80	District	
OR 126	Prineville UGB	O'Neil Hwy		.70	.70	State / Expressway	
OR 126	O'Neil Hwy	US 26 ("Y")		.80	.75	State / NHS	
OR 126	Locust St	Knowledge St	.90			State / NHS	
OR 126	Knowledge St	Prineville UGB		.80	.75	State / NHS	
OR 370 (O'Neil)	Prineville UGB	OR 126		.85	.80	District	
OR 380 (Paulina)	US 26	Prineville UGB		.85	.80	District	
Prineville Streets				.90			

Table 4-2 Mobility Standards for Prineville UGB Area - Volume-to-Capacity Ratios for State Highways¹ and Local Streets

1. Oregon Highway Plan, 1999.

Special Transportation Areas, adopted by Oregon Transportation Commission, 2004.

3. Traffic on non-state highway approaches that must either stop or yield shall not exceed the V/C for District highways.

For the purposes of the Draft 2005 TSP, all local (city) intersections are measured based on a V/C standard of .90. Intersection performance was calculated for existing conditions based on the traffic counts taken in recent years (2002-2005) and adjusted to 2005, p.m. peak hour conditions. The analysis of existing conditions was conducted assuming existing intersection traffic control, intersection geometry, and signal phasing (where signalized).

The 2005 p.m. peak hour V/C is summarized separately for signalized and unsignalized intersections on in **Table 4-3.** The analysis of existing conditions shows several intersections exceeding the respective V/C standard:

- Third Street (OR 126) / Main Street (OR 27)
- OR 126 / O'Neil Highway (eastbound left-turns at stopped approach to OR 126)
- OR 126 / US 26 (southbound left-turns at stopped approach within "Y")
- Main Street / 9th Street (eastbound traffic at stopped approach to Main Street)
- Main Street / 7th Street (westbound traffic at stopped approach to Main Street)

Based on the evaluation of existing conditions, the TSP Alternatives Analysis will need to address the following critical areas regarding street and highway capacity:

Third Street Corridor

The major signalized intersections on 3rd Street at Harwood, Deer, Elm and Combs Flat Road are all operating within the V/C standard, but indicate a higher level of usage, particularly at Deer Street. The new signal at Harwood Street may help ease these conditions. The Third Street/Main Street intersection continues to be the most heavily traveled point within the downtown Prineville area. Alternatives to easing traffic demand along Third Street should be identified and evaluated, including the option of improved circulation and access to Second Street (as an alternative to Third Street) at the west end of downtown Prineville.

The "Y" Intersection

The western entrance to Prineville at the junction of US 26 and OR 126 will become more congested with growing traffic conditions. Higher levels of truck traffic through the "Y" configuration, controlled by two separate stop signs and yield indicators with single-lane merging at critical points is already problematic. Alternatives to easing traffic demand and better facilitation of through, truck traffic should be identified and evaluated in the Alternatives Analysis, including the option of a new roundabout to replace the existing "Y" configuration.

Northern Arterial

The major, unsignalized intersections along North Main Street are currently accommodating more east-west traffic than the existing system can handle. With the partial completion of the Northern Arterial, with direct connection between Main Street and US 26 via 9th Street, these conditions will only worsen over time, if left unattended. The Alternatives Analysis of the TSP will need to evaluate the impacts of the completed Northern Arterial, with the final connection between Main Street and Laughlin Road, as relief to the congestion at Main Street and along Third Street.

Signalized Intersections	LOS ¹	Delay ²	V/C ³	_ V/C Standard _
Us 26 & Harwood Street	В	11.4	0.73	.90
US 26 & Deer Street	В	19.3	0.83	.90
US 26 & Main Street	С	28.8	<mark>0.90</mark>	.90
Us 26 & Elm Street	В	14.4	0.66	.90
US 26 & Combs Flat Road	В	12.3	0.63	.75
Main Street & 10 th Street	А	8.1	0.44	.90
Unsignalized Intersections	LOS	Delay	V/C (WM) ⁴	
OR 126 & Millican	С	24.6	0.06 (SB)	.70/.80
OR 126 & Tom McCall	F	64.1	0.43 (SB)	.70/.80
OR 126 & O'Neil Highway	F	198.7	1.10 (EB)	.80
OR 126 & US 26				
Southbound - Stop Controlled	F	60.1	<mark>0.87 (SB)</mark>	.80
Northbound Left - Stop Controlled	D	26.5	0.39 (NBL)	.80
US 26 & Juniper Street	F	80.8	0.36 (NB)	.90
US 26 & Knowledge Street	E	49.2	0.58 (NB)	.90
US 26 & Laughlin Road				
Northbound Left - Stop Controlled	А	9.0	0.01 (NBL)	.80
Southbound Right – Stop Controlled	В	10.2	0.02 (SBR)	.80
Southbound Left - Stop Controlled	С	16.3	0.19 (SBL)	.80
US 26 & 9 th Street	С	19.6	0.30 (SWL)	.80/.85
Main Street & Peters Street	В	14.0	0.24 (WBL)	.90
Main Street & Loper Street	С	20.6	0.35 (WB)	.90
Main Street & 9 th Street	F	275.0	<mark>1.45 (EB)</mark>	.90
Main Street & NE 7 th Street	F	117.7	<mark>1.07 (WB)</mark>	.90
Main Street & NW 7 th Street	С	17.2	0.08 (EB)	.90
Main Street & 2 nd Street	E	38.8	0.58 (EB)	.90
Main Street & 5 th Street	В	14.6	0.02 (EB)	.90
Main Street & Lynn Street	D	27.9	0.19 (EB)	.90
Juniper Street & 7 th Street	В	13.4	0.13 (NB)	.90
Hudspeth Street & 7th Street	В	12.8	0.08 (SW)	.90
Knowledge Street & 5 th Street	А	9.4	0.05 (SB/NB)	.90
Knowledge Street & Lynn Street	В	12.9	0.09 (SB)	.90
Combs Flat Road & Lynn Street	D	30.3	0.70 (EB)	.90

Table 4-3 Existing Intersection Level of Service - Prineville TSP

LOS = Level of Service
 Delay = in Average Seconds per Vehicle
 V/C = Volume to Capacity Ratio
 (WM) = Worst Movement Reported for Unsignalized Intersections

Accident History - State Highways

A summary of historical traffic accidents (2002-2004) on state highways within the Prineville UGB is provided in Appendix C. As shown, in 2002 O'Neil Highway (OR 370) is listed with a crash rate exceeding statewide averages for similar highways in Oregon. Similarly in 2003, Paulina Highway (OR 380) is listed with crash rates exceeding statewide averages for similar highways in Oregon. In 2004 there were no reported accidents along either highway.

Crooked River Highway (OR 27) is listed with several accidents, in 2002 and 2003 with significantly higher crash rates exceeding statewide averages. A statewide average for 2004 was not available, but the OR 27 rate in 2004 is likely higher (compared to statewide rates in 2002 and 2003). Most of the accidents along OR 27 were intersection-related, unrelated to weather and usually occurred during daylight conditions. Several of these accidents were rear-end collisions, and a number of these rear-end accidents were located at the intersection of 3rd Street and Main Street (OR 37). The accident rate has fallen significantly since 2002. In 2002 there were a total of 13 accidents on OR 27. In 2003 and 2004 the number has dropped in half to 5.

Safety Priority Index System (SPIS)

The SPIS is a method developed by ODOT for identifying hazardous locations along state highways. The SPIS score is based on a three-year history of crash data and considers crash frequency, rate and severity. To become a SPIS site, a location must meet one of the following criteria:

- Three or more crashes have occurred at the same location over the previous three years
- One or more fatal crashes have occurred at the same location over the previous three years.

Within Prineville there are two SPIS sites along OR 126, one at Deer Street and the second at Main Street. Each site has a large percentage of rear-end accidents. At Deer Street, the accident rate is high and likely a result of higher speed, eastbound traffic approaching the first traffic signal at Deer Street. At Main Street, the higher accident rate is largely due to the large volume of traffic approaching the intersection from all directions; and complicated by the signal phasing on Main Street , limited to permissive phasing for north- and south-bound left-turn movements,

Methodology to Estimate Future Travel Volumes

This chapter presents the methodology and assumptions used to develop future travel demand forecasts for the Prineville Urban Growth Boundary (UGB) area, for the 20-year period beginning in 2005. The chapter also includes an analysis of the impact of growth on traffic operations at selected intersections within the Prineville urban area.

Background and General Assumptions

The method used to estimate future traffic conditions for the Prineville TSP is based on procedures in the 2001 Transportation System Planning Guidelines prepared by the Oregon Department of Transportation. These guidelines identify three levels of transportation forecasting and analysis that could be used in the Prineville TSP study:

Level 1 - Trending Forecast

A trending forecast projects future traffic volumes from historical growth trends of vehicle traffic. This forecasting method requires 20 years of historical data and is sufficient to project 20 years into the future. Growth trends can be determined from traffic volume data on the nearest state highway since most communities do not have a program to count vehicles. Since this analysis assumes past growth trends will continue into the future, the existing land use zoning must support this analysis. The analysis needs to evaluate how well the transportation system presently functions. Intersections must be evaluated since they have a considerable effect on the traffic flow. The volume of traffic needs to be related to the capacity that the intersection can accommodate.

Level 2 - Cumulative Analysis

This level of analysis is appropriate for a community with a sufficient level of data to support the cumulative analysis. In addition to trending historical growth patterns, Cumulative Analysis examines the existing and planned land uses to predict future development growth and to forecast the traffic generated from that development. It is an effective method of evaluating areas that do not have an extensive street network and that have grown at a fairly uniform rate. It is useful in analyzing existing and future land uses, intersection capacity, traffic signal warrants and street networks. This level of analysis evaluates the present street network of a small city and provides a means to analyze the effects of traffic and population growth, highlight potential problems and develop alternative solutions. A Level 2 analysis requires all the data in the Level 1 analysis as well as the following additional data:

- A method to identify the number of through trips. This is best accomplished with an origin and destination (O & D) study, or review and update of an old O & D study if no major routes have been added or deleted. An extensive license plate survey may be appropriate if it is taken over a long enough time frame and includes the AM and PM peak hour(s) of traffic.
- An in-depth assessment of planned land uses is needed to develop a probable

forecast of the amount of traffic that could be generated at build out of the planning area.

Level 3 - Transportation Model

Generally the Transportation Model has been used in areas with an existing population of 15,000 or greater with an extensive street network. It can be a valuable tool in analyzing complex networks where there are several simultaneous or alternative solutions, and by providing information on the effects of changing land use zoning and traffic trends. It evaluates the present network and highlights existing and future problems by means of a transportation model and traffic engineering analysis. Combined with this analysis would be additional post processing evaluation of turning lane requirements, intersection capacity and signal warrants. Transportation modeling reference materials are provided at the end of this section.

Given the limited resources of the Prineville TSP Update and study, the City and ODOT agreed to develop future travel demand forecasts based on a Level 1 analysis. Two major factors influenced this decision:

- The time required to construct a travel demand model to ODOT Guidelines¹ for the Prineville UGB area would greatly extend the TSP development schedule; making a Level 3 methodology prohibitive to completing the TSP update in a timely manner.
- The time and resources required to conduct (a) origin-destination surveys in the Prineville UGB area and (b) detailed demographic forecasts were also found to exceed the study's resources; making a Level 2 methodology impractical.

Traffic Forecasts

Historic traffic volume data along state highways within the Prineville urban area were summarized for the most recent 20-year trend (1982-2002). An average of these growth

trends was calculated for the 20-year period beginning in 2003. As shown in **Table 5-1**, the annual traffic growth trend, on average, is about 1.81 percent along state highways within Prineville. This average growth rate reflects the historic growth in traffic due to new land developments within the Prineville UGB and greater Crook County, but also growth in inter-city travel. It is important to note that the average growth rate also reflects years in which state highway traffic declined,

Figure 5-1



primarily as a result to declining economic conditions within Central Oregon, but in some specific cases due to mill closings within Prineville (1997-2000, 2002). See **Figure 5-1**.

¹ Travel Demand Model Development and Application Guidelines, Oregon Department of Transportation 1995.

The closing of local mills likely resulted in fewer work-related trips in the Prineville area immediately following the mill closures.

	ODOT						AVERAGE ANNUAL
State Highway	Hwy #	M.P.	Location	2003	2023	RSQ	RATE
OR 27	14	0.25	.01 mi south of 3rd	5,400	8,300	0.7596	2.17%
	14	0.58	.01 mi north of Lynn	3,900	6,100	0.7278	2.26%
	14	0.6	.01 mi south of Lynn	1,000	1,600	0.874	2.38%
OR126 / US 26 (east of "Y")) 41	16.5	.01 mi west of Tom McCall	9,300	12,900	0.9058	1.65%
		16.5	.01 mi east of Tom McCall	9,700	13,800	0.8925	1.78%
		17.91	.01 mi west of O'Neil hwy	10,500	16,400	0.8522	2.25%
		17.93	.01 mi east of O'Neil hwy	12,700	17,900	0.9073	1.73%
		18.27	.01 mi east of Locust	13,900	20,400	0.723	1.94%
		19.4	Ochoco Creek Br.	11,700	16,400	0.9178	1.70%
		19.74	.01 mi west of Paulina hwy	10,000	12,400	0.8073	1.08%
		19.76	.01 mi east of Paulina hwy	7,500	9,800	0.7244	1.35%
		20.75	East of P'ville CL	4,500	6,700	0.7151	2.01%
US 26 (east of "Y")	360	20.06	.01 mi NW of 6th Street	6,100	8,800	0.667	1.85%
O'Neil Highway	370	17.66	.01 mi west of OR 126	2,200	3,000	0.8481	1.56%
Paulina Highway	380	0.01	.01 mi south of US 26	4,500	6,000	0.8337	1.45%
Source: ODOT Website, Last Updated 9/14/2004							

Table 5-1 ODOT Historical Traffic Growth Data - Prineville Area Traffic Growth Rate

AVERAGE ANNUAL GROWTH RATE (AAGR)

The year 2005 design hour volumes at Prineville intersections were factored to 2025 based on a 20-year trend, increased annually by 1.81 percent. **Figure 5-2** identifies the projected 2025 design-hour traffic volumes based on the average annual growth rates identified in **Table 5-1** (see *Appendix D* for definition of design hour traffic conditions). As shown, future traffic volumes are expected to be highest on Third Street between the WYE connection (US 26/OR 126) and Juniper Street.

The 2025 design-hour hour traffic constitutes the "No-Action" alternative from which other alternatives (see Chapter 6) are compared. The No-Action alternative assumes no major long-term street or intersection improvements. The transportation system impacts of the No-Action alternative are discussed in the following section.

1.81%



Future (2025) Traffic Operations and Performance

As discussed in Chapter 4, Existing Transportation Conditions, the 1999 Oregon Highway Plan (OHP) mobility standards were established to better address and assess the performance of intersections (both signalized and unsignalized) in the Prineville urban area. Standards were originally defined by ODOT as an objective measure of the volumeto-capacity of state highway intersections. The same measures have been applied to city street intersections in the TSP study for consistency. The mobility standards are expressed in V/C ratios, which are defined as "the peak hour traffic volume (vehicles/hour) at an intersection divided by the maximum volume that the intersection can handle." The closer the V/C ratio is to 1.0, the more congested traffic is.

Within Prineville, the mobility standards vary, with unique V/C ratios for each highway category and city streets, as summarized in **Table 5-2**.

Major Intersections

The analysis of future traffic conditions in the Prineville TSP focused on the critical intersections in downtown and along major streets throughout Prineville. These major intersections serve as the best indicators of overall system performance. **Table 5-2** compares existing (2005) and future (2025) V/C ratios with the mobility standards.

In 2005, the signalized intersection of US 26 and Main Street has a V/C ratio of .90 - matching the mobility standard. By 2025 the V/C ratio is expected to worsen to 1.31, well in excess of the mobility standard. For that matter, all of the signalized intersections along US 26 in Prineville are expected to exceed the mobility standard by year 2025.

Other study area intersections (unsignalized) are also expected to exceed the TSP mobility standards. In 2005, the intersections on OR 126 at O'Neil Highway and US 26 exceed the mobility standards. These conditions will significantly worsen by year 2025. In addition, by 2025 the OR 126/Tom McCall intersection will also exceed the mobility standards. On US 26, the intersections at Juniper Street and Knowledge Street will also exceed the mobility standards by 2025.

Major intersections along Prineville arterials are also expected to exceed the mobility standards by 2025, including the following:

- Main Street / 9th Street
- Main Street / 7th Street
- Combs Flat Road / Lynn Street

Chapter 6 of the TSP summarizes the various future transportation system alternatives intended to help alleviate the levels of traffic congestion expected by year 2025.

Existing and Future Volume/Capacity Ratios and Mobility Standards for State Highways and Major City Streets - Prineville UGB Area Table 5-2

	2005 DHV			V/C	2025 DHV
Signalized Intersections	LOS ¹	Delay ²	V/C ³	Standard	V/C
US 26 & Harwood Street	В	11.4	0.73	.90	.99
US 26 & Deer Street	В	19.2	0.83	.90	1.22
US 26 & Main Street	С	28.8	0.90	.90	1.31
US 26 & Elm Street	В	14.6	0.66	.90	.94
US 26 & Combs Flat Road	В	12.3	0.63	.75	1.02
Main Street & 10 th Street	Α	8.2	0.43	.90	.62
Unsignalized Intersections	LOS	Delay	_ V/C (WM)⁴		
OR 126 & Millican	С	24.6	0.06 (SB)	.70 / .80	0.18 (SB)
OR 126 & Tom McCall	F	64.1	0.43 (SB)	.70 / .80	1.65 (SB)
OR 126 & O'Neil Highway	F	198.7	1.10 (EB)	.80	2.16 (EB)
OR 126 & US 26					
Southbound – Stop Controlled	F	60.1	0.87 (SB)	.80	1.35 (SB)
Northbound Left - Stop Controlled	D	26.5	0.39 (NBL)	.80	0.80 (NBL)
US 26 & Juniper Street	F	80.8	0.36 (NB)	.90	1.21 (NB)
US 26 & Knowledge Street	E	49.2	0.58 (NB)	.90	1.82 (NB)
US 26 & Laughlin Road					
Northbound Left - Stop Controlled	Α	9.0	0.01 (NBL)	.80	0.06 (NBL)
Southbound Right - Stop Controlled	В	10.2	0.02 (SBR)	.80	0.25 (SBR)
Southbound Left - Stop Controlled	С	16.3	0.19 (SBL)	.80	0.35 (SBL)
US 26 & 9 th Street	С	19.6	0.30 (SWL)	.80 / .85	0.55 (SWL)
Main Street & Peters Street	В	14.0	0.24 (WBL)	.90	0.42 (WBL)
Main Street & Loper Street	С	20.6	0.35 (WB)	.90	0.78 (WB)
Main Street & 9 th Street	F	275.9	1.45 (EB)	.90	4.03 (EB)
Main Street & NE 7 th Street	F	117.7	1.07 (WB)	.90	2.00 (WB)
Main Street & NW 7 th Street	С	17.2	0.08 (EB)	.90	0.48 (EB)
Main Street & 2 nd Street	E	38.8	0.58 (EB)	.90	>9.90 (WB/EB)
Main Street & 5 th Street	В	14.6	0.02 (EB)	.90	0.13 (EB)
Main Street & Lynn Street	D	27.9	0.19 (EB)	.90	0.36 (EB)
Juniper Street & 7 th Street	В	13.4	0.13 (NB)	.90	0.27 (NB)
Hudspeth Street & 7th Street	В	12.8	0.08 (SW)	.90	0.29 (SW)
Knowledge Street & 5th Street	А	9.4	0.05 (SB/NB)	.90	0.07 (SB/NB)
Knowledge Street & Lynn Street	В	12.9	0.09 (SB)	.90	0.18 (SB)
Combs Flat Road & Lynn Street	D	30.3	0.70 (EB)	.90	1.23 (EB)

LOS = Level of Service
 Delay = in Average Seconds per Vehicle
 V/C = Volume to Capacity Ratio
 (WM) = Worst Movement Reported for Unsignalized Intersections

Population Forecasts

Table 5-3 includes the City of Prineville Urban Growth Boundary (UGB) and Crook
 County population forecasts. Both forecasts indicate considerable growth within the next two decades. Prineville's UGB population forecast indicates an average annual growth (straight-line forecast) of approximately 3.2 percent, somewhat higher than the 1.81 percent growth rate in traffic (based on historic trend).

The analysis and findings of the Prineville TSP Update (in this and subsequent chapters) is based on the Level 1, trend forecasts derived from historic traffic growth in Prineville. Both the traffic and population growth trends should be monitored over the next several years. Adjustments to traffic growth projects, analysis of future traffic conditions and possible adjustments to the TSP findings and recommendations should be reconsidered within the next five years (by 2010). See Appendix H for recommended policies relating to TSP updates.

Table 5-3 Prineville UGB A	rea and Crook County - Exist	ing and Future Population
L	Prineville UGB	Crook County
2003 Population	11,600	20,900 (est)
2023 Population	21,778	37,138
Growth: 2003-2023	10,178	16,238
Projected Annual Growth Rate:	3.2%	2.9%
Source:	Prineville Urban Growth Boundary Expansion Evaluation Report, April 2004.	Draft Crook County TSP, September, 2004

Table 5-3	Prineville UGB A	rea and Crook	County - Existing	g and Future Popula	ation
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Alternatives Considered

A "No Action," TSP Build and TDM alternatives were developed, analyzed, and compared as part of the future street system analysis. The TSP Update focuses on the TSP Build alternative with detailed assessment of a number of street access, circulation and capacity enhancements. The 2025 travel patterns and roadway requirements and costs were analyzed and compared for the alternatives. The results of the analysis were presented to the TAG and Planning Commission/City Council, who then selected the system of improvements to be incorporated and prioritized into the Prineville TSP.

Any of the alternatives were developed with a number of options to address specific street system deficiencies and/or safety concerns. The list below briefly describes the alternatives.

<u>No Action Alternative</u> - Assumes that there will be no changes to the existing street system.

<u>TSP Build Alternative</u> - Evaluates a number of street system options to provide needed circulation, access, safety and capacity improvements focused within five major subareas. As illustrated in **Figure 6-1** the subareas include:

Subarea 1 – Improvements to junction of OR 126 and US 26 (safety, access and capacity).

Subarea 2 - Improvements to OR 126 access in the Prineville Airport and industrial area (safety, access and capacity).

Subarea 3 - Improvements to Northern Arterial (safety, access, circulation, capacity and alternative modes).

Subarea 4 - Improvements to North/South collector street system including (a) Juniper/Knowledge/Hudspeth re-alignment, and (b) Holly Street Extension between 6th and 7th Streets and Elm Street Extension between 5th and 6th Streets (access, circulation, capacity, alternative modes).

Subarea 5 - Improvements to Crooked River crossings, including (a) O'Neil Highway re-alignment, and (b) Crestview extension (safety, access, circulation, and capacity).

Within some of the subareas a series of transportation system improvement options were considered and evaluated.

<u>Transportation Demand Management (TDM) Alternative</u> – In addition to the TSP Build Alternative, TDM considers and evaluates shifts in commuter travel behavior; either by *mode* (e.g. shift from "drive-alone" to walk or carpool/vanpool modes) or by *time of day* (e.g. shift in resident commuter travel times to avoid P.M. peak hour).



Alternatives Evaluation

No Action Alternative

The No Action Alternative assumes that no changes will be made to the existing street system for the next 20 years. However, traffic volumes will increase in Prineville as population and employment continue to grow. By comparing the future traffic demand with the unchanged street system, one can determine where future traffic problems are likely to occur.

Chapter 5 described how future traffic forecasts were developed. The results of the No Action traffic forecast are shown in **Figure 5-2**. As described in Chapter 5, traffic volumes throughout the system are projected to increase by approximately 35 to 40 percent by year 2025.

As indicated in **Table 5-2**, growth in Prineville will result in deteriorated traffic conditions, below the mobility standards, along several critical sections:

- 3rd Street
- Main Street, north of 3rd Street, particularly between NW 7^{th and} 10th Streets
- Main Street, immediately south of 3rd Street, and
- Major intersections along OR 126 at Tom McCall Road, O'Neil Highway and US 26

Increased congestion and delay in the No Action Alternative would have both environmental and socio-economic impacts. Air quality and noise levels would worsen along Third and Main Streets due to the increase in congestion. The environmental impacts would also affect the livability of Prineville, which might encourage new residents and businesses to locate elsewhere.

TSP Build Alternative

Various street improvement options that help define the TSP Build Alternative are described by major subarea within Prineville.

Subarea 1: Improve US 26 and OR 126 Junction

The analysis of future traffic conditions identified significant capacity deficiencies at the junction of US 26 and OR 126. The capacity of the existing lane configuration and traffic control is limited, state highway access to adjacent land uses is detrimental to efficient and safe highway operations, and pedestrian access through and across the junction is insufficient for safe and continuous operations. The level of traffic demand (2005 peak hour) at the junction already exceeds the OHP mobility standards in. These conditions are projected to grow significantly worse by year 2025, far exceeding the OHP mobility standards. It was assumed that a fully grade-separated interchange would be extremely costly and perhaps unwarranted within the 20-year planning horizon. The TSP

Update focused on two types of intersection traffic control measures to increase capacity and multi-modal access at the junction:

- Traffic signal
- Roundabout

Figure 6-2 summarizes the traffic analysis conducted for the various traffic control options at the US 26/OR 126 junction. As shown, the analysis of future traffic conditions indicates that a new traffic signal at the junction, even with additional turn lanes, would result in future traffic conditions that exceed the OHP mobility standard by 2025.

As an alternative, modern roundabouts are designed to provide traffic control for intersections with relatively high volumes. At roundabouts a deflection angle approaching the intersection creates a merging point with traffic in the roundabout, similar to freeway ramp operations. At traffic signals, traffic enters the intersection at 90 degree angles and a signal regulates traffic flow. This fundamental difference has an impact on intersection operations and safety.

There are many factors to be considered when installing a roundabout. The most notable pros and cons of roundabouts are listed in **Table 6-1**.

Consideration of the following issues were addressed as part of the roundabout analysis:

- Future traffic operations analysis¹, to determine consistency with OHP Mobility Standards
- Confirmation of 1- vs. 2-lane roundabout capacity needs within the 20-year TSP planning horizon
- General impact to existing businesses and school that front US 26 and OR 126, west of Locust Street
- Concept design connection of new connector to Second Street (eastbound only), and
- Future traffic impacts of the added Second Street connection, alleviating traffic on 3rd Street, and/or the possibility of a one-way couplet option.

Both the single-lane roundabout with slip-lanes and double-lane roundabout options provide sufficient capacity over the next twenty years and beyond. **Table 6-2** summarizes the various design, right-of-way and policy issues that will need to be addressed following completion of the 2005 Prineville TSP Update. The conclusion of the TSP analysis indicates that the roundabout with slip lanes is the preferred alternative. However, the City and ODOT should pursue both roundabout concept options, and narrow the analysis to a final, recommended design for eventual construction.

¹ Coordination with ODOT Salem Technical Services Branch (design concept assessment) and Region (Traffic Engineer) was conducted to confirm the data, approach, parameters and findings of the roundabout analysis.

Table 6-1Roundabouts: Pros and Cons

Pros	Cons
Traffic Operations	
 In general, roundabouts provided for more capacity and have less delay than traffic signals as traffic in a roundabout is not stopped where as a traffic signal has yellow and all-red times that must be provided. Since vehicles are continuously entering and exiting the roundabout without stopping, queuing is often reduced. Roundabouts can often have lower average vehicle delays and better levels of service than conventional intersections. Roundabouts regulate vehicular speeds, as vehicles are forced to slow down to maneuver through the roundabout. Roundabouts allow U-turns to be made relatively easy and safe and can improve access to street segments where left turns are prohibited. 	• Drivers who are unfamiliar with roundabouts may be confused and violate normal operations by stopping at inappropriate times or violate yield controls, which can impact operations and safety.
Traffic Safety	
 Roundabouts are considered safer as they have 75 percent fewer vehicle conflict points than conventional intersections. Roundabouts have fewer and less sever collisions. The Insurance Institute for Highway Safety analyzed before and after conditions for locations that have had roundabouts installed and found 39 percent decrease in collisions, 76 percent decrease in collisions with injuries, and 90 percent decrease in fatal collisions. Head-on and broadside collisions are typically the most dangerous collisions and these types of collisions cannot occur at roundabouts. 	 There is a potential for an increased frequency of minor collisions such as rear-end and low speed sideswipes. Drivers who are unfamiliar with roundabouts may have some initial confusion, which could lead to violations that result in minor collisions.
Pedestrian Safety	There are no control in distance
• redestrians only have to cross one single-lane direction of traffic at a time, and have considerably less exposure to vehicles than at conventional intersections.	 There are no protected pedestrian movements like you would find at traffic signals. Roundabouts do not have the same audible queues used by visually-impaired pedestrians at other types of intersections. The sight lines for drivers looking for pedestrians is different than at a standard intersection as they are approaching the intersection at an angle and are yielding vs. stopping.

Table 6-1 (cont.)Roundabouts: Pros and Cons

Bicycle Safety

- There are mixed results regarding bicycle safety at roundabouts. The roundabout design can incorporate elements that help protect bicycles like "escape ramps" to bypass the roundabout.
- Sight lines are different at a roundabout and drivers are making a lot of decisions regarding entering and exiting a roundabout and bicyclists are not always seen or looked for.

General Considerations

- Roundabouts typically require more space and right-of-way than a standard intersection.
- There is debate on whether a roundabout should be used in locations with highly unbalanced traffic flows.
- Access points leading up to a roundabout are impacted
- Roundabouts typically require more landscaping and potentially irrigation. The landscaping or center island can also be used for public art or designed as a City gateway.
- Roundabouts should not be located at intersections with sight distance constraints or locations with very high semitruck turning volumes.
- Roundabouts should not be used in the middle of a coordinated signal system.

Table 6-2US 26 / OR 126 Junction

US 26 Interspection	MUTCD Warrants* Met?				
	#1	#2	#11		
OR 126	Yes	Yes	Yes		
* Based on 2025 projected traffic cond	itions				



FIGURE 6-2: US 26 / Hwy 126 Junction Improvement Options

	Volume / Capacity (Mobility Standard: .80) 2025	
	2005	No Action Build Alt.
Existing Lane Configuration & Traffic Control	0.87	1.98 not considered
Number Travel Lanes by Movement EBND WBND SBND Left Thru Thru Right Left Right Option #1 1 1 1* 1 1* Option #2 1 2 1 1* 2 1* * Free right-turn lanes.	0.74	<u> 1.01 0.88 </u> <u> 0.83 0.81 </u>
Poundala sut		
Roundabout V/C Key Single-Lane .## / .## Sidra / G2 Double-Lane	0.87 / 0.85	1.43 / 1.27 1.32 / 1.12 0.65 / 0.66 0.56 / 0.64
Roundabout with Slip-Lanes	0.49 / 0.56	0.71 / 0.82 0.69 / 0.77

Subarea 2: Improve OR 126 Access in the Prineville Airport Industrial Area

The airport industrial area was recently annexed into the City and is developing rapidly as an employment center. Four major options to improve OR 126 access and circulation were evaluated:

Option 1:	Tom McCall Road Overcrossing
Option 2:	Millican Road Undercrossing
Option 3:	Tom McCall Road Undercrossing
Option 4:	Millican / Tom McCall Split-Diamond

Analysis of future (2025) traffic conditions on OR 126 in the airport area reveal that volumes at both Millican Road and Tom McCall Road are sufficiently high enough to warrant traffic signals (see **Table 6-3**).

Truitie Signur () u		5 Summary			
OD 126 Intersection	MUTCD Warrants* Met?				
OK 120 Intersection	#1	#2	#11		
Millican Road	Yes	Yes	Yes		
Tom McCall Road	Yes	Yes	Yes		
* Based on 2025 projected traffic conditions					

Table 6-3OR 126 - Airport AreaTraffic Signal Warrant Analysis Summary

While the installation of traffic signals on OR 126 at either Millican Road, Tom McCall could result in acceptable levels of service at the intersection in the near future. However, the installation of new traffic signals, particularly at the edge of Prineville's UGB, will introduce significant delay to state highway traffic; and may even introduce undesirable safety conditions in the area. Any of the interchange options would significantly reduce traffic conflicts by providing improved access management and greater capacity to accommodate the growth instate highway traffic, particularly truck movements through the area. These interchange options are also more consistent with the access management standards outlined in the 1999 Oregon Highway Plan. **Table 6-4** provides a planning-level cost analysis of the four options.

As shown in **Figure 6-3**, the Tom McCall interchange option (Option #1) was found to be the most desirable interchange option that optimized OR 126 operations, provided improved access and safety to the industrial area, and minimized the impact to the airport area operations.



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Cost Analysis in 2005 Dollars (millions)						
Streets						
Option	Traffic Signals	Approach Lanes	Highway Widening	Ramps	Bridge	Total
Option 1	\$0.5	\$1.13	\$1.14	\$1.00	\$1.63	\$5.40

Table 6-4 OR 126 - Airport Area Access Improvement – Option #1 Cost Analysis in 2005 Dollars (millions)

Subarea 3: Improvements to Northern Arterial

The Prineville Northern Arterial was first identified in the Draft 1998 TSP. Portions of the Northern Arterial have already been completed, including that section of 9th Street from US 26 to Main Street. The 2005 TSP study focused planning and conceptual engineering analysis for those sections needed to complete the Northern Arterial. An examination of alignment options at Main Street and routing along the railroad right-of-way between the 9th Street area and 7th Street was completed.

Analysis of future traffic conditions revealed that the fully improved Northern Arterial provides significant relief to peak hour traffic conditions along 3rd Street. As shown in **Figure 6-4** and listed below, three major options to complete the Northern arterial were identified and evaluated:

Option 1:	Transition 9 th Street to 7 th Street west of Main Street, align along 7 th Street from Main Street to Laughlin Road, align along Laughlin Road from 7 th Street to US 26
Option 2:	Extend 9 th Street from Main Street to Prineville Railway right-of-way, align along Prineville Railway right-of-way to Laughlin Road, align along Laughlin Road from 7 th Street to US 26
Option 3:	Transition 9 th Street to 10 th Street west of Main Street, align along Prineville Railway right-of-way to Laughlin Road, align along Laughlin Road from 7 th Street to US 26

For all options it was assumed that the intersection of the Northern Arterial at Main Street would be signalized, with separate turn-lanes on all approaches. Analysis of future (2025) traffic conditions revealed that the City's mobility standard would be achieved at the Northern Arterial intersection of Main Street.



All three options would have some environmental impacts.

Socioeconomic impacts would be considerable for Option #1, as it would significantly affect the 7th Street corridor neighborhood. Additional right-of-way would need to be acquired from properties adjacent to 7th Street, east of Main Street. New right-of-way would need to be acquired west of 7th Street under Option 1, and some existing businesses and residents would need to be relocated.

Option #2 would require new right-of-way immediately east of Main Street, and the relocation of an existing grocery store. The portion of the Prineville Railway between 7th Street and about 9th Street would need to be converted to public, arterial street use. Additional right-of-way would likely be needed along this section of the Prineville Railway to accommodate the Northern Arterial.

Socioeconomic impacts would also be considerable for Option #3. Additional right-ofway would need to be acquired from properties between 9th and 10th Streets, immediately west of Main Street. Some existing businesses and residents would need to be relocated. East of Main Street the socioeconomic impacts for Option #3 are similar to Option #2.

Table 6-5 provides a planning-level cos	analysis of the three options to complete the
Northern Arterial.	

in 2005 Dollars (millions)				
Stree	Total			
ROW*	Road			
	\$1.02	\$1.02		
	\$1.00	\$1.00		
	\$1.46	\$1.46		
	\$1.30	\$1.30		
\$1.41	\$1.30	\$2.71		
	stree ROW*	Street ROW* Road \$1.02 \$1.00 \$1.46 \$1.30 \$1.41 \$1.30		

Table 6-5Northern Arterial Completion: Cost Analysisin 2005 Dollars (millions)

* Costs do not include estimates for new ROW (other than along Laughlin Road) and the cost to remove and re-locate existing residential and commercial buildings.

** Costs are consistent for all three options.

Subarea 4: Improve City North/South Collector Street System

Options to improve Prineville's North/South collector street system include extensions of Court Street across Ochoco Creek, consolidation of Knowledge and Juniper Street at 3rd Street (with improved connection to Hudspeth at Laughlin Road), extension of Elm Street south of 5th Street, extension of Holly Street between 6th and 7th Streets, and connections north of Laughlin to serve the developing north side of Prineville.

Court Street Extension

The Court Street Extension option would extend N. Court Street over the Ochoco Creek to provide another north-south route. The purpose of this alternate route would be to reduce traffic volumes at the Main Street and Elm Street intersections with 3rd Street and provide improved circulation for vehicles, bicyclists, and pedestrians. It would also shorten trips which currently travel out of a direct path because of the lack of creek crossings, including emergency response vehicles from the City's Fire Hall located just south of Ochoco Creek.

The Court Street Extension was estimated at about \$ 1.4 million, including a new bridge, and street section to City collector standards. This option would not require any substantial right-of-way costs, but it would add another roadway through the park along Ochoco Creek.

A review of traffic volumes along Main Street and Elm Street indicates that the N. Court Street connection would provide substantial reduction in local neighborhood traffic on those roadways. The impacts of this option would result from the Ochoco Park and Ochoco Creek crossings. The creek crossing could have potential water impacts from roadway run-off. Park users, particularly walkers, runners, and bicyclists, would have one additional roadway crossing as a result of this option.

Knowledge/Juniper Street Re-alignment

As shown in **Figure 6-5**, the re-alignment of Knowledge Street between 2nd Street and Juniper Street (at 1st Street) would provide the most direct street, pedestrian and bicycle access between the developing residential areas in North Prineville, with the Prineville Schools located south of OR 126. Future traffic demand indicates the need for a new traffic signal on 3rd Street at Juniper Street under this option. This improvement would eliminate the current dog-leg connection across OR 126 via Juniper Street and Knowledge Street, with a single highway crossing controlled by a traffic signal.

New public right-of-way would need to be acquired as part of this project.



The Knowledge/Juniper Street alignment would have significant impact to future traffic by relieving north/south traffic demand on both Main Street and Elm Street. Construction costs (in 2005 dollars) were estimated at about \$.76 million, including a new traffic signal at 3rd Street and street section to City collector standards.

Elm Street and Holly Street Extensions

The purpose of this option would be to reduce traffic volumes at the Main Street intersection with 3rd Street by providing improved circulation for vehicles, bicyclists, and pedestrians linking north (especially the hospital) and south Prineville.

The Elm Street Extension option would extend S. Elm Street between 5th Street and 6th Street. The Holly Street Extension would extend S. Holly Street between 6th Street and 7th Street. The purpose of this option would also be to reduce traffic volumes at the Main Street intersection with 3rd Street by providing improved circulation for vehicles, bicyclists, and pedestrians linking north (especially the hospital) and south Prineville.

Construction costs in 2005 dollars were estimated at about \$ 0.8 million for right-of-way and a new street section to City collector or local route standards. This option would not require any substantial right-of-way costs.

Subarea 5: Improve Crooked River Crossing Opportunities

There are two major opportunities to improve access across Crooked River: one north of OR 126 serving north Prineville; and the second south of OR 126 serving the Crestview area and south Prineville. Both options provide alternate route connections to OR 126 (3rd Street) with the potential to relieve future traffic congestion in the downtown Prineville area.

Two major options to improve opportunities to cross Crooked River were evaluated:

Option 1:Re-route O'Neil Highway to US 26Option 2:Extend Crestview Road to Main Street

Option 1

As shown in **Figure 6-6** the re-alignment of O'Neil Highway would terminate at US 26 at the intersection of 9th Street. This option may require a short re-alignment of 9th Street to consolidate intersections, and OR 126 can be modified to include full median protection at the existing intersection of O'Neil Highway (prohibiting all left-turn vehicular movements).



The re-routing of O'Neil Highway can help reduce the number of conflicting auto and truck turning movements at the current intersection of OR 126, which is problematic due to a number of factors: (1) close proximity to the Crooked River Bridge; (2) close proximity to the US 26/OR 126 junction; and, (3) immediate proximity to the OR 126 grade, which complicates the safe transition of side-street traffic with downhill and uphill traffic operations.

Option 1 would have environmental and socioeconomic impacts that would require further study and findings prior to construction.

Option 2

Rimrock Road connects to OR 126 at an intersection with an awkward angle of approach, but is the only public access road to the Crestview area. The Rimrock Road connection shares the same operational difficulties as the O-Neil Highway intersection, only there are little to no truck movements to and from the Crestview area. There is concern that emergency vehicles might be blocked from the Crestview area should anything happen to the Crooked River Bridge crossing.

Option 2 would have environmental and socioeconomic impacts that would require further study and findings prior to construction.

The extension of Crestview Road east to the Crooked River Highway may possibly conflict with some park land near the Crooked River Highway; however, conflicts with the park land would not be determined until a more detailed alignment is studied.

This option assumes that the Rimrock Road intersection with OR 126 would remain open, or partially open, until such time that highway traffic operations are deemed unsuitable. There are options to partially close the median to left-turning vehicles at Rimrock Road: (1) partial median closure to westbound (OR 126) left-turns; and, (2) full median closure, allowing only right-turns at Rimrock Road. The partial median closure option provides future safety enhancements on OR 126 by reducing some cross-median traffic movements (coupled with the re-alignment of O'Neil Highway), while retaining an alternative local route (via the Crestview Extension) for south Prineville traffic to access OR 126 and avoid downtown Prineville.

Table 6-6 summarizes the planning-level costs estimated for the two Crooked River crossing options.

Option	Street	Bridge	Total
Option 1 – O'Neil Highway Re- Alignment	\$1.35	\$.97	\$2.32
Option 2 - Crestview Extension	\$1.08	\$4.32-\$8.64	\$5.40-\$9.72

Table 6-6 Crooked River Crossing Options: Cost Analysis in 2005 Dollars (millions)

Impacts of Build Alternative on 3rd Street Traffic

The combination of capacity improvements identified in the various build alternative options were generally tested to determine their combined impact on future traffic operations within the 3rd street corridor, most notably at Main Street. **Figure 6-7** summarizes the 2025 PM peak hour traffic volumes reflective of the Build alternative. The Build alternative has the potential to shift about 40% of the future (2025) peak hour traffic from 3rd Street major parallel routes like 2nd Street and Northern Arterial (9th Street). Future traffic operations were measured based on the Build alternative, and are summarized in **Table 6-7**. With the exception of the 3rd Street/Main Street intersection, all study area intersections are found to operate within the mobility standards in year 2025.



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Table 6-7Future, No-Action and Build Alternatives - Volume/Capacity Ratios and Mobility
Standards for State Highways and Major City Streets - Prineville UGB Area

	2025 No-Action DHV	V/C Standard	2025 Build
Signalized Intersections	V/C ³	Stanuaru	V/C
US 26 & Harwood Street	.99	.90	.69
US 26 & Deer Street	1.22	.90	.67
US 26 & Main Street	1.31	.90	.94
US 26 & Elm Street	.94	.90	.48
US 26 & Combs Flat Road	1.02	.75	.71
Main Street & 10 th Street (unsignalized in 2025 Build)	.62	.90	.87
Unsignalized Intersections			
OR 126 & Millican	0.18 (SB)	.70 / .80	New Interchange
OR 126 & Tom McCall	1.65 (SB)	.70 / .80	New Interchange
OR 126 & O'Neil Highway	2.16 (EB)	.80	see Re-alignment
OR 126 & US 26			
Southbound – Stop Controlled	1.35 (SB)	.80	see Roundabout
Northbound Left - Stop Controlled	0.80 (NBL)	.80	see Roundabout
US 26 & Juniper Street (signalized in 2025 Build)	1.21 (NB)	.90	.43
US 26 & Knowledge Street	1.82 (NB)	.90	0.38 (NB)
US 26 & Laughlin Road			
Northbound Left - Stop Controlled	0.06 (NBL)	.80	0.11 (NBL)
Southbound Right - Stop Controlled	0.25 (SBR)	.80	0.26 (SBR)
Southbound Left - Stop Controlled	0.35 (SBL)	.80	0.41 (SBL)
US 26 & 9 th Street (signalized in 2025 Build)	0.55 (SWL)	.80 / .85	.70
Main Street & Peters Street (signalized in 2025 Build)	0.42 (WBL)	.90	.46
Main Street & Loper Street	0.78 (WB)	.90	1.11 (WB)
Main Street & 9th Street (signalized in 2025 Build)	4.03 (EB)	.90	.76
Main Street & NE 7 th Street	2.00 (WB)	.90	0.45 (WB)
Main Street & NW 7 th Street	0.48 (EB)	.90	0.35 (EB)
Main Street & 2 nd Street (signalized in 2025 Build)	>9.90 (WB/EB)	.90	.54
Main Street & 5 th Street	0.13 (EB)	.90	0.21 (EB)
Main Street & Lynn Street	0.36 (EB)	.90	0.45 (EB)
Juniper Street & 7 th Street	0.27 (NB)	.90	0.36 (NB)
Hudspeth Street & 7 th Street	0.29 (SW)	.90	0.41 (SW)
Knowledge Street & 5 th Street	0.07 (SB/NB)	.90	0.07 (SB/NB)
Knowledge Street & Lynn Street	0.18 (SB)	.90	0.26 (SB)
Combs Flat Road & Lynn Street (signalized in 2025 Build)	1.23 (EB)	.90	.49

1. LOS = Level of Service

2. Delay = in Average Seconds per Vehicle

3. V/C = Volume to Capacity Ratio

4. (WM) = Worst Movement Reported for Unsignalized Intersections

Impacts of Transportation Demand Management (TDM)

Through transportation demand management *(TDM)*, the peak travel demands can be reduced or spread to different time periods to provide more efficiency in the transportation system. Further analysis was conducted to determine if these measures, either individually or collectively, would reduce the need for additional street capacity improvements by year 2025, beyond those identified in the Build alternative. The major effect of these programs would be on the home to work and return trips. This analysis, therefore, focused on those trips, looking at the reasonable upper limit that could be achieved by diverting trips through carpooling, mode shifts, and other TDM measures.

Table 6-8 compares the journey to work census data for 1980, 1990 and 2000, and the results of this analysis on vehicle trip reduction during the P.M. peak hour. The effect could be a reduction of 90-120 vehicle trips during the PM peak hour. This amounts to a reduction of about 3% of the "drive-alone" peak hour vehicle trips. This reduction is spread throughout the community and would not indefinitely eliminate but could postpone the need for more extensive cross-town arterial/highway capacity improvements.

Table 6-8Potential Effect of Transportation Demand ManagementReduction of Peak Hour Vehicle Trips

	Percent	t of Wor	PM Peak Hour	
Тгір Туре	1980	1990	2000	Vehicle Trip Reductions
Drove Alone	69.4	75.4	71.0	**
Carpooled	16.4	15.0	22.1	
Bicycle	0.0	0.5	0.8	
Walk	9.1	5.5	3.2	10 - 15
Other	3.5	0.3	0.7	0 - 5
Work at Home	1.6	3.3	2.2	
Alternative Work Schedules				80-100
Total	100.0	100.0	100.0	90-120

** Reduction included with effect of TDM

The No Action and Build alternatives were originally evaluated based on future traffic conditions without the effect of TDM to determine the maximum new requirements. The effects of TDM should be monitored to determine if priorities in the future should be shifted. Adjustments to the 2025 Build alternative traffic volumes at the 3rd Street/Main Street intersection to reflect the TDM trip reductions. **Table 6-9** compares the mobility standards between the 2025 Build and TDM alternatives. As indicated, a modest achievement in the reduction of drive-along trip making would have very positive results.
The intersection of 3rd Street and Main Street will operate within the mobility standard as a result of the combined Build and TDM capacity and program improvements.

Table 6-9Future TDM Alternative - Volume/Capacity Ratios and Mobility Standards - 3rdStreet and Main Street Intersection

		V/C Standard			
Signalized Intersections	LOS ¹	Delay ²	V/C³	V/ C Standard	
US 26 & Main Street	D	35.8	.91	.90	
	_	2025 DHV: TDM			
	LOS ¹	Delay ²	V/C ³	V/C Standard	
US 26 & Main Street	С	34.5	.88	.90	

Other Options Considered

Downtown Traffic Circulation-3rd Street Corridor

As noted in the 1994 TSP, the 3rd Street corridor is the principal area of future traffic congestion. As shown in **Figure 6-8**, four major options to improve downtown circulation were re-evaluated. Each of the options were evaluated inclusive of the recommended streetscape and pedestrian improvements identified in the Downtown Prineville Enhancement Plan (1997). The options include:

Option 1:	Retain Current Two-Way Traffic
Option 2a:	One-Way Couplet using 2nd and 4th Streets with new bridge over the Crooked River
Option 2b:	One-Way Couplet using 2nd and 4th Streets without new bridge over the Crooked River
Option 3:	One-Way Couplet using 3rd and 4th Streets
Option 4a:	One-Way Couplet using 2nd and 3rd Streets with new bridge over the Crooked River
Option 4b:	One-Way Couplet using 2nd and 3rd Streets without new bridge over the Crooked River



Option 1

Other than the streetscape improvements identified in the Prineville Downtown Enhancement Plan, this option would generally maintain the existing traffic pattern. Congestion on 3rd Street would remain a significant issue. This option would not improve air quality and noise levels, nor would it provide any safety benefits because of the reduction in left-turn movements across opposing traffic. This option would not have the potential for water impacts because it would not involve any new creek crossings. There would also be no impacts to public park facilities.

By maintaining the status quo, there would be minimal socio-economic impacts associated with this option. Merchants retain visibility by maintaining both eastbound and westbound traffic on 3rd Street which would address the concern centered around the through traffic. However, as congestion in downtown worsens, there may be incremental socio-economic impacts associated with poor circulation and difficult access.

Option 2 (a/b)

Option 2 would create a one-way couplet on Second and Fourth Streets to provide an alternate route to 3rd Street, which would remain two-way. The concept of this route would be to provide an alternate route for local users to bypass 3rd Street in order to avoid delay, while through traffic not familiar with the city would continue along 3rd Street. The elements of this option would include:

- Second Street: Provide a connection from OR 126 to W. Second Street and convert W. Second Street to eastbound traffic only. Between Elm Street and Fairview Street, connect E. Second Street with E. 3rd Street.
- *Fourth Street:* Between Fairview Street and Elm Street, connect E. 3rd Street with E. Fourth Street. Convert all of Fourth Street to westbound traffic only and extend it out to Highway 26 at the "Y" intersection.

Future (year 2018) traffic conditions along the Second/Fourth one-way couplet will likely operate well under capacity conditions - similar to those conditions estimated for Option #3 (see Table 8-2). Traffic conditions on 3rd Street would also likely operate below capacity.

Other benefits to the community would be minimal. The decrease in volumes on 3rd Street would result in some reduction in congestion and delay; however, only minor improvements in air quality and noise levels would result from this reduction. Minor safety benefits are achieved with Option 2 due to the reduction in left-turn movements across opposing traffic.

Option 2A would have some potential water impacts. The Second Street bridge across the Crooked River could increase roadway run-off into the river.

Option 3

Option 3 would create a one-way couplet along 3rd Street and Fourth Street between the "Y" intersection and about Holly Street. The couplet would allow eastbound traffic along 3rd Street and westbound traffic along Fourth Street. The elements of this option include:

- *3rd Street:* Convert traffic on 3rd Street to eastbound only from the "Y" intersection to about Fairview Street, where westbound traffic would split off onto Fourth Street.
- *Fourth Street:* Upgrade Fourth Street to one-way major arterial standards. Provide a new connection from 3rd Street between Garner Street and Fairview Street. And, extend Fourth Street from Locust Street to Highway 26.

The couplet configuration would significantly reduce congestion and delay by spreading the highway volumes over two roadways. This reduction would have a positive effect on air quality and noise levels. The couplet configuration would also have some safety benefits because of the reduction in left-turn movements across opposing traffic.

The major socio-economic factor associated with selecting roadways for the couplet was the direction on travel on 3rd Street. Merchants felt it was imperative to keep eastbound traffic on 3rd Street, letting westbound traffic use Fourth Street. The concern centered around the through traffic. Much of the through traffic is coming from the west, traveling eastbound on the departure trip traveling and westbound on the return trip. For the first half of the trip, merchants wanted the through traffic to see denser commercial development along 3rd Street. Eventually the development will balance out between the two couplet roadways, but initially it will favor 3rd Street.

Option 3 would reduce congestion and delays thereby improving air quality and noise levels. It would also reduce the number of left-turn conflicts in downtown.

Option 4 (a/b)

Option 4 would create a one-way couplet along Second Street and 3rd Street between the "Y" intersection and about Fairview Street. The couplet would allow eastbound traffic along Second Street and westbound traffic along 3rd Street. The elements of this option include:

- Second Street: Upgrade Second Street to one-way major arterial standards. Provide a new connection from 3rd Street between Fairview Street and Elm Street. Extend Second Street from Locust Street to Highway 26.
- *3rd Street:* Convert traffic on 3rd Street to westbound only from the "Y" intersection to about Fairview Street, where eastbound traffic would split off onto Second Street.

Option 4 would not keep eastbound traffic on 3rd Street, a concern established by the downtown Merchants in development of the original TSP. Future (year 2018) traffic conditions along the Second/3rd Street one-way couplet will likely operate well under capacity conditions - similar to those conditions estimated for Option #3 (see Table 8-2).

Option 4 would reduce congestion and delays thereby improving air quality and noise levels. It would also reduce the number of left-turn conflicts downtown. Option 4A would have some potential water impacts. The Second Street bridge across the Crooked River could increase roadway run-off into the river. However, Option 4b would not have the potential for water impacts because it would not involve any new creek crossings.

The one-way couplet options generally defuse congestion on 3rd Street and could improve the level of service at key intersections downtown. Options 2, 3 and 4 would both significantly reduce traffic congestion by providing additional capacity, and air quality and noise levels would be improved as a result; however, all of these options would have some socio-economic impacts. The re-direction of traffic would impact the downtown businesses and shoppers could be forced to travel out-of-direction in order to negotiate the one-way couplet. **Table 6-10** provides a cost analysis of the four main options and their suboptions in 2005 dollars.

Streets								
Option	Traffic Signals	ROW	Road	Sign/Stripe	Bridge	Total		
Option 1		\$0.86	\$0.48			\$1.34		
Option 2a	\$1.73	\$0.86	\$2.35	\$0.29	\$7.20	\$12.43		
Option 2b	\$1.73	\$0.86	\$1.92	\$0.29		\$4.80		
Option 3	\$1.15	\$0.43	\$1.01	\$0.29		\$2.88		
Option 4a	\$1.15	\$1.01	\$1.30	\$0.29	\$7.20	\$10.95		
Option 4b	\$1.15	\$0.58	\$1.01	\$0.29		\$3.03		

Table 6-10 Downtown Street Circulation Options - Cost Analysis in 2005 Dollars (millions)

Summary and Recommendations

All of the street system improvement options were evaluated based on their estimated costs, traffic safety and circulation benefits, and socio-economic and environmental impacts. All options were presented and discussed with the TAC, Planning Commission/City Council and public. After considering the advantages and disadvantages of each option and sub option, the recommendations for the Preferred Alternative are as follows:

1) US 26 and OR 126 Junction (Subarea 1)

The recommended improvements at the junction of US 26 and OR 126 considered a number of issues:

- need to balance the appropriate level of highway design to ensure public safety consistent with the Oregon Highway Plan
- provide sufficient capacity to accommodate future traffic growth, both for autos and trucks
- provide sufficient design to accommodate trucks, bicycles and pedestrians around and through the junction
- o provide optimum design features as the visual "gateway" to Prineville
- consideration of design constraints in proximity to the Crooked River Bridge, OR 126 grade and Les Schwab industrial center
- provide sufficient connectivity and circulation access for neighboring land uses without compromising public safety

Recommendation: A roundabout with slip lanes as illustrated in **Figure 6-9** best addresses these issues, and was found to have significantly greater capacity than a traffic signal. As part of the project preliminary and final design such issues as the number and treatment of roundabout travel lanes, adjacent land use circulation and access, and pedestrian and bicycle circulation and safety will be addressed.

Public input on a round-a-bout design shall be given to the traffic engineers for final design consideration for the intersection design. The final design shall consider and attempt to achieve better local access than what is currently shown on the concept.

2) OR 126 Access in the Prineville Airport Industrial Area (Subarea 2)

The analysis of future traffic conditions and consideration of appropriate design standards indicate that while installation of a traffic signal on OR 126 at Millican Road may be the most cost-effective solution, it is not an appropriate design solution for either OR 126 safety conditions, nor is it the most desirable solution for local truck access and safety and is inconsistent with the 1999 OHP access management standards.

Recommendation: It appears that the best long-term capacity, local trucking access and highway safety solution is best accommodated by Option 2 (Tom McCall interchange). This option will likely require public and private financial contributions. More precise cost estimates and a financial partnership plan can be determined following more detailed engineering of the recommended solution.

3) Complete Northern Arterial (Subarea 3)

All three major options to complete the Northern Arterial were found to have significant socioeconomic impacts. The 7th Street option was likely the most damaging to the existing residential neighborhood. The option to extend 9th Street to the Prineville Railway would significantly impact the existing grocery store, Price Slasher. Re-aligning the Northern Arterial to 10th Street would also impact several businesses and residents.

A series of individual stakeholder and public open house meetings were convened to directly address these major options. As outcome from these meetings it was concluded that the City, landowners and Price Slasher business managers had identified appropriate findings to begin site planning and negotiating a fair cost to relocate Price Slasher in the immediate area of the 9th Street extension option

Recommendation: The extension of 9th Street east of Main Street to the Prineville Railway, re-use of the railway as an arterial street and improvements to Laughlin Road were found to be the best solutions to complete the Northern arterial. The recommendation includes the relocation of the Price Slasher grocery store as a valued community asset, providing essential neighborhood-level shopping opportunities in north Prineville.

A social and economic impact analysis will be completed within six months of the adoption of this plan to provide further information to assist with decision making. At the time the study is complete the City will review and possible revise their decision.

4) Improve City North/South Collector Street System (Subarea 4)

Recommendation: The extension of Court, Elm and Holly Streets will result in improved collector street capacity in relief to congestion on Main Street and 3rd Street. The re-alignment of Knowledge Street to Juniper Street and the consolidation of Juniper and Hudspeth Streets at Laughlin Road provide the most direct street, pedestrian and bicycle connection between North Prineville area development and the Prineville schools.



5) Improve Crooked River Crossing Opportunities (Subarea 5)

Recommendation: The recommendations for improving opportunities to cross the Crooked River and improving safety on OR 126 include:

- a. Extend Crestview Road to the Crooked River Highway to add second river crossing and provide partial median control of OR 126 at Rimrock Road.
- b. Re-align and extend O'Neil Highway across the Crooked River to US 26 at 9th Street and provide full median control at the existing intersection of OR 126 and O' Neil Highway.

Other Long-Term Options - Downtown Traffic Circulation

Recommendation: The combination of Build and TDM alternatives were found to provide sufficient street capacity such that future (year 2025) traffic would operate along 3rd and Main Streets within the TSP mobility standards. These alternatives were found to be the least disruptive and best supportive of the existing land development pattern along 3rd Street in downtown Prineville. As regular update to the Prineville TSP, the City of Prineville and ODOT should continue to track and monitor traffic flows on 3rd Street to determine the appropriate timing when a one-way couplet should be re-evaluated and perhaps constructed (beyond the current 20-year planning horizon). Until then, retention of the current two-way traffic system and implementation of the TSP Build and TDM Alternatives are recommended. Based on the growth estimates developed as part of the 2005 TSP Update, the recommended long-term street system improvements will provide sufficient capacity, circulation/access and safety measures to accommodate growth in Prineville over the next 20 years.

Vision

The City's adoption of the Downtown Enhancement Plan is supported by the findings of the Prineville TSP Alternatives Analysis and recommendations. By indefinitely postponing the reconfiguration of the downtown circulation pattern towards a one-way couplet, the City of Prineville, with the collective support of the State and County, is making a conscious decision to invest in a strong, vibrant and more livable downtown area. In some cases, as the analysis of future traffic operations indicated (see Chapters 5 and 6), this investment comes at a "cost" of higher peak hour traffic congestion in the future on Third Street (particularly at Main Street). In part, this trade-off is being made with the expectation that alternative routes will be available for those who choose to avoid Third Street during the peak hours. These alternatives, together with the Northern Arterial, enhanced Second Street project, and north-south collector street projects are justified on the basis of this community choice.

Prineville's choice for a livable downtown area constitutes the vision from which many of the project and policy elements of the TSP are defined and integrated. The Prineville TSP includes plans for all modes of transportation and will be adopted as the Transportation Element of the City of Prineville Comprehensive Plan. Components of the street system plan include street classification and street width standards, access management standards, and street improvements. Suggested transportation demand measures are also included. Lastly, an implementation plan is presented.

Transportation Planning Policies

As the transportation Element of the Prineville Comprehensive Plan, the TSP will provide a policy foundation to guide City transportation-related decisions with a firm policy background in such areas as: overall system design, growth management, regional mobility, connectivity, circulation, efficiency, safety, accessibility, economic development, neighborhood livability, aesthetics, and citizen involvement.

A. General Transportation Plan Policies:

Prineville Transportation System Plan

1. The Prineville Transportation System Plan should contain goals, objectives, policies, plan maps, and project lists that will guide the provision of transportation facilities and services for the Prineville Urban Area. The Prineville Transportation System Plan will serve as the Transportation Element of the Prineville Comprehensive Plan. The Prineville Transportation System Plan should contain the following plan elements:

- Street and Highways	- Public Transportation
- Transportation System Management	- Rail, Air, Water and Pipeline Service
- Freight Mobility	- Transportation Demand Management
- Bikeway Plan	- Financial Plan
- Pedestrian System	- Implementation Plan

The Prineville Airport Plan is adopted as a separate planning document.

2. The *Prineville Transportation System Plan* should be updated, as necessary, to remain consistent with other regional and statewide plans.

Regional Mobility

3. A balanced system of transportation facilities and services should be designed to meet the regional travel patterns and mobility needs of residents, businesses, and industries.

Multi-modal Transportation System

4. The transportation system for Prineville should consist of an integrated network of facilities and services for a variety of motorized and non-motorized travel modes.

Connectivity and Circulation

5. The vehicle, bicycle, and pedestrian circulation systems should be designed to connect population and employment centers in Prineville, as well as provides access to local neighborhood residential, shopping, schools, and other activity centers.

Supportive of Land Use Plan Designations and Development Patterns

6. The provision of transportation facilities and services should reflect and support land use designations and development patterns as identified in the Prineville Comprehensive Plan. The design and implementation of transportation facilities and services should be based on serving current and future travel demand, residential densities, retail, and employment centers.

Growth Management

- 7. The construction of transportation facilities should be timed to coincide with community needs, and implemented in such a way as to minimize impacts on existing development.
- 8. Improvements to streets in addition to those in or abutting a development may be required as a condition of approval of subdivisions and other intensifications of land use.
- 9. To mitigate traffic impacts placed on area-wide transportation facilities by new development, Transportation System Development Charges, as defined by Oregon Revised Statutes and local government ordinances, should be collected.

System Efficiency

10. The Prineville Transportation System Plan should identify methods that citizens can use to commute to work and decrease overall traffic demand on the transportation system. Such methods include telecommuting, carpooling, vanpooling, flexible work schedules, walking, and bicycling.

Transportation Safety

11. Local governments should make as a high priority the design, construction, and operation of a safe transportation system for all modes of travel.

Public Safety

12. The rapid, and safe movement of fire, medical, and police vehicles should be an integral part of the design and operation of the transportation system.

Accessibility for People with Disabilities

13. The transportation system should be designed with consideration of the needs of people with disabilities by meeting the requirements set forth in the Americans With Disabilities Act.

Economic Development

14. Supportive of the mobility needs of businesses and industries, the transportation system should consist of the infrastructure necessary for the safe and efficient movement of goods, services, and people throughout the Prineville area. The Prineville Transportation System Plan should

include consideration of the area's rail, aviation, pipeline, and truck movement network.

Neighborhood Livability

15. Transportation facilities should be designed and constructed to minimize noise, energy consumption, neighborhood disruption, economic losses to the private or public economy and social, environmental and institutional disruptions, and to encourage the use of bikeways and walkways.

Aesthetics and Landscaping

16. Aesthetics and landscaping should be considered in the design of the transportation system. Within the physical and financial constraints of the project, landscaping should be included in the design of the transportation facility. Various landscaping designs, suitable plants, and materials should be utilized by local governments, private entities or individuals to enhance the livability of the area.

Intergovernmental Coordination and Consistency

17. The City of Prineville should coordinate their transportation planning and construction efforts with those of the Crook County, the State of Oregon Department of Transportation, and other affected agencies as appropriate. Local transportation plans will be consistent with those developed at the regional and state level.

Airport Compatibility

- 18. Land Uses around the Prineville Airport should be required to provide an environment compatible with the airport and its operation, and which will not be adversely affected by noise and safety problems.
- 19. Because of the potential hazards to airborne aircraft, land uses beneath designated approach surfaces within 10,000 feet of the end of Prineville Airport runways should not create water impoundments accessible by waterfowl.
- 20. Commercial uses and other uses that result in concentrations of people should be prohibited within the clear zones of the runways at Prineville Airport, to avoid danger to the public safety by potential aircraft accidents.

B. Street System Policies:

Classification System and Basic Design Guidelines

1. The City should classify streets and highways within the Prineville urban area based on how they are to ultimately function within the overall system (see Street Functional Classification section), and should reserve right-of-way corridors for planned arterial and collector streets.

Multi-modal Street Design

2. The City of Prineville should design its streets to safely accommodate pedestrian, bicycle, and motor vehicle travel.

Multi-modal Intersection Design

3. Arterial and collector street intersections should be designed to promote safe and accessible crossings for pedestrians and bicyclists. Intersection design should incorporate measures to make pedestrian crossings convenient and less of a barrier to pedestrian mobility.

Arterial and Collector Street Intersections

4. Left-turn pockets should be incorporated into the design of all intersections of arterial streets with other arterial and collector streets, as well as collector streets with other arterial and collector streets.

Street Design Standards

5. The City of Prineville Design Standards should be the basis for all street design within the Prineville Urban Area.

Capacity Efficient Design and Mobility Standards

6. The City of Prineville should apply the street design standard that most safely and efficiently provides motor vehicle capacity respective to the functional classification of the street.

Streetscape Design and Aesthetics

7. Wherever possible the City of Prineville should incorporate safely designed, aesthetic features into the streetscape of its public rights-of-way. These features may include: planting of street trees, shrubs, and grasses; incorporation of planting strips; and, in some instances, the installation of street furniture, planters, special lighting or non-standard paving materials.

Physical Improvements to Existing City Streets

8. Existing streets that are to be widened or reconstructed should be designed to the adopted street design standards for the appropriate street classification. Adjustments to the design standards may be necessary to avoid existing topographical constraints, historic properties, schools, cemeteries, existing on-street parking, and significant cultural features. Whenever possible, the design of the street should be sensitive to the livability of the surrounding neighborhood.

Access Management

- 9. To maintain the utility of the public right-of-way for the mobility of all users, access location and spacing to arterial and collector streets should be controlled. (See Access Management Standards)
- 10. In order to recognize existing land use patterns, access management standards should be applied to new approaches only.
- 11. On State highways within the Prineville UGB, new direct access points should conform to *Division 51* of the *Oregon Administrative Rules*. Alternatives to direct access including, but not limited to, shared driveways, frontage roads, side street or alley access, should be utilized where possible.

Removal of Vision Hazards on Private Property

12. The City should work to increase traffic safety by requiring private property owners to maintain vision areas adjacent to intersections and driveways clear of fences, landscaping, and foliage that obstruct the necessary views of motorists, bicyclists, and pedestrians

Project Identification

13. The City should select City-funded, street improvement projects from those listed in the Prineville Transportation System Plan when making significant increases in system capacity or bringing arterial or collector streets up to urban standards. The selection of improvement projects should be prioritized based on consideration of improvements to safety, relief of existing congestion, response to near-term growth, system-wide benefits, geographic equity, and availability of funding.

Citizen Involvement in Project Design

14. The City should involve representatives of affected neighborhood associations and citizens in an advisory role in the design of street improvement projects. The purpose of citizen involvement in project design is to be a resource to project staff in the design process. The need for, and purpose of, the project are to be determined as part of the earlier planning process undertaken when including the project in the Prineville Transportation System Plan.

Traffic Impact Analysis Requirements

15. The City should require Traffic Impact Analyses as part of land use development proposals to assess the impact that a development will have on the existing and planned transportation system.

Exactions Required of Development

16. The City should require new development to make site-related, right-ofway dedication and street system improvements that are identified through the Traffic Impact Analysis process and other code requirements, and for planned arterial and collector streets.

Street Improvements Funded Through System Development Charges

17. The City should require new development to pay charges towards the mitigation of system-wide transportation impacts created by new growth in the community. These funds can be used towards improvements to the street system.

C. Transportation System Management Policies:

Improve the Efficiency of the Signal System

1. The City should work with ODOT and continue to modernize the signal system and improve its coordination and efficiency by ultimately connecting all of its signals to a centralized traffic control center. The City and ODOT should employ traffic signal timing plans that maximize the efficiency of the system given the particular travel demand during different months and time periods throughout the typical weekday and weekend day

Maintain Clear and Effective Signs and Pavement Markings

2. The City and ODOT should regularly maintain all of the traffic control devices (signs and markings) within their respective inventory so as to minimize congestion and driver delay due to confusion. While priority should always be given to regulatory and warning signs, informational (street name and directional) signs should also be given proper maintenance.

On-Street Parking Management

3. Where on-street parking is permitted on a congested arterial street, the City should give first priority to removing on-street parking as a means of enhancing the capacity of the facility. Depending upon the situation and proper analysis, the City may consider timed on-street parking prohibitions during peak travel periods in lieu of permanent removal.

Development and Adoption of Access Management Standards

- 4. The City should develop and adopt specific access management standards based on the following principles:
 - a.) Properties with frontage along two streets should take primary access from the street with the lower classification.
 - b.) Any one development along the arterial street system should be considered in its entirety, regardless of the number of individual parcels it contains. Individual driveways will not be considered for each parcel.
 - Access to the arterial street system should be primarily limited to one point provided adequate street frontage is available.
 Additional access may be permitted, provided adequate frontage and access spacing is available.
 - d.) Signalized access for private streets and driveways onto the major street system should not be permitted within 1,320 feet (1/4 mile) of any existing or planned future signal.
 - e.) Shared, mutual access easements should be designed and provided along arterial street frontage for both existing and future development.
 - f.) The spacing of access points should be determined based on street classification (see Table 7-1). Generally, access spacing includes accesses along the same side of the street or on the opposite side of

the street. Access points should be located directly across from existing or future access, provided adequate spacing results.

- g.) All access to the public right-of-way should be located, designed, and constructed to the approval of the Public Works Director, or his designee. Likewise, variances to access management standards should be granted at the discretion of the Public Works Director, or his designees.
- h.) All new access to State highways within the Prineville UGB should conform to Division 51 of the OAR.

D. Local Street Connectivity Policies:

Connectivity to the Street System

1. Applicants submitting preliminary subdivision plans should provide for local street connections toward existing or planned streets and neighborhood activity centers, located within one-half-mile of the development.

Connectivity of New Developments to Adjoining Undeveloped Land

2. Applicants submitting preliminary subdivision plans should provide for extension of local streets to adjoining undeveloped properties and eventual connection with the existing street system.

Sidewalks

3. All development should include sidewalk and walkway construction, as required by the *City of Prineville Land Development Ordinance*. All new road construction or reconstruction projects shall include sidewalks as specified in the Pedestrian Element of the *Prineville Transportation System Plan*.

Public Accessways

4. The City may require pedestrian and bicycle accessways to connect to cul-de-sac streets, to pass through long blocks, and to provide for networks of public paths creating non-motorized access to neighborhoods.

Street Width

5. In order to facilitate pedestrian crossing, discourage through traffic, and reduce speeds, local streets should not be excessive in width. However, public local streets must have sufficient width to allow for emergency access and provide parking on, at least, one side.

Discouraging Cut-through Traffic

6. Neighborhood Streets and Local Routes shall be designed to minimize cutthrough traffic. Limiting street length, width, and the installation of traffic calming measures may be used to discourage through-traffic from using Neighborhood Streets and Local Routes.

Purpose of Cul-De-Sac Streets

7. The purpose of cul-de-sac streets should be to increase density by accessing land not otherwise accessible through a connected street pattern, due to topography or other constraints. Construction of cul-de-sac streets should be minimized to the extent practicable.

Cul-de-Sac Street Length

8. Cul-de-sac streets should not exceed 600 feet in length. However, no portion of the cul-de-sac street should be more than 400 feet from an intersecting street or public accessway unless physical constraints make it impracticable

Alleys

- 9. Alleys provide secondary access to residential properties where street frontages are narrow; where the street is designed with narrow width to provide limited onstreet parking; or where alley access development is desired to increase residential densities. Alleys can provide several advantages over direct access from the street:
 - Alleys allow orientation of the residence, rather than the garage, to the street.
 - Use of alleys can reduce the number of driveway entrances onto the street, thereby improving the pedestrian environment.
 - Alleys provide greater flexibility in platting small lot subdivisions.
 - Alleys provide an alternative location for siting utilities and garbage collection services.

Alleys should be paved surfaces with a width of 16 feet for two-way traffic. Alley shoulders should include graveled surfaces (minimum 2 feet), and fencing should be set back by a minimum of 2 feet behind the property line.

E. Bicycle System Policies:

1. The City of Prineville should recognize bicycle transportation as a necessary and viable component of the transportation system as an important transportation mode.

- 2. The City of Prineville should utilize where feasible opportunities to add bike lanes in conjunction with road reconstruction and re-striping projects on collector and arterial streets.
- 3. The City of Prineville should assure that, where appropriate, the design of streets and public improvement projects facilitates bicycling by providing proper paving, lane width, traffic control, storm drainage grates, striping, signage, lighting, etc.
- 4. The City of Prineville should actively work with ODOT to improve bicycling on State Highways within Prineville.
- 5. The City of Prineville should encourage bicycle recreation.
- 6. The City of Prineville should actively support and encourage local and state bicycle education and safety programs intended to improve bicycling skills, observance of laws, and overall safety for both children and adults by encouraging and support efforts by Prineville schools to develop and use a bicycle safety curriculum.

F. Pedestrian System Policies:

Inventory Existing System and Identify Future Needs

1. The City should continue to inventory and map new pedestrian facilities.

Establish Sidewalk Construction Program

2. To complete the pedestrian facility network, the City should consider establishing a Sidewalk Construction Program. Through this program, property owners would be required to build sidewalks on all lots abutting curbed City streets within the City limits, within a prescribed time period.

Ensuring Future Sidewalk Connections

3. All future development shall include sidewalk and walkway construction as required by the adopted *Street Design Standards*. All road construction or renovation projects shall include sidewalks, if appropriate.

Complete Connections with Crosswalks

4. All signalized intersections shall have marked crosswalks. Crosswalks at controlled intersections should be provided near schools, commercial areas, and other high volume pedestrian locations.

Compliance with ADA Standards

5. The City shall comply with the requirements set forth in the Americans with Disabilities Act regarding the location and design of new sidewalks.

Maintaining and Assuring the Quality of Facilities

6. The City should establish standards for the maintenance and safety of pedestrian facilities. These standards should include the removal of hazards and obstacles to pedestrian travel, as well as maintenance of benches and landscaping.

Education of Pedestrian Safety Needs

7. The City should encourage schools, safety organizations, and law enforcement agencies to provide information and instruction on pedestrian safety issues that focus on prevention of the most important accident problems. The programs should educate all roadway users of their privileges and responsibilities when driving, bicycling, and walking.

G. Freight Movement Policies:

Access to Streets and Highways

1. The City of Prineville shall create a street and highway system that provides direct and efficient access to, and between, Prineville Urban Area industrial and commercial centers and statewide transport corridors.

Accessibility to Railroads

2. The City should encourage the availability of railroad freight services to those industrial and commercial areas where utilization is economically viable.

Accessibility to Air Freight Services

3. The City should promote the utilization of air freight services by continuing to provide and maintain facilities at Prineville Airport that enable the operation of private air freight providers.

Regional Pipeline Systems

4. The City should promote accessibility to, protection of, and the appropriate location of, regional pipeline systems that service the Prineville Urban Area.

Adequate Street Design Standards for Trucks

5. The City shall develop adequate design standards that meet the weight and dimensional needs of trucks, particularly for those streets that serve industrial and commercial areas.

Transportation of Hazardous Materials

6. The City shall encourage responsible federal and state agencies to develop and enforce appropriate regulations regarding the safe transport of hazardous materials through the Prineville Urban Area.

H. Transportation Finance Policies:

General Obligation Bonds

1. The City should investigate the feasibility and public support for the sale of general obligation bonds to finance capital improvements to the transportation system. Projects shall be selected and authorized by a vote of the citizens of Prineville.

Transportation System Development Charges

2. As defined by Oregon Revised Statutes and City ordinances, transportation system development charges may be collected by the City to mitigate impacts placed on area-wide transportation facilities. The City should establish an SDC as an important and equitable funding source to pay for transportation capacity improvements.

Development Exactions

3. The City should require those responsible for new development to mitigate their development's impacts to the transportation system, as authorized in the *Oregon Revised Statutes*, concurrent with the development of the property.

Federal and State Funding Sources

4. The City shall seek federal and state funding for capital improvements through participation in the designated distribution process, as provided in currently-authorized federal and state transportation legislation.

Pursuing Federal and State Grants

5. The City shall pursue the awarding of federal, state, and private grants to augment operations activities, especially in the planning and engineering functions.

I. Plan Implementation Policies:

Policy Foundation for Decision-Making

1. The *Prineville Transportation System Plan* shall be used as the legal basis and policy foundation for all City decision-makers, advisory bodies, and citizens in issues related to transportation. The goals, objectives, policies, principles, maps, and recommended projects shall be considered in all decision-making processes that impact, or are impacted by, the transportation system.

Land Use Actions and Development Review

2. The goals, objectives, policies, standards, and maps contained in *Prineville Transportation System Plan* shall be considered and applied towards the review and approval of land use actions and development applications. Applications need to contain findings that show how the proposed land use action or development is in conformity with the adopted tenets of the Prineville Transportation System Plan.

Streets and Highways Element

Street Functional Classification

The Prineville Street Functional Classification system map and policies determine the intended use of each street in the City's street system in relation to adjacent land use. A street's functional classification determines what type of traffic should use the street - regional, intra-city, or neighborhood. The type of traffic, combined with expected traffic volumes, determine whether a street is an arterial, collector, local route or neighborhood street. Local topography may also be a factor in assigning a classification to a street. It is important to note that traffic volumes alone do not determine the functional classification of a street. All of the characteristics listed play a role in the determination. Once the street's function is determined, design characteristics are assigned – including the number of travel lanes, access controls, on-street parking, bicycle lanes, sidewalk width, and right-of-way width, consistent with its classification. While the right-of-way requirement is constant, the ultimate number of lanes and access controls may be phased-in over time, depending on the existing and projected travel demand on the facility.

The importance of the Street Functional Classification system cannot be overstated. The City of Prineville uses the Street Functional Classification system to reserve future rightsof-way, determine street design, and develop future street improvement projects. This system provides the "blueprint" of how the City wants its street system to develop and function over the next 20 years and beyond. The recommended street functional classifications within the Prineville UGB are described below:

As part of the Prineville TSP update, careful consideration of the City's "Local Residential" street standard (as currently adopted) was conducted due to the levels of ambiguity concerning local street standards experience by communities across the state. The Prineville TSP Update includes recommendations for splitting the "Local Residential" standard into two standards - "Local Route" and "Neighborhood Street."

- Arterial Arterial streets form the primary roadway network within and through a region. They provide a continuous roadway system which distributes traffic between different neighborhoods and districts. They generally include State Highways and roadways over 10,000 vehicles per day.
- **Collector** Collector streets are primarily intended to serve abutting lands and local access needs of neighborhoods. They are intended to carry from 3,000 to 10,000 vehicles per day, including some through traffic. The collector could serve either residential, commercial, industrial, or mixed land uses.
- **Local Route** Local routes could serve residential, commercial, industrial, or mixed land uses. They are intended to carry between 1,200 and 3,000 vehicles per day. While through traffic connectivity is not a typical function, they may carry limited amounts.
- **Neighborhood** Neighborhood streets are intended to serve the adjacent land without carrying through traffic. These streets are designed to carry less than 1,200 vehicles per day. To maintain low volumes, local residential streets should be designed to encourage low speed travel. Narrower streets generally improve the neighborhood aesthetics, and discourage speeding as well. They also reduce right-of-way needs, construction cost, storm water run-off, and vegetation clearance. If the forecast volume exceeds 1,200 vehicles per day, as determined in the design stage, the street system configuration should either be changed to reduce the forecast volume or the street shall be designed as a local route.

Cul-de-sac	Cul-de-sac streets are a type of neighborhood street. They are intended to serve only the adjacent land in residential neighborhoods. These streets shall be short, serving a maximum of 20 single family houses. Because the streets are short and the traffic volumes relatively low, the street width can be narrow, allowing for the passage of two lanes of traffic when no vehicles are parked at the curb or one lane of traffic when vehicles are parked at the curb. To encourage local street circulation capability, the use of cul-de-sac streets shall be discouraged, and shall not be permitted if future connections to other streets are likely. Sidewalk connections from a new cul- de-sac shall be provided to other nearby streets and sidewalks.
Alley	Alley streets provide secondary access to residential properties where street frontages are narrow; where the street is designed with a narrow width to provide limited on-street parking; or where alley access development is desired to increase residential densities. Alleys are intended to provide rear access to individual properties and may provide alternative areas for utility placement.

Figure 7-1 identifies the recommended functional street classification and probable location of new neighborhood streets. **Table 7-1** describes the different characteristics that comprise each of the recommended street classifications in the Prineville Urban Area. The following attributes have been identified for each of the recommended classifications:

- assigned function or purpose;
- ultimate traffic design in number and configuration of lanes;
- allowance, or not, for on-street parking;
- bicycle and pedestrian facilities design;
- traffic management characteristics including ultimate design ADT (average daily traffic), traffic calming, managed speed, through-connectivity, and access control; and,
- required right-of-way widths.

These classifications are used to guide the development of new roads as they are brought into the system, as well as determining the types of improvements needed for existing streets.

Once a classification has been assigned to an individual street it needs to be designed in a manner that allows it to perform its function. Each street classification has a typical, or ideal, cross-section design. This design determines how a "typical" street of that classification should be built. For a variety of reasons, not every street with a given classification can be ultimately built to the ideal standard.



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Syste	Neigh.	2 Lanes	Nor	Shared S			361	281	201	2 (5		4 ft. (op	Lov	1,200	Typi	15-25	Not Perm	N	103	48-58
ication	Local Route	2 Lanes (11 ft)	None	Shared Surface			38 ft.	30 ft.	22 ft.	2 (5 ft.)		4 ft. (optional)	Medium to Low	1,200 - 3,000	Permissible/ Not Typical	25 mph	Not Typical	No	2%	50-60 ft.
I Classif	Collector	2 lanes (11 ft.)	12 ft.	2 Lanes (5 ft.)			60 ft.	na	44 ft.	(2) 5 ft. Res	8 ft. Com	6-10 ft.	High to Medium	3 - 10,000	Permissible/ Not Typical	25-35 mph	Typical	Some	7%	75-100 ft.
unctiona	Arterial	2 lanes (12 ft.)	14 ft.	1 2 Lanes (6 ft.)			66 ft.	na	50 ft.	(2) 5 ft. Res	8 ft. Com	6-10 ft.	High	10,000+	Not Typical ⁶	35-55 mph	Primary	Yes	7%	85-105 ft.
able 7-1: Street Fu		Auto Amenities (lane widths)	Median / Center Turn Lane	Bike Amenities ²	Curb-to-curb Street Width ⁵	On-Street Parking	Two Sides	One Side	None	Pedestrian Amenities ³ Sidewalks		Planter Strips	Preferred Adjacent Land Use - Intensity	Ultimate Design ADT	Traffic Calming	Managed Speed	Through-traffic Connectivity	Access Control (see Table 7-2)	Maximum Grade	Right-of-Way:
H				Bike						Pedestrian (ADA requirements)			านอเมอติทนทนเ				N			
		i	əlif	LO	Street Pro					וַכ	ļļr	גי								
			Streetscape																	

Notes for Table 7-1

- 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 arterial and 4 ft. on collectors, local routes and neighborhood 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 eight-feet in width are required in commercial areas unless otherwise provided for in the Prineville Land Development Ordinance. The *City of Prineville Downtown Enhancement Plan* (1997) recommends wider sidewalks in downtown Prineville in order to accommodate street trees and street furniture without compromising ADA requirements or business access. Designated Special Transportation Areas (STAs) in Prineville, including Third Street and a portion of Main Street, are to have 8-10 foot sidewalks, consistent with the Oregon Highway Plan.
- ⁴ 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. Neighborhood 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.
- ⁶ Pursuant to the *City of Prineville Downtown Enhancement Plan* (1997) pedestrian flares (extensions) or half-flares are proposed at downtown intersections of arterial or collectors.

Topography, historic landmarks, business and residential districts, are just a few limiting factors. The typical cross-section design gives City staff the basis for requiring rights-of-way as part of development reviews, and the proper standards for how an existing street should be brought-up to urban standards.

Figure 7-2 illustrates the typical cross-section design for each street classification. **Figure 7-3** illustrates the typical streetscape improvements and sidewalk amenities for Third, Fourth and Second Streets as recommended in the Prineville Downtown Enhancement Plan. **Table 7-2** summarizes the street design guidelines, consistent with the street functional classification, including access management standards as discussed in the following section.

ARTERIAL



COLLECTOR



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LOCAL ROUTE







Figure 7-2 2 of 3



NONE



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NEIGHBORHOOD STREET



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Group

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8405 SW NIMBUS AVE. BEAVERTON, OR 97008

(503) 626-0455

Figure 7-2

3 of 3

TYPICAL STREET CROSS SECTIONS SYSTEM PLAN

CITY OF PRINEVILLE

TRANSPORTATION

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Figure 7-3

		Industrial Uses		 Shared access driveways are encouraged Left-hand turn lanes determined through review 	 Shared access driveways are encouraged Left-hand turn lanes determined through review 	 Shared access driveways are encouraged Left-hand turn lanes determined through review 	No direct access.	
	Access Management	Commercial Uses	sion 51, OAR	 Shared access driveways are encouraged Left-hand turn lanes determined through review 	 Shared access driveways are encouraged Left-hand turn lanes determined through review 	 Shared access driveways are encouraged Left-hand turn lanes determined through review 	Curb cut minimum 50 ft. to curb return.	
		Residential Use	See Divi	No direct access	1. Shared access driveways are encouraged	1. Shared access driveways are encouraged	Curb cut minimum 45 ft. to curb return.	
		Min. Spacing		300 ft	100 ft	50 ft	None	
		street Lighting		1. Mounting height: 35-40 ft	1. Mounting height: 30-35 ft	1. Mounting height: 25-30 ft	1. Mounting height: 20 ft	
	- 20 E	1 rame Control	nual	 Placement/ design of traffic control devices as warranted by MUTCD Minimum signal spacing: 1/4 mile 	Placement/design of traffic control devices as warranted by MUTCD	Placement/design of traffic control devices as warranted by MUTCD	Placement/design of traffic control devices as warranted by MUTCD	
	System Design / Managed Horizontal Alignment Vertical Alignment Spacing Speed Alignment Speed Alignment Alignment (MPH) See Oregon Highway Design Mar 1 mi. 35-55 Minimum 45-55 radius: 650 ft Minimum addius: 650 ft Minimum sight distance: 450 ft		ighway Design Ma	Maximum grade: 7% Minimum sight distance: 450 ft	Maximum grade: 7% Minimum sight distance: 300 ft	Maximum grade: 7% Minimum sight distance: 250 ft	Maximum grade: 10% Minimum sight distance: 150 ft	
			See Oregon H	Minimum centerline radius: 650 ft	Minimum centerline radius: 560 ft	Minimum centerline radius: 300 ft	Minimum centerline radius: 150 ft	
				35-55\ 45-55	35/ 25-35	25/ 25	25/ 15-25	
			1/4 mi.	1/8 mi.	Min. 400 ft. Max. 600 ft.			
		Functional Classification	St Highway	Arterial	Collector	Local Route	Neighborhood Street	

Table 7-2Suggested Street Design Standards

Transportation System Management Element

Transportation systems management (TSM) is a term used to describe a wide range of measures and techniques that help increase the efficiency, safety, capacity and level of service of the existing street system. TSM measures are typically low cost and easier to implement than new or reconstruction projects.

TSM measures provide for better traffic movement and increased safety by *managing* the existing street system. TSM measures will generally not require mid-block widening of the roadway system. Because they typically are low-cost and low-impact (to surrounding land uses and neighborhoods) improvements, TSM measures are a significant resource to the City of Prineville. This is particularly true when existing traffic congestion requires street improvements in highly developed areas of the community, or when finances dictate the need for an intermediate improvement (in lieu of major capital expenditures).

While the spectrum of TSM measures is wide, the measures that are applicable to Prineville will generally fall into one of four categories listed below:

- Traffic Management and Channelization;
- Intersection Modification and Widening;
- Access Management; and
- Improved Traffic Control Devices.

Intersection channelization and traffic control device improvements are recommended in a number of locations as part of the Prineville TSP. Traffic signal system enhancements are also recommended. All of these improvements have been included within the Street and Highways element of the Prineville TSP.

Access Management

Access management is an important key to balanced urban growth. As evidence, the lack of a prudent access management plan has led to miles of strip commercial development along the arterial streets of many urban areas. Business activities along arterial streets lead to increased traffic demands and the provision of roadway improvements to accommodate the increasing traffic demand. Roadway improvements stimulate more business activity and traffic demands. This often continues in a cyclical fashion, and requires extensive capital investments for roadway improvements and relocation. However, with the tightening of budgets by federal, state, and local governments, the financial resources to pay for such solutions are becoming increasingly scarce.

Reducing capital expenditures is not the only argument for access management. Additional driveways along arterial streets lead to an increased number of potential conflict points between vehicles entering and exiting the driveway, and through vehicles on the arterial streets. This not only leads to increased vehicle delay and a deterioration in the level of service on the arterial, but also leads to a reduction in safety. Thus, it is essential that all levels of government try to maintain the efficiency of existing arterial streets through better access management.

Traffic operations improvements and access provision are both important transportation objectives. However, the two are inversely related, and one can be achieved only by compromising on the other. Past research has shown a direct correlation between the number of access points and the accident rate for a specific class of roadway. Hence, it is important to strike a balance between traffic operations and access control through a prudent access management plan.

Access Management Techniques

The number of access points to an arterial can be restricted through the following techniques:

- Restricting spacing between access points based on the type of development and the speed along the arterial
- Sharing of access points between adjacent properties
- Providing access via collector or local streets where possible
- Constructing frontage roads to separate local traffic from through traffic
- Providing service drives to prevent spill-over of vehicle queues onto the adjoining roadways

Traffic and facility improvements for access management include:

- Providing of acceleration, deceleration, and right turn only lanes
- Offsetting driveways to produce T-intersections to minimize the number of conflict points between traffic using the driveways and through traffic
- Installing median barriers to control conflicts associated with left turn movements
- Installing side barriers to the property along the arterial to restrict access width to a minimum

General Access Management Guidelines

Access management is hierarchical, ranging from complete access control on freeways to increasing use of streets for access purposes, parking and loading at the local and collector level. **Table 7-2** describes recommended general access management guidelines by roadway functional classification and appropriate adjacent land use type.

These access management restrictions are not intended to eliminate existing intersections or driveways. Rather, they shall be applied as new development occurs. Over time, as land is developed and redeveloped, the access to roadways will meet these guidelines.

To summarize, access management strategies consist of managing the number of access points and/or providing traffic and facility improvements. The solution is a balanced, comprehensive program which provides reasonable access while maintaining the safety and efficiency of traffic movement.

Special Access Management Areas – State Highways

Special access management areas apply to several state highways in Prineville, particularly along Third Street in the downtown, commercial core. The state highways form an integral part of the Prineville transportation system and access management is important to promoting safe and efficient travel for both local and long distance users. The *1999 Oregon Highway Plan* specifies an access management classification system for state facilities. Although the City of Prineville and Crook County may designate state highways as arterial or collector roadways within their transportation systems, the access management categories for these facilities shall generally follow the guidelines of the OHP.

This section of the TSP describes the state highway access categories and specific roadway segments where special access areas may apply. **Table 7-3** summarizes these access management guidelines, which vary by state highway classification and posted speed limits.
TABLE 7-3

Urban Access Management Spacing Standards for State Highways¹

Highway Category	Posted Speed	Expressway	Other	STA
Statewide	55+ mph	2640	1320	
	50 mph	2640	1100	
	40-45 mph	2640	990	
	30-35 mph		770	City Block ²
	25 mph or less		550	City Block
Regional	55+ mph	2640	990	
	50 mph	2640	830	
	40-45 mph	2640	750	
	30-35 mph		600	City Block
	25 mph or less		450	City Block
District	55+ mph	2640	700	
	50 mph	2640	550	
	40-45 mph	2640	500	
	30-35 mph		400	City Block
	25 mph or less		400	City Block

(measurements in feet, center to center on same side of roadway)

¹ See *1999 Oregon Highway Plan* for specific access spacing criteria and definitions.

² Minimum spacing for public road approaches is either the existing city block spacing or the city block spacing as identified in the local comprehensive plan. Public road connections are preferred over private driveways, and in STAs driveways are discouraged. However, where driveways are allowed and where land use permit, the minimum spacing for driveways is 175 feet or mid-block if the current city block spacing is less than 350 feet.

Highway Designation	Highway	From	То
Statewide / Expressway	OR 126	West UGB	O'Neil Hwy
Statewide / NHS	OR 126	O'Neil Hwy	Locust Street
Statewide / NHS / STA	OR 126	Locust Street	Knowledge Street
Statewide / NHS	OR 126	Knowledge Street	East UGB
Region	US 26	NW UGB	OR 126
District / STA	OR 27	OR 126	First Street
District	OR 27	First Street	South UGB
District	OR 370 (O'Neil)	NW UGB	OR 126
District	OR 380 (Paulina)	First Street	South UGB

Street System Plan

The Street System Plan was developed based on the evaluation of existing and future traffic conditions, alternative solutions, and the recommended street functional classification standards. The Street System Plan addresses a twenty year planning horizon and assumes the Prineville urban growth boundary remains relatively unchanged. In **Figure 7-1**, functional street classifications and the probable location of traffic signals are identified for the improved street system. Recommended projects are described in the following section and summarized on **Figure 7-4**.

Street Improvements

The following improvements to the arterial and collector street system were included in the street system plan. The Implementation Plan summarized in **Table 7-5** provides a prioritized list of these improvements. Each is defined below as either "immediate," "short-term" or "long-term" needs.

Map No. Recommended Improvement

- [1] *New Third Street Signal:* Install new traffic signals on Third Street at Harwood Street *[immediate].*
- [2] *Re-align Knowledge to Juniper:* Re-align Knowledge Street to Juniper Street at Third Street, new signal on Third Street at Juniper, replace Ochoco Creek Bridge and re-align Juniper Street to Hudspeth Road at Laughlin Road. This project significantly improves Prineville's north-south collector street system, providing more direct linkages between north and south Prineville as a significant alternative to Main Street [*immediate*].
- [3] *Third Street Signals:* replace antiquated signal equipment at existing intersections and install signal system interconnect from Harwood Street to Juniper Street [immediate].
- [4] *Extend Ninth Street:* Extend Ninth Street east from Main Street to the railroad right-ofway, construct new arterial street along railroad right-of-way to intersection of Laughlin Road and Seventh Street. This project partially completes the Northern Arterial route, providing significant, parallel street capacity to Third Street (OR 126). The project includes the removal of the existing traffic signal on Main Street at Tenth Street. As part of the project Main Street can be re-striped with one travel lane in each direction, complimented by separate left- and right-turn lanes at major intersections *[immediate]*.
- [5] *Laughlin Road Upgrade:* Reconstruct Laughlin Road to arterial standards between Seventh Street and OR 126, including new bike lanes and sidewalks. This project completes the Northern arterial route and provides significant parallel street capacity to OR 126 [immediate].



- [6] Downtown Enhancement Plan: Improve streetscape in Downtown Prineville, particularly on Second, Third and Fourth Streets - between Deer and Fairview Streets. Includes pavement resurfacing, sidewalk improvements, pedestrian flares, landscaping and trees, street furniture and street lighting [short-term] (see Downtown Enhancement Plan and Figure 7-2 (b)).
- [7] *WYE Junction Roundabout:* Complete project engineering and construct roundabout at the junction of US 26 and OR 126. This project provides significant long-term highway capacity, serves as a "gateway" feature and entrance to downtown Prineville, and helps manage access to OR 126 while providing sufficient access enhancements to local businesses [short-term].
- [8] *OR 126/McCall Road Interchange Improvement*: Construct McCall Road interchange at OR 126 to improve access in the Prineville Airport Industrial Area. *[long-term]*.
- [9] *Court Street Extension:* Improve City North/South Collector Street System by extending Court Street across Ochoco Creek and extending Knowledge Street to Laughlin Road *[long-term].*
- [10] *Holly and Elm Street Extensions:* Improve City North/South Collector Street System by extending Holly Street from Sixth Street to Seventh Street, and extending Elm Street from Fifth Street to Sixth Street [long-term].
- [11] *New Traffic Signal at Lynn Boulevard and Combs Flat Road:* When warranted, install new traffic signal at intersection of Lynn Boulevard and Combs Flat Road. This project will provide needed capacity to accommodate growth in traffic along both routes *[long-term]*.
- [12] O'Neil Highway Re-alignment: Complete engineering and study then construct realignment of O'Neil Highway to intersect with US 26 at about Ninth Street. This project may require a minor re-alignment of Ninth Street to complete the major, four-legged intersection rather than an off-set of O'Neil Highway and Ninth Street (Northern Arterial) at US 26. This project provides significant relief to traffic congestion and enhances safety at the intersection of OR 126 and O'Neil Highway [long-term].
- [13] *Crestview Road Extension:* Extend Crestview Road east to the Crooked River Highway to provide a second access (collector street) route to the Crestview neighborhood [long-term].
- [14] *Fairgrounds Road Extension:* As part of new development, extend Fairgrounds Road to OR 27. This project provides the necessary connection for new development to the City's arterial system *[long-term]*.
- [15] *New Traffic Signal at US 26 at O'Neil Highway re-alignment and 9th Street:* When warranted, install new traffic signal at intersection of US 26 and 9th Street, likely at the same time as re-alignment of O'Neil Highway. This project will provide needed capacity to accommodate growth in traffic at the connecting point on US 26 between O'Neil Highway and the Northern Arterial (9th Street) *[long-term]*.
- [16] *New Traffic Signal at OR 27 and Second Street:* When warranted, install new traffic signal at intersection of OR 27 (Main Street) and Second Street. This project will provide

needed capacity to accommodate growth in traffic in south Prineville, using Second Street as an alternate route to Third Street (US 26). The new signal will likely need to be integrated and coordinated with the Third Street signal system *[long-term]*.

- [17] *New Traffic Signals on Main Street at Loper Street and Peters Road:* When warranted, install new traffic signals on north Main Street at the intersections of Lope Street and Peters Road. These projects will provide needed capacity to accommodate growth in traffic along Main Street as development occurs in north Prineville [long-term].
- [18] *Peters Road Extension:* As part of new development, extend Peters Road from Main Street to Lamonta Road adjacent to the railroad right-of-way. This project provides the necessary connection for new development to the City's arterial system *[long-term]*.

These street improvements address specific capacity deficiencies or safety needs. New development, particularly in the northeast, will result in a need for new roadways. The projections for this plan indicate that the existing system with the improvements specified previously can accommodate this growth. However, new developments will need to connect to the existing collector and arterial system.

To serve this new growth and make these connections, some potential new collector and arterial roadways have been identified. The location of these roadways was selected to tie into existing collector and arterial roadways, and they reflect some of the limits imposed by topography. These potential roadways are also identified in **Figure 7-1**. However, the actual roads constructed will be dependent on the way the land develops. In general, these roads shall extend the existing grid of arterial and collector roadways.

Because these roadways are purely a function of new development, they shall be constructed as that development occurs. Funding for their construction will be provided by the developers. They have not been included in the capital improvement program.

Periodic reviews of this plan and population growth shall be used to track the future need for these potential arterial, collector and local route streets.

Freight Mobility Element

The state highway system provides the major freight link for the City of Prineville. The truck route plan is shown in **Figure 7-5**. With this plan, trucks have several alternate routes to Third Street and Main Street, which are currently the most frequently used routes. Some of these routes, such as the connection to US 26 via Laughlin and Ninth Street (Northern Arterial), are dependent on the implementation of the street system improvements. Currently traffic which is passing through Prineville on OR 126 toward US 26 must work its way through the existing city street grid, where tight turning radii, traffic congestion and pedestrian activity make driving difficult, particularly for large trucks. The extension of Laughlin Road to Main Street paralleling the Prineville RR could result in significant added relief to local traffic congestion on Third Street and Main Street.



Together with the extension of Ninth Street to US 26, the Laughlin Road extension provides alternative circulation and access for local auto and truck traffic. The Laughlin Road extension also provides immediate relief to Third Street and Main Street, and can help postpone the need or extensive State highway capacity improvements and provide access to industrial lands (job growth).

Bikeway Plan Element

Providing a safe and complete system of bicycle facilities encourages people to use alternative modes of travel and contributes to a small-town environment. From the standpoint of safety, bicycle facilities are most critical in areas of high traffic volume and in areas used by children. Bicycle paths can also provide alternative routes for cyclists, allowing them to simultaneously avoid conflict with automobiles and take advantage of recreational opportunities. The City of Prineville bikeway plan is shown on **Figure 7-6**. The map shows the existing bikeway system, bikeways currently under construction, future bikeways planned by Crook County, future bikeways associated with the street system improvements, and the future city bikeways designated on all arterial and collector streets.

In cases where a bikeway is proposed within the street right-of-way, the roadway pavement (*between curbs*) shall be widened to provide a five-foot bike lane (collector streets) or a six-foot bike lane (arterial streets) on each side of the street as described in **Table 7-1** and shown on the cross sections in **Figure 7-2**. The striping of bike lanes shall be done in conformance with the *Manual on Uniform Traffic Control Devices*. In cases where curb parking will exist with a bike lane, the bike lane will be located between the parking and travel lanes. In some situations, curb parking may have to be removed to permit a bike lane.

The bikeways on new streets or streets to be improved as part of the street system plan shall be added when the improvements are made. The Implementation Plan (see **Table 7-5**) program identifies an approximate schedule for these improvements.

In general, on arterial and collector streets which are not scheduled to be improved as part of the street system plan, improvements shall be implemented based on traffic volumes. When forecast traffic volumes exceed 2,500 to 3,000 vehicles per day, bike lanes shall be added to the existing roadway. The striping of bike lanes on streets which lead directly to schools shall be high priority. For Prineville, where most of the collector and arterial streets are 54 to 57 feet wide, adding bike lanes will not require widening streets or removing parking.

Bikeways on local routes and residential streets will only be signed as a route because the vehicular traffic volume is low on these streets and exclusive bike lanes are not necessary. Bicycles are legally classified as vehicles which may be ridden on most public roadways in Oregon. Because of this, bicycle facilities shall be designed to allow bicyclists to emulate motor vehicle drivers. Shared roadway facilities are common on

city street systems. On a shared roadway facility, bicyclists share the normal vehicle lanes with motorists. Where bicycle travel is significant, these roadways shall be signed as bicycle routes.

However, the striping of bike lanes on streets which lead directly to schools and parks shall be high priority. Therefore, a list of specific bikeway projects shall be included in the capital improvement program. These improvements are listed below and estimated to cost \$120,000:

- 1. *Juniper Street:* Until the completion of the Knowledge Street re-alignment, add bike lanes on Juniper Street from Laughlin Road to First Street. These lanes will connect neighborhoods to both the north and south with Ochoco Creek and the existing bike trail. The addition of bike lanes will require removing street parking on at least one side of Juniper Street between Laughlin Road and Ochoco Creek, where the paved surface is only 40 feet wide
- 2. *First Street:* Add bike lanes on First Street from Deer Street to Knowledge Street. These bike lanes will connect the residential neighborhoods in southeast Prineville with Crook County Schools on Knowledge Street.
- 4. *Second Street:* Add bike lanes on Second Street from Harwood Street to Fairview Street. These lanes will also connect residential neighborhoods with the Crooked River Elementary School and the park on the corner of Elm Street and Third Street.
- 5. *Elm Street:* Add bike lanes to Elm Street from Ochoco Avenue to First Street. These lanes will provide a valuable north-south route which will provide access to the hospital, the Ochoco Creek bike trail, and the elementary school, as well as connecting with other east-west bikeways. There is a 40-foot section from Tenth Street to Fourth Street which will require prohibiting parking on at least one side of the street to allow for bike lanes.
- 6. *Deer Street:* Add bike lanes to Deer Street from Tenth Street to First Street. These bike lanes will help connect residential areas to the south with the Ochoco Elementary School on Highway 26 and with the industrial areas to the north.
- 8. *Fairview Street:* Add bike lanes on Fairview Street from Fourth Street to Lynn Boulevard. These bike lanes will provide a connection between the residential neighborhoods to the south and Ochoco Creek Park.
- 9. *Main Street:* Add bike lanes on Main Street from Tenth Street to Second Street. These bike lanes will provide a direct connection between the bike lanes on McKay Road to the north and the bike lanes that are under construction south of Second Street. These improvements may require prohibiting parking on at least one side of the street.
- 10. *Court Street:* Add bike lanes to Court Street from Fifth Street to South Fifth Street. These lanes will provide another north-south connection for bicyclists.
- 11. *Fourth and Second Streets*: Add bike lanes as recommended by the Prineville Downtown Enhancement Plan.



Pedestrian System Element

Walking is our most basic transportation mode. Given the compact size of downtown Prineville, walking can provide a viable transportation alternative for many trips. Providing a safe, pedestrian-friendly environment is critical to retaining a vibrant and successful, small-town environment. Pedestrian safety on Third Street has been a concern in Prineville and pedestrian improvements within the downtown are addressed in detail in the *City of Prineville Downtown Enhancement Plan* (summarized in Appendix A).

Currently, the City of Prineville Land Development Ordinance (Ord. No. 1057, 1998) requires that sidewalks be provided unless alternative pedestrian routes are provided or residential densities are less than two dwelling units per acre. The City should continue to implement development of a complete pedestrian system as shown on **Figure 7-7**. Every paved street should have sidewalks on both sides of the roadway as described in **Table 7-1** and shown on the cross sections in **Figure 7-2**. Pedestrian access on walkways shall be provided between all buildings including shopping centers and abutting streets and adjacent neighborhoods.

Most of the existing roadways in Prineville do not have sidewalks except for the downtown core roadways. Even downtown, many of the streets either do not have sidewalks on both sides or are segmented and not continuous. Sidewalks should be added or improved as the improvements to the street system are made. The implementation program identifies an approximate schedule for these improvements.

Over time, sidewalks shall be added to streets which currently lack them and are not programmed for improvements. The priority streets shall be collector and arterial roadways where pedestrians feel most uncomfortable because of the higher traffic volumes these roadways carry. Streets such as First Street, Knowledge Street, Combs Flat Road, and Fairview Street are all arterial or collector roadways which lead to schools. Adding sidewalks to these streets and others which lead to schools and parks shall be the highest priority when evaluating sidewalk projects. Local Routes and Residential Streets shall also have sidewalks; however, because they are lower volume streets, they shall be lower priority for adding sidewalks.

To address some of these high priority locations, a list of specific sidewalk improvements shall be included in the capital improvement program. These improvements include:

- Harwood Street: Construct new sidewalks on Harwood Street from Second Street to Tenth Street to improve pedestrian circulation and access (from Chapter 6, Short-Term Improvements).
- *Knowledge Street:* Add sidewalks to Knowledge Street from Fifth Street to Lynn Boulevard. Since this roadway provides direct access to the Crook County schools, good pedestrian access and safety is vital.
- Elm Street: Add sidewalks to Elm Street from Ochoco Avenue to South Seventh Street. Elm Street is an important north-south connector which passes the hospital and two parks as well as connecting residential neighborhoods.





- *First Street:* Add sidewalks to First Street from Court Street to Knowledge Street. This stretch of First Street currently has intermittent sidewalk segments. These segments need to be connected to provide good east-west access between residential neighborhoods and the Crook County schools.
- Second Street: Add sidewalks to Second Street from Locust Street to Deer Street and Court Street to Fairview Street. This stretch of Second Street currently has intermittent sidewalk segments. These segments need to be connected to provide good access between residential neighborhoods and the park on Elm Street and the Crooked River Elementary School on Fairview Street.
- *Main Street:* Add sidewalks to Main Street from Seventh Street to Tenth Street. Main Street has curbs but there are some critical missing sidewalk sections. As north Prineville grows, this section will become a more important pedestrian route.
- *Lynn Boulevard:* Add sidewalks to Lynn Boulevard from OR 27 to Combs Flat Road. Lynn Boulevard has no curb or sidewalks the entire length. This route is a critical walkto-school route serving Crook County High School. New sidewalks are essential to establish better pedestrian access, circulation and safety.
- *Fourth Street:* Add sidewalks to Fourth Street from Harwood Street to Deer Street. Fourth Street is an important parallel route to Third Street, connecting western neighborhoods to downtown Prineville. New sidewalks are needed.
- Deer Street: Add sidewalks to Deer Street from First Street across Ochoco Creek to Ninth Street. Deer Street is an important pedestrian corridor linking north Prineville neighborhoods to Downtown Prineville. Only intermittent sidewalks existing in this corridor. Deer Street also provides a connection to the Ochoco Creek multi-use path.

Costs for adding sidewalks are relatively low if the addition is within the existing right-of-way. A 5-foot wide sidewalk with no curb, would cost about \$15 per linear foot. Adding a curb as well as a 5-foot wide sidewalk would cost about \$25 per linear foot. In commercial areas, an 8-foot wide sidewalk with a curb would cost about \$28 per linear foot.

Table 7-4 summarizes the needed sidewalk improvements on Prineville's major collector/arterial street system, including costs and priority over the next twenty years. The total cost of all sidewalk improvements (excluding those sidewalks constructed as part of a street improvement) is almost \$2.0 million.

		\$1,986,998			45,340			TOTAL	
\$11Z,373		c/oʻloc¢							
		\$48,750	%0	NA	1,625	9th St	Harwood	Ochoco Cr. Path	
		\$18,750	%0	NA	625	Fairmont	Harwood	Multi-use Path	
	_	\$187,500	%0	%0	3,750	Peters Rd	10th St	Main St	
		\$56,875	30%	30%	1,625	4th St	Lynn Blvd	Fairview St	
		\$93.750	%0	%0	1.875	Crossina	Crooked River	Crestview Rd	
		\$156,250	%0	%0	3,125	US 26	Lynn Blvd	Combs Flat	
\$67,761		\$677,613						EKALE Priority Lotal:	MOD
	Σ	\$50,000	50%	50%	2,000	Combs Flat	Knowledge	US 26	
	Σ	\$120,000	%0	%0	2,400	end	Main St	Peters Rd	
	Σ	\$78,750	%0	100%	2,625	Oregon St	Truck Rte.	Ochoco Ave/Elm/10th	
	Σ	\$81,250	50%	50%	3,250	Crestview	3rd St (S)	Main St.	
	Σ	\$17,500	%0	%0	350		N. of Laughlin	Hudspeth Rd	
	Σ	\$48,750	%0	%0	975	Lynn Blvd	6th St	Holly St	
	Σ	\$56,250	%0	100%	1,875	US 26	5th St	Holly St	
	Ξ	\$27,300	30%	100%	1.300	1st St (S)	5th St (S)	Court St	
	ΣΣ	\$57 000	20% 20%	100%	9,020	Idlawood	Main St	7 th St	
	≥:	\$10,688	5%	100%	375	Harwood	Locust	4th St	
	Σ	\$23,625	10%	100%	875	Fairview	Court	2nd St	
	Σ	\$57,750	30%	100%	2,750	Knowledge	Court	1st St (S)	
\$149,502		\$747,510						Priority Total:	HGH
	т	\$2,625	%06	100%	875	10th St	7th St	Main St	
	I	\$262,500	%0	%0	5,250	Combs Flat	Hwy 27	Lynn Blvd	
	т	\$33,750	%0	100%	1,125	5th St	Lynn Blvd	Knowledge St	
	т	\$4,500	20%	100%	300	US 26	2nd St	Knowledge St	
	т	\$3,910	%0	80%	115	6th St	Locust	Hwy 26	
	T	\$93,500	%0	30%	2.125	10th St	4th St	Harwood St	
	T	\$14,625	25%	100%	650	4th St	2nd St	Harwood St	
	I	\$23,400	20%	100%	975	7th St	5th St (S)	Elm St	
	T	\$113,750	%0	%0	2,275	Lynn Blvd.	1st St	Elm St	
	T	\$5,850	80%	100%	975	4th (N)	1st St	Elm St	
		\$14.625	50%	100%	975	7th (N)	4th (N)	Em St	
	Т	\$33,750	%0	100%	1,125	Ochoco Ave	7th St	Elm St	
	т	\$83,200	20%	%09	2,600	9th St	1st St	Deer St	
	Т	\$24,375	35%	100%	1,250	Deer	Harwood	4th St	
	H	\$33,150	20%	%06	1,950	Deer	Locust	2nd St	
ost/Year	Priority C	Cost Estimate (to complete)	Sidewalks	Curb	Length (ft)	To	From	No. Location	Map N
			nt Existing)	eatures (Perce	Existing F				
				Jects		oveme	walk impr	able / -4: 010e	σ
				innte	~+ DrO	omona	mally Impr	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ۍ ۲

Air Service Element

The Prineville Airport is part of the Oregon Aviation System Plan (OASP). It is owned and operated by Crook County and the City of Prineville to serve the aviation-related needs of the residents of the City of Prineville and Crook County. The Prineville Airport Layout Plan and Airport Layout Plan Report were prepared by Century West in 2003. The following concerns were addressed in the study: land use planning for the airport and surrounding areas; locating agricultural applicator aircraft operations; protection of Runway Protection Zones; encroachment of commercial enterprises onto airport environs; location of airport access road; location of terminal and FBO building; utilization of terminal and airport industrial area; location of additional aircraft hangar area; future location and type of aviation fuel storage facility; and, utilization of triangular area inside runways and taxiways.

Water Service

Prineville has no waterborne transportation.

Pipeline Service

Prineville is currently served by a major natural gas distribution line operated by Cascade Natural Gas. This distribution line extends eastward from the main line paralleling Highway 97.

Transportation Demand Management

Through transportation demand management, the peak travel demands could be reduced or spread to more efficiently use the transportation system, rather than building new or wider roadways. Techniques which have been successful and could be initiated to help alleviate some traffic congestion include carpooling and vanpooling, alternative work schedules, bicycle and pedestrian facilities, and programs focused on high density employment areas.

Alternative Work Schedules

Alternative work schedules (*such as flex-time or staggered work hours*), especially with large employers, can help spread the peak period traffic volumes over a longer time

period, thus providing greater service out of a fixed capacity roadway. The five largest employers in Prineville, employing more than 50 percent of the population, already have staggered work schedules. Each employer has staggered shifts for its employees, and these shifts differ from employer to employer. Staggered work schedules shall continue to be encouraged with new industries, and be coordinated to eliminate high surges of traffic. For example, if 5 percent of the employees which travel to or from work during the peak hour shift to another time period, 175 to 200 fewer vehicle trips would occur during the PM peak hour.

Carpooling and Vanpooling

A ridesharing program was established in Central Oregon in 1993 to encourage carpooling. The service allows interested drivers to call a toll-free number, provide information about their trip, and receive a list of others in their general area.

The City can work with large employers, to establish a carpool and vanpool program. These programs, especially oriented to workers living in other neighboring cities, will help to reduce the travel and parking requirements, and to reduce air pollution. Employers can encourage ridesharing by providing matching services subsidizing vanpools, establishing preferential car and vanpool parking and convenient drop-off sites, and through other promotional incentives.

A very aggressive carpooling program could reduce result in a reduction of 175 to 200 peak vehicle trips. To achieve this reduction, current carpooling rates for journey to work trips would have to increase from 15 percent to 20 percent of the total trips.

Bicycle/Pedestrian Facilities

Bicycle/pedestrian use can be encouraged by implementing strategies discussed earlier in this plan. Providing bicycle parking, showers and locker facilities helps to encourage bicycle commuting and walking to work. An estimated reduction of 50 to 100 trips could be converted from motorized vehicles to other modes if these measures are implemented.

Telecommuting

The ability for people to work at home with the telecommuting technology is likely to continue to grow during the next two decades. During the past ten years, the percent of people working at home has more than doubled. If this trend continues, an additional 3 percent of the work force could stay home and work, thus reducing trips by 125 to 150 during the peak hour.

High Density Employment Areas

Transportation Demand Management programs work best in areas of high density employment and are most successful when applied to firms with more than 50 employees. Potential target areas for transportation demand management programs in the Prineville area include the central business district,

The City can work toward implementation of transportation demand management strategies through coordination with major employers, the Prineville Chamber of Commerce, employees and citizens. Successful implementation includes public support, industry involvement, quantifiable goals, and employer/employee incentives.

Implementation

The Prineville TSP implementation program is provided in the following time frames/priorities:

- 0 5 years (Short-Term)
- 6 10 years
- 11 15 years
- 16 20 years
- With Adjacent Development/When Warranted

These priorities are based on current need, the relationship between transportation service needs, and the expected growth of the City. However, some projects may not be needed until adjacent land develops, or for example, when traffic signal warrants are satisfied.

The implementation phasing also takes into account the time required for all the steps leading up to construction. These may include preparing a Corridor Environmental Impact Statement (EIS) pursuant to the requirements of the National Environmental Policy Act of 1969, as well as preliminary and final design.

Another consideration in developing the implementation program was funding. None of the projects which involve state facilities are currently included in the current State Transportation Improvement Program. Although lobbying for these improvements should begin as soon as possible, the projects themselves may not be implemented until later years.

The schedule, shown in **Table 7-5**, indicates priorities and should be modified to reflect changes in the availability of finances or the actual growth in population and employment. *Based on the analysis of future traffic conditions and evaluation of improvement alternatives, the cumulative impact of the recommended improvements embodied in the Prineville TSP Update will accommodate the type and level of development identified in Prineville's Comprehensive Plan within acceptable standards.*

 Table 7-5:
 Prineville TSP Update - Implementation Plan

Project	Progra	<mark>m Sc</mark> h vears)	iedule		Ben	efit		Cost (millions)		Partne	rship		Estin	nated C (millio	ost Sha ns)	are	
vlo. Description	0-5 6-10	0 11-	-15 16-2(Safety	Operations Capacity/ Circulation	/ Alt. Mode	Freight s Mobility		State	City	County F	Private	State	City	County F	Private	
1 New Signal @ 3rd St / Harwood				*	*	*	*	\$0.25	100%				\$0.25				
2 Re-align Juniper, Knowledge and Hudspeth				*	*	*	*	\$0.76	30%	20%			\$0.23	\$0.53			
3 3rd Street Signal Replacement & Interconnect				*	*	*	*	\$0.85	100%				\$0.85				
4 9th Street Extension - Main to 7th on RR ROW				*	*	*	*	\$1.00	50%	50%			\$0.50	\$0.50			
5 Laughlin Road Upgrade - 7th to US 26					*	*	*	\$2.71	25%	25%	25%	25%	\$0.68	\$0.68	\$0.68	\$0.68	
6 Downtown Enhancement Plan				*		*		\$2.54		50%		50%		\$1.27		\$1.27	
7 WYE Junction Roundabout				*	*	*	*	\$1.90	100%				\$1.90				
8 Hwy 126 / McCall Interchange				*	*		*	\$5.39	50%	17%	17%	16%	\$2.70	\$0.92	\$0.92	\$0.86	
9 Court Street Extension to 5th Street					*	*		\$1.40		100%				\$1.40			
10 Holly St Ext (6th-7th) & Elm St Ext (5th-6th)					*	*		\$0.80		100%				\$0.80			
11 New Signal at Lynn Blvd / Combs Flat Rd	or when warrante	ed			*	*		\$0.25				100%				\$0.25	
12 O'Neil Highway Re-Alignment to US 26				*	*		*	\$2.32	50%	50%			\$1.16	\$1.16			
13 Crestview Extension				*	*	*	*	\$9.72		80%		20%		\$7.78		\$1.94	
14 Fairgrounds Rd Extension - Hwy 27 to End	or as developme	ent occur	S	*	*	*		\$0.45				100%				\$0.45	
15 New Signal at US 26th & O'Neil Hwy/9th St	or when warrante	ed			*	*		\$0.25	50%	50%			\$0.13	\$0.13			
16 New Signal at Hwy 27 & 2nd St	or when warrante	ed		*	*	*	*	\$0.25	50%	50%			\$0.13	\$0.13			
17 New Signals on Main at Loper and Peters	or when warrante	ed		*	*	*		\$0.50				100%				\$0.50	
18 Peters Road Extension - Main to Lamonta				*	*	*		\$1.03		50%		50%		\$0.52		\$0.52	
19 Sidewalks Projects (priority)	high m	nedium	low	*	*	*		\$2.00	5%	50%		45%	\$0.10	\$1.00		\$0.90	
20 Bicycle Projects			I	*	*	*		\$0.12		30%	%02			\$0.04	\$0.08		
TOTAL								\$34.49					\$8.61	\$16.83	\$1.68	\$7.37	

Overview

The Prineville TSP includes a transportation financing plan that addresses:

- 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)an analysis of historic street improvement funding sources;
- an analysis of historic street improvement funding;
- a list and general estimate of the timing for planned transportation facilities and major improvements; ; and,
- 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).

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 developable, urban areas or conversion of rural lands to urban uses.

This chapter summarizes the financing program defined for the Prineville 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.

Summary

The City of Prineville, like other cities in Oregon, is faced with the need to improve and expand its transportation system in order to alleviate existing safety and roadway capacity problems and to accommodate projected growth in the region. The Transportation System Plan identifies over \$34 million (2005 dollars) in proposed transportation improvements over the next twenty years and beyond. While funding for a portion of the proposed improvements is expected to come from the Oregon Department of Transportation (ODOT), it is likely that residents of Prineville will be faced with the need to provide funding for the remaining share. **Table 8-1** indicates that state sources may provide funding for approximately \$ 8.61 million of the proposed transportation improvements. An additional \$1.68 million may be funded through Crook County.

Table 8-1: Prineville TSP Update - Implementation Plan

Project	Program	Schedu	le		Bene	fit		Cost (millione)		Partners	hip	==	stimat	ed Cost	t Share	
Vo. Description	0-5 6-10	11-15	16-20	Safety	Operations/ Capacity/ Circulation	Alt. Modes	Freight Mobility		State	City	unty Priv	ate Sta	ci. Ci.	y Cou	Inty Priv	'ate
1 New Signal @ 3rd St / Harwood				*	*	*	*	\$0.25	100%			\$0	25			
2 Re-align Juniper, Knowledge and Hudspeth				*	*	*	*	\$0.76	30%	20%		\$0.	23 \$0	.53		
3 3rd Street Signal Replacement & Interconnect				*	*	*	*	\$0.85	100%			\$0.	85			
4 9th Street Extension - Main to 7th on RR ROW				*	*	*	*	\$1.00	50%	50%		\$0.	50 \$0	.50		
5 Laughlin Road Upgrade - 7th to US 26					*	*	*	\$2.71	25%	25%	25% 2	5% \$0.	68 \$0	.68 \$0.	68 \$0	68
6 Downtown Enhancement Plan				*		*		\$2.54		50%	Q	%0	\$1	.27	\$1	.27
7 WYE Junction Roundabout				*	*	*	*	\$1.90	100%			\$1.5	06			
8 Hwy 126 / McCall Interchange				*	*		*	\$5.39	50%	17%	17% 1	6% \$2.7	70 \$0	.92 \$0.	92 \$0	.86
9 Court Street Extension to 5th Street					*	*		\$1.40		100%			\$1	.40		
10 Holly St Ext (6th-7th) & Elm St Ext (5th-6th)					*	*		\$0.80		100%			\$0	.80		
11 New Signal at Lynn Blvd / Combs Flat Rd	or when warranted	-			*	*		\$0.25			10	%0			\$0	.25
12 O'Neil Highway Re-Alignment to US 26		-		*	*		*	\$2.32	50%	50%		\$1.	16 \$1	.16		
13 Crestview Extension		-		*	*	*	*	\$9.72		80%	7	%0	\$7	.78	\$1	.94
14 Fairgrounds Rd Extension - Hwy 27 to End	or as development	t occurs		*	*	*		\$0.45			10	%0			\$0	.45
15 New Signal at US 26th & O'Neil Hwy/9th St	or when warranted	-			*	*		\$0.25	50%	50%		\$0.	13 \$0	.13		
16 New Signal at Hwy 27 & 2nd St	or when warranted	-		*	*	*	*	\$0.25	50%	50%		\$0.	13 \$0	.13		
17 New Signals on Main at Loper and Peters	or when warranted			*	*	*		\$0.50			10	%0			\$0	.50
18 Peters Road Extension - Main to Lamonta		-		*	*	*		\$1.03		50%	Q	%0	\$0	.52	\$0	.52
19 Sidewalks Projects (priority)	high me	dium	low	*	*	*		\$2.00	5%	50%	4	5% \$0.	10 \$1	00.	\$0	90
20 Bicycle Projects				*	*	*		\$0.12		30%	20%		\$0	.04 \$0.	08	
																T
TOTAL								\$34.49				\$8.	61 \$16	.83 \$1.	68 \$7	37

Further, private or new development is likely to pay for approximately \$7.37 in direct transportation improvements listed in the TSP as a condition for development approval – costs not attributed to the City's Systems Development Charge (SDC) ordinance (#1111). This leaves the City with a local funding share of \$16.83 million, or 49 percent of the total improvement costs.

Transportation Funding Sources

Under current Federal and State legislation, there are several methods of financing available to the City of Prineville for street system studies, capital improvements, programs, and maintenance:

Federal Surface Transportation Program (STP) Funds

These are Federal funds available through TEA-21 legislation that are available to the city of Prineville through the state of Oregon (Department of Transportation). These funds are flexible and can be used for different types of capital improvements and transportation programs.

Federal Enhancement Funds

Federal funds are available to complete capital improvements and programs related to pedestrian, bicycle, and other alternative travel modes to the automobile. This program can also be used for historic preservation of transportation facilities.

City Allocation of State Highway Fuel Tax Revenues

These revenues are used by the City of Prineville to operate and maintain the City's street and highway system. These funds are also used to provide transportation engineering and planning support.

State Transportation Program Grants

The State provides grant funds to local jurisdictions to conduct transportation studies, improve bicycle and pedestrian facilities, and participate in State-sponsored transportation activities.

State Transportation/Growth Management Grants These grant funds are jointly administered through the Oregon Department of Land Conservation and Development and the Oregon Department of Transportation. The City of Prineville may use these funds to conduct planning and transportation studies related to managing growth and reducing reliance on the SOV.

General Obligation Bonds (Property Tax Supported)

Bonds are a funding mechanism for constructing capital improvement projects in the City. Voter-approved bonds are sold to fund street improvement projects. Transportation projects are usually grouped in "bond packages" that go before the public for voter approval. General Obligation Bonds are supported through the City's property tax base.

Capital Funding Limitations

General Obligation Bonds are financed with property taxes. When these bonds are issued, the community pledges its "full faith and credit." This means that the local government has the unlimited power to levy property taxes to ensure that the principal and the interest on these bonds are paid. Because of this broad power, voter approval is required for each bond issue.

The revenues are collected by a special property tax levy called a "debt service levy." Subject to State limitations, the City has the unlimited power to levy property taxes to repay principal and interest for the term of the bonds. Because this is an unlimited pledge, the State imposes a legal debt ceiling which does not permit outstanding bonds of more than 3 percent of a City's true cash value.

Transportation System Development Charges

Recently adopted by the City of Prineville, these funds are collected from developers as new development occurs in the City. Charges (fee) are roughly based on trip generation rates by different types of land uses (i.e., single family residential, commercial, industrial, etc.). These funds may only be used to fund transportation improvements caused through the impacts of new growth and may not be used to fix existing capacity deficiencies.

Utility Franchise Fees

Public utilities that use the public right-of-way to convey their services can be charged a fee for that privilege. These funds are primarily used to recover the maintenance costs associated with utility work on city streets.

Development Exactions

To provide adequate infrastructure in response to site-specific growth, capital improvements can be exacted as conditions of approval for building permits, subdivisions, and zoning actions. Developers are usually required to complete frontage street improvements and other off-site transportation improvements to mitigate traffic impacts. The majority of the city's new neighborhood, local routes and some collector streets are created and improved as a result of development exactions.

Local Improvement Districts

This method allows neighboring property owners to group together to improve public facilities and then pay for them through individual assessments. These districts are generally used to complete local street improvements or improvements to business districts.

City General Funds

Though seldom available for transportation purposes, the City may choose to use general property tax revenues to build or operate transportation facilities. However, using general fund revenues places transportation system finance in direct competition with other City services which are already obligated, such as police, fire, libraries, and parks.

Local Transportation Funding History

Historically, the City of Prineville has accounted for street and transportation-related revenues and expenditures in two separate funds: the Street Fund and the Street Equipment Reserve Fund. The Street Fund is used for the operation, maintenance and improvement of city streets and roads. The Street Equipment Reserve Fund is used to acquire property and equipment. Summaries of the revenues and expenditures associated with these two funds over the past ten years are shown in **Tables 8-2** and **8-3**. The primary revenue source of the Street Fund is state gas tax revenues. Using fiscal year (FY) 1991-92 as an example, state gas tax revenues totaled \$221,643, accounting for 32 percent of annual Street Fund revenues. As shown in Table 8-2, the 1991 Oregon State Legislature approval of a 2 cent per gallon increase in the state gas tax effective July 1, 1991, and an additional 2 cent per gallon increase effective July 1, 1992 resulted in increased revenues for Prineville. However, the 1993 Oregon State Legislature failed to approve a proposal to increase the gas tax by 3 cents per gallon in 1994 and another 3 cents in 1995. As a result, the City has not seen the increases state gas tax revenues continuing. In 1992 the City issued \$150,000 of revenue bonds. The proceeds were used to finance street improvements within the City. The debt service was to be repaid with future state gas tax allocations to the City.

Stateme	nt of Reven	ue and Exp	enditures		
	1987-88	1988-89	1989-90	1990-91	1991-92
REVENUES:					
Local					
Taxes	\$61,440	\$61,223	\$57,108	\$61,769	\$61,189
Interest	\$14,599	\$10,279	\$11,109	\$15,046	\$17,007
Collection on Assessments					\$32,724
Fees	\$225	\$160	\$235		\$445
Other	\$858	\$4,832	\$2,047	\$1,948	\$3,462
Intergovernmental Sources					
State Gas Tax	\$139,603	\$166,277	\$194,673	\$220,781	\$221,643
Other State					\$6,489
County	\$201,900	\$203,200	\$205,000	\$205,000	\$205,000
Bond Sale Proceeds					\$147,000
Total Revenues	\$418,625	\$445,971	\$470,172	\$504,544	\$694,959
Beginning Fund Balance	\$120,247	\$126,159	\$82,775	\$113,161	\$133,673
Total Available	\$538,872	\$572,130	\$552,947	\$617,705	\$828,632
EXPENDITURES:					
Personal Services	\$105,826	\$100,978	\$108,275	\$111,647	\$121,723
Materials and Services	\$226,807	\$272,579	\$243,018	\$250,453	\$309,762
Capital Outlay	\$3,171	\$860	\$681	\$544	\$7,000
Transfers to Other Funds					
General Fund	\$59,281	\$103,220	\$70,950	\$74,200	\$78,500
Bicycle Path Reserve Fund	\$1,375	\$1,718	\$1,862	\$2,188	\$2,216
Street Equipment Reserve Fund	\$13,253	\$10,000	\$15,000	\$45,000	\$35,500
Total Expenditures	\$412,713	\$489,355	\$439,786	\$484,032	\$554,701
ENDING BALANCE	\$126,159	\$82,775	\$113,161	\$133,673	\$273,931

Table 8-2 City of Prineville Street Fund Statement of Revenue and Expenditures

	1987-88	1988-89	1989-90	1990-91	1991-92
REVENUES:					
Interest	\$719	\$843	\$622	\$1,330	\$6,100
State Transfer				\$18,020	\$99,048
Transfer from Street Fund	\$13,253	\$10,000	\$15,000	\$45,000	\$35,500
Beginning Fund Balance	\$26,848	\$17,139	\$11,412	\$7,835	\$44,602
Total Available	\$40,820	\$27,982	\$27,034	\$72,185	\$185,250
EXPENDITURES:					
Capital Outlay	\$23,681	\$16,570	\$19,199	\$27,583	\$68,665
Materials and Services					\$26,400
Total Expenditures	\$23,681	\$16,570	\$19,199	\$27,583	\$95,065
UNAPPROPRIATED ENDING FUND BALANCE:	\$17,139	\$11,412	\$7,835	\$44,602	\$90,185

Table 8-3City of Prineville Street Equipment Reserve Fund
Statement of Revenues and Expenditures

The principal revenues of the Street Equipment Reserve Fund were transfers from the Street Fund and intergovernmental transfers from the State.

Potential Future 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. Appendix E provides a summary of federal, state and local highway, bridge, sidewalk, bicycle and transit 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 47/50 are likely significant, but still vague.

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 Prineville this includes the Ochoco, the Madras-Prineville, Crooked River, O'Neil and Paulina Highways. State and federal funds administered through ODOT are the primary sources of funding for improvements to this facility.

ODOT's contribution towards transportation improvements in Prineville are needed within the next 10-20 years. Five significant projects include partnering with Prineville to:

- (1) improve traffic control on Third Street,
- (2) complete the Northern Arterial,
- (3) construct the OR 126/US 26 roundabout,
- (4) construct the OR 126/McCall interchange, and
- (5) re-align O'Neil Highway to US 26.

The City of Prineville must look to local measures to fund future capacity projects. Potential funding sources are typically judged based on a number of criteria, including:

legal authority

- administrative feasibility
- financial capacity
- stability

equitypolitical acceptability

The Prineville TSP includes a more focused evaluation of the following measures which could be used to fund Prineville's share of needed transportation system improvements:

- Local vehicle registration fees
- Local gasoline taxes
- Road improvement bonds
- System Development Charges (SDC)

Each of these measures was investigated to ascertain the 20-year level of revenue generated based on (assuming a revenue distribution based on future, year 2018 population).

Local Vehicle Registration Fee

Statewide vehicle registration fees are lowest in Oregon (\$27/year) when compared to neighboring states, as shown in **Table 8-4**. As only counties can implement local vehicle registration fees in Oregon, Prineville would have to work with Crook County to initiate this measure. A summary of annual and 20-year revenues from a local vehicle registration fee in Prineville is provided in **Table 8-5**. Local revenues are listed with options for both a \$10 and \$20 local fee in addition to the current \$27/year statewide fee. County-wide (including incorporated cities) revenues from a \$10-\$20 local vehicle registration fee ranges from \$6.7 to \$13.4 million over 20 years. Revenues allocated to Prineville are estimated at \$3.9 million over 20 years based on a \$10 per year local vehicle registration fee. Regardless of the option chosen, a local vehicle registration fee would require local voter approval.

\$5,553,800

\$13.351.000

Table 8-4	
Comparison of Automobile-Related Tax	es
(as of 2005)	

Тах	Oregon	Washington	California	Idaho	Nevada
Gas Tax	\$.24/gal	\$.28/gal	\$.19/gal*	\$.26/gal*	\$.257/gal
Registration Fee	\$27/year	\$33/year	\$28/year	\$29.25/year	\$33/year
Ad Valorem Tax	\$0	\$172/year	\$148/year	\$0	\$78/year
Auto Sales Tax**	\$0	\$191/year	\$191/year	\$123/year	\$172/year

Source: ODOT, Funding the Oregon Transportation Plan, 2005.

Idaho, California includes sales tax

** Prorated over eight years.

]	Local Vehicle Reg	istration Fe	e Option	
	2005 ANNUAL Local Vehicle Optic	REVENUE Registration	20-YEAR R Local Vehicle Optic	EVENUE Registration
Jurisdiction	\$10/yr	\$20/yr	\$10/yr	\$20/yr
Prineville	\$155,700	\$311,400	\$3,898,600	\$7,797,200

\$221,600

\$533.000

\$2,776,900

\$6.675.500

\$110,800

\$266.500

Table 9 5

Local Gasoline Tax

TOTAL

Unincorporated Co.

The State of Oregon collects gas taxes, vehicle registration fees, overweight/over height fines and weight/mile taxes and returns a portion of the revenue to cities and counties through an allocation formula. Based on 1992 conditions, cities received approximately 16 percent of the net revenues of the state highway fund; counties received 24 percent and the state kept 60 percent. The revenue share allocated to cities was then divided among all incorporated cities based upon population.

State gas tax revenues received by cities are mostly dedicated to road construction and maintenance. As previously mentioned, the City currently uses these funds primarily for ongoing maintenance and street support services. Prineville is one of only a few cities in Oregon that has recently issued revenue bonds secured by future gas tax receipts for specific road projects.

In addition to the state gas tax, some local governments (city of Woodburn and Washington and Multnomah counties) currently levy additional local gas taxes with such revenues being used to fund street-related improvements throughout the jurisdiction. A preliminary analysis (based on a 1992 profile) of the revenue that could be generated from a one cent gas tax levied throughout the City of Prineville is shown in Table 8-6.

Based on an approximation of gasoline sales in Crook County, a one cent per gallon local gas tax could produce revenues of about \$35,000 per year. This revenue projection should be considered a very rough approximation only and should be explored in greater depth if the City views a local gas tax as an attractive option for funding its transportation need.

	•
Registered vehicles statewide	29,410,008
Registered vehicles Crook County	19,101
Crook County as a % of State	0.65%
Total Apportionment to counties	\$108,101,496
Crook County apportionment	\$690,171
Crook County as a % of State	0.64%
Estimate of Crook County Share of State total	0.64%
Estimated gallons sold statewide	1,447,400,000
Estimated gallons sold in Crook County	9,320,665
Estimated County revenues from 1 cent gas tax	\$93,207
Crook County population	14,600
Prineville population	5,515
Prineville as a % of Crook County	37.8%
Prineville share of Crook County gas tax	
1 cent	\$35,208
2 cent	\$70,416
3 cent	\$105,624

Table 8-6
Estimate of Revenue Generated from Hypothetical Crook County Gas Tax

Road Bond Measure

Local property taxes could be used to fund transportation improvements. Roadway capital improvements are typically funded by a serial levy that implements property taxes for a set period of time, often for a specific set or list of projects. Voter approval is required for serial levies. Since passage of Measures 5 and 47/50, property tax levies are

primarily used to support General Obligation bonds that finance transportation improvements, because levies for bonded indebtedness are exempt from property tax limitations.

Table 8-7 summarizes a range of road bond options based on the rate of added bond indebtedness ranging from \$.25 to \$.60 per \$1,000 assessed property value. The estimated 20-year revenues from city-wide bond measure options ranges from \$1.4 to \$3.4 million.

Prineville Total Assessed Valuation (2005 est.)	20-Year Revenues (in Millions) Rate per \$1,000 Assessed Value								
	\$.25	\$.30	\$.35	\$.40	\$.45	\$.50	\$.55	\$.60	
\$281,983,000	\$1.4	\$1.7	\$2.0	\$2.3	\$2.5	\$2.8	\$3.1	\$3.4	

Table 8-7 Road Bond Option

System Development Charges

An increasingly common source of transportation funding is the collection of system development charges (*SDCs*) from new development. These charges are generally based on a measurement of the demand that a new development places on the street system and the capital cost of meeting that demand. These are one time fees collected as the development comes on line. Prineville recently adopted their own SDC for transportation by Ordinance #1111 (methodology) and Resolution # 962 (rate structure). It is anticipated that new development will pay approximately \$10 million in transportation SDCs between 2005 and 2025. The SDC revenues will be spent towards future capacity improvement needs to serve growth.

Assessments

Local improvement districts (*LIDs*) may be formed under Oregon Statutes to construct public improvements such as streets, sidewalks and other improvements. Formation of an LID can be initiated by property owners or by the City, subject to remonstrance. Local improvement districts are appropriate for those kinds of improvements that provide primarily local benefits. When improvements are made within the district, the cost of the improvement is generally distributed according to benefit among the properties within the district. The cost becomes an assessment against the property which is a lien equivalent to a tax lien. The property owner may pay the assessment in cash or apply for assessment financing according to terms offered by the City.

Recommended Local Funding Sources

The range of alternative transportation funding mechanisms was reviewed to determine the most feasible methods available to meet the identified funding needs. A funding package combining State, County and City Road Funds, system development charges as well as general obligation bond financing and local vehicle registration fees appears to represent the most feasible funding strategy available to the City to meet expected capital and maintenance funding needs.

This funding plan was developed after carefully reviewing the feasibility of the other financing options. The effectiveness of the City adopting a local gas tax was considered; however, although this may produce significant revenues, the political feasibility of this option is questionable unless it is imposed by the three counties in the region. For example, if the three counties, Deschutes, Crook and Jefferson all decided to increase gas taxes by the same amount, the cities close to the borders of each county would not have to worry about losing business to the other counties. If the City wanted to pursue this funding option, the City would have to coordinate with all the other jurisdictions in the region.

A modest county-wide vehicle registration fee (\$10 per year) would yield an estimated \$6.68 million county-wide over the next 20 years. In lieu of statewide funding measures a local vehicle registration might be supported in Crook County for use on local transportation projects.

The Prineville TSP Financial Plan, summarized previously in **Table 8-1**, includes the proposed local revenue sources utilizing the recommended funding measures identified in **Table 8-8**.

Funding Source/Rate	ADDITIONAL REVENUE
Transportation SDC	\$10 million
City-Wide Street Bond - 20 Years	\$2.8 million
\$0.50 per \$1,000 assessed value	
Local Vehicle Registration Fee \$10 per vehicle per year	\$3.9 million for Prineville UGB

Table 8-8Recommended Funding Sources

For the purposes of illustrating the impact of these new funding measures a simplified

summary is provided based on a typical¹ household (dwelling) in Prineville. **Table 8-9** summarizes the added expenses for a "typical" dwelling to pay for needed transportation system improvements in the unincorporated areas of Prineville through these measures. Beginning in 2005, each typical dwelling would pay \$20 per year in added vehicle registration fees. The Road Bond would add \$2.8 million in local property tax over 20 years, totaling \$90 in annual expense to the typical dwelling.

	Added Annual Expense for Typical Dwelling:		
New, City-Wide Transportation Revenue Measures	in 2005		
Local Vehicle Registration Fee (\$10/year)	\$20		
Road Bond (\$.50 per \$1,000 assessed value)	\$90		
TOTAL	\$110		

 Table 8-9

 Added Cost of New Transportation Funding Measures

Additional evaluation of the economic impact of any new tax and bonding measures, particularly a local gasoline tax should be completed before a public vote and eventual implementation (assuming voter approval). Furthermore, the introduction of new local funding measures will require significant public support. Those measures adopted by the County will require definition of local programs to administer the fee and/or tax collection programs

Summary

Like other cities in the state and nation, Prineville faces challenges in providing a local transportation system able to meet the needs of its citizens. Having identified a total of over \$35 million in needed transportation system improvements, the City must develop a strategy for funding its share of the need. The potential participation of the Oregon Department of Transportation in funding of \$ 8.79 million in state highway and possible off-system improvements in the City is a significant step in meeting the overall need.

The City's TSP funding needs over the 20-year period are almost \$17.3 million. The combination of revenues over the twenty year period (see **Table 8-8**) about match Prineville's funding needs.

The City of Prineville should coordinate with ODOT and the Governor's office to enhance the State's investment levels for OR 126, other state highways, and off-system City street improvements that support OR 126 in and through Prineville. Further State investment on these Prineville projects are consistent with the state policy to maintain

¹ Single-family dwelling assessed at \$120,000, with 2 automobiles.

and enhance downtown areas a direct and effective growth management and livability policy.

A combined funding package including general obligation debt, local vehicle registration fees and system development charges represents the preferred funding strategy. The City of Prineville should immediately update their transportation SDC methodology ordinance to reflect the revised list of future capacity improvement projects and their costs.

APPENDIX A

SUMMARY OF EXISTING PLANS AND POLICIES

The following plans and reports are summarized in this appendix:

STATE OF OREGON

I. 1999 Oregon Highway Plan

CROOK COUNTY

- II. The Crook County Prineville Area Comprehensive Plan (1978)
- III. Crook County Transportation System Plan (2005 Draft)

CITY OF PRINEVILLE

- IV. Airport Master Plan (2003)
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STATE OF OREGON

I. 1999 Oregon Highway Plan

The 1999 Oregon Highway Plan defines policies and investment strategies for Oregon's state highway system for the next 20 years. It further refines the goals and policies of the Oregon Transportation Plan and is part of Oregon's Statewide Transportation Plan. The Plan has four main elements:

- The **Vision** presents a vision for the future of the highway system, describes economic and demographic trends in Oregon and future transportation technologies, and summarizes the policy and legal context of the Highway Plan.
- The **Policy Element** comprises five goals, or policy areas: system definition, system management, access management, travel alternatives, and environmental and scenic resources.
- The **System Element** contains an evaluation of various ways to carry out the Policy Element, a description of the preferred investment strategy, and an implementation plan to address the Plan's goals.

Goal 1: System Definition

To maintain and improve the safe and efficient movement of people and goods and contribute to the health of Oregon's local, regional, and statewide economies and livability of its communities.

Of significance to the Prineville TSP is the OHP highway mobility standards policy, which establishes standards based on volume to capacity ratios that vary according to highway functional classification and urban and rural land use types. The OHP volume to capacity thresholds are summarized in Table A-1.

Goal 2: System Management

To work with local jurisdictions and federal agencies to create an increasingly seamless transportation system with respect to the development, operation and maintenance of the highway and road system that:

- Safeguards the state highway system by maintaining functionality and integrity;
- Ensures that local mobility and accessibility needs are met; and
- Enhances system efficiency and safety.

Goal 3: Access Management

To employ access management strategies to ensure safe and efficient highways consistent with their determined function, ensure the statewide movement of goods and services, enhance community livability and support planned development patterns, while recognizing the needs of motor vehicles, transit, pedestrians and bicyclists.

Table A-1Mobility Standards for Prineville UGB Area - Volume-to-Capacity Ratios for StateHighways' and Local Streets

			Volume-to-Capacity Ratios			
Highway Route No.		То		Posted Travel Speed		Highway Category
			STA2	< 45 mph	> = 45 mph	
US 26	Prineville UGB	OR 126 ("Y")		.80	.75	Region
OR 27	US 26	First St	.95			District
OR 27	First St	Prineville UGB		.85	.80	District
OR 126	Prineville UGB	O'Neil Hwy		.70	.70	State / Expressway
OR 126	O'Neil Hwy	US 26 ("Y")		.80	.75	State / NHS
OR 126	Locust St	Knowledge St	.90			State / NHS
OR 126	Knowledge St	Prineville UGB		.80	.75	State / NHS
OR 370 (O'Neil)	Prineville UGB	OR 126		.85	.80	District
OR 380 (Paulina)	US 26	Prineville UGB		.85	.80	District

1. Oregon Highway Plan, 1999.

2. Special Transportation Areas, adopted by Oregon Transportation Commission, 2004.

3. Traffic on non-state highway approaches that must either stop or yield shall not exceed the V/C for District highways.

Goal 4: Travel alternatives

To optimize the overall efficiency and utility of the state highway system through the use of alternative modes and travel demand management strategies.

Goal 5: Environmental and Scenic Resources

To protect and enhance the natural and built environment throughout the process of constructing, operating, and maintaining the state highway system.

OHP Appendix C: Access Management Standards

The OHP includes access management spacing standards for interchanges and highways, by functional classification. The most directly related standards are summarized in Table A-2. Other access management policies are included in the 1999 OHP, Appendix B, and in Division 51 of the Oregon Administrative Rules.

		TABLE A-2				
Urban Access Management Spacing Standards for State Highways ¹ (measurements in feet, center to center on same side of roadway)						
Highway Category	Posted Speed	Expressway	Other	STA		
Statewide	55+ mph	2640	1320			
	50 mph	2640	1100			
	40-45 mph	2640	990			
	30-35 mph		770	City Block ²		
	25 mph or less		550	City Block		
Regional	55+ mph	2640	990			
	50 mph	2640	830			
	40-45 mph	2640	750			
	30-35 mph		600	City Block		
	25 mph or less		450	City Block		
District	55+ mph	2640	700			
	50 mph	2640	550			
	40-45 mph	2640	500			
	30-35 mph		400	City Block		
	25 mph or less		400	City Block		

¹ See *1999 Oregon Highway Plan* for specific access spacing criteria and definitions.

² Minimum spacing for public road approaches is either the existing city block spacing or the city block spacing as identified in the local comprehensive plan. Public road connections are preferred over private driveways, and in STAs driveways are discouraged. However, where driveways are allowed and where land use permit, the minimum spacing fro driveways is 175 feet or mid-block if the current city block spacing is less than 350 feet.

Highway Designation	Highway	From	То
			<u> </u>
Statewide / Expressway	OR 126	West UGB	O'Neil Hwy
Statewide / NHS	OR 126	O'Neil Hwy	Locust Street
Statewide / NHS / STA	OR 126	Locust Street	Knowledge Street
Statewide / NHS	OR 126	Knowledge Street	East UGB
Region	US 26	NW UGB	OR 126
District / STA	OR 27	OR 126	First Street
District	OR 27	First Street	South UGB
District	OR 370 (O'Neil)	NW UGB	OR 126
District	OR 380 (Paulina)	First Street	South UGB

CROOK COUNTY

II. The Crook County - Prineville Area Comprehensive Plan (1978)

While Prineville's current comprehensive plan addresses many issues, only those sections pertaining to transportation planning were summarized. The 1978 comprehensive plan provides population projections for Prineville through the year 2000. Its transportation section of the report identifies traffic problems and recommends a series of improvements to be implemented. It also addresses other transportation facilities.

Traffic Problems and Recommend Solutions

The traffic problems identified in the comprehensive plan are located in the residential areas, in downtown core, and the "Y" intersection of US 26, OR 126, and Third Street. Recommended improvements are designed to address some of these problems.

Problems identified in the downtown core include:

- Third Street congestion;
- School, residential areas, and Ochoco Creek which dead-end many streets;
- No left turn facilities (since modified to current 3-lane traffic control);
- Insufficient loading facilities;
- Parking;
- Narrow lanes; and
- Heavy vehicle through traffic.

Problems identified in residential areas include:

- Wide streets which encourage high speeds;
- High maintenance costs of wide streets; and
- Traffic bypassing downtown congestion.

Problems identified at the "Y" intersection include:

- Hazardous design;
- Dangerous merge; and
- Narrow lanes.

The comprehensive plan provides a list of recommended improvements but does not provide any details about them. Many of these improvements do not address the problems described previously; however, they are all designed to improve traffic circulation within the city of Prineville. They include:

- a. Extend NW Ninth Street to Madras Highway as a minor arterial.
- b. Improve Laughlin Road to a minor arterial level.
- c. Purchase right-of-ways for the extension of Lynn Boulevard to the "Y" intersection.
- d. Construct a minor arterial from Laughlin Road to Tenth Street.
- e. Improve the Lamonta Road/Main Street intersection
- f. Improve Tenth street fro Main Street to Ninth Street at Locust Street
- g. Designate and sign Laughlin road/Tenth Street as a truck route.
- h. Bridge Court Street and Beaver Street across Ochoco Creek.
- i. Improve McKay Road to Barnes Butte Road to principal arterial.
- j. Improve Harwood Street to minor arterial.
- k. Improve Lamonta Road to minor arterial.
Some of the arterial improvements were completed as part of the 10-year roadway resurfacing program began in 1983/1984. None of the extensions have been constructed.

Other Transportation Facilities

The plan also addresses other transportation facilities including the railroad, transit, pedestrian, and bicycle. It provides goals and guidelines rather than recommending specific improvements to these services.

The railroad service is an important part of Prineville industry. The goals of the City were to improve the safety of railroad crossings and to reduce time delays at crossings. It would also promote the advantages of rail service to potential new industry.

The Prineville transit service consists of taxis, out-of-town bus service, and a dial-a-ride senior citizen bus service. The City goals were to encourage transit usage and to encourage private efforts to supply additional shuttle services.

In 1978, pedestrian facilities were extremely limited outside of the downtown core and bicycle facilities were almost non-existent. Goals included preserving space on existing roadways for at least one bicycle/pedestrian path and insuring that activity centers have bicycle/pedestrian access. In the future, the City was supposed to require all subdivisions to provide pedestrian and bicycle access.

These goals cannot be easily evaluated for implementation. Railroad service continues to be an important part of the commercial transportation. Transit service has probably not changed considerably since the comprehensive plan was enacted. Some improvements may have been made to bicycle and pedestrian access. Main Street has a designated bike path and a second path runs along Ochoco Creek.

III. Crook County Transportation System Plan (Draft 2005)

The draft Crook County Transportation System Plan (TSP) was prepared to consider the County transportation planning needs for the next 20 years. The planning area does not officially include the Prineville urban area, but addresses many transportation issues and potential improvement projects within and around the Prineville UGB. The TSP found that the County's most heavily traveled roads are the State highways and that, with the exception of Highway 126, the highways are well below capacity and will continue to be below capacity by the year 2025. The highest growth is expected to occur on Highway 126 with traffic increases between 85 and 100%.

Several Prineville area projects are identified in the County TSP:

- US 26/Harwood signal
- Crooked River Bridge (under design and construction)
- Millican Road Interchange with OR 126
- Crestview Road Extension Across Crooked River to OR 27
- Roundabout at Knowledge/high school entrance
- Add Bike lanes and sidewalks to Lynn Boulevard

- New Millican Road, alternative truck route, from OR 126 to US 20
- New Davis Road connection between Juniper Canyon and OR 27, south of Prineville

CITY OF PRINEVILLE

IV. Prineville Airport Layout Plan and Airport Layout Plan Report (2003)

The Prineville Airport is part of the Oregon Aviation System Plan (OASP). It is owned and operated by Crook County and the City of Prineville to serve the aviation-related needs of the residents of the City of Prineville and Crook County. This Plan was prepared by Morrison Maierle, Inc. to update the 1986 Airport Layout Plan and the 1979 Master Plan. The following concerns were addressed in the study: locating agricultural applicator aircraft operations; protection of Runway Protection Zones; encroachment of commercial enterprises onto airport environs; location of airport access road; location of terminal and FBO building; utilization of terminal and airport industrial area; location of additional aircraft hangar area; future location and type of aviation fuel storage facility; and, utilization of triangular area inside runways and taxiways.

V. City of Prineville Downtown Enhancement Plan (1997)

The object of this Plan is to reinforce the downtown as an attractive center for community life, offering a diverse mix of shopping, business, entertainment, and recreation in an environment that is accessible for both residents and visitors. The Enhancement Plan focuses on Prineville's central business district: 3rd Street from Deer Street to Fairview Street. The study area encompasses 44 blocks with the boundaries extending from Deer Street to Fairview Street, and South 2nd Street north to Ochoco Creek. The Enhancement Plan includes an inventory and assessment of condition of existing sidewalks and bike lanes in the downtown.

The emphasis of the Enhancement Plan is on streetscape improvements. Including the following recommendations:

- Street and sidewalk improvements should include using a combination of several materials and forms with specific characteristics deemed important to the success of downtown streetscapes. The proposed sidewalk width of 10 to 12 feet allows the inclusion of trees and other street furniture without compromising ADA requirements or business access.
- Pedestrian flares (extensions) or half-flares are proposed at intersections of major arterials or collectors.
- Driveways should be designed to preserve sidewalk continuity.
- If a one-way couplet is developed, diagonal parking should be limited to the left side of the street, with parallel parking and a bike lane on the right side.
- On side streets that are collectors or local streets, it is recommended that improvements be made to clarify the marking and sizing of parking spaces.
- The City may wish to consider the restriction of the three parking lots it owns or leases to permit parking for downtown employees and other long-term users, freeing on-street parking for short-term (two hour) users.

The Enhancement Plan includes the following roadway dimensions as part of the conceptual alternative roadway improvements suggested for 2nd, 3rd, and 4th Streets.

Street	Lanes/Description	Pavement Width	Right- of-Way
2nd St.	9' parallel parking, 6' bike lane, 12' eastbound lane, 13' westbound lane, 14' diagonal parking	54'	80'
3rd St.	9' parallel parking, 11' eastbound lane, 14' turn lane, 11' westbound lane, 9' parallel parking	54'	80'
4th St.	14' diagonal parking, 13' eastbound lane, 12' westbound lane, 6' bike lane, 10' parallel parking	54'	80'

Prineville Downtown Enhancement Plan Conceptual Alternative Roadway Improvements

VI. City of Prineville Comprehensive Plan (Draft 2005)

The City of Prineville's Draft Comprehensive Plan (January 2005) addresses a wide range of planning issues; this summary focuses on those related to transportation system planning.

Chapter 7 of the Comprehensive Plan is the Transportation and Circulation element and includes the following Goals:

Goal 1 - "To create a functional transportation system recognizing that vehicle use is the primary mode of travel overall and that incorporating alternate mode use into the transportation system will result in maximizing and extending the life of transportation facilities and improve livability throughout the Prineville community."

Under Goal 1 are a series of multi-modal policies and programs to address the Goal, including directives to Prineville's TSP effort, which have largely been addressed as part of the 2005 TSP Update.

Goal 2 - "To create a functional transportation system that is designed to operate efficiently and effectively balanced against the need to preserve a high degree of community livability as growth occurs."

Under Goal 2 are a series of design values, policies and recommended programs addressing a Prineville vision of "livability" regarding multi system designs and operations; which have largely been addressed as part of the 2005 TSP Update.

Goal 3 - "To create a reasonable method for determining and monitoring street capacity and service levels for providing an effective and efficient transportation system."

Under Goal 3 are a series of design values and policies addressing traffic operations which have been addressed as part of the 2005 TSP Update.

Goal 4 - "To create a reasonable method for determining adequate and consistent transportation impact analyses, mitigation procedures and options."

Under Goal 4 are a set of values and policies addressing measurement standards and tools to evaluate impact of traffic growth. Some of the draft language acknowledging "subjectivity" in analytical methods or practices is at odds with professional standards and practices, and should be revised. The threshold by which traffic studies are to be conducted is set at "20 trips," and is unclear whether that is 20 new trips per day or per peak hour, but should be clarified consistent with the City's current policy and requirements.

Further, the City has adopted its own traffic analysis requirements (see below), which stipulate 200 trips per day and/or 20 trips per peak hour as the threshold for traffic studies.

Goal 5 - "To create a reasonable financing method for funding necessary transportation system master plan improvements over the life of the General Plan."

Under Goal 5 are a set of values and policies addressing transportation finance; largely addressed by both the 2005 TSP Update and SDC.

VII. City of Prineville Traffic Impact Analysis (TIA) – Development Requirements Policy (summarized in its entirety)

The City of Prineville recently adopted and now administers requirements for traffic studies.

City of Prineville Traffic Impact Analysis (TIA) - Development Requirements Policy

1. <u>Purpose and Intent</u>

The policy applies to new development, expansions to existing development and changes in use of existing development going through the City's land use approval process. The Traffic Impact Analysis (TIA) shall assist City staff in assessing the transportation system's ability to serve the development.

The transportation system, for purposes of this policy, is considered to be the system created by all individual elements that combine to move people and goods, including street rights of way, roadways, intersections, sidewalks, bike lanes, trails and transit system components within the City.

It shall be the responsibility of the developer to generate the TIA and submit it with the land use planning application. The TIA will be used by City staff to:

- Evaluate site access and circulation,
- Evaluate the ability of the roadway system to support the proposed development,
- Determine specific on-site and off-site transportation system mitigation requirements, and
- Determine the development's share of future roadway improvements.

2. <u>Guidelines</u>

All Traffic Impact Analyses performed under this policy, within the City, shall be conducted under the direction of a registered professional engineer. The final report shall be stamped and signed by the registered Engineer responsible for the document. The Engineer's license shall be valid in the State of Oregon. Engineers performing each study shall discuss study requirements (trip generation, trip distribution, growth rates, e.g.) with the City to confirm each of these elements prior to completing the study.

2.1. Impact Analysis Study Area

The impact analysis study area shall include the frontage of the property and all access points. The area shall also include any intersection within 1000 feet of the site that would experience an increase of at least 200 vehicle trips per day.

2.1.1. Supplemental study issues may be identified by other affected jurisdictions (e.g., ODOT and Crook County) and will need to be addressed.

2.1.2. Projects that distribute trips to a residential local street and are projected to increase volumes on that street by 25% or more should propose traffic calming device designs and techniques that meet City approval. This traffic calming may be required through the land use decision and may take the form of cash payment for future installation of devices.

2.2. <u>Study Time of Day/Day of Week</u>

Analyses should be performed for the PM Peak hour of the transportation system. However, certain applications may also be required to study the peak hour of the proposed generator or the peak hour of a nearby major trip generator (school, e.g.) at the discretion of the City.

2.3. <u>Study Time Frames</u>

The analysis shall include the following study time frames:

- Existing Traffic,
- Existing traffic plus project traffic at buildout, and at the end of each completed phase. Five-year forecast after development of all phases of project. (Results of analyses performed for the 5-year projections are to be used by the City in development of the City's Capital Improvements Program.)

If a zone change that requires an amendment to the City's Comprehensive Plan/City's General Plan is an element of the land use proposal, then, an analysis shall be performed in keeping with Oregon's Transportation Planning Rule, Division 12.

Existing Traffic is a field count which reflects existing transportation system conditions and has been conducted within six (6) months of the land use planning application date. If major transportation system conditions have changed since the count, then a new field count should be performed. Field counts are to be a minimum of a 2-hour turning movement count (between 4:00 and 6:00 PM). Additional hour counts may be needed to justify traffic signal warrants or all-way stop warrants. Additional counts may also be required if hours other than the PM Peak are required to be analyzed. Counts may need to be seasonally adjusted.

Background Traffic is the calculated total of a field count (Existing Traffic) plus 100 percent of the traffic from other approved, but not as yet constructed developments, plus growth related trips. Growth related trips are to be calculated by the most accurate of the following methods and approved by the City:

- *based on historic counts for the area, or a minimum of three (5) percent per year.*
- an interpolation between the Existing Traffic and either the City's 20 Year TSP projections or other longer term studies.
- ODOT's Transportation Planning Analysis Unit (TPAU) traffic projections for the roadway in question.

2.4. <u>Transportation System Conditions</u>

For analysis purposes, engineers should consider existing transportation system conditions (control type and roadway geometry) to be field conditions. However, engineers may also consider committed transportation facilities as those which include a guaranteed financing mechanism:

City's one year Capital Improvement Program (CIP)

- County's one year Capital Improvement Program (CIP)
- ODOT's Statewide Transportation Improvement Program (STIP) (two years are committed)
- Private projects.

Examples of private projects with guaranteed financing mechanisms include those for which a construction bond has been provided or for which a local improvement district has been fully formed by the City Council. The City shall make the final determination as to whether a private project may be considered as a "committed facility" for purposes of traffic impact analysis.

2.5. <u>Trip Generation</u>

Trip generation should coincide with the specific site use. If a specific site use is not identified and applied for at the time of the analysis, then the worse case trip generation for outright permitted uses within the zone shall be used.

Trip generation calculations are to be based on studies conducted by the Institute of Transportation Engineers (ITE) and summarized in the <u>Trip Generation Manual</u>, 6^{th} Edition (or subsequent document updates). If trip rates other than those found in the Trip Generation Manual are desired to be used, the procedures in the ITE Trip Generation Handbook shall be followed and the results approved by the City.

2.6. <u>Trip Distribution</u>

Trips should be distributed based on current traffic turning movements and may be adjusted to reflect future, financially assured, transportation system connections. Trips should be distributed out one 1000 feet from the site, and down to 20 Peak Hour trips.

2.7. <u>Safety/Crash Histories</u>

Crash histories, when required, shall provide a three (3) year history of reported crashes. A reported crash is one with a report filed either with the Department of Motor Vehicles, Oregon State Police, Crook County Sheriff's Office, or the City Police Department. These shall be reported for all impacted intersections or at those locations requested by the City.

2.8. <u>Traffic Impact Analysis Reports</u>

Traffic Impact Analysis reports shall be prepared consistent with this policy, at the expense of the developer, meeting the requirements described herein. Trip generation letters may be provided in lieu of Traffic Impact Analysis reports for applications to demonstrate that they generate less than 200 trips per day, and verify that the site access driveways meets sight distance, operations and safety requirements.

3. Evaluation Measures & Intersection Operations

This section sets out and defines standards for intersection operations on the City's public road system. Operations should be assessed by the methods outlined in the Transportation Research Board's 2000 Highway Capacity Manual (or more current edition). In the case of roundabouts, the SIDRA model may also be used.

3.1. **Operations Standards**

The following standards define acceptable intersection operations. These standards shall apply for the entire peak hour.

3.1.1. Two-Way Stop Control (TWSC)

• Delay for individual lane groups less than or equal to 50 seconds, and

- Volume to capacity ratio for individual lane groups less than or equal to 1.0, and
- 95th percentile queuing less than or equal to storage length available.
- 3.1.2. All-Way Stop Control (AWSC)
 - Delay for the intersection as a whole less than or equal to 80 seconds.
- 3.1.3. Roundabout
 - Volume to capacity ratio for individual approaches less than or equal to 1.0.
- 3.1.4. Signalized Intersection
 - Delay for the intersection as a whole less than or equal to 80 seconds, and
 - Volume to capacity ratio for the intersection as a whole less than or equal to 1.0, and
 - 95th percentile queuing less than or equal to storage length available.

3.2. <u>Timing of Intersection Operations</u>

As stated earlier, the transportation system should adequately serve the proposed additional trips as indicated by the above evaluation measures and operations criteria. This adequacy can be demonstrated by meeting the operations standards described above for the intersection at the time of final platting of the development or individual phases.

This concurrency requirement may be obtained by having any required mitigation constructed and in place or by creating a guaranteed funding mechanism for the mitigation to be constructed when it is shown to be physically needed in the field (Existing Traffic). This analysis may be performed on a semi-annual basis, at which time the intersection is shown to exceed the operations criteria, the improvements shall be constructed.

An intersection of higher order streets (arterials and collectors) shall be required to operate acceptably during the evaluation period. Intersections that are under the jurisdiction of the Oregon Department of Transportation shall also meet the applicable mobility standards from the Oregon Highway Plan. New development that will cause degradation below these levels shall be required to provide mitigating transportation system improvements that will restore the system, as is practical, as determined by the City.

For the operations of two-way stop controlled local streets, private streets or driveways (side streets) intersecting with a neighborhood, collector or arterial, the operations of the neighborhood, collector or arterial shall be given higher importance than the operations of the side street. If an intersection of a side street with a neighbirhood, collector or arterial is shown to fall below the acceptable operations standards defined above, the evaluation should also provide a discussion of system operations from a corridor point of view, including alternate routes to controlled intersections, corridor control spacing, pedestrian crossing ability, control warrants, and safety history. Mitigations can include addition of turn lanes or turn restrictions to the side street, pedestrian crossing improvements or status quo if safety is determined to be adequate.

Nothing in this policy diminishes the obligation of an applicant to contribute a proportional share toward the costs of the Master Plan improvement that will eventually be needed to increase the capacity of the affected facility(ies) to handle traffic volumes anticipated at build-out.

3.3. <u>Mitigation</u>

Incremental improvements may be considered for mitigation as long as the safety of an intersection is not compromised. Consecutive incremental improvements should build upon themselves, contributing to the ultimate intersection geometrics and operations. That is, improvements should be constructed from the centerline of the roadway out. Improvements must

bring the intersection back into acceptable operations as defined above. Any incremental transportation improvement must also accommodate bike and pedestrian movements.

Improvements may include the following:

- Left turn pockets
- Increased storage lengths
- Right turn lanes, slip lanes
- Conversion of Two Way Stop Control to All Way Stop Control if warrants are met
- Conversion of an All Way Stop Control to a roundabout or signal if warrants are met
- *Improved signal progression (interconnect, master controller, retiming)*
- Create phase overlaps
- Add through lanes.

Any suggested changes to signal timing must evaluate the effects to the entire network of affected signals and not just the signalized intersection in question.

The Prineville policy should be updated to reflect more current documentation (ITE Trip Generation 7th edition (2003), and the TSP volume to capacity measures.

VIII. City of Prineville Transportation Systems Development Charge

Prineville recently adopted their own SDC for transportation by Ordinance #1111 (methodology) and Resolution # 962 (rate structure). It is anticipated that new development will pay approximately \$10 million in transportation SDCs between 2005 and 2025. The SDC revenues will be spent towards future capacity improvement needs to serve growth. The City's SDC methodology and rate structure should be updated based on the 2005 TSP Update findings and project list.

IX. City of Prineville Land Development Ordinance No. 1057 (1998)

The Land Development Ordinance addresses a wide range of issues, this summary will focus on those specific to transportation only. Section 1.020 includes the following purpose statement, "*To lessen congestion by providing adequate transportation facilities for all modes of travel*".

All of the residential, commercial and industrial Zones (except M-2) identified in the Ordinance permit the following transportation-related uses outright:

- Maintenance and repair of an existing transportation facility, including reconstruction, surfacing, minor widening or realignment of an existing road within an existing right-of-way, including the addition of turn refuges at existing street intersections, but not including the addition of "through" travel lanes.
- Replacement of bridges and other stream or canal crossing facilities.
- Bikeways, footpaths, and recreation trails.
- Construction of new streets and roads, that are included within locally adopted Transportation Systems Plans (as may be amended), the State Highway Transportation Improvement Plan, or as has been identified in a specific development review and approval process.

Other transportation-related uses are permitted conditionally in all residential, commercial and industrial Zones (unless specified otherwise).

- The addition of "through" travel lanes to an existing street within the existing right-of-way, and/or the extension of an existing street not previously planned. (Type I Conditional Use except in C-1, C-2, C-3, C-4, C-5, M-1, M-2)
- Construction of a new street not set forth within a locally adopted Transportation System Plan, State Highway Transportation Improvement Plan, or previously approved development plan. (Type II Conditional Use except in C-4, C-5, M-1, M-2)

Within the Airport Zones (AA, AO, AD, AC, AM), the following transportation uses are permitted outright with some variations in the specific Code language, except that within the A-R zone, transportation uses are permitted similarly to other residential uses described above.

• Uses of a public works, public service or public utility nature, including the maintenance or improvement of such, and including runway, taxiway, street or road construction or maintenance activities.

Within the Open Space-Park Reserve Zone (PR), the following transportation uses are permitted outright:

- Normal maintenance, replacement and improvement activities for existing parks, recreation, streets and roads, and other public works facilities.
- The development of parks, recreation areas and facilities, streets, roads, and other public works facilities that were adopted as part of a Plan element and/or a separate Plan document directly related thereto prior to the effective date of this Ordinance, or such development approved as part of an overall development plan in compliance with this Ordinance.

Other transportation-related uses are permitted conditionally in the Open Space-Park Preserve Zone.

- Bridge crossings and support structures therefore. (Type II Conditional Use)
- Public or private utility or public works facilities, including but not limited to, water systems, sewer systems, streets, roads, substations, pumping stations, sewer lift stations, etc. (Type II Conditional Use)

Within the Significant Resource Combining (SR) Zone, if uses permitted outright in the underlying zone are identified as "conflicting" they are become Type I Conditional Uses. The following Conflicting Uses and Activities relate specifically to transportation activities.

Wetlands, and within 100 feet of a "significant wetland"

• Fill for any purpose, usually but not necessarily in conjunction with building, road and roadway construction and siting.

Archaeological Resources

- Any activity requiring excavation.
- Construction activities.
- Activities resulting in permanent coverage of an identified resource or site.

Scenic Resources

- Any permanent use screening, inhibiting or detracting from public view of the subject resource
- Any activity directly altering the scenic value of the resource.
- Alteration of the scenic resource site.

Unique Resources

• Any use identified as having an adverse impact on such designated uses and the identified value(s) thereof.

Historic Resources

• Demolition or alteration

Mineral and Aggregate Resources

- Any permanent use which reasonably precludes the development and use of such resource for the use designated or intended.
- Wildlife habitat area or scenic waterway or highway

Fish and Wildlife Habitat

• Removal of habitat except when associated with habitat improvement.

Groundwater Resources

- Development in areas when the aquifer may be depleted.
- Development that may pollute groundwater.
- Development in areas of high groundwater tables.

Natural Areas

• Utility facilities, including overhead power lines and transmission towers, substations, etc.

Section 4.080 includes design and improvement standards for off-street parking and loading facilities, and other requirements relative to off-street parking and loading facilities. Minimum off-street parking space requirements are identified by use.

Section 4.100, Riparian Habitat, applies in addition to the standards of the SR Zone to areas within 25 feet of the ordinary highwater line or identified stream channel of Ochoco Creek, and 50 feet from the ordinary high water line or identified stream channel of the Crooked River. Within these designated Riparian areas, the following standards are applied to transportation-related uses.

Roadways and Structures shall not be located within said identified riparian areas unless:

- For an approved bridge or other stream crossing; or
- Roadway access is required for an otherwise approved use.

All trees, and at least 50 percent of the understory vegetation shall be retained within identified riparian habitat areas, with the following exceptions:

- Vegetation removal necessary to provide direct access for a water-dependent use, or for new bridge construction, or for routine repair, operation, or maintenance of bridges and highways, or for the necessary construction of a street or highway improvement within an existing right-of-way, or an otherwise approved use.
- Vegetation removal necessary for maintenance of clear vision areas and the removal of roadside hazards.

Section 5.090, Exception for Public Street and Highway Improvements, allows exceptions for some transportation-related projects pursuant to the following language:

Excepting for those activities specifically regulated by this Ordinance, the following public street and highway improvement activities are permitted outright in all zones and are exempt from the permit requirements of this Ordinance.

(1) Installation of additional and/or passing lanes, including pedestrian and/or bike ways, within a street or highway right-of-way as of the effective date of this Ordinance, unless such adversely impacts on-street parking capacities and patterns.

(2) Reconstruction or modification of public roads and highways, not including the addition of travel lanes, where no removal or displacement of buildings would occur, and/or no new land parcels result.

(3) Temporary public roads and highway detours that will be abandoned and restored to original condition or use at such time as no longer needed.

(4) Minor betterment of existing public roads and highway related facilities such as maintenance yards, weight stations and rest areas, within a right-of-way existing as of the effective date of this Ordinance and contiguous public-owned property utilized to support the operation and maintenance of public roads and highways provided such is not located within a duly designated Residential Zone, or adjacent to or across the street from a lot or parcel within such a Zone, or in an Open Space-Park Reserve Zone or a Significant Resource Combining Zone.

(5) The construction, reconstruction or modification of a public street or highway that is identified as a priority project in a Transportation System Plan (TSP) or State Transportation Improvement Plan (STIP) that was duly adopted on or before the effective date of this Ordinance.

Section 5.100, Exception for Public Facilities Improvement or Reconstruction, allows additional exceptions for some transportation-related projects pursuant to the following language:

Minor betterment, improvements, replacement or reconstruction of existing public facilities such as sewer and water lines, storm-water drainage facilities, bikeways, and similar public facilities, sidewalks and other pedestrian ways or facilities, bikeways, and similar public facilities within rightsof-ways and easements for said purposes existing on or before the effective date of this Ordinance, or on contiguous publicly-owned property designated, intended or utilized to support such facilities, or such facilities that are set forth within an adopted Public Facilities Plan or other capital improvements plan duly adopted on or before the effective date of this Ordinance, are exempt from the permit requirements of this Ordinance unless specifically set forth otherwise.

Article 6, Conditional Uses, establishes General Criteria for determining whether or not a Conditional Use shall be approved or denied and General Conditions which may be found to be necessary to avoid a detrimental impact. The following general criteria and conditions could be of particular significance to transportation-related projects:

General Criteria

- The proposal is compatible with the City Comprehensive Plan and applicable Policies set forth thereby.
- That no approval be granted for any use which is or expected to be found to exceed resource or public facility carrying capacity.

General Conditions

- Increasing street width and/or requiring improvements to public streets and other public facilities serving the proposed use, even including those off-site but necessary to serve the subject proposal.
- Designating the size, number, improvements, location and nature of vehicle access points and routes, and requiring pedestrian and/or bicycle ways.

Article 7, Subdivisions and Partitionings, establishes minimum standards governing the approval of land divisions. A statement setting forth proposed types of housing and other uses to be accommodated, and a

projection of traffic generation and population is required in a Outline Development Plan. Requirements for approval include the following transportation-related standards:

- The subdivision will not create an excessive demand on public facilities and services required to serve the proposed development, or that the developer has proposed adequate and equitable improvements and expansions to such facilities with corresponding approved financing therefore to bring such facilities and services up to an acceptable capacity level; and (GOAL 11)
- The streets and roads are laid out so as to conform to an adopted Transportation System Plan for the area, and to the plats of subdivisions and maps of major partitions already approved for adjoining property as to width, general direction and in all other respects unless the City determines it is in the public interest to modify the street or road pattern; and
- Streets and roads for public use are to be dedicated to the public without any reservation or restrictions; and Street and roads for private use are approved by the City as a variance to public access requirements.

Section 9.050, Streets and Other Public Facilities, establishes street design and improvement standards and requirements for new development. The proposed street location and pattern is required to be shown on the development plan, and the arrangement of streets must either: (a) provide for the continuation or appropriate projection of existing principal streets in surrounding areas; or (b) conform to a plan for the general area of the development approved by the Planning Commission to meet a particular situation where topographical or other conditions make continuance or conformance to existing streets impractical; and (c) conform to the adopted urban area Transportation System Plan as may be amended.

Section 9.050 also establishes minimum right-of-way and roadway widths for development plans as follows.

Street Classification	Min. ROW Width (feet)	Min. Roadway Width (feet)
One-Way Major Arterial (2 lanes w/parking & bike lanes)	70	46
Two-Way Major Arterial (5 lanes w/bike lanes)	80-100	74
Minor Arterial (3-5 lanes w/bike lanes)	80-100	50-74
Collector (2 lanes w/bike lanes)	60-70	40-50
Local Residential	40-50	32-40
Cul-de-sacs	50	45
Radius for cul-de-sac Turn-Around	40-50	40
Alleys	16	16
Sidewalks	6-12	4-12
Bikeways	4-8	4-8

Minimum Right of Way and Roadway Widths from the City of Prineville Land Development Ordinance

Section 9.060, Access Management, sets standards for new development for access points to Arterials and Collectors and establishes both general access management guidelines and special access management guidelines (for selected streets) as follows.

General Access Management Guidelines (Desirable design spacing - existing spacing will vary)

een driveways and/or streets:
500 feet
300 feet
50 feet
Access to each lot
een street intersections:
1/4 mile
600 feet
300 feet
300 feet

The Special Access Management Guidelines are the same as those included in the Comprehensive Plan (see above).

APPENDIX B TPR COMPLIANCE TABLE

The following TPR Compliance Table was intended to begin dialogue between the City of Prineville, ODOT and DLCD regarding the status of Prineville's current TPR Compliance, and then make decisions about how to proceed with the TSP Update work program.

Background

The TPR was written with a great deal of ambiguity which can lead to confusion, particularly with the many cross-references between sections. The following table re-organizes and summarizes the TPR by packaging like requirements into a more easily understood summary with the following major sections:

- **I. TSP Elements** (what needs to go into a TSP)
- 1) **TSP Preparation** (how a TSP should be prepared)
- 2) **Protection of Transportation Street Facilities** (policies and regulations needed to protect land use/transportation systems)
- **3)** Coordination of Land Use Reviews and Decisions/Land Use Amendments (policies and regulations)
- 4) Determination of Transportation Needs
- 5) Evaluation and Selection of Transportation System Alternatives

In addition to the TPR summary, the Table summarizes the following: 1) whether and how Prineville's current Comprehensive Plan, Land Development Code and TSP addresses the TPR requirements; and, 2) a summary and recommendation for policy change(s) or actions need to be taken to achieve TPR compliance.

TSP Elements

TPR Requirements	Current Code/Policy Compliance (Yes, No, N/A or Update)	Summary of Current Policies/Situation (Comp Plan = 1997 Comprehensive Plan) (Code = 1998 Land Development Code) (TSP = 1998 Draft TSP)	Summary of Recommended Policy Change or Action
OAR 660-12-020 (2) (b)			
TSP shall include a road plan including a functional classification consistent with state, regional and local/county TSPs.	Update	Code and TSP define functional classification and basic design elements.	The Prineville TSP includes a functional classification policy and map. <i>For roadways within the UGB, modifications may be necessary. This should be done in coordination with the County and County TSP to ensure consistency.</i>
Road standards for local streets to: 1) Address extensions of existing streets;	1) Yes/Update	1) Code and TSP discuss street extension requirements.	1) Prineville's local street network planning is referenced in TSP. <i>Update maps and text as needed</i> .
 Connections to existing/planned arterials and collectors; 	2)Yes/Update	2) Code requires new streets to either provide for the continuation of existing principal streets, conform to a plan for the general area or conform to the TSP.	2) Prineville's local street network planning is referenced in TSP. <i>Update maps and text as needed</i> .
3) Connections to neighborhood destinations. OAR 660-12-020 (2) (C)	3)Yes/Update	3) Code and TSP discuss general access requirements.	3) Prineville's local street network planning is referenced in TSP. <i>Update maps and text as needed</i> .
TSP shall include a description of public transportation			
services for the disadvantaged including:			
1) Identification of inadequacies;	1) Yes	1) Identified in the TSP.	1) None
2) Description of intercity bus and passenger	2) Yes	2) Bus routes are described in the TSP. Rail is described in the Comp Plan and TSP	2) None
3) Identification of both existing and planned trunk routes, major transit stops and park-and-ride locations.	3) Yes	 The Comp Plan and TSP address existing public transportation facilities and existing and projected demand. 	3) None
TSP Elements			
TPR Requirements	Current Code/Policy Compliance (Yes, No, N/A, Undate)	Summary of Current Policies/Situation (Comp Plan = 1997 Comprehensive Plan) (Code = 1998 Land Development Code) (TSP = Draft 1998 TSP)	Summary of Recommended Policy Change or Action
OAR 660-12-020 (2) (d)	- F)		
The TSP shall include a bicycle and pedestrian plan.	Yes/Update	Comp Plan and TSP include objectives for accommodation of cyclists and pedestrians. Code has requirements for construction of bike facilities and sidewalks.	Prineville TSP includes a Bikeway Plan and a Pedestrian Plan. <i>Update maps and text as needed</i> .
OAR 660-12-045(6)			
Bicycle and pedestrian plans must include improvements that connect neighborhood activity centers (schools, shopping).	Yes/Update	General policies and requirements for connectivity are contained within the Comp Plan, TSP and Code.	Prineville TSP includes a Bikeway Plan and a Pedestrian Plan.

OAR 660-12-020 (2) (e)			
The TSP shall include air, rail, water and pipeline transportation plansFor airports, the planning area shall include all areas within airport imaginary surfaces and	Yes/Update	Both the Comp Plan and TSP address the provision of air, rail and water. The Code includes airport zoning.	Prineville TSP addresses air, rail, water and pipeline transportation modes.
other areas covered by state or federal regulations.			
OAR 660-12-020 (2) (f)			
The TSP shall include a plan for transportation system management (TSM) and demand management (TDM).	NA/Yes	Components of TSM and TDM strategies are contained within the Comp Plan, TSP and Code; however, these are not required by the TPR for urban areas less than 25,000 persons.	The TSP includes Transportation Demand Management Measures.
OAR 660-12-020 (2) (g)		·	
The TSP shall include a parking plan.	NA	Not required for non-MPO areas.	None.
OAR 660-12-020 (2) (I)			
The TSP shall include a transportation financing plan.	Update	The TSP contains a transportation financing plan for identified projects.	The TSP Financing Plan should be updated in 2005.
TSP Elements			
TPR Requirements	Current Code/Policy Compliance (Yes, No, N/A or Update)	Summary of Current Policies/Situation (Comp Plan = 1997 Comprehensive Plan) (Code = 1998 Land Development Code) (TSP = Draft 1998 TSP)	Summary of Recommended Policy Change or Action
OAR 660-12-020 (3)			
1) An inventory of existing and committed	1) Update	The TSP includes an inventory of existing and committed transportation facilities and services.	This should be updated to identify new transportation projects, changes to the UGB and
2) A system of planned transportation facilities,		•	forecasts.
services and major transportation improvements including location, capacity and	2) Update	This is included in the TSP.	

level of service.

TSP Preparation

TPR Requirements	Current Code Compliance (Yes/No/NA/ Update)	Summary of Current Policies/Situation (Comp Plan = 1997 Comprehensive Plan) (Code = 1998 Land Development Code) (TSP = Draft 1998 TSP)	Summary of Recommended Policy Change or Action
OAR 660-12-015 (2) MPOs are required to prepare regional TSPs consistent with state plans.	NA	The City of Prineville is not within an MPO	None.
OAR 660-12-015 (3) Cities are required to prepare local TSPs consistent with state plans.	Yes/Update	The TSP is generally consistent with state plans.	Some revisions to the TSP may be necessary for consistency with OHP and Crook County TSP.
OAR 660-12-015 (4) The TSP prepared by the City must be adopted as part of the Comprehensive Plan.	Yes/Update	The City adopted the TSP as part of its Comp Plan.	The revised TSP will have to be adopted as part of the Comp Plan, superseding the existing TSP, and other policies must be reviewed for consistency.
OAR 660-12-015 (5) Preparation of the TSP will be coordinated with state and federal agencies and other jurisdictions.	Yes/Update	The existing TSP was developed in coordination with state and federal agencies and other jurisdictions.	Revisions to the TSP will include coordination with local, state and federal agencies, particularly ODOT and Crook County.
OAR 660-12-015 (6) Transportation airport and port districts must participate in preparation of the TSP and adopt plans for the transportation facilities they maintain consistent with the TSP.	Yes	See response to 660-12-015 (5), above.	See response to 660-12-015 (5), above.
OAR 660-12-015 (7) Conflicts between regional TSPs and local plans may be resolved by changing draft TSPs, amending local plans or petitioning of DLCD.	Update	The regional (Crook County) TSP has been prepared; however, it may need to be revised due to changes in the Prineville UGB and the Prineville TSP update.	Any conflicts with the Crook County TSP will be resolved through the approved courses of action.

Protection of Transportation Street Facilities/Improvements

TPR Requirements	Current Code Compliance (Yes/No/NA/ Update)	Summary of Current Policies/Situation (Comp Plan = 1997 Comprehensive Plan) (Code = 1998 Land Development Code) (TSP = Draft 1998 TSP)	Summary of Recommended Policy Change or Action
 OAR 660-12-045(2) Local governments shall adopt regulations/policies to protect transportation facilities for the following topics: Access management standards; 2) Future operation of roads and transit corridors; 	1) Yes/Update 2) Yes/Update	 TSP and Comp Plan include access management policies. Code includes access management guidelines. General policies and requirements for future operations are contained within the Comp Plan, TSP and Code. 	 1) Spacing standards in the Code should be revisited in light of Oregon Highway Plan. 2) TSP should address Mobility Standards consistent with the OHP.
3) Control of land use around airports;	3) Yes	3) Prineville has an Airport Overlay Zone.	3) See response to OAR 660-12-020 (2) (e).
4) Coordinated review of transportation facility5) Process to apply conditions to development	4) No	4) Prineville currently notifies County and ODOT as appropriate, but Code does not require this.	4) Change Code to require County and ODOT notification on pertinent land use applications and work with the County to include similar language in their Code.
6) Amendments to Land use, density shall be consistent with road classifications in TSP.	5) Yes/Update	5) Current review process provides opportunity for conditioning of development proposals.	5) Consider Codes changes to identify more specific standards for new development, including Mobility standards and consistent traffic impact analyses.
	6) No	6) Street classification and land use/density are not specifically coordinated.	6) Change Comp Plan and Code to require review of Mobility Standards and TSP when land use designations are requested.

Protection of Transportation Street Facilities/Improvements

TPR Requirements	Current Code Compliance (Yes/No/NA/ Update)	Summary of Current Policies/Situation (Comp Plan = 1997 Comprehensive Plan) (Code = 1998 Land Development Code) (TSP = Draft 1998 TSP)	Summary of Recommended Policy Change or Action
OAR 660-12-045(3) Local governments must amend land use or subdivision regulations in accordance with the following directions:			
 Provide bike parking in new retail, office and institutional developments, transit facilities and multi-family developments 4 units or more; 	1) No	1) TSP and Code do not address bicycle parking.	1) Include bicycle parking policy in TSP and implementing standards in Code.
2) Provision of pedestrian and bicycle	2) Yes	2) Provided by Code requirements for sidewalks,	2) None.
 Off-site road improvements must accommodate bicycle and pedestrian facilities on arterials and major collectors; 	3) Yes	3) Provided for in both the Code and Comp Plan.	3) None.
4) Provision of internal pedestrian circulation	4) Yes	4) Provided within pedestrian connection requirements in Code.	4) None.
OAR 660-12-045 (4) To support transit in urban areas containing a population greater than 25,000 with public transit, local governments shall adopt land use and subdivision regulations which require/allow:			
1) Provision of facilities designed to support transit	1) NA	Prineville's urban area is less than 25,000 persons.	None.
use; 2) Building placement and clustering with direct, lighted pedestrian connections between building entrances and site circulation systems to transit facilities;	2) NA		
3) Implementation of access to transit facilities may be accommodated through adoption of pedestrian districts	3) NA		
4) Employee parking in new developments shallprovide designated carpool and vanpool parking:	4) NA		
5) Existing parking areas to be redeveloped for transit originated user.	5) NA		
6) Road systems for new development to provide direct access ways to transit facilities;	6) NA		
7) Designation of types and densities of land uses along transit routes which will support	7) NA		

APPENDIX C

MAJOR TRANSPORTATION SYSTEM STREET INVENTORY

		2 Prine	005 MAJOR Ville Trai	STREETS	INVENTORY m System	Plan					
Street Segment	Jurisdiction	Classification	Speed Limit (mph)	ROW Width (feet)	Street Width (feet)	# of Travel Lanes	Curbs	On-Street Parking	Sidewalks	Bikeway (1)	Pavement Condition
lst Street											
Deer Street to Knowledge Street	City	Local Route	25	80	54	2	Yes	Yes	Intermittent	Shared	Fair
2nd Street											
West of Locust Street	City	Local Route	25	80	40	7	NO	Yes	NO	Shared	Poor
Locust Street to Deer Street	City	Collector	25	80	53	7	Yes	Yes	Intermittent	Shared	Good
Deer Street to Main Street	City	Collector	25	80	55	7	Diagonal	Yes	Yes	Shared	Good
Main Street to Fairview Street	City	Collector	25	80	53	4	Yes	Yes	Intermittent	Shared	Good
3rd Street (Highway 26)											
Locust Street to Juniper Street	State	Arterial	25-30	80	55	ĸ	Yes	Yes	Yes	Shared	Fair
Juniper Street to Laughlin Road	State	Arterial	30-45	80	36	7	NO	NO	Intermittent	Shoulder	Fair
East of Laughlin Road	State	Arterial	55	80	36	7	NO	NO	NO	Shoulder	Fair
4th Street											
Harwood Street to Deer Street	City	Collector	25	80	56	7	Yes	Yes	Yes	Shared	Fair
Deer Street to Main Street	City	Collector	25	80	56	2	Yes	Yes (S-Diag)	Yes	Shared	Fair
Main Street to Juniper Street	City	Collector	25	80	58	2	Yes	Yes (N-Diag)	Yes	Shared	Fair
7th Street											
Fairmont Street to Main Street	City	Local Route	25	80	56	2	Yes	Yes	NO	Shared	Good
Main Street to Belknap Street	City	Local Route	25	60	35	2	Yes	Yes	Intermittent	Shared	Good
Belknap Street to Laughlin Road	City	Local Route	25	60	40	2	Yes	Yes	Intermittent	Shared	Good
9th Street											
US 26 to Main Street	City	Arterial	25	80	46	7	Yes	NO	Yes	Lane	Good
10th Street											
Harwood Street to Fairmont Street	City	Arterial	25	80	56	2	Yes	Yes	Yes	Shared	Good
Fairmont Street to Lamonta Road	City	Arterial	25	80	48	2	Yes	Yes	NO	Shared	Poor
Lamonta Road to Main Street	City	Arterial	25	80	24	7	No	No	NO	Shared	Poor
Main Street to Court Street	City	Arterial	25	60	40	7	NO	No	No	Lane	Good
Court Street to Elm Street	City	Arterial	25	60	40	7	Yes	Yes	NO	Shared	Good

Appendix C

Barnes Butte Road

			2000 1000 1000	-	- +0 	ус Т					
Street Segment	Jurisdiction	Classification	speed Limit (mph)	kuw Width (feet)	street Width (feet)	# or Travel Lanes	Curbs	On-Street Parking	Sidewalks	Bikeway (1)	Pavement Condition
McKay Road to Highway 26	County	Collector									
Harding Road											
Laughlin Road to E 3rd St	City	Arterial	25	60	24	7	NO	NO	NO	Shared	Fair
Harwood Street											
Lamonta Road to W 10th Street	City	Arterial	25	80	42	7	Yes	NO	Yes - E	Shared	Fair
W 10th Street to W 6th Street	City	Arterial	25	80	24	7	No	NO	No	Shared	Fair
W 6th Street to W 2nd Street	City	Arterial	25	80	54	7	Yes	Yes	NO	Shared	Fair
Hudspeth Road											
Laughling Road to Ochoco Avenue	City	Collector	25	60	20	7	No	NO	NO	Shared	Good
Juniper Canyon Road											
South of Paulina Highway	County	Collector	25	60	24	7	NO	NO	NO	Shared	Fair
Juniper Street											
Laughlin Road to Ochoco Creek	City	Arterial	25	80	40	7	No	Yes	NO	Shared	Good
Ochoco Creek to E 1st Street	City	Arterial	25	80	56	0	Yes	Yes	NO	Shared	Good
Knowledge Street											
3rd Street to 1st Street	City	Collector	25	80	54	7	Yes	Yes	NO	Shared	Fair
1st Street to S 2nd Street	City	Collector	25	80	54	7	Yes	Yes	Yes - E	Shared	Fair
5th Street to Lynn Boulevard	City	Collector	25	80	54	0	Yes	Yes	NO	Shared	Good
Lamonta Road											
10th Street to Northwest City Limi	City	Arterial	25-35	60	24	7	NO	NO	NO	Shared	Poor
Northwest of City Limit	County	Arterial	40-55	60	30	7	NO	NO	NO	Shared	Fair
Laughlin road											
US 26 to Harding Road	City	Arterial	25	60	24	7	NO	No	NO	Shared	Poor
Harding Road to E 7th Street	City	Arterial	35	70	24	7	NO	NO	NO	Shared	Poor
Loper Avenue											
Main Street to Oregon Street	City	Collector	25	60	24	7	NO	NO	NO	Shared	Good
Oregon Street to Powell Lane	City	Collector	25	60	48	7	No	Yes	NO	Shared	Good
Powell Lane to Del Rio	City	Collector	25	60	30	7	Yes - N	Yes	NO	Shared	Good

Appendix C 2005 MAJOR STREETS INVENTORY eville Transportation System Plar

Rawhide lane

		2 Prinev	A) 005 MAJOR /ille Trar	ppendix C STREETS Isportatic	INVENTORY	Plan					
Street Segment	Jurisdiction	Classification	Speed Limit (mph)	ROW Width (feet)	Street Width (feet)	# of Travel Lanes	Curbs	On-Street Parking	Sidewalks	Bikeway (1)	Pavement Condition
McKay Road to End	County	Collector	25	60	25	0	NO	NO	NO	Shared	Good
Rimrock Road											
Highway 126 to Crestview Road	County	Collector	25	50	24	0	NO	NO	NO	Shared	Fair
S 7th Street											
Fairview Street to Knowledge Stree	City	Collector	25	80	54	0	Yes	Yes	NO	Shared	Good
S 5th Street											
Main Street to Fairview Street	City	Collector	25	80	38	0	NO	Yes	NO	Shared	Good
Fairview Street to Knowledge Stree	City	Collector	25	80	55	7	Yes	Yes	NO	Shared	Good
Williamson Drive											
3rd Street to End	City	Collector	25	60	32	0	Yes - W	Yes	NO	Shared	Good
Willowdale Drive											
3rd Street to End	County	Collector	25	60	20-24	7	NO	NO	NO	Shared	Good

(1) Lane = A portion of a roadway that has been designated by striping, signing and pavement markings for the preferential or exclusive use by bicyclists.

Shared = A type of bikeway where bicyclists and motor vehicles share the same roadway.

Shoulder = A portion of a highway contiguous to the roadway that is primarily for use by pedestrians and bicyclists as well as vehicles stopped for emergency.

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION TRANSPORTATION DATA SECTION - CRASH ANALYSIS & REPORTING UNIT

COMPARISON OF CRASH RATE DATA FOR STATE HIGHWAYS IN THE PRINEVILLE URBAN AREA 2002 - 2004

2002

	Milepoint	Segment							Crash	State Avg
Highway Identifier	Range	Length	Location	Functional Classification	AADT	Crashes	Deaths	Injuries	Rate	Crash Rate
US 26, ORE 126, Hwy 41, Ochoco Hwy	14.81 - 20.75	5.92	Urban City	Urban Principal Arterial - Other	10,016	43	1	23	1.99	2.88
US 26, Hwy 360, Madras-Prineville Hwy	24.75 - 26.07	1.32	Suburban Area	Urban Minor Arterial	5,458	1	0	1	0.38	1.19
US 26, Hwy 360, Madras-Prineville Hwy	26.07 - 26.28	0.21	Urban Area	Urban Principal Arterial - Other	6,700	0	0	0	0.00	2.64
ORE 27, Hwy 14, Crooked River Hwy	0.00 - 1.02	1.02	Urban Area	Urban Minor Arterial	3,556	13	0	4	9.82	2.26
Hwy 370, O'Neil Hwy	15.53 - 17.67	2.14	Urban Area	Rural Minor Arterial	1,966	2	0	1	1.30	0.90
Hwy 380, Paulina Hwy	0.00 - 1.66	1.66	Suburban Area	Urban Minor Arterial	3,792	0	0	0	0.00	1.19

2003

	Milepoint	Segment							Crash	State Avg
Highway Identifier	Range	Length	Location	Functional Classification	AADT	Crashes	Deaths	Injuries	Rate	Crash Rate
US 26, ORE 126, Hwy 41, Ochoco Hwy	14.81 - 20.75	5.92	Urban City	Urban Principal Arterial - Other	9,828	56	0	22	2.64	3.15
US 26, Hwy 360, Madras-Prineville Hwy	24.75 - 26.07	1.32	Suburban Area	Urban Minor Arterial	4,907	0	0	0	0.00	0.60
US 26, Hwy 360, Madras-Prineville Hwy	26.07 - 26.28	0.21	Urban Area	Urban Principal Arterial - Other	6,100	1	0	0	2.14	2.74
ORE 27, Hwy 14, Crooked River Hwy	0.00 - 1.02	1.02	Urban Area	Urban Minor Arterial	3,141	5	0	0	4.28	2.41
Hwy 370, O'Neil Hwy	15.53 - 17.67	2.14	Urban Area	Rural Minor Arterial	1,709	1	0	0	0.75	1.03
Hwy 380, Paulina Hwy	0.00 - 1.66	1.66	Suburban Area	Urban Minor Arterial	3,609	3	0	0	1.37	0.60

2004

	Milepoint	Segment							Crash	State Avg
Highway Identifier	Range	Length	Location	Functional Classification	AADT	Crashes	Deaths	Injuries	Rate	Crash Rate
US 26, ORE 126, Hwy 41, Ochoco Hwy	14.81 - 20.75	5.92	Urban City	Urban Principal Arterial - Other	9,012	17	0	2	0.87	N/A
US 26, Hwy 360, Madras-Prineville Hwy	24.75 - 26.07	1.32	Suburban Area	Urban Minor Arterial	4,879	0	0	0	0.00	N/A
US 26, Hwy 360, Madras-Prineville Hwy	26.07 - 26.28	0.21	Urban Area	Urban Principal Arterial - Other	6,000	0	0	0	0.00	N/A
ORE 27, Hwy 14, Crooked River Hwy	0.00 - 1.02	1.02	Urban Area	Urban Minor Arterial	3,656	5	0	0	3.67	N/A
Hwy 370, O'Neil Hwy	15.53 - 17.67	2.14	Urban Area	Rural Minor Arterial	1,709	0	0	0	0.00	N/A
Hwy 380, Paulina Hwy	0.00 - 1.66	1.66	Suburban Area	Urban Minor Arterial	3,622	0	0	0	0.00	N/A

APPENDIX D TRAFFIC FORECASTS

BACKGROUND

The method used to estimate future traffic conditions for the Prineville TSP is based on procedures in the 2001 Transportation System Planning Guidelines prepared by the Oregon Department of Transportation. These guidelines identify three levels of transportation forecasting and analysis. Given the limited resources of the Prineville TSP Update and study, the City and ODOT agreed to develop future travel demand forecasts based on a Level 1 analysis. Two major factors influenced this decision:

- The time required to construct a travel demand model to ODOT Guidelines¹ for the Prineville UGB area would greatly extend the TSP development schedule; making a Level 3 methodology prohibitive to completing the TSP update in a timely manner.
- The time and resources required to conduct (a) origin-destination surveys in the Prineville UGB area and (b) detailed demographic forecasts were also found to exceed the study's resources; making a Level 2 methodology impractical.

Level 1 - Trending Forecast

A trending forecast projects future traffic volumes from historical growth trends of vehicle traffic. This forecasting method requires 20 years of historical data and is sufficient to project 20 years into the future. Growth trends can be determined from traffic volume data on the nearest state highway since most communities do not have a program to count vehicles. Since this analysis assumes past growth trends will continue into the future, the existing land use zoning must support this analysis. The analysis needs to evaluate how well the transportation system presently functions. Intersections must be evaluated since they have a considerable effect on the traffic flow. The volume of traffic needs to be related to the capacity that the intersection can accommodate.

GROWTH FORECASTS

To the best degree, with available data for use in estimating traffic growth, state highway historic traffic data were assimilated for the five highways that serve the City of Prineville:

- US 26 Madras-Prineville Highway
- OR 27 Crooked River Highway

¹ Travel Demand Model Development and Application Guidelines, Oregon Department of Transportation 1995.

OR 126	Ochoco HIghway
OR 370	O'Neil Highway
OR 380	Paulina Highway

A series of data sources were used to establish the growth factors.

Historical Factors

Includes ODOT-based, 2003 annual growth rates (2003-2023) for all segments of state highways within Prineville. Historical growth factors were calculated for an area-wide average. Initial evaluation of the data revealed that Paulina Highway data skewed the overall average to a lower annual average growth rate (1.72%). Some of the original summary data was removed (rural periphery), resulting in an annual average growth rate of 1.82%.

ODOT Historical Traffic Growth Data

							AVERAGE	
							ANNUAL	
	ODOT						GROWTH	
State Highway	Hwy #	M.P.	Location	2003	2023	RSQ	RATE	
OP 27	1/	0.25	01 mi south of 3rd	5 400	8 300	0 7506	2 179/	
	14	0.23	.01 mi north of Lvnn	3,400	6,300 6,100	0.7350	2.17 %	
	14	0.6	.01 mi south of Lynn	1,000	1,600	0.874	2.38%	2.27%
OR126 / US 26 (east of "Y")) 41	16.5	.01 mi west of Tom McCall	9,300	12,900	0.9058	1.65%	
		16.5	.01 mi east of Tom McCall	9,700	13,800	0.8925	1.78%	
		17.91	.01 mi west of O'Neil hwy	10,500	16,400	0.8522	2.25%	
		17.93	.01 mi east of O'Neil hwy	12,700	17,900	0.9073	1.73%	
		18.27	.01 mi east of Locust	13,900	20,400	0.723	1.94%	
		19.4	Ochoco Creek Br.	11,700	16,400	0.9178	1.70%	
		19.74	.01 mi west of Paulina hwy	10,000	12,400	0.8073	1.08%	
		19.76	.01 mi east of Paulina hwy	7,500	9,800	0.7244	1.35%	
		20.75	East of P'ville CL	4,500	6,700	0.7151	2.01%	1.72%
US 26 (east of "Y")	360	20.06	.01 mi NW of 6th Street	6,100	8,800	0.667	1.85%	
O'Neil Highway	370	17.66	.01 mi west of OR 126	2,200	3,000	0.8481	1.56%	
Paulina Highway	380	0.01	.01 mi south of US 26	4,500	6,000	0.8337	1.45%	
Source: ODOT Website, I	.ast Upda	ted 9/14/200 A	4 VERAGE ANNUAL GROWTH	RATE (/	AAGR)		1.81%	

Use this Average Annual Growth Rate to adjust Historic Counts for 2004 Baseline in Prineville TSP (1.81%)

Seasonal Factors

A combination of 3-lane automatic traffic recorder (ATR) data from similar highways in Oregon (to OR 126 in Prineville) was used to calculate an "average" set of seasonal variation factors. These data were derived from ODOT's website. The peak month identified is **August**, and the design hour volume (DHV) is estimated to be **13.7%** of the average daily traffic (ADT). From this data a set of bi-monthly seasonal adjustment factors were developed for the Prineville TSP, to adjust base year counts.

2003 SEASONAL ADJUSTMENT FACTORS Source: ODOT Website. November. 2004



Vehicle Classification

A summary of variable vehicle classification data was developed for the state highways in Prineville. Heavy truck rate data were segregated intoeast and west Prineville – the WYE connection as the dividing line: (1) east Prineville (5.4%) and (2) west Prineville 8.75%.

In review of the various ODOT historical turn volume counts (2002) along OR 126 it was determined that the most consistent PM peak hour in Prineville is 4:30-5:30.



Source: ODOT Website, November, 2004



Traffic Forecasts

Historic traffic volume data along state highways within the Prineville urban area were summarized for the most recent 20-year trend (1982-2002). An average of these growth trends

was calculated for the 20-year period beginning in 2003. As shown in **Table D-1**, the annual traffic growth trend, on average, is about 1.81 percent along state highways within Prineville. This average growth rate reflects the historic growth in traffic due to new land developments within the Prineville UGB and greater Crook County, but also growth in inter-city travel. It is important to note that the average growth rate also reflects years in which state highway traffic declined, primarily as a result to declining economic conditions within

Figure D-1



Central Oregon, but in some specific cases due to mill closings within Prineville (1997-2000, 2002). See **Figure D-1**. The closing of local mills likely resulted in fewer work-related trips in the Prineville area immediately following the mill closures.

Base year, 2005 DHV traffic data were factored for a 2025 No-Build scenarios. The 2025 No-Build scenario was adjusted manually to reflect locational growth throughout Prineville and the impacts of proposed street improvements identified in the Build scenario. Figures for each volume sets are shown below.

Traffic operations analyses were calculated in Synchro for all options.

2005 Traffic Forecasts



2025 No-Build Traffic Forecasts



2025 Build Traffic Forecasts


2005 No Build Traffic

	1	Ť	۲	\$	ŧ	~	•	+	٠	۶	-	¥
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
-ane Configurations	٢	¥	*	٢	÷	*		¢			¢	
Sign Control		Free			Free			Stop			Stop	
Grade		%0			%0			%0			%0	
/olume (veh/h)	-	489	2	23	370	9	ო	0	31	ი	0	-
Deak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	~	549	2	26	416	7	ო	0	35	10	0	-
^{>} edestrians												
-ane Width (ft)												
Nalking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Jpstream signal (ft)												
X, platoon unblocked												
C, conflicting volume	422			552			1020	1026	549	1054	1021	416
/C1, stage 1 conf vol												
C2, stage 2 conf vol												
Cu, unblocked vol	422			552			1020	1026	549	1054	1021	416
C, single (s)	4.2			4.2			7.2	6.6	6.3	7.2	6.6	6.3
C, 2 stage (s)												
F (s)	2.3			2.3			3.6	4.1	3.4	3.6	4.1	3.4
00 queue free %	100			97			86 08	100	63	94	100	100
cM capacity (veh/h)	1100			984			204	222	522	181	223	622
Direction Lane #	L an	C D J	E B 3	1 A/N	0 2/1/	V//B 3	L an					
Volume Total	3			00	440		000					
		549	2	07	410	- 0	ŝ					
/olume Left	-	0	0	26	0	0	m	10				
/olume Right	0	0	2	0	0	2	35	-				
SH	1100	1700	1700	984	1700	1700	459	194				
/olume to Capacity	00.0	0.32	00.0	0.03	0.24	0.00	0.08	0.06				
Queue Length 95th (ft)	0	0	0	2	0	0	~	2				
Control Delay (s)	8.3	0.0	0.0	8.8	0.0	0.0	13.6	24.6				
-ane LOS	۷			۷			ß	U				
Approach Delay (s)	0.0			0.5			13.6	24.6				
Approach LOS							ш	U				
ntersection Summary												
Averade Delav			1									
ntereaction Canacity 11	lization		37 20%			of Con	ino		V			
Analysis Period (min)			15	2		5	201		5			

HCM Unsignalized Intersection Capacity Analysis 2: OR 126 & Tom Mcall

2: OR 126 & Tom Mo	call			,							6/22	/2005
	•	t	۲	1	ŧ	~	•	+	٠	۶	-	\mathbf{F}
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		¢			÷	*		¢			¢	
Sign Control		Free			Free			Stop			Stop	
Grade		%0			%0			%0			%0	
Volume (veh/h)	0	667	4	17	495	29	12	0	63	33	0	9
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	0	749	4	19	556	33	13	0	71	37	0	~
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	589			754			1353	1379	752	1417	1348	556
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	589			754			1353	1379	752	1417	1348	556
tC, single (s)	4.2			4.2			7.2	6.6	6.3	7.2	6.6	6.3
tC, 2 stage (s)												
tF (s)	2.3			2.3			3.6	4.1	3.4	3.6	4.1	3.4
p0 queue free %	100			98 08			89	100	82	59	100	6
cM capacity (veh/h)	953			825			119	137	399	89	143	517
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1							
Volume Total	754	575	33	84	4							
Volume Left	0	19	0	13	37							
Volume Right	4	0	33	71	2							
cSH	953	825	1700	290	102							
Volume to Capacity	0.00	0.02	0.02	0.29	0.43							
Queue Length 95th (ft)	0	7	0	29	45							
Control Delay (s)	0.0	0.6	0.0	22.4	64.1							
Lane LOS		۷		ပ	ш							
Approach Delay (s)	0.0	0.6		22.4	64.1							
Approach LOS				U	ш							
Intersection Summary												
Average Delay			3.4									
Intersection Capacity Uti	lization		57.5%	⊻	CU Leve	el of Sen	vice		ш			
Analysis Period (min)			15									

Prineville TSP 5:00 pm 8/23/2002 2005 Existing PM Peak Hour The Transpo Group

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	•	←	→	•		3	×	*	×	<u>ک</u> س	
Movement EBL EBR	NBL	NBT	SBT	SBR	Movement	SEL	SET N	VT N	VR SV	VL SWR	
Lane Configurations	r	*	\$		Lane Configurations	r	4	æ,	ĺ	K.	
Sign Control		Free	Free		Sign Control		Free F	Lee	ัก	do	
Grade U%	1	%0	%n		Grade	C F	%0	%0	 L	1% 50 ro	
	11020	0 40	+00 02 0			0/02		01	CC 20	0C 76 26	
reak noui racioi 0./9 0./9	6 <i>1</i> .0	0.78	P.1.9	6./n	Peak Hour Factor	0.07	0.0/	0 10.	.0.	0/ 0.0/	
Hourly flow rate (vpn) 92 19	7.7	944	10/	128	Hourly flow rate (vpn)	8/	241 2	283	63 1	06 67	
Walking Speed (ft/s)					Walking Speed (ft/s)						
Percent Blockage					Percent Blockage						
Right turn flare (ven)					Right turn flare (veh)						
Median type None					Median type				Ñ	ne	
Median storage veh)					Median storage veh)						
Upstream signal (ft)					Upstream signal (ft)						
pX. platoon unblocked					pX. platoon unblocked						
vC. conflicting volume 1753 765	829				vC. conflicting volume	346			2	30 314	
vC1 stare 1 conf vol	i				vC1 stare 1 conf vol						
VOT, stage 1 com vol					VOT, stage 1 com Vol						
VCZ, Stage Z culli VUI	000				VCZ, Stage z culli vol	010			r		
Vcu, unblocked vol 1/53 /65	878				VCu, unblocked vol	040			~ `	30 314	
tC, single (s) 6.5 6.3	4.2				tC, single (s)	4.2				0.5 6.3	
tC, 2 stage (s)					tC, 2 stage (s)						
tF (s) 3.6 3.4	2.3				tF (s)	2.3				3.6 3.4	
p0 queue free % 0 95	97				p0 queue free %	63				70 91	
cM capacity (veh/h) 88 392	773				cM capacity (veh/h)	1175			en	51 710	
Direction Lane # ER 1 NR 1	C AN				Direction Lane #	с Т Т С	CE 2 NI	V1 CV	11 CM	01	
	ZON					210		0 0		21	
Volume Lotal 111 22	944	878			Volume I otal	8/	241	346	90	6/	
Volume Left 92 22	0	0			Volume Left	87	0	0	90	0	
Volume Right 19 0	0	128			Volume Right	0	0	63	0	67	
cSH 101 773	1700	1700			cSH	1175 '	1700 17	2 00	51 7	10	
Volume to Capacity 1.10 0.03	0.56	0.49			Volume to Capacity	0.07	0.14 0	20 0.	30 0.	60	
Queue Length 95th (ft) 179 2	0	0			Queue Lenath 95th (ft)	9	0	0	31	8	
Control Delay (s) 198 7 9 8	00	0.0			Control Delay (s)	8.3	0.0	0.0	3.6 1(16	
	5	0				0.0	0.0	-		é a	
						< c c)	2	
Approach Delay (s) 130./ U.Z		0.0			Approact Delay (s)	7.2		- 0.0	- 0		
Approach LOS					Approach LUS				<u>ں</u>		
Intersection Summary					Intersection Summary						
Averade Delav	117				Averade Delav			41			
Internetion Concerts / Hili-otion	/00 03	<u>_</u>	010111		Interception Concept 1 Hil		27	/00		and of Contine	<
Analysis Deriod (min)	14	2	יח בפגפ			דמווחו	. 10	10 %	22		c
Analysis Period (min)	GL				Analysis Period (min)			GL			

Prineville TSP 5:00 pm 8/23/2002 2005 Existing PM Peak Hour The Transpo Group

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Prineville TSP 5:00 pm 8/23/2002 2005 Existing PM Peak Hour The Transpo Group

	+ د	*_	۲	-	-*	*	۲	4	\	1	2		*	Ł	*	/	6	*	
Movement	NBL NB	- NBR	SBL	SBT	SBR	NEL	NET	NER	SWL S	WT S	NR	Movement	BN	L NBF	SET	SER	NWL	NWT	
Lane Configurations				+						+		Lane Configuratio	suc					*	
Sign Control	Stop	~		Stop			Free			ree		Sign Control	Sto	a	Stop			Free	
Grade	60			%0			%0			%0		Grade	õ	%	%0			%0	
Volume (veh/h)	0	0	0	226	0	0	0	0	0	630	0	Volume (veh/h)	J	4	0	0	0	800	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81).81 (.81	Peak Hour Factor	.0.8	9 0.8	0.89	0.89	0.89	0.89	
Hourly flow rate (vph)	0	0	0	279	0	0	0	0	0	778	0	Hourty flow rate (V	(hav) 10	9	0	0	0	899	
Pedestrians												Pedestrians	· · · · ·						
ane Width (#)												I and Width (ft)							
Malking Speed (#/c)												Malking Speed /#	·/e/						
													len						
Percent blockage													1						
Right turn flare (ven)	:											Right turn hare (V	en)						
Median type	Non	0		None								Median type	Nor	e	None				
Median storage veh)												Median storage v	eh)						
Upstream signal (ft)												Upstream signal ((Ħ)						
pX, platoon unblocked												pX, platoon unblo	cked						
vC. conflicting volume	917 778	0	778	778	778	778			0			vC. conflicting vol.	ume 89	6	53	0	0		
vC1 stage 1 conf vol												vC1 stade 1 conf	Nol			•	•		
C stare 2 conf vol												VC2 stade 2 conf							
VOL, stage z com vol	770		770	770	770	770			c			WCH Hablachad W		0	53	C	C		
Cu, unblocked vol	10 01		011	011	011								5		3 6	0 0			
C, single (s)	1.2 0.	0.0	7.1	0.0	0.0	4 .			4.4			tC, Single (s)	٥	0	7.1 0	0.0	4.4		
ic, z stage (s)			0			00						ic, z stage (s)							
tF (s)	3.6 4.	3.4	3.6	4.1	3.4	2.3			2.3			tF (s)	4	1 3.	3.6	4.1	2.3		
p0 queue free %	100 100	100	100	13	100	100			90			p0 queue free %	S	10(100	100	100		
cM capacity (veh/h)	63 32(1065	305	320	386	808			1578			cM capacity (veh/	(h) 27	1 106	5 647	882	1578		
Direction - coc +	1010 1 0												Q	A NIAL					
Ulrection, Lane #												Ulfection, Lane #	GN	MAN					
Volume Total	279 77	~										Volume Total	10	68 89					
Volume Left	0	~										Volume Left		ر 0	~				
Volume Right	0	_										Volume Right		0 89	~				
HSO	320 1700											HSS	72	1 1700	_				
Volume to Capacity	187 04											Volume to Canaci	ity 0.3	020					
Outility to capacity													11 /11 /11						
													11 (II) 11	4					
Control Delay (s)	0.1 0.	_										Control Delay (s)	.70	5 U.I					
Lane LOS	ш											Lane LOS		0					
Approach Delay (s)	30.1 0.0	~										Approach Delay (s) 26.	5 0.(_				
Approach LOS	ш											Approach LOS		0					
interestion Common												Interestion Crime							
Intersection Summary												Intersection Sumi	mary						
Average Delay		15.9										Average Delay			2.8				
Intersection Capacity Utili.	ation	54.2%		ICU Lev	el of Ser	vice		4				Intersection Capa	ncity Utilizati	u	56.6%	-	CU Lev	vel of Service	в
Analysis Period (min)		15										Analysis Period (r	min)		15				

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Sync.

Prineville TSP 5.00 pm 8/23/2002 2005 Existing PM Peak Hour The Transpo Group

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	y - 0	<u>ج</u>		y - 0	æ	0001		'	* _ 0		' ¥	K _ 00,
Total Flow (vpnpl)	0081	1800	1800	1800	1800	1800	1800	001	1800	1800	0081	
	, t	- - - - -		⁴	⁴ ⁴			1 10	⁴ ⁴		⁺	4 t
Edite Ouil. I actor	1.00	0.99		1.00	0.99			1.00	0.85		00.1	0.85
Fit Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.97	1.00
Satd. Flow (prot)	1319	1380		1319	1377			1383	1227		1397	1227
Flt Permitted	0.29	1.00		0.27	1.00			0.83	1.00		0.84	1.00
Satd. Flow (perm)	405	1380		377	1377			1197	1227		1213	1227
Volume (vph)	89	767	32	37	716	41	9	Ł	38	14	7	73
Peak-hour factor, PHF	06.0	0.90	06.0	0.90	0.90	06.0	0.90	06.0	0.90	0.90	0.90	0.90
Adj. Flow (vph)	66	852	36	41	796	46	2	-	42	16	ω	8
RTOR Reduction (vph)	0	1	0	•		0	0	0	37	0	0	72
Lane Group Flow (vpn)	66	88/		4	841		0	χ,	0	0	24	5
Heavy Venicles (%) Parking (#/hr)	۲ 2%	°°°	2% 2%	۵% ۵%	۲% ۵%	ۍ% ۵	°1%	%L 0	°1%	%L	%	%L
			>									
I urn Type	Perm	c		Чеш	¢		Herm	c	Perm	Perm		Perm
Protected Phases	c	N		¢	9		c	x	c	•	4	
Permitted Phases		0 11		0 11	0 12		æ	101		4	101	4 4
Actuated Green, G (S) Effective Green g (c)	71.0	71.0		71.0	71.0				- 01			10.1
		0000		0000	0000							
Actuated g/C Ratio	0.00	0.80		0.80	0.00							
Vehicle Extension (s)	0.0 0.0	0. 0		0. C	0. 0			0 0	0 0		0.0	4 m
I ane Grn Can (vnh)	324	1102		301	1100			134	138		136	138
v/s Ratio Prot		c0.64			0.61							
v/s Ratio Perm	0.24			0.11				0.01	0.00		c0.02	0.01
v/c Ratio	0.31	0.80		0.14	0.76			0.06	0.03		0.18	0.07
Uniform Delay, d1	2.4	5.1		2.0	4.7			35.7	35.6		36.2	35.7
Progression Factor	1.00	1.00		1.23	0.90			1.00	1.00		1.00	1.00
Incremental Delay, d2	2.4	6.3		0.7	9.9 9.9			0.2	0.1		0.6	0.2
Delay (s)	4.8	11.4		3.2	8.1 8			35.9	35.7		36.8	35.9
Level of Service	∢	20 2		∢	A C			25.7	2		1 20	2
Applicaci Delay (s)		2.0			י א			1.00			- 00	
Approacn LUS		n			¥			ב			ב	
Intersection Summary												
HCM Average Control De	elay		11.4	Ì	CM Lev	el of Ser	vice		ш			
HCM Volume to Capacity	y ratio		0.73									
Actuated Cycle Length (s	s)		90.0	Ñ	al lo mu	st time (s)		8.0			
Intersection Capacity Util	lization		6.3%	9	:U Leve	l of Serv	ice					
			2									

HCM Signalized Intersection Capacity Analysis

: OR 126 & Deer St	treet	5			,						6/22	/2005
	٩	t	۴	1	ŧ	~	4	-	٠	٠	-	\mathbf{F}
lovement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
ane Configurations	۴	÷		۶	÷			ф ф			¢₽	
leal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
otal Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
ane Util. Factor	1.00	1.00		1.00	1.00			0.95			0.95	
t	1.00	0.99		1.00	0.99			0.98			0.95	
It Protected	0.95	1.00		0.95	1.00			0.97			0.98	
atd. Flow (prot)	1466	1370		1466	1380			2753			2711	
It Permitted	0.35	1.00		0.26	1.00			0.67			0.71	
atd. Flow (perm)	536	1370		395	1380			1896			1955	
olume (vph)	44	726	69	13	602	26	176	68	36	20	82	74
eak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
dj. Flow (vph)	46	764	73	14	634	27	185	72	38	74	86	78
TOR Reduction (vph)	0	e	0	0	-	0	0	14	0	0	63	0
ane Group Flow (vph)	46	834	0	14	660	0	0	281	0	0	175	0
eavy Vehicles (%)	5%	5%	5%	5%	5%	5%	1%	1%	1%	1%	1%	1%
arking (#/hr)		0			0			0			0	
um Type	Perm			Perm			Perm			Perm		
rotected Phases		9			2			ω			4	
ermitted Phases	9			2			∞			4		
ctuated Green, G (s)	65.1	65.1		65.1	65.1			16.9			16.9	
ffective Green, g (s)	65.1	65.1		65.1	65.1			16.9			16.9	
ctuated g/C Ratio	0.72	0.72		0.72	0.72			0.19			0.19	
learance Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
ehicle Extension (s)	3.5	3.5		3.5	3.5			2.5			2.5	
ane Grp Cap (vph)	388	991		286	968			356			367	
s Ratio Prot		c0.61			0.48							
s Ratio Perm	0.09			0.04				c0.15			0.09	
c Ratio	0.12	0.84		0.05	0.66			1.10dl			0.48	
niform Delay, d1	3.8	8.8 8		3.6	6.6			34.9			32.6	
rogression Factor	1.17	06.0		0.62	1.41			1.00			1.00	
cremental Delay, d2	0.4	5.6		0.2	1.8			10.7			0.7	
elay (s)	4.8	13.5		2.4	11.1			45.6			33.3	
evel of Service	۷	ш		۷	в			۵			U	
pproach Delay (s)		13.1			10.9			45.6			33.3	
pproach LOS		Ю			ш			۵			U	
Itersection Summary												
CM Average Control D	elav		19.3	Ĩ	CM Lev	el of Se	rvice		m			
CM Volume to Capacity	y ratio		0.83									
ctuated Cycle Length (s	s)		0.06	ดิ	um of lo	st time	(s)		8.0			
tersection Capacity Uti	lization		%0.67	2	SU Leve	l of Sen	/ice		۵			
nalysis Period (min)			15									
Defacto Left Lane. F	Recode	with 1 t	hough la	ane as a	a left lan	ē.						
Critical Lane Group												

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Movement EBL EBT EBR V Lane Configurations 1 <	WBL	ţ	•	~	` ←	-	→ ,	•	↑	/* +
Lane Configurations F b Ideal Flow (vphpl) 1800 1800 1800 1 Total Lost time (s) 4.0 4.0 Lane Utit. Factor 1.00 0.97 Frt Protected 0.95 1.00 3146 1 Satd. Flow (prot) 1319 1346 1 Ft Permitted 0.23 1.00 2301 1300 13201 1319 1346 1 Ft Permitted 0.23 1.00 2301 1300 13201 1310 13201 1300 1300	¥	VBT WE	BR N	3L NE	IT NBI	R SB.	- SB1	SBR	Movement EBL EB1	BT EBI
Ideal Flow (vphpl) 1800 <td>-</td> <td><u>م</u></td> <td></td> <td>~</td> <td><u>ب</u></td> <td></td> <td>je star</td> <td></td> <td>Lane Configurations</td> <td>ب</td>	-	<u>م</u>		~	<u>ب</u>		je star		Lane Configurations	ب
Total Lost time (s) 4.0 4.0 Lane Util. Factor 1.00 0.97 Fit Protected 0.36 1.00 Satu. Flow (prot) 1319 1346 Fit Permitted 0.23 1.00 Satu. Flow (prot) 1319 1346 Volume (vph) 326 1.30 Peak-hour factor, PHF 0.35 0.95	1800	1800 18	00 18	00 18	00 180	0 180	0 1800	1800	Ideal Flow (vphpl) 1800 1800	00 180
Lane Util. Factor 1.00 1.00 Fr Protected 0.95 1.00 Satd. Flow (prot) 1319 1346 Fr Permitted 0.23 1.00 Satd. Flow (perm) 326 1346 Satd. Flow (perm) 326 1346 Peak-hour factor, PHF 0.95 0.95 0.95	4.0	4.0	4	0.	0.	4	0.4.0	~	Total Lost time (s) 4.0 4.0	0.4
Frt Protected 0.97 0.97 Fit Protected 0.95 1.00 Satd. Flow (prot) 1319 1346 1 Satd. Flow (perm) 326 1346 Satd. Flow (perm) 326 1346 Volume (vph) 131 512 131 Peak-hour factor, PHF 0.95 0.95 0.95	1.00	1.00	1.	00 1.1	0	1.0	0 1.00	~	Lane Util. Factor 1.00 1.00	00
Fit Protected 0.95 1.00 0 Satd. Flow (prot) 1319 1346 1 Fit Permitted 0.23 1346 1 Satd. Flow (perm) 326 1346 1 Satd. Flow (perm) 326 1346 1 Volume (vph) 131 512 131 Peak-hour factor, PHF 0.95 0.95 0.95	1.00	0.98	÷	50 0.0	76	1.0	0.96 0.96	6	Frt 1.00 1.00	00
Satu Flow (prot) 1319 1346 1 Fit Permitted 0.23 1.00 1 Satur Flow (perm) 326 1346 1 Volume (vph) 131 512 131 Peak-hour factor, PHF 0.95 0.95 0.95	0.95	1.00	0.	95 1.1	0	0.9	5 1.00	~	Fit Protected 0.95 1.00	00
Fit Permitted 0.23 1.00 1 Satd. Flow (perm) 326 1346 131 512 131 Peak-hour factor, PHF 0.95 0.95 0.95 0.95 109 10	1466	1361	14	36 14	66	131	3 1480	~	Satd. Flow (prot) 1466 1382	82
Satd. Flow (perm) 326 1346 Volume (vph) 131 512 131 Peak-hour factor, PHF 0.95 0.95 0.95	0.37	1.00	.0	23 1.	0	0.4	0 1.00	~	Flt Permitted 0.36 1.00	00
Volume (vph) 131 512 131 Peak-hour factor, PHF 0.95 0.95 0.95	570	1361	Ś	50 14	99	55	3 1480		Satd. Flow (perm) 558 1382	82
Peak-hour factor, PHF 0.95 0.95 0.95	34	503	76 .	48 2	5 5	6 0	0 273	3 102	Volume (vph) 24 685	89 2
	0.95	0.95 0.	95 0.	95 0.1	95 0.9	5 0.9	5 0.95	5 0.9 5	Peak-hour factor, PHF 0.98 0.98	98 0.9
Adj. Flow (vph) 138 539 138	36	529	80	51 2	26 5	0 0	5 287	107	Adj. Flow (vph) 24 70;	03 2
RTOR Reduction (vph) 0 10 0	0	ß	0	0	0	0	16	5	RTOR Reduction (vph) 0	~
Lane Group Flow (vph) 138 667 0	36	604	0	51 21	60	0	378	ۍ ۳	Lane Group Flow (vph) 24 72	25
Parking (#/hr) 0 0		0	0					5	Heavy Vehicles (%) 5% 5%	5% 5%
Turn Type pm+pt P	Perm		Pel	E		Perr	F		Parking (#/hr)	0
Protected Phases 5 2		9			8		4	_	Tum Type Perm	
Permitted Phases 2	9			ω			4		Protected Phases (9
Actuated Green, G (s) 57.1 57.1	45.5	45.5	24	.9 24	6	24.	9 24.5	~	Permitted Phases 6	
Effective Green, g (s) 57.1 57.1	45.5	45.5	24	.9 24	<u>о</u>	24.	9 24.9		Actuated Green, G (s) 70.8 70.8	0.8
Actuated g/C Ratio 0.63 0.63	0.51	0.51	0	28 0.1	8	0.2	3 0.25	~	Effective Green, g (s) 70.8 70.8	0.8
Clearance Time (s) 3.0 4.0	4.0	4.0	4	0.	0.	4	0 4.0	~	Actuated g/C Ratio 0.79 0.75	79
Vehicle Extension (s) 3.0 2.0	2.0	2.0	0	0.0	0.	-,-	5 1.5		Clearance Time (s) 4.0 4.0	t.0
Lane Grp Cap (vph) 291 854	288	688		97 4	5	15	4 409	~	Vehicle Extension (s) 3.5 3.4	3.5
v/s Ratio Prot 0.04 c0.50	0	0.44		ö	8		c0.26	<i>(</i> 0	Lane Grp Cap (vph) 439 108;	87
v/s Ratio Perm 0.26	0.06		Ö	15		0.1	2		v/s Ratio Prot c0.52	52
v/c Ratio 0.47 0.78	0.12	0.88	 0	53 0.0	35	0.6	2 0.92	~	v/s Ratio Perm 0.04	
Uniform Delay, d1 10.4 11.9	11.7	19.8	27	.6 28	.7	28.	4 31.6	(0)	v/c Ratio 0.05 0.61	67
Progression Factor 0.67 0.79	0.77	0.90		00	Q	1.0	0.1.00	~	Uniform Delay, d1 2.1 4.5	1.3
Incremental Delay, d2 0.7 4.2	0.7	12.5	4)	5	ъ.	Ω.	1 26.1		Progression Factor 1.40 1.80	80
Delay (s) 7.7 13.6	9.8	30.3	32	.6 32	сi і	33.	5 57.1		Incremental Delay, d2 0.2 2.4	4
Level of Service A B	A	C		C	C				Delay (s) 3.2 10.2	0.2
Approach Delay (s) 12.6		29.2		32	Ņ		53.(_	Level of Service A E	m
Approach LOS B		ပ			c				Approach Delay (s) 10.0	0.0
Intersection Summary									Approach LOS	A
HCM Average Control Delay 28.8	H	M Level c	of Servic	e		0			Intersection Summary	
HCM Volume to Capacity ratio 0.90									HCM Average Control Delay	14.
Actuated Cycle Length (s) 90.0	Su	m of lost t	ime (s)		12.	0			HCM Volume to Capacity ratio	0.6
Intersection Capacity Utilization 95.1%	<u>ว</u> ี	J Level of	Service			_			Actuated Cycle Length (s)	.06
Critical Lana Group									Analysis Dariod (min)	04.0 7
									c Critical Lane Group	-

Analysis

): OR 126 & Elm S	treet	-									6/22	2005
	1	Ť	۲	>	Ŧ	~	4	+	٠	٦	-	
ovement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
ne Configurations	٢	÷		*	æ,			ф ф			¢ţ.	
eal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
ital Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
ne Util. Factor	1.00	1.00		1.00	1.00			0.95			0.95	
-t-	1.00	1.00		1.00	1.00			0.97			0.97	
: Protected	0.95	1.00		0.95	1.00			0.98			0.97	
atd. Flow (prot)	1466	1382		1466	1383			2754			2730	
: Permitted	0.36	1.00		0.34	1.00			0.78			0.74	
ttd. Flow (perm)	558	1382		525	1383			2188			2070	
olume (vph)	24	689	23	15	652	17	51	73	35	109	38	35
eak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
ij. Flow (vph)	24	703	23	15	665	17	52	74	36	111	39	36
FOR Reduction (vph)	0	-	0	0	-	0	0	32	0	0	29	0
ne Group Flow (vph)	24	725	0	15	681	0	0	130	0	0	157	0
eavy Vehicles (%)	5%	5%	5%	5%	5%	5%	1%	1%	1%	1%	1%	1%
arking (#/hr)		0			0			0			0	
im Type	Perm			Perm			Perm			Perm		
otected Phases		9			0			ω			4	
ermitted Phases	9			2			∞			4		
stuated Green, G (s)	70.8	70.8		70.8	70.8			11.2			11.2	
fective Green, g (s)	70.8	70.8		70.8	70.8			11.2			11.2	
stuated g/C Ratio	0.79	0.79		0.79	0.79			0.12			0.12	
earance Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
chicle Extension (s)	3.5	3.5		3.5	3.5			2.5			2.5	
ne Grp Cap (vph)	439	1087		413	1088			272			258	
s Ratio Prot		c0.52			0.49							
s Ratio Perm	0.04			0.03				0.06			c0.08	
c Ratio	0.05	0.67		0.04	0.63			0.48			0.61	
niform Delay, d1	2.1	4.3		2.1	4.0			36.7			37.3	
ogression Factor	1.40	1.80		1.00	1.00			1.00			1.00	
cremental Delay, d2	0.2	2.4		0.2	2.7			1.0			3.4	
elay (s)	3.2	10.2		2.3	6.8			37.7			40.7	
vel of Service	۷	в		۷	۷			۵			۵	
proach Delay (s)		10.0			6.7			37.7			40.7	
pproach LOS		4			4							

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HCM Level of Service

Sum of lost time (s) ICU Level of Service

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	1	t	۲	٢	ŧ	~	•	•	•	۶	→	¥
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	٢	\$		٢	\$			¢			÷	
Sign Control		Free			Free			Stop			Stop	
Grade		%0			%0			%0			%0	
Volume (veh/h)	19	826	9	ω	200	4	ω	9	ω	9	о	15
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	23	983	7	10	833	S	10	7	10	7	7	18
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Unstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	838			066			1908	1889	987	1896	1890	836
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	838			066			1908	1889	987	1896	1890	836
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			66			77	89	97	84	8	95
cM capacity (veh/h)	784			686			42	68	302	46	68	369
Discotton I and #			10/01									
Ulrection, Lane #	- E E E	EB Z	MB I	WB Z	NB -	NB I						
Volume Total	23	066	10	838	26	36						
Volume Left	23	0	10	0	10	7						
Volume Right	0	7	0	2	10	18						
cSH	784	1700	686	1700	72	98						
Volume to Capacity	0.03	0.58	0.01	0.49	0.36	0.36						
Queue Length 95th (ft)	2	0	-	0	34	36						
Control Delay (s)	9.7	0.0	10.3	0.0	80.8	61.1						
Lane LOS	۷		ш		ш	ш						
Approach Delay (s)	0.2		0.1		80.8	61.1						
Approach LOS					ш	ш						
Intercection Summan												
			2									
Average Delay			2.4	-		0.			C			
Intersection Capacity U	ulization	.,	00.3%	2	U Leve	I OT SEL	lice		מ			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis 12: OR 126 & Knowledge Street

12: OR 126 & Knowl	edge (Street					6/22/2005
	t	۲	1	ŧ	•	×.	
Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	÷		۶	*	×		
Sign Control	Free			Free	Stop		
Grade	%0			%0	%0		
Volume (veh/h)	717	26	59	525	51	44	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	779	28	64	571	55	48	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type					None		
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked							
vC, conflicting volume			808		1492	793	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol			808		1492	793	
tC, single (s)			4.1		6.4	6.2	
tC, 2 stage (s)							
tF (s)			2.2		3.5	3.3	
p0 queue free %			92		55	88	
cM capacity (veh/h)			805		123	384	
Direction, Lane #	EB 1	WB 1	WB 2	NB 1			
Volume Total	808	64	571	103			
Volume Left	0	64	0	55			
Volume Right	28	0	0	48			
cSH	1700	805	1700	180			
Volume to Capacity	0.48	0.08	0.34	0.58			
Queue Length 95th (ft)	0	9	0	77			
Control Delay (s)	0.0	9.9	0.0	49.2			
Lane LOS		۷		ш			
Approach Delay (s)	0.0	1.0		49.2			
Approach LOS				ш			
Intersection Summary							
Average Delay			3.7				
Intersection Capacity Uti	lization	Ū	30.8%	0	:U Leve	of Service	В
Analysis Period (min)			15				

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	۶	æ,		۴	¢.			¢			¢	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frt	1.00	0.95		1.00	0.99			0.97			0.97	
Fit Protected	0.95	1.00		0.95	1.00			0.98			0.99	
Satd. Flow (prot)	1629	1631		1629	1696			1690			1715	
FIt Permitted	0.35	1.00		0.29	1.00			0.82			0.91	
Satd. Flow (perm)	606	1631		491	1696			1415			1572	
Volume (vph)	31	347	166	104	419	31	93	87	59	42	142	51
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	35	390	187	117	471	35	104	98	99	47	160	57
RTOR Reduction (vph)	0	8	0	0	9	0	0	25	0	0	21	0
Lane Group Flow (vph)	35	543	0	117	500	0	0	243	0	0	243	0
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	1%	1%	1%	1%	1%	1%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			9			ω			4	
Permitted Phases	2			9			ω			4		
Actuated Green, G (s)	17.9	17.9		17.9	17.9			14.1			14.1	
Effective Green, g (s)	17.9	17.9		17.9	17.9			14.1			14.1	
Actuated g/C Ratio	0.45	0.45		0.45	0.45			0.35			0.35	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Vehicle Extension (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lane Grp Cap (vph)	271	730		220	759			499			554	
v/s Ratio Prot		c0.33			0.30							
v/s Ratio Perm	0.06			0.24				c0.17			0.15	
v/c Ratio	0.13	0.74		0.53	0.66			0.49			0.44	
Unitorm Delay, d1	6.5	9.1		8.0	8.7			10.1			9.9	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.5	4.9		4.5	2.8			1.6			1.2	
Delay (s)	6.9	14.1		12.5	11.5			11.7			11.1	
Level of Service	4	B		ш	ш			ш			ш	
Approach Delay (s)		13.7			11.6			11.7			11.1	
Approach LOS		В			ш			В			ш	
Intersection Summary												
HCM Average Control D	elay		12.3	I I	CM Leve	el of Sei	rvice		в			
HCM Volume to Capacit	ty ratio		0.63									
Actuated Cycle Length ((S)		40.0	S	um of lo	st time ((s)		8.0			
ntersection Capacity Ut	ilization		75.5%	2	:U Level	of Serv	/ice		۵			
Analysis Period (min)			15									
Critical I and Groun												

HCM Unsignalized Ir 14: OR 126 & Laughl	iterseo in Roá	stion Ci ad	apacity	/ Anal)	/sis		6/22/2005
	ሻ	t	ŧ	¥	•	4	
Movement	EBL	EBT	WBT	WBR	SEL	SER	
Lane Configurations		*	÷		۶		
Sign Control		Free	Free		Stop		
Grade		%0	%0		%0		
Volume (veh/h)	0	285	332	24	65	0	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	
Hourly flow rate (vph)	0	324	377	27	74	0	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type					None		
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked							
vC, conflicting volume	405				715	391	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	405				715	391	
tC, single (s)	4.1				6.4	6.2	
tC, 2 stage (s)							
tF (s)	2.2				3.5	3.3	
p0 queue free %	100				81	100	
cM capacity (veh/h)	1138				393	651	
Direction, Lane #	EB 1	WB 1	SE 1				
Volume Total	324	405	74				
Volume Left	0	0	74				
Volume Right	0	27	0				
cSH	1700	1700	393				
Volume to Capacity	0.19	0.24	0.19				
Queue Length 95th (ft)	0	0	17				
Control Delay (s)	0.0	0.0	16.3				
Lane LOS			ပ				
Approach Delay (s)	0.0	0.0	16.3				
Approach LOS			U				
Intersection Summary							
Average Delay			1.5				
Intersection Capacity Util	ization	e	0.4%	<u>0</u>	U Level	of Service A	
Analysis Period (min)			15				

Prineville TSP 5:00 pm 8/23/2002 2005 Existing PM Peak Hour The Transpo Group

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Synchro 6 Report Page 13

Manual Manual<		,				-		
Montanti Large constrained (montanti constr		\$	-	È	•	→ ▲		
Configuration No	Movement	WBL W	BR NB	T	RS	3L SBT	Movement WBL WBR NBT NBR SBL SBT	
Bits: Bits: Fits: Bits: Bits: <th< td=""><td>Lane Configurations</td><td>r</td><td>*-</td><td>*</td><td>*</td><td>÷</td><td>Lane Configurations 😽 🔶 🎝</td><td></td></th<>	Lane Configurations	r	*-	*	*	÷	Lane Configurations 😽 🔶 🎝	
Marker Reserver Discrete Reserver <thdiscrete reserver<="" th=""> Discrete Reserver</thdiscrete>	Sign Control	Stop	Fre	е		Free	Sign Control Stop Free Free Free	
Matrix Matrix<	Grade	0%	5	%			Grade 0% 0% 0%	
Control Control <t< td=""><td>Volume (veh/h)</td><td>114</td><td>15 25 00 0.0</td><td>8 0</td><td>000</td><td>5 186 0 0.00</td><td>Doubline (VENIN) 52 59 614 59 20 453 Doubline Centry 52 59 614 59 20 453</td><td></td></t<>	Volume (veh/h)	114	15 25 00 0.0	8 0	000	5 186 0 0.00	Doubline (VENIN) 52 59 614 59 20 453 Doubline Centry 52 59 614 59 20 453	
Control Control <t< td=""><td>Heak Hour Factor</td><td>1.30 1</td><td>8.0 0.5 7</td><td></td><td>00 F</td><td>0 0.30 6 267</td><td></td><td></td></t<>	Heak Hour Factor	1.30 1	8.0 0.5 7		00 F	0 0.30 6 267		
Control Control <t< td=""><td>Podrofficere (vpr)</td><td>171</td><td>11 20</td><td>21</td><td>_</td><td>0 207</td><td></td><td></td></t<>	Podrofficere (vpr)	171	11 20	21	_	0 207		
Control Control <t< td=""><td>Pedestrians</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	Pedestrians							
Control Control <t< td=""><td>Lane Width (IL)</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	Lane Width (IL)							
Contraction Contraction <thcontraction< th=""> <thcontraction< th=""></thcontraction<></thcontraction<>	Vvalking Speed (T/S)						Valking Speed (tvs)	
Member (1) (1) (2) (2) (2) (2) (2) (2) (2) (2) (2) (2	Diabt turn flom (unb)							
Contain district Contain district<	Median tunn Itale (ven)	ouo						
Contraction Contraction <thcontraction< th=""> <thcontraction< th=""></thcontraction<></thcontraction<>	Median type							
Constrained Constrained <thconstrained< th=""> <thconstrained< th=""></thconstrained<></thconstrained<>	Inctroce ciccol (4)							
Circle Matching Lington State Zet Zet <td>Upsuream signal (II)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	Upsuream signal (II)							
Cr. restriction Cr. restrion Cr. restriction Cr. restricti	px, platoon unblocked		201		č			
Circle and or Circle	vc, conflicting volume	204	101		ž	3/		
Multication Solution	VC1, stage 1 cont vol							
Current can be a 2/ be	VCZ, stage 2 cont vol		10		č			
Function 1 2 4<	vCu, unblocked vol	504	287		Ñ	37	VCu, unblocked vol 1000 370 740	
TC 2 stage (s) 3 3 2 2 2 TC 2 stage (s) 3 3 3 2 2 Moreave free % 3 3 3 2 2 Moreave free % 3 3 3 3 2 Moreave free % 3 3 3 2 2 Moreave free % 3 3 3 3 2 Moreave free % 3 3 3 3 3 Moreave free % 3 3 3 3 3 More free % 3 3 3 3 3 More free % 3 3 100 10 3 100 More free % 3 3 100 10 3 100 More free % 3 100 12 0 0 2 0 More free % 3 100 12 10 10 10 10 More free % 3 100 12 10 10 10 10 More free % 3 100 12 10 10 10 10 More free % 3 100 10 10 10	tC, single (s)	6.4	6.2		4	-	tC, single (s) 6.8 6.9 4.1	
Dreate fresk 23 32 22 22 22 Dreate fresk 75 35 </td <td>tC, 2 stage (s)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>tC, 2 stage (s)</td> <td></td>	tC, 2 stage (s)						tC, 2 stage (s)	
Outdate level Sol <	th (S)	3.5	3.3		N 7	7. 9		
Interfacient 127 128 129 120 000 120 120 <t< td=""><td>pu queue rree %</td><td></td><td>20</td><td></td><td>= ; ;</td><td></td><td></td><td></td></t<>	pu queue rree %		20		= ; ;			
Direction Inst # NB1 NB1 NB1 SB1 SB2 Direction Line # NB1 NB1 NB1 SB1 SB2 Direction Line # NB1 NB1 NB1 SB1 SB2 Direction Line # NB1 NB1 NB1 SB1	civi capacity (ven/n)	676	70		2	o	GM Capacity (Vervin) 254 527 555	
Volume Total 127 17 287 153 6 207 332 333 3	Direction, Lane # V	VB 1 W	3.2 NB	1 NB	2 SB	1 SB 2	Direction, Lane # WB1 NB1 NB2 SB1 SB2	
Colume Left 127 0 0 0 0 0 0 22 0 0 22 0 <th0< th=""> 0 0</th0<>	Volume Total	127	17 28	7 15	1	6 207	Volume Total 122 450 290 188 332	
CHIME Right 0 17 0 151 0	Volume Left	127	0	0	0	6 0	Volume Left 57 0 0 22 0	
Coll S51 T00 T00 <td>Volume Right</td> <td>0</td> <td>17</td> <td>0 15</td> <td>1</td> <td>0 0</td> <td>Volume Right 65 0 65 0 0</td> <td></td>	Volume Right	0	17	0 15	1	0 0	Volume Right 65 0 65 0 0	
Volume to Capacity 024 002 017 003 020 017 003 020 017 003 020 000 020	cSH	525	52 170	0 170	0 12	75 1700	CSH 351 1700 863 1700 cSH	
Outere Length 35th (ft) 23 2 0 0 0 2 0 Control Deer(s) 14 0 0 0 13 0.0 0 13 0.0 Lane LOS B 0.0 0.0 7.8 0.0 0.0 1.3 0.0 Lane LOS B 0.0 0.0 1.3 0.0 0.5 Approach Deer(s) 2.0 Approach	Volume to Capacity	0.24 0	.02 0.1	7 0.0	0.0	0 0.12	Volume to Capacity 0.35 0.26 0.17 0.03 0.20	
Ominio Dely (s) 140 80 00 10 78 00 Lane LOS B A	Queue Length 95th (ft)	23	~	C	C	0 0	Queriel enorth 95th (ft) 38 0 0 2 0	
Lare LOS B A O O2 A Approach Delay 135 0 02 0 05 0 05 Approach Delay 135 0 02 0 05 0 05 Approach Delay 135 1 217% 100 05 0 05 Arerage Delay 27.7% 15 ICU Level of Service A A Average Delay 27.7% ICU Level of Service A A Average Delay 27.7% ICU Level of Service A A Average Delay 15 ICU Level of Service A A Average Delay 15 ICU Level of Service A A Average Delay 15 ICU Level of Service A A Average Delay 15 ICU Level of Service A A Analysis Period (min) 15 15 Intersection Capacity Unitation 42.3% ICU Level of Service Analysis Period (min) 15 16 16 A A A	Control Delay (s)	14.0	0 6 6	0	2 0	8 0.0	Control Delay (s) 206 0.0 0.0 1.3 0.0	
Approach Delay (s) 135 0.0 0.5 Approach Delay (s) 20.6 0.0 0.5 Approach Delay (s) 26 0.0 0.5 Approach Delay (s) 25 26 0.0 0.5 Arerage Delay 27.7% 1CU Level of Service A Analysis Period (min) 15 111/2 2.3% 1CU Level of Service Analysis Period (min) 15 111/2 2.3% 1CU Level of Service Analysis Period (min) 15 111/2 2.3% 1CU Level of Service Analysis Period (min) 15 15 111/2 2.3% 1CU Level of Service Analysis Period (min) 15 15 15 15 15	lane I OS	ď	Ā					
Approach Loss is up of the section Summary 2.5 Intersection Summary 2.3% ICU Level of Service A Analysis Period (min) 15 ICU Level of Service A Analysis Period (min) 15 ICU Level of Service A Printersection Capacity Utilization 2.7% ICU Level of Service A Printersection Capacity Utilization 2.0 ICU Level of Service A Printersection Summary 15 Intersection Summary 15 Intersection Capacity Utilization 2.0 ICU Level of Service A Printersection Capacity Utilization 2.7% ICU Level of Service A Printersection Capacity Utilization 2.0 ICU Level of Service A Pri		10 10		0	C			
Intersection Summary 2.5 Average Delay 2.5 Average Delay 2.7% Intersection Capacity Utilization 27.7% Intersection Capacity Utilization 15 Intersection Capacity Utilizatio	Approach LOS	с. С. Ш.	5	5	2	7	Approach Lord (s) 20.0 0.0 Approach LOS	
Intersection Summary Trereage Belay 2.6 Trereage Belay 2.0 Trereage Belay 2.0 Trereage Belay 2.0 Analysis Period (min) 15 Analysis Period (min								
Average Delay 2.5 Average Delay 2.0 Average Delay 2.77% ICU Level of Service A Analysis Period (min) 15 ICU Level of Service A Analysis Period (min) 15 ICU Level of Service A Analysis Period (min) 15 ICU Level of Service A Prinevile TSP 5:00 pm 8/23/2002 2005 Existing PM Peak Hour Synchro 6 Report Synchro 6 Report	Intersection Summary						Intersection Summary	
Intersection Capacity Utilization 27.7% ICU Level of Service A Analysis Period (min) 15 Service A Analysis Period (min) 15 Analysis Period (min) 15 Anal	Average Delay		ci	5			Average Delay 2.0	
Analysis Period (min) 15	Intersection Capacity Utili.	zation	27.79	%	ICUL	evel of Service A	Intersection Capacity Utilization 42.3% ICU Level of Service	A
Prineville TSP 5:00 pm 8/23/2002 2005 Existing PM Peak Hour Synchro 6 Report	Analysis Period (min)		-	5			Analysis Period (min) 15	
Prineville TSP 5:00 pm 8/23/2002 2005 Existing PM Peak Hour Synchro 6 Report								
Prineville TSP 5:00 pm 8/23/2002 2005 Existing PM Peak Hour Synchro 6 Report								
Prineville TSP 5:00 pm 8/23/2002 2005 Existing PM Peak Hour Synchro 6 Report								
Prineville TSP 5:00 pm 8/23/2002 2005 Existing PM Peak Hour Synchro 6 Report								
Prineville TSP 5:00 pm 8/23/2002 2005 Existing PM Peak Hour Synchro 6 Report Prineville TSP 5:00 pm 8/23/2002 2005 Existing PM Peak Hour Synchro 6 Report								
Prineville TSP 5:00 pm 8/23/2002 2005 Existing PM Peak Hour Synchro 6 Report								
	Dripovillo TCD 6:00 nm 0/	,		tin a DA	1000	Surden 6		Suchro & Deport
	The Transmo Group	2012102	כועם כטטי	ullig riv	L C G G L		Do REDOIT TITEVINE I DO DO DU DI OLZO ZUUZ ZUUZ ZUUZ EXISUIG TWI FEAN TUUL DO DO A E	OVIICIIIO O REPUIL Dare 16

HCM Signalized Intersection Capacity Analysis 17: 10th Street & Main Street

91 0.82 111

0.82 0

0.82 0

110 0.82 134

0.82 0

0.82 0

173 0.82 211

55 0.82 67

Peak Hour Factor Volume (veh/h)

Hourly flow rate (vph) Pedestrians

0.82 0%

Stop 0% 0.82 0.82

318

654

0.94 768

654

0.94 1690

0.94 1790

0.94 657

0.94 1579

0.94 1579

Lane Wuth (ft) Valking Speed (ft/s) Percent Blockage Right turn flare (veh) Median type Median torage veh) Upstream signal (ft) pX, platoon unblocked vC, conflicting volume vC1, stage 1 conf vol vC2, stage 2 conf vol vC3, stage 2 conf vol tC, stage (s) ff (s) ff (s) p0 queue free % p0 queue free %

None

None

2.2 100 933

2.2 83 808 SB 3

3.3 100 465 SB 2

4.0 69

3.5 100 25 NB 2

3.3 53 449

4.0 100 81

3.5 2 68

111 0 111 1700 0.07 0.0

1700 0.39 0.0

1700 0.00 0.00

1700 0.38 0.0

1700 0.00

278 67 211 192 1.45 424

808 0.17 15 10.3 B B 1.8

0

Volume to Capacity Queue Length 95th (ft) Control Delay (s)

0.0

0.0

a <mark>0.</mark> a

275.0 F 275.0

Approach Delay (s) Approach LOS

Lane LOS

657 0

000

654 0 0

134 134 0

Direction, Lane # Volume Total Volume Left Volume Right cSH

SB 1

NB 1

WB 1 000

EB 1

654 4.1

754 4.1

654 6.2

1731 6.5

1837 7.1

637 6.2

1614 6.5

1614 7.1

⁻ree 0% 539 0.82 0.82 657

6/22/2005

SBR ¥

SBT

SBI

aan

NBT ٠

WBR ⋞

> EBR ۴

EB ٩

Movement

Lane Configurations Sign Control

Grade

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٠

€ **B**

ŧ WBT

> 5 N N

t EBT

HCM Unsignalized Intersection Capacity Analysis 18: 9th Street & Main Street

17: 10th Street & Ma	ain Stre	set									6/22	/2005
	٩	t	۲	1	ŧ	~	4	+	•	۶	-	\mathbf{F}
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
-ane Configurations		÷	*		¢			đ.			đħ	
deal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		4.0	4.0		4.0			4.0			4.0	
-ane Util. Factor		1.00	1.00		1.00			0.95			0.95	
=n		1.00	0.85		0.99			0.99			0.98	
Fit Protected		0.96	1.00		0.97			0.99			1.00	
Satd. Flow (prot)		1710	1515		1719			3292			3273	
Flt Permitted		0.70	1.00		0.77			0.81			0.95	
Satd. Flow (perm)		1255	1515		1371			2682			3121	
Volume (vph)	143	27	147	43	26	4	66	374	28	2	321	60
Peak-hour factor, PHF	06.0	0.90	06.0	0.90	0.00	06.0	0.90	06.0	0.90	0.90	06.0	0.90
Adj. Flow (vph)	159	30	163	48	29	4	110	416	31	2	357	67
REDR Reduction (vph)	0	0	118	0	ო	0	0	9	0	0	19	0
-ane Group Flow (vph)	0	189	45	0	78	0	0	551	0	0	407	0
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	2%	2%	2%	2%	2%	2%
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		4			4			2			2	
Dermitted Phases	4		4	4			2			0		
Actuated Green, G (s)		12.1	12.1		12.1			23.3			23.3	
Effective Green, g (s)		12.1	12.1		12.1			23.3			23.3	
Actuated g/C Ratio		0.28	0.28		0.28			0.54			0.54	
Clearance Time (s)		4.0	4.0		4.0			4.0			4.0	
Vehicle Extension (s)		3.0	3.0		3.0			3.0			3.0	
-ane Grp Cap (vph)		350	422		382			1440			1676	
<pre>//s Ratio Prot</pre>												
<pre>//s Ratio Perm</pre>		c0.15	0.03		0.06			c0.21			0.13	
//c Ratio		0.54	0.11		0.20			0.38			0.24	
Jniform Delay, d1		13.3	11.6		12.0			5.9			5.4	
Progression Factor		1.00	1.00		1.00			1.00			1.00	
ncremental Delay, d2		1.7	0.1		0.3			0.2			0.1	
Delay (s)		15.0	11.7		12.2			6.0			5.4	
-evel of Service		۵	ш		۵			4			<	
Approach Delay (s)		13.5			12.2			6.0			5.4	
Approach LOS		В			В			A			A	
Intersection Summary												
HCM Average Control D.	elay		8.1	T	CM Lev	el of Se	rvice		۷			
HCM Volume to Capacit	y ratio		0.44									
Actuated Cycle Length (s)		43.4	S	um of Ic	ost time	(s)		8.0			
Intersection Capacity Uti	ilization		50.2%	9	SU Leve	l of Ser	vice		۷			
Analysis Period (min)			15									
c Critical Lane Group												

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Prineville TSP 5:00 pm 8/23/2002 2005 Existing PM Peak Hour The Transpo Group

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ICU Level of Service

42.4 60.8% 15

Average Delay Intersection Capacity Utilization Analysis Period (min)

Intersection Summary

Prineville TSP 5:00 pm 8/23/2002 2005 Existing PM Peak Hour The Transpo Group

19: NE / th Street & Mail	1 Stree				GNN7/77/Q	2U: NW /th Street & Mai	IN Street				٥	GNN7/77/0
*	∢	←	_		→	•	*	4	+	`≁		
Movement WB	_ WBF	R NBT	r NBF	R SE	SBT	Movement EB	SL EBR	NBL	NBT	SBT SBR		
Lane Configurations 🔰		¢T.			* 1	Lane Configurations	4	۶	*	¢		
Sign Control Sto	0	Free	(1)		Free	Sign Control Sto	d		Free	Free		
Grade 0%	, 0	%0	` 0		0%	Grade 0%	%		%0	0%		
Volume (veh/h) 4	4 17.	9 490	4	9 18	403	Volume (veh/h) 1:	3 10	10	539	398 5		
Peak Hour Factor 0.8	1 0.8	1 0.81	1 0.8	1 0.5	0.81	Peak Hour Factor 0.8	88 0.88	0.88	0.88	0.88 0.88		
Hourly flow rate (vph) 5	4 22	1 605	0	0 22	498	Hourly flow rate (vph) 1:	5 11	7	612	452 6		
Pedestrians						Pedestrians						
Lane Width (ft)						Lane Width (ft)						
Walking Speed (ft/s)						Walking Speed (ft/s)						
Percent Blockage						Percent Blockage						
Right turn flare (veh)						Right turn flare (veh)						
Median type Non	Ø					Median type Non	e					
Median storage veh)						Median storage veh)						
Upstream signal (ft)					860	Upstream signal (ft)			1300	960		
pX, platoon unblocked						pX, platoon unblocked						
vC, conflicting volume 158	7 63.	2		96		vC, conflicting volume 109	90 455	458				
vC1, stage 1 conf vol						vC1, stage 1 conf vol						
vC2, stage 2 conf vol						vC2, stage 2 conf vol						
vCu, unblocked vol 158	7 63	5		90		vCu, unblocked vol 109	0 455	458				
tC, single (s) 6.	4 6.	N		4		tC, single (s) 6.	.4 6.2	4.1				
tC, 2 stage (s)						tC, 2 stage (s)						
tF (s) 3.	3.	9		2		tF (s) 3.	.5 3.3	2.2				
p0 queue free % 3	ъ 9	4		2		p0 queue free % 9-	98 98	66				
cM capacity (veh/h) 9	0 473	ŝ		36		cM capacity (veh/h) 23	605	1103				
Direction Lane #	an			0		Diraction I and # EB	1 NR 1	C AN	5 a 1			
				1								
Volume Lotal 2/	00	177 9	49	20		Volume Lotal 2		612	458			
Volume Left 5	4	0 22	~	0		Volume Left 1:	5 11	0	0			
Volume Right 22	1	0	0	0		Volume Right 1	1	0	9			
cSH 25	8 170	0 924	4 170	Q		cSH 32	21 1103	1700	1700			
Volume to Capacity 1.0	7 0.3	9 0.25	5 0.2	6		Volume to Capacity 0.0	0.01	0.36	0.27			
Queue Lenath 95th (ft) 28.		0 24	+	0		Queue Length 95th (ft)	7 1	0	0			
Control Delav (s) 117.	7 0.0	0 10.2	0.0	0		Control Delav (s) 17.	2 8.3	0.0	0.0			
Lane LOS	11	ď	~			Lane LOS	A C					
Annroach Delay (c) 117	201	2.0				Annroach Dalay (s) 17	000		00			
Approach LOS	5	0.0	J			Approach LOS (4 U		0			
Intersection Summary						Intersection Summary		4				
Average Delay		20.5	m			Average Delay		0.5	-			
Intersection Capacity Utilizati	LC	65.3%		ICUL	vel of Service C	Intersection Capacity Utilizati	Ion	39.9%	<u> </u>	U Level of Se	ervice A	
Analysis Period (min)		16				Analysis Period (min)		15				

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Prineville TSP 5:00 pm 8/23/2002 2005 Existing PM Peak Hour The Transpo Group

Prineville TSP 5:00 pm 8/23/2002 2005 Existing PM Peak Hour The Transpo Group

MorenentEllEllEllMilWEINEI													
Movement EBL EBL EBL EBL MBL MB		1	t	۲	\$	ŧ	~	4	•	۲	۶	-	\mathbf{F}
ane Configurations 4	Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Bign Control Stop Stop Stop Free	ane Configurations		¢			¢		۶	÷		۶	÷	
Indef 0%	sign Control		Stop			Stop			Free			Free	
olume (veh/h) 23 37 70 14 60 83 119 239 125 50 338 oeak Hour Factor 0.92 <td< td=""><td>Brade</td><td></td><td>%0</td><td></td><td></td><td>%0</td><td></td><td></td><td>%0</td><td></td><td></td><td>%0</td><td></td></td<>	Brade		%0			%0			%0			%0	
eak Hour Factor 032	/olume (veh/h)	23	37	70	14	09	83	119	239	12	59	338	52
Joury flow rate (vph) 25 40 76 15 65 90 129 260 13 64 367 red with (f) re	eak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
edestrians ande Writh (h) Valk (b) None edestrians erent Blockage eledian storage veh) Nane Valk (b) eledian storage veh) petream signal (h) x, platon unblocked C, conficting volume C, conficting volume C, stage 1 conf vol C, stage 2 conf vol C, stage 1 conf vol C, stage 2 conf vol C, stage 2 conf vol C, stage 1 conf vol C, stage 1 conf vol C, stage 1 conf vol C, stage 2 conf vol C, stage 2 conf vol C, stage 1 conf vol C, stage 1 conf vol C, stage 1 conf vol C, stage 2 conf vol C, stage 2 conf vol C, stage 2 conf vol C, stage 3 so 3	fourly flow rate (vph)	25	40	76	15	65	06	129	260	13	6	367	57
ane Width (ft) Valking Speed (ft/s) Valking Speed (ft/s) Valking Speed (ft/s) Valking Speed (ft/s) Valking Speed (ft/s) Addition The for the form of the for	edestrians												
Valking Speed (fts) ereant Blockage feriotin flaer (veh) fedian storage veh) fedian storage veh) fedian storage veh) patrean storage veh patrean storage	ane Width (ft)												
ercent Blockage None	Valking Speed (ft/s)												
Ught turn flare (veh) None None 100 Redian type None 165 396 111 1077 266 424 273 X platon unblocked Configure 1165 1055 396 1117 1077 266 424 273 C1 stage to off vol 1165 1055 396 1117 1077 266 424 273 C1 stage to off vol 1165 105 396 1117 1077 266 424 273 C1 stage to off vol 1165 105 396 1117 1077 266 424 273 C2 stage (s) 71 6.5 6.2 4.1 4.1 4.1 C3 stage (s) 35 4.0 3.3 2.2 95 95 C1 stage to off vol 97 98 87 65 88 95 95 C1 stage to off vol 97 90 666 121 185 175 119 1273 C3 stage (s) 71 91 88 75 119 1273	ercent Blockage												
Indicate type None	tight turn flare (veh)												
Iedian storage veh) 302 pestream signal (t) 336 1117 1077 266 424 273 C. conflicting volumed 1165 1055 396 1117 1077 266 424 273 C.1 stage 1 conf vol C.2 stage 2 conf vol 7.1 6.5 6.2 7.1 6.5 6.2 4.1 4.1 C.1 stage 1 conf vol 7.1 6.5 6.2 7.1 6.5 6.2 4.1 4.1 C.2 stage (s) 7.1 6.5 6.2 4.1 6.5 6.2 4.1 6.1 4.1 C.2 stage (s) 7.1 6.5 7.5 119 7.5 119 7.7 C.2 stage (s) 7.1 6.5 8.1 1.6 3.8 8.8 8.8 95 C.3 stage (s) 117 170 2.7 6.4 2.7 2.2 C.3 stage (s) 17 185 7.5 119 1273 2.2 C.4 stage (s) 16 3.3 5.7 14 4.1 3.7 Outune free % <	fedian type		None			None							
ppstream signal (t) 302 X, platoon unblocked 115 1055 396 1117 1077 266 424 273 C1, stage 1 conf volu 1165 1055 396 1117 1077 266 424 273 C1, stage 1 conf vol 1165 1055 396 1117 1077 266 424 273 C1, stage 1 conf vol 1165 1055 336 1117 1077 266 424 273 C1, unblocked vol 1165 105 33 3.5 4.0 3.3 2.2 273 C1, stage 1 conf vol 74 79 88 87 65 88 88 95 C1(s) 35 4.0 3.3 2.2 2.2 2.2 2.3 C1(s) 35 190 656 121 185 7.5 1119 1273 1273 C1(s) 283 35 64 244 0 0 0 0	fedian storage veh)												
X, platoon unblocked X, platoon unblocked 273 C, conficting volume 1165 1055 396 1117 1077 266 424 273 C, stage z conf vol C1, stage z conf vol 165 6.2 7.1 6.6 4.1 4.1 C2, stage (s) 7.1 6.5 6.2 7.1 6.5 4.1 4.1 2, stage (s) 3.5 4.0 3.3 5.5 4.0 3.3 2.2 95 Cu, unblocked vol 1165 16.5 6.2 7.1 6.5 8.8 88 86 95 Cu, unblocked vol 116 7.1 6.5 6.2 4.1 4.1 4.1 2, stage (s) 3.5 4.0 3.3 2.2 88 95 95 M capacity (veh/h) 97 190 665 121 185 775 1119 1273 Irrection, Lane # EB1 WB1 NB1 NB2 SB1 58 170 95 Outwe Left 7 7 9.3 6.4 4.4 4.	Ipstream signal (ft)											302	
C. conflicting volume 165 1055 396 1117 1077 266 424 273 C1, stage 1 conf vol C1, stage 1 conf vol C1, stage 1 conf vol 273 273 C1, unblocked vol 1165 1055 396 1117 1077 266 424 273 C1, unblocked vol 1165 1055 396 1117 1077 266 424 273 C1, unblocked vol 71 6.5 6.2 7.1 6.5 6.2 4.1 4.1 2, single (s) 7.1 6.5 6.2 7.1 165 6.2 4.1 4.1 2, single (s) 7.7 190 656 121 185 755 1119 1273 2, single (s) 7.4 79 88 87 65 88 88 95 0 queue free % 77 185 775 1119 1273 1273 0 queue free % 75 113 775 123 1700 0 queue free % 75 123 770 0 0 0 unme Left 75 123 1700 123 1700 0 unme Left 75 119 1700 123 <td>X, platoon unblocked</td> <td></td>	X, platoon unblocked												
C1, stage 1 conf vol C2, stage 2 conf vol C3, stage 2 conf vol C4, 1, 16, 5, 6, 2, 7, 16, 5, 6, 2, 4, 1 C4, 3, 3, 2, 2, 2, 2 C4, 1, 17, 129, 273, 64, 424 C10, 120, 110, 120, 120, 1273, 1700 C10me Left, 25, 15, 129, 0, 64, 0 C10me Left, 25, 15, 129, 0, 25 C10me Left, 25, 15, 129, 120, 123, 1700 C10me Left, 25, 28, 110 C10me Left, 26, 28, 110 C10me Left, 26, 28, 100 C10me Lef	C, conflicting volume	1165	1055	396	1117	1077	266	424			273		
C2 stage 2 conf vol C4, unblocked vol 1165 1055 396 1117 1077 266 424 273 C4, unblocked vol 1165 1055 396 1117 1077 266 424 24 C4, unblocked vol 1165 1055 396 1117 0.2 22 C, 2 stage (s) 3.5 4.0 3.3 2.2 2.2 2 (s) 3.5 4.0 3.3 2.2 2.2 2 C (s) 3.5 4.0 3.3 2.2 2.2 2 C (s) 3.5 7.1 196 775 1119 1273 1273 C (s) 2.2 19 0 656 121 185 775 1119 1273 C (s) 2.2 19 0 64 424 C (unme Total 111 129 273 64 424 C (s) 2.2 171 129 273 64 424 C (s) 2.2 171 129 0 65 1273 1700 C (s) 2.2 171 129 0 64 05 C (s) 2.2 171 129 0 64 05 C (s) 2.2 171 129 0 65 0.25 C (s) 2.2 171 129 0 64 05 C (s) 2.2 171 129 0 64 0.5 C (s) 2.2 171 129 0 7 C (s) 2.2 171 1	C1, stage 1 conf vol												
Cu, unblocked vol 1165 1055 396 1117 1077 266 424 273 2, single (s) 7,1 6,5 6,2 7,1 6,5 6,2 4,1 4,1 2, 2 stage (s) 3,5 4,0 3,3 3,5 4,0 3,3 2,2 95 7 (s) 3,5 7,4 79 88 87 65 88 88 95 6 (s) 74 79 88 87 65 88 88 95 M capacity (veh/h) 97 190 666 121 185 75 1119 1273 M capacity (veh/h) 97 191 NB1 NB1 NB2 SB1 SB2 95 M capacity (veh/h) 97 190 666 121 185 75 1119 1273 M capacity (veh/h) 97 171 129 0 64 44 Olume Left 75 164 273 64 424 Olume Right 76 90 1273 1700 1273 Olume Right 75 84 0 0 0 Olume Right 88 170 1273 1700 <	C2, stage 2 conf vol												
3. single (s) 7.1 6.5 6.2 4.1 6.1 2. 2 stage (s) 3 3 5 6.2 4.1 4.1 2. 2 stage (s) 3 3 5 6.0 4.1 4.1 2. 2 stage (s) 3 3 5 6.0 2 2.2 0 queue free % 74 73 8.8 8.7 65 8.8 8.9 0 queue free % 74 79 8.8 65 121 185 775 119 1273 M capacity (veh/n) 97 190 656 121 185 78 95 olume Total 141 171 129 273 64 424 olume Right 76 90 0 137 1700 0lume Length 28 119 1700 1273 1700 0lume Length 28 8.6 0.0 8.0 0.0 61 242 287 119 1700 1273 1700 0lume Length 75 0.0 1273 1700 0.0 0.0 0lume Length 28 8.6 0.1 0.1 0.0 0.0 0lume Length 38	Cu. unblocked vol	1165	1055	396	1117	1077	266	424			273		
3. 2 stage (s) 3.5 4.0 3.3 3.5 4.0 3.3 2.2 (e) 3.5 4.0 3.3 3.5 4.0 3.3 2.2 2.2 0 queue free % 74 79 8.6 121 185 7.5 1119 1273 M capacity (ver/h) 71 190 6.66 121 185 7.5 1119 1273 M capacity (ver/h) 71 129 273 64 424 1273 olume Left 25 15 129 0 64 0 0 olume Right 76 90 0 13 0 57 1700 129 SH 242 0 0 120 123 1700 123 1700 olume I Capacity 0.58 0.10 0.73 1700 225 1700 othol Delay (s) 38 34.5 8.6 0.0 8.0 0.0 0.0 ontrol Delay (s) 38 34.5 2.8 1.0 0.0 0.0 0.0 0.0	C, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
(s) 3.5 4.0 3.3 3.5 4.0 3.3 2.2 D queue free % 74 79 88 87 65 88 88 95 Capacut (veh/h) 91 W1 NB 65 88 88 95 Ferction. Lane # EB WB NB NB NB 13 22 Glume Total 141 71 129 0 64 424 Olume Left 25 15 129 0 64 424 Olume Right 76 90 0 123 1700 Olume Right 76 90 123 1700 Olume Left 0.58 0.0 123 1700 Olume Right 78 34.5 8.6 0.0 8.0 Olume Left 23 34.5 0 4 Olume Left 38 34.5 2.8 1.10 Olume Left 38 34.5 2.8 1.00 Ontrol Delay (s) 38 34.5 2.8 1.0 A A A A A A A A A Dontrol Delay (s) 38 34.5	C, 2 stage (s)												
O queue free % 74 79 88 87 65 81 85 95 M capacity (veh/h) 97 190 656 121 185 775 1119 1273 irection. Lane # EB1 WB 1 NB 1 NB 2 SB 1 SB 2 1119 1273 olume Left 25 15 129 0 64 424 olume Right 76 90 133 1700 1233 1700 olume Right 76 90 0 123 1700 0 57 SH 242 287 1119 1700 1233 1700 olume Right 76 90 0.12 113 1700 0.55 0.56 SH 243 383 113 1700 1233 1700 0.56 Outme I Capacity UR 383 34.5 8.6 0.0 8.0 0.0 0.0 ontico I Delay (s) 383 34.5	(s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
M capacity (veh/n) 97 190 656 121 185 775 1119 1273 irrection, Lane # EB1 WB1 NB2 SB1 SB2 1273 1273 olume Total 141 171 129 273 64 424 120 1273 120 1273 120 1273 120 1273 120 1273 120 1273 120 1273 1203 120 1273 1203 120 1273 1203 120 119 120 1273 1203 120 1273 1203 120 1273 1203 120 1273 1203 1203 110 1273 1203 </td <td>0 queue free %</td> <td>74</td> <td>62</td> <td>88</td> <td>87</td> <td>65</td> <td>88</td> <td>88</td> <td></td> <td></td> <td>95</td> <td></td> <td></td>	0 queue free %	74	62	88	87	65	88	88			95		
Irrection. Lane # EB1 WB1 NB1 NB2 SB1 SB2 olume Total 141 171 129 273 64 424 olume Left 25 15 129 0 64 0 olume Right 25 15 129 0 64 0 olume Right 242 287 1119 170 123 1700 olume Right 242 287 113 100 123 1700 olume Right 242 287 113 170 123 1700 olume Right 243 287 113 0 57 olume Right 38.8 10 0.4 0 0 ontrol Delay (s) 38.8 345 2.8 1.0 0 proach LOS E D A A A proach LOS E D A A A proach LOS E D A <td>M capacity (veh/h)</td> <td>97</td> <td>190</td> <td>656</td> <td>121</td> <td>185</td> <td>775</td> <td>1119</td> <td></td> <td></td> <td>1273</td> <td></td> <td></td>	M capacity (veh/h)	97	190	656	121	185	775	1119			1273		
merodin total <	iroction and #		10/01			201	600						
oume form 12 17 129 0.04 4.24 olume Left 25 15 129 0 6 4.24 SH 76 90 13 6 57 0 SH 242 287 1119 1700 1233 1700 SH 242 287 1119 1700 1233 1700 olume to Capacity 0.58 0.60 0.12 0.16 0.05 0.25 ueue Length 95/h (ft) 38.3 34.5 8.6 0.0 8.0 0.0 ane LOS E D A A A A ane LOS E D A A A A protoch Delay (s) 38.3 34.5 2.8 1.0 0 0 ane LOS E D A A A A A pproach Lols 38.3 34.5 2.8 1.0 0 0	Il COUVIT, LATIC T		474										
oume Right 25 15 123 0 04 0 Olume Right 76 90 13 3 657 57 SH 242 287 1119 1700 1273 1700 Olume to Capacity 0.58 0.60 0.12 0.16 0.05 0.25 olume to Capacity 0.58 0.60 0.12 0.16 0.05 0.25 ueue Length 95th (ft) 83 89 10 0 4 0 ontrol Delay (s) 38.8 34.5 8.6 0.0 8.0 0.0 proach Delay (s) 38.8 34.5 2.8 1.0 A A proach Delay (s) 38.8 34.5 2.8 1.0 A A proach Delay (s) 38.8 34.5 2.8 1.0 A A proach LOS E D A A A A A A A A A A A <td>olume I otal</td> <td>. + .</td> <td></td> <td>671</td> <td>213</td> <td>8</td> <td>424</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	olume I otal	. + .		671	213	8	424						
olume Right 76 90 03 0 57 SH 242 287 113 100 253 1700 olume to Capacity 0.58 0.60 0.12 0.100 225 ueue Length 95th (ft) 83 0.60 0.12 0.100 255 ueue Length 95th (ft) 83 34.5 86 0.0 80 0.0 ontrol Delay (s) 38.8 34.5 86 0.0 80 0.0 procach Delay (s) 38.8 34.5 2.8 1.0 9.0 0.0 procach Delay (s) 38.8 34.5 2.8 1.0 9.0 0.0 procach Los E D A A A A procach Los E D A 10.0 A A A resolition Summary 10.8 10.8 10.8 A A A	olume Left	9 7	15	129	0	8	-						
SH 242 287 1119 1700 1273 1700 olume to Capacity 0.58 0.60 0.12 0.16 0.05 0.25 ucue Length 95th (t1) 83 89 1.0 0 4 0 ontrol Delay (s) 38.8 34.5 8.6 0.0 8.0 0.0 ane LOS E D A A 0 protech Delay (s) 38.8 34.5 2.8 1.0 pprotech Lols E D protech Lols E D rerestion Summary 10.8 tersection Capacity Utilization 52.5% ICU Level of Service A	olume Right	76	06	0	13	0	57						
olume to Capacity 058 060 0.12 0.16 0.05 0.25 ueue Length 95th (t) 83 89 10 0 4 0 montrol lealy (s) 38.8 34.5 8.6 0.0 8.0 0.0 ane LOS E D A A pproach Delay (s) 38.8 34.5 2.8 1.0 proach Delay (s) 38.8 34.5 2.8 1.0 reresection Summary 10.8 verage Delay 10.8 teresection Capacity Utilization 52.5% ICU Level of Service A	SH	242	287	1119	1700	1273	1700						
ueue Length 95th (ft) 83 89 10 0 4 0 ontrol Delay (s) 388 34.5 8.6 0.0 8.0 0.0 ane LOS 38 34.5 2.8 1.0 A A phorach Delay (s) 38 34.5 2.8 1.0 A A phorach LOS E D A A A A phorach LOS E D A A A A rersection Summary 10.8 10.8 10.8 A A A tersection Capacity Utilization 52.5% ICU Level of Service A A A	olume to Capacity	0.58	0.60	0.12	0.16	0.05	0.25						
ontrol Delay (s) 38.8 34.5 8.6 0.0 8.0 0.0 ane LOS E D A	iueue Length 95th (ft)	83	89	10	0	4	0						
ane LOS E D A A pproach Delay (s) 38.8 34.5 2.8 1.0 pproach LOS E D tersection Summary 10.8 verage Delay 10.8 tersection Capacity Utilization 52.5% ICU Level of Service A	ontrol Delay (s)	38.8	34.5	8.6	0.0	8.0	0.0						
pproach Delay (s) 38.8 34.5 2.8 1.0 pproach LOS E D tersection Summary 10.8 verage Delay 10.8 tersection Capacity Utilization 52.5% ICU Level of Service A	ane LOS	ш		∢		4							
pproach LOS E D tersection Summary 10.8 verage Delay 10.8 tersection Capacity Utilization 52.5% ICU Level of Service A	pproach Delay (s)	38.8	34.5	2.8		1.0							
tersection Summary verage Delay 10.8 tersection Capacity Utilization 52.5% ICU Level of Service A	pproach LOS	ш											
verage Delay 10.8 tersection Capacity Utilization 52.5% ICU Level of Service A	Itersection Summary												
tersection Capacity Utilization 52.5% ICU Level of Service A	verade Delav			10.8									
	tersection Capacity Ut	lization	-	52.5%	9	U Leve	of Serv	vice		A			
	nalveis Perind (min)			15	2		5	2					

HCM Unsignalized Ir 22: 5th Street & Mair	tersec	tion C. t	apacit	y Anal <u>y</u>	/sis						6/22	/2005
	1	t	۲	\$	ŧ	~	4	•	٠	٦	-	\mathbf{F}
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		¢			÷			÷			÷	
Sign Control		Stop			Stop			Free			Free	
Grade		%0			%0			%0			%0	
Volume (veh/h)	ო	0	5	-	0	46	-	242	9	87	321	4
Peak Hour Factor	0.90	06.0	0.90	0.88	0.90	0.88	0.90	0.88	0.88	0.88	0.88	0.90
Hourly flow rate (vph)	ო	0	9	-	0	52	-	275	7	66	365	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	898	849	367	851	848	278	369			282		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	868	849	367	851	848	278	369			282		
tC, single (s)	7.2	6.6	6.2	7.2	6.6	6.2	4.1			4.1		
tC, 2 stage (s)	1			1								
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	66	100	66	100	100	60	100			92		
cM capacity (veh/h)	225	271	672	258	272	753	1173			1264		
Direction, Lane #	EB 1	NB 1	NB 1	SB 1								
Volume Total	6	53	283	468								
Volume Left	e	-	-	66								
Volume Right	9	52	2	4								
cSH	385	724	1173	1264								
Volume to Capacity	0.02	0.07	0.00	0.08								
Queue Length 95th (ft)	2	9	0	9								
Control Delay (s)	14.6	10.4	0.0	2.3								
Lane LOS	ш	ш	∢	۷								
Approach Delay (s)	14.6	10.4	0.0	2.3								
Approach LOS	ш	ш										
Intersection Summary												
Average Delay			2.2									
Intersection Capacity Util	ization	LC)	0.4%	2	:U Leve	l of Sen	/ice		A			
Analysis Period (min)			15									

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		¢			¢		۴	£,		۴	£,	
Sign Control		Stop			Stop			Free			Free	
Grade		%0			%0			%0			%0	
Volume (veh/h)	13	10	4	9	5	196	0	28	80 L	246	31	10
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vpn)	17	13	5 2	x	7	261	D	37	11	328	41	13
Pedestnans												
Malking Coood (#16)												
Percent Blockade												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1006	752	48	752	753	43	55			48		
vC1, stage 1 conf vol												
VCZ, stage z cont vol	1006	760	01	760	750	5	5			10		
		90		100			3					
	7.1	0.0	7.0	7.1	0.0	0.2	.			÷		
tC, z stage (s) tF (s)	30	4.0	67 67	5	4.0	67 67	00			00		
n0 dilette free %	87	95	00	0.0	26	74	100			79		
cM capacity (veh/h)	132	264	1012	259	264	1019	1531			1540		
H and a shared		14/11 4										
Ulrection, Lane #		MB I	L SAN	NB Z	2B 1	SB Z						
Volume Total	36	276	0	48	328	55						
Volume Lett		2010	- C		328	о ç						
	0 00		004 1			0021						
Con to Connection	193	883		00/1	0401	00/1						
Volume to Capacity	0.18	1.0.0	0.00	0.03	1.7.0	0.03						
Control Delay (c)	11	40 CF										
	2	2	0.0	0.0	0.0	0.0						
Approach Delav (s)	27.9	10.9	0.0		6.8							
Approach LOS	۵	ю										
Intersection Summary												
Average Delav			6.8									
Intersection Capacity Ut	tilization	4	41.1%	2	SU Level	of Serv	/ice		۷			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis 24: 7th Street & Juniper Street

24: 7th Street & Juni	per St	reet					6/22/2005
	t	۲	1	ŧ	•	e.	
Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	¢.			÷	×		
Sign Control	Free			Free	Stop		
Grade	%0			%0	%0		
Volume (veh/h)	279	27	4	252	24	28	
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	
Hourly flow rate (vph)	358	35	18	323	31	36	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type					None		
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked							
vC, conflicting volume			392		734	375	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol			392		734	375	
tC, single (s)			4.1		6.4	6.2	
tC, 2 stage (s)							
tF (s)			2.2		3.5	3.3	
p0 queue free %			86		92	95	
cM capacity (veh/h)			1161		380	669	
Direction, Lane #	EB 1	WB 1	NB 1				
Volume Total	392	341	67				
Volume Left	0	18	31				
Volume Right	35	0	36				
cSH	1700	1161	495				
Volume to Capacity	0.23	0.02	0.13				
Queue Length 95th (ft)	0	-	12				
Control Delay (s)	0.0	0.6	13.4				
Lane LOS		A	ш				
Approach Delay (s)	0.0	0.6	13.4				
Approach LOS			œ				
Intersection Summary							
Average Delay			1. 4				
Intersection Capacity Util	lization	.,	36.1%	0	:U Leve	of Service	A
Analysis Period (min)			15				

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Movement EBL IMP WB SNR SNR SNR Lare Configurations Fae Post Non Post
Same Configurations A
Sign Control Free Stop
Grad Organization Organization <thorganization< th=""> Organization</thorganization<>
Volume featinity 40 233 316 12 323 400 15 338 400 15 338 400 15 338 400 15 338 400 15 338 400 15 10 29 Perestant Abouty flow rate (vph) 51 338 400 15 10 29 Perestant Lane World (ft) Median type None None None None None None Wedian type None
Peak Hour Factor 0.79 0.70 0.71
Hold Formult for the formult form form form form form form form form
Perent Boocardia Perent Boocardia Anaking Speed (fis) Anae With (f) Warking Speed (fis) Anae With (f) Warking Speed (fis) Been With (f) Warking Speed (fis) Been With (f) Warking Speed (fis) Been With (f) Warking Speed (fis) More Right turn flare (sei) None Median strage wh) None Median strage (s) Ber 100 C. Stage I cont vol 41 Molume I cont of a cont vol 41 Molume I cont of a cont vol 41 Molume I cont of a cont vol
Lare Worth (f) Lare Worth (f) Lare Worth (f) Value Speed (fs) Percent Blockage Right unr flare (vei) None Right unr flare (vei) Value Speed (fs) Right unr flare (vei) None None None None None Right unr flare (vei) None None None None None Median xporage vei) Upstream signal (f) None None None None Victor (x) vol (x) stage (x) 415 867 408 None None Victor (x) unblocked vol 415 867 408 None None Victor (x) unblocked vol 415 867 408 None None Victor (x) unblocked vol 415 867 408 None None Victor (x) 133 30 641 None None None Victor (x) 138 700 601 138 130 None Medparity (x) 31 22 35
Watting Speed (ifs) Main Speed (ifs) Right fum false (ver) None None Right wind fan storge ver) Median storge ver) None Median storge ver) Median storge None Median storge None None Median storge None None Upstream signal (f) None None US stages ver) S67 408 Oct. anaboted 415 867 408 Oct. stage 1 cont vol 415 867 408 Oct. stage 1 cont vol 415 867 408 Oct. stage (s) 4.1 6.4 6.2 0.5 Oct. stage (s) 4.1 6.4 6.2 0.5 Of appertitiee % 96 97 95 0.6 Of appertitee % 96 97
Percent Biockage None None None None Median type Median type None 415 None None Median type Median type None 415 None None None Median type Median type None 415 None N
Right turn fare (veh) None None Median storage veh) Median storage veh) Median storage veh) Median storage veh) Upstream signal (f) Up stream signal (f) Median storage veh) Median storage veh) Up stream signal (f) Up stream signal (f) Median storage veh) Median storage veh) Up stream signal (f) Up stream signal (f) Bef 7 408 Median storage veh veh VCL stage 1 conf vol 415 Bef 7 408 Median storage veh veh Median storage veh veh VCL storage (s) 41 6.2 C. storage (s) C. storage (s) C. storage (s) Median storage veh veh C. storage (s) 2 35 35 35 35 36 M capacity (reh/h) 1138 Mol 39 Median storage veh Median storage veh Median storage veh M capacity (reh/h) 1138 39 Median storage veh Median st
Median type None Model an type Model ant type Median type
Median storage veh) Median storage veh) Upstream signal (f) Upstream signal (f) VC, conflicting volume 415 867 408 VC VC, conflicting volume 415 867 408 VC VC VC, conflicting volume 415 867 408 VC VC VC VC, unblocked vol 415 867 408 VC
Upstream signal (ft) Wo Stream signal (ft) DX for Stage 1 conf woll 415 B67 408 VC
pX, platon unblocked 67 408 67 408 67 60<
wcc. conflicting volume 415 867 408 wcc. conflicting volume 415 867 408 wcc. conflicting volume 415 867 408 wcc. conflicting volume
vC1, stage 1 conf vol vC2, stage 2 conf vol vC2, stage 1 conf vol vC2, vC2, vC2, vC2, vC2, vC2, vC3, vC3, vC3, vC3, vC3, vC3, vC3, vC3
vc2. stage 2 conf vol 415 867 408 vc vc0. unblocked vol 415 867 408 vc vc0. unblocked vol 415 64 6.2 0.0 vc0. unblocked vol 415 6.4 6.2 0.0 vc0. unblocked vol 415 6.4 6.2 0.0 C0. stage (s) 4.1 6.4 6.2 0.0 FF (s) 2.2 3.5 3.3 0.0 0.0 Drection 1138 300 641 0.0 0.0 0.0 Direction 409 415 30 vc vc vc Volume Left 51 0 10 vc vc vc Volume Right 0 138 7.00 5.01 vc vc vc Volume Right 138 7.00 5.01 vc vc vc Volume Left 51 0 0 vc vc vc vc <tr< td=""></tr<>
vCu, unblocked vol 415 867 408 vCi CC, single (s) 4.1 6.4 6.2 0.0 CC, single (s) 2.2 3.5 3.3 0 FF (s) 2.2 3.5 3.3 0 p0 queue free % 96 97 95 0 p0 queue free % 96 97 95 0 of dume actiny (verhin) 1138 308 641 0 Direction. Lane # EB1 WB1 SW1 0 0 Oldme Faft 51 0 10 0 0 0 Oldme Faft 0 16 29 0 0 0 0 Volume Faft 0 16 10 0 0 0 0 0 Volume Faft 0 13 29 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
CC single (s) 4.1 6.4 6.2 (C. single (s) 2 35 33 9 (F. 2) 2 35 35 35 35 (F. 2) 2 35 35 35 36 (F. 2) 2 35 33 90 0 queue free % 96 97 95 00 0 queue free % 96 97 95 00 0 future lotal 1138 308 641 00 00 0 future lotal 409 415 39 Vol Vol Vol Volume left 0 15 29 Vol Vol Vol Vol Volume left 0 13 1700 501 Vol Vol Vol Volume left 0 15 29 Col Vol Vol Vol Vol Volume left 0 13 0 0 13 Vol Vol Vol
IC. 2 stage (s) 2.2 3.5 3.3 IF (s) 2.2 3.5 3.3 IP (s) 1.138 308 641 IP (s) 1.138 3.08 641 Volume Icat 409 415 39 Vol Volume Icat 51 0 10 Vol Vol Volume Icat 0 15 2.9 Vol Vol Volume Icat 0 1.5 2.9 Vol Vol Volume Icat 0 0 0.0 0.0 Vol Vol Volume Icat 1.14 0.0 1.28 Approach LOS A A Approach LOS 1.4 0.0 1.28 Approach LOS A A Approach LOS 1.4 0.0 1.4 0.0
IF (s) 2.2 3.5 3.3 0 queue free % 96 97 95 0 queue free % 96 97 95 CM capacity (verhn) 1138 308 641 Direction Lane # EB1 WB1 SW1 97 95 Outmet on Lane # EB1 WB1 SW1 Volume Left 51 0 Vol Volume Left 51 0 10 Volume Left 51 0 Vol Vol Volume Right 0 15 29 S
p0 queue free % 96 97 95 90 Mi capacity (ver/h) 1138 308 641 201 Direction. Lane # EB1 WB1 SW1 201 201 Direction. Lane # EB1 WB1 SW1 201 201 201 Direction. Lane # EB1 WB1 SW1 201 201 201 Volume Left 51 0 10 20 201 201 201 Volume Right 0 15 29 29 201 201 201 201 Volume Right 0 15 29 203 601 201 </td
CM capacity (verbh) 1138 308 641 Direction 1138 308 641 Direction 1138 Direction 1138 CM Direction Direction 1138 State Direction Direction Direction Lane # EB1 WB1 SW1 Vol <
Direction. Lane # EB1 WB1 SW1 Or Volume Total 409 415 39 Vol Vol Volume Left 51 0 10 Vol Vol Vol Volume Right 0 15 29 Vol Vol Vol Volume Right 0.4 0.24 0.08 Col Vol Vol CSH 1138 1700 501 Col Col Col Vol Volume to Capacity 0.04 0.24 0.08 Col
Volume Total 409 415 39 Vol Volume Left 51 0 10 Vol Volume Left 51 0 10 Vol Volume Left 51 0 10 Vol Volume Right 0 15 29 Vol Volume Rogacity 0.04 0.24 0.08 Vol Volume to Capacity 0.04 0.24 0.08 Col Volume to Capacity 0.04 0.24 0.08 Col Col Queue Length 95th (ft) 3 0 6 Col <
Volume Left 51 0 10
Volume Equt 0 15 29 Volume Equt 0 15 29 Volume Equt
CSH 1138 1700 501 CSN Volume to Capacity 0.04 0.24 0.08 Cu Cu Queue Length 95th (ft) 3 0 6 Cu Cu Cu Queue Length 95th (ft) 3 0 6 Cu Cu Cu Queue Length 95th (ft) 3 0 6 Cu Cu Cu Queue Length 95th (ft) 1.4 0.0 12.8 Cu Cu Cu Approach Delay (s) 1.4 0.0 12.8 Lane LOS B Approach Delay (s) 1.4 0.0 12.8 Lane LOS Approach LOS B Approach LOS Average Delay 1.3 Cu Los Co LOS Cu Average Delay 1.3 Average Delay Average Delay </td
Volume to Capacity 0.04 0.24 0.08 Volume to Capacity 0.04 0.24 0.08 Volume to Capacity 0.03 0.04 Volume to Capacity 0.03 0.04 Volume to Capacity 0.03 0.03 Volume to Capacity 0.03 0.03 Volume to Capacity 0.03 0.03 Volume to Capacity Volume to Capac
Quere Quere <td< td=""></td<>
Control Delay (s) 1.4 0.0 2.8 Control Delay (s) 1.4 0.0 2.8 Approach LOS A B Approach LOS Approach LOS 1.4 0.0 1.2.8 Approach LOS 1.4 0.0 1.8 Average Delay 1.3 Average Delay 1.3 Average Delay 1.3 Intersection Capacity Utilization 49.7%
Late LOS A B B B Late Los A B Late Los Approach Delay (s) 1.4 0.0 12.8 Approach LOS A B Approach LOS B Approach LOS B Approach LOS A A Approach Capacity Utilization 49.7% ICU Level of Service A A A A A A A A A A A A A A A A A A A
Approach Delay (s) 1.4 0.0 12.8 Approach LOS B Approach LOS Approach LOS B Approach LOS A
Approach LOS B Approach LOS B Approach LOS Approach LOS Approach LOS 1.3 Arrested Elevent A
Intersection Summary 1.3 Average Delay 1.3 Avera
Average Delay 1.3 Average Dela
Average Detay Intersection Capacity Utilization 49.7% ICU Level of Service A
Analysis Period (min) 15 An

Analycic 2it/ ĉ , cito alized Inters

10M Unsignalized I 6: 5th Street & Kno	wledge	e Stree	apacıı et	y Arial	ysis						6/22	/2005
	1	Ť	۲	\$	ŧ	~	•	+	۲	۶	-	\mathbf{F}
Aovement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
ane Configurations		¢			¢			÷			¢	
sign Control		Free			Free			Stop 002			Stop 002	
alaue	11		0	c	2	*	¢7	80	*	*	80	c
Polutine (ventrit)	C 68.0	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
lourly flow rate (vph)	17	6	7	0	e	-	15	25	-	-	36	6
edestrians												
ane Width (ft) Valking Speed (ft/s)												
ercent Blockage												
tight turn flare (veh)								Anna			Anna	
fedian type												
regram storage ven) Ipstream signal (ft)												
X, platoon unblocked												
C, conflicting volume	4			20			79	53	15	99	58	4
C1, stage 1 conf vol												
C2, stage 2 conf vol												
Cu, unblocked vol	4			20			79	53	15	99	58	4
C, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
C, 2 stage (s)												
= (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
0 queue free %	66			100			86 86	97	100	100	96	66
M capacity (veh/h)	1624			1602			867	832	1068	901	826	1083
hirection, Lane #	EB 1	WB 1	NB 1	SB 1								
olume Total	37	4	40	46								
olume Left	17	0	15	-								
olume Right	7	-	-	6								
SH	1624	1602	849	868								
olume to Capacity	0.01	0.00	0.05	0.05								
tueue Length 95th (ft)	-	0	4	4								
control Delay (s)	3.3	0.0	9.4	9.4								
ane LOS	A		∢	A								
pproach Delay (s)	3.3	0.0	9.4	9.4								
pproach LOS			A	۷								
Intersection Summary												
werage Delay			7.3									
Itersection Capacity Ut	ilization		24.0%	2	:U Leve	l of Sen	vice		A			
nalysis Period (min)			2									

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	٩	t	۲	4	ŧ	4	•	+	٠	۶	-	¥
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
-ane Configurations	r	÷		۶	÷			÷			÷	
Sign Control		Free			Free			Stop			Stop	
Grade		%0			%0			%0			%0	
/olume (veh/h)	15	229	28	12	123	20	28	ω	18	23	6	9
Deak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	17	260	32	14	140	23	32	6	20	26	10	7
^o edestrians												
ane Width (ft)												
Nalking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Jpstream signal (ft)												
oX, platoon unblocked												
/C, conflicting volume	162			292			489	500	276	498	505	151
/C1, stage 1 conf vol												
C2, stage 2 conf vol												
Cu, unblocked vol	162			292			489	500	276	498	505	151
C, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
.C, 2 stage (s)												
F (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
00 queue free %	66			66			6 93	98	97	94	86	66
sM capacity (veh/h)	1422			1275			471	463	765	457	461	898
Direction I and #	FR 1	FR 2	WR 1	WR 2	NR 1	SB 1						
Volumo Totol	7 7		4 4	1001	10	40						
Volume Total	- 1	787	, 4	701	5	40						
volume Lett	2	- 0	<u>+</u>	- <mark>8</mark>	25	07 r						
Volume Right	0	32		23	202	/						
SH	1422	1700	1275	1700	538	496						
/olume to Capacity	0.01	0.17	0.01	0.10	0.11	0.09						
Queue Length 95th (ft)	-	0	-	0	10	7						
Control Delay (s)	7.6	0.0	7.9	0.0	12.5	12.9						
-ane LOS	۷		۷		ш	ш						
Approach Delay (s)	0.4		0.6		12.5	12.9						
Approach LOS					ш	ш						
ntercection Summan												
Averade Delav			27									
ateresetion Conseit: 1 Hi	inction	C	1.2	2	one l l	of Con			<			
Analvsis Period (min)		•	15	2	ים רפעם		2		¢			

HCM Unsignalized I 28: Lynn Street & P;	nterse aulina	ction C Hwy (C	apacit	y Analy Flat R	∕sis d)	6/22/2	2005
	٩	۲	4	•	-	•	
Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	×			÷Ţ	÷		
Sign Control	Stop			Free	Free		
Grade	%0			%0	%0		
Volume (veh/h)	115	152	96	151	317	81	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	
Hourly flow rate (vph)	134	177	112	176	369	94	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type	None						
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked							
vC, conflicting volume	815	416	463				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	815	416	463				
tC, single (s)	6.4	6.2	4.1				
tC, 2 stage (s)							
tF (s)	3.5	3.3	2.2				
p0 queue free %	57	72	6				
cM capacity (veh/h)	313	639	1104				
Direction, Lane #	EB 1	NB 1	SB 1				
Volume Total	310	287	463				
Volume Left	134	112	0				
Volume Right	177	0	94				
cSH	441	1104	1700				
Volume to Capacity	0.70	0.10	0.27				
Queue Length 95th (ft)	134	ω	0				
Control Delay (s)	30.3	3.9	0.0				
Lane LOS	۵	∢					
Approach Delay (s)	30.3	3.9	0.0				
Approach LOS	۵						

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Prineville TS	The Transpo

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ICU Level of Service

9.9 <mark>63.4%</mark> 15

Intersection Summary Average Delay Intersection Capacity Utilization Analysis Period (min)

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		BR			c	0 88	0									70		70	6.2		3.3	100	202												of Service	
		NBL N	-	stop	%0	0 88 0 88	7					ano	200			94		94	6.4		3.5	66	202												Level o	
↓	Tav	VBT	•	-ree	%0	21	24					Z	-																						ICU	
		WBL V		-	c	0 88 0	0									76		76	4.1		2.2	100	0101	AB 1	- 1	~ c	903	0.01	-	0.0 ¢	A C	0.0 A		0.6	3.8%	15
		EBR			01	0.88	1																	VB 1	24	- -	1700	0.01	0	0.0	00	0.0			4	
		EBT	æ,	Free	%0	/c	65																	EB1 \	76	⊃ ;	1700	0.04	0	0.0	000	0.0			ization	
KORU &			suc				(hdv)			ft/s)	1	(ue)	(he)	(f t)	ocked	lume	f vol	ol Vol				141	(II)					sity	5th (ft)		1-1	(S)	marv		acity Util	
	•	nt	nfiguratio	itrol	1.11	ven/n) ir Facto	ow rate (ans	ith (ft)	Speed (1	Slockage	n nare (v	torade v	n signal	on unblo	icting vo	je 1 con	locked v	s (s)	je (s)	,	tree %		, Lane #	rotal 26	-ett	RIGHT	o Capac	ength 95	elay (s)	2	LOS	on Sum	Delay	on Capa	Period (
U. Lau		lovemer	ane Coi	ign Con	irade	olume (lourly flo	edestria	ane Wid	Valking :		dedian turi	ledian s	Ipstrean	X, plato	C, confli	C1, stag	Cu, unb	C, single	C, 2 stag	= (s)	0 queue	ivi capat	Direction	olume		SH	olume t	neue Le		ane LO	pproact	Itersecti	verage	Itersecti	nalysis
~1			_ "					-		- 1	L	_ <	_ <		<u> </u>	-		~ ~	-						-			-		-	_ *	~ ~		-	_	
0002/27/0																																			А	
	, 0	BR	R_			10	11									326		326	6.2		3.3	98	00/												nf Service A	
		SBL SBR	R_	Stop	0%	0 10 0 R8 0 R8	0 11									622 326		622 326	6.4 6.2		3.5 3.3	100 98	100												I Level of Service A	
		VBR SBL SBR	R.	Stop	0%	0 0 10 10 10 10 10 10 10 10 10 10 10 10	0 0 11					None				622 326		622 326	6.4 6.2		3.5 3.3	100 98	00/ 0 11	SB 1		5	708	0.02	÷	10.2	8	10.2 B			ICU Level of Service A	
	ממא דמא	WBT WBR SBL SBR	K	Free Stop	0%0 °°	28/ U U 10 D 88 D 88 D 88	326 0 0 11					None				622 326		622 326	6.4 6.2		3.5 3.3	100 98	00/ 0 11	WB 1 SB 1	326 11	5	1700 708	0.19 0.02		0.0 10.2	E C	0.0 10.2 B		0.3	5.9% ICU Level of Service A	<u>6</u>
	קרא איז אין דעאי דפא	EBT WBT WBR SBL SBR	₹	Free Free Stop		248 28/ 0 0 10 088 088 088 088	282 326 0 0 11					None				622 326		622 326	6.4 6.2		3.5 3.3	100 98		EB 2 WB 1 SB 1	282 326 11 2 2 2		1700 1700 708	0.17 0.19 0.02		0.0 0.0 10.2		0.0 10.2 B		0.3	25.9% ICU Level of Service A	5
		EBL EBT WBT WBR SBL SBR	k.	Free Free Stop		0 248 28/ 0 0 10 088 088 088 088 088	7 282 326 0 0 11					None				326 622 326		326 622 326	4.1 6.2		2.2 3.5 3.3	99 100 98	00/ C+++ // // // // // // // // // // // //	EB1 EB2 WB1 SB1	7 282 326 11 7 2 2 2 2 0 2	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1217 1700 1700 208	0.01 0.17 0.19 0.02		8.0 0.0 0.0 10.2	B B	0.2 0.0 10.2 B		0.3	ization 25.9% ICU Level of Service A	ς.

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2025 No-Build Traffic Operations Analysis - Synchro

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		ŀ	×	•			-	-	-	•	•	,
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
 ane Configurations 	۴	+	*	٢	+	*		¢			¢	
Sign Control		Free			Free			Stop			Stop	
Grade		%0			%0			%0			%0	
/olume (veh/h)	S	700	S	35	530	10	S	0	45	15	0	5 2
Deak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	S	737	5	37	558	;	S	0	47	16	0	ŝ
^{>} edestrians												
-ane Width (ft)												
Valking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storade veh)												
Inctream cional (#)												
C conflicting violums	E C O			CV 2			1004	1200	707	9011	1204	EE0
	000			142			1001	6001	101	1420	1001	000
/C1, stage 1 conf vol												
CLZ, Stage Z CONT VOL								0001				i
/Cu, unblocked vol	899			/42			1384	1389	131	1426	1384	866
C, single (s)	4.2			4.2			7.2	6.6	6.3	7.2	6.6	6.3
.C, 2 stage (s)												
F (s)	2.3			2.3			3.6	4.1	3.4	3.6	4.1	3.4
00 queue free %	66			96			95	100	88	83	100	66
cM capacity (veh/h)	970			834			111	131	407	93	132	516
Direction coc #				1 0/1/	C 0/V	2 0/1/	1 DIN	501				
	- -	101										
volume lotal	Ω I	131	Ω	37	558	11	53	12				
/olume Left	2 2	0	0	37	0	0	2	16				
/olume Right	0	0	2	0	0	1	47	2				
SH	970	1700	1700	834	1700	1700	321	117				
Volume to Capacity	0.01	0.43	00.0	0.04	0.33	0.01	0.16	0.18				
Queue Length 95th (ft)	0	0	0	ო	0	0	4	16				
Control Delay (s)	8.7	0.0	0.0	9.5	0.0	0.0	18.4	42.6				
-ane LOS	۷			A			U	ш				
Approach Delay (s)	0.1			0.6			18.4	42.6				
Approach LOS							U	ш				
ptersection Summany												
Averade Delav			4									
thersection Capacity I Iti	lization	-	21 1%		ava I I ava	I of Ser	vice		4			
Analysis Pariod (min)	0000		15	2		505	2014		:			
			2									

HCM Unsignalized Ir 2: OR 126 & Tom Mo	ntersec call	tion C	apacit	y Anal	ysis						6/22	/2005
	٩	t	۲	1	ŧ	~	4	•	*	۶	-	\mathbf{F}
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		¢			ţ	۰.		÷			¢	
Sign Control		Free			Free			Stop			Stop	
Grade		%0			%0			%0			%0	
Volume (veh/h)	0	955	2	25	710	40	15	0	06	20	0	10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	1005	5	26	747	42	16	0	95	53	0	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	789			1011			1818	1850	1008	1903	1811	747
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	789			1011			1818	1850	1008	1903	1811	747
tC, single (s)	4.2			4.2			7.2	6.6	6.3	7.2	6.6	6.3
tC, 2 stage (s)												
tF (s)	2.3			2.3			3.6	4.1	3.4	3.6	4.1	3.4
p0 queue free %	100			96			71	100	67	0	100	97
cM capacity (veh/h)	800			629			5	68	283	32	73	401
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1							
Volume Total	1011	774	42	111	63							
Volume Left	0	26	0	16	53							
Volume Right	2	0	42	95	7							
cSH	800	659	1700	177	œ							
Volume to Capacity	0.00	0.04	0.02	0.63	1.65							
Queue Length 95th (ft)	0	m	0	88	167							
Control Delay (s)	0.0	1.1	0.0	54.4	549.6							
Lane LOS		۷		ш	ш							
Approach Delay (s)	0.0	1.0		54.4	549.6							
Approach LOS				ш	ш							
Intersection Summary												
Average Delay			20.8									
Intersection Capacity Uti	ilization		17.7%	2	SU Leve	l of Sen	vice					
Analysis Period (min)			15									

Prineville TSP 5.00 pm 8/23/2002 2025 No Build PM Peak PHF .95 The Transpo Group

Prineville TSP 5:00 pm 8/23/2002 2025 No Build PM Peak PHF .95 The Transpo Group

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 | M capacity (verify)3332232466M capacity (verify)1072466Durme Left1126000173434Ourme Left11260017343434Ourme Left1126001734343434Ourme Left112600171701701701702466Ourme Left11260000077170< | Microaposity (vertify) 53 32 672 Alter State Alter | Microal Control 53 32 672 Microal Control 1072 247 636 Microal Control 132 60 146 116 116 116 117 247 636 Microal Control 131 26 146 146 146 147
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 | | Incerton EB1 NB1 BB1 NB2 B1 NB1 SE1 NB1 SW1 SW
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Analysis Period (min) 15 | Interention Summan | Intersection Summary | |
| Average Delay 5.3
Average Delay 5.3
Intersection 73.5% ICU Level of Service D Analysis Device A Analysis Device A Analysis Device D Analysis
 | verage Delay 0.3
Average Delay 0.3
Intersection Capacity Utilization 73.5% ICU Level of Service A
Analysis Period (min) 15
Analysis Period (min)
 | Average Delay 6.3
Intersection Capacity Utilization 73.5% ICU Level of Service D
Analysis Period (min) 15
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 | Verlage Delay 5.3
Netrage Delay 5.3
Intersection Capacity Utilization 73.5% ICU Level of Service A
Analysis Period (min) 15
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 | verage Delay 53.3
verage Delay 6.3
trerection Capacity Utilization 7.3.5% ICU Level of Service A
Analysis Period (min) 15 ICU Level of Service A
Analysis Period (min) 15 ICU Level of Service A
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Intersection Capacity Utilization 46.6% ICU Level of Service A
Analysis Period (min) 15
Intersection Capacity Utilization 46.6% ICU Level of Service A
Analysis Period (min) 15 | verage Delay 53.3 Undersection Capacity Utilization 73.5% ICU Level of Service D Intersection Capacity Utilization 48.6% ICU Level of Service A Intersection Capacity Utilization 15 Analysis Period (min) 15 Analysis Period
 | Verage Delay 33.3
Verage Delay 0.3
Intersection Capacity Utilization 73.5% ICU Level of Service A
Analysis Period (min) 15
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Analysis Period (min) 15 | Arenage Delay bination 33.3 ICU Level of Service D Arenage Lelay bination 73.5% ICU Level of Service D Analysis Period (min) 15 Analysis Period (m | | | |
| Intersection 73.5% ICU Level of Service D Antersection A8.6% ICU Level of Service A Antersection A3.6% ICU Level of Service A Antersection A3.6% ICU Level of Service A
 | Intersection Capacity Utilization 73.5% ICU Level of Service D Analysis Period (min) 15 ICU Level of Service A Analysis Period (min) 15 ICU Level of Service A Analysis Period (min) 15 ICU Level of Service A Analysis Period (min) 15 ICU Level of Service A Analysis Period (min) 15 ICU Level of Service A Analysis Period (min) 15 ICU Level of Service A Analysis Period (min) 15 ICU Level of Service A Analysis Period (min) 15 ICU Level of Service A Analysis Period (min) 15 ICU Level of Service A Analysis Period (min) 15 ICU Level of Service A Analysis Period (min) 15 ICU Level of Service A Analysis Period (min) 15 ICU Level of Service A Analysis Period (min) 15 ICU Level of Service A Analysis Period (min) 15 ICU Level of Service A Analysis Period (min) 15 ICU Level of Service A Analysis Period (min) 15 ICU Level of Service A Analysis Period (min) 15 ICU Level of Service A Analysis Period (min) 15 ICU Level of Service A
 | ntersection capacity Utilization 73.5% ICU Level of Service D
Analysis Period (min) 15 ICU Level of Service A
Analysis Period (min) 15 ICU Level of Service A
 | Intersection Capacity Utilization 73.5% ICU Level of Service D Analysis Period (min) 15 ICU Level of Service A Analysis Period (min)
15 ICU Level of Service A Analysis Period (min) 15 ICU Level of Service A Analysis Period (min) 15 ICU Level of Service A Analysis Period (min) 15 ICU Level of Service A Analysis Period (min) 15 ICU Level of Service A Analysis Period (min) 15 ICU Level of Service A Analysis Period (min) 15 ICU Level of Service A Analysis Period (min) 15 ICU Level of Service A Analysis Period (min) 15 ICU Level of Service A Analysis Period (min) 15 ICU Level of Service A Analysis Period | thersection Capacity Utilization 73.5% ICU Level of Service D Intersection Capacity Utilization 48.6% ICU Level of Service A Analysis Period (min) 15 ICU Level of Service A Analysis Period (min) 15 ICU Level of Service A Analysis Period (min) 15 ICU Level of Service A Analysis Period (min) 15 ICU Level of Service A Analysis Period (min) 15 ICU Level of Service A Analysis Period (min) 15 ICU Level of Service A
 | tersection Capacity Utilization 73.5% ICU Level of Service D Intersection Capacity Utilization 48.6% ICU Level of Service A Analysis Period (min) 15 Analysis Period (min) 15
 | Intersection Capacity Utilization 73.5% ICU Level of Service D Analysis Period (min) 15 Analysis | Intersection Capacity Utilization 73.5% ICU Level of Service D Analysis Period (min) 15 ICU Level of Service A Analysis Period (min) 15 ICU Level of Service A Analysis Period (min) 15 ICU Level of Service A Analysis Period (min) 15 ICU Level of Service A Analysis Period (min) 15 ICU Level of Service A ICU Level of Servi | Intersection 73.5% ICU Level of Service D Intersection Capacity Utilization 48.6% ICU Level of Service A Analysis Period (min) 15 ICU Level of Service A Analysis Period (min) 15 ICU Level of Service A Analysis Period (min) 15 ICU Level of Service A Analysis Period (min) 15 ICU Level of Service A Analysis Period (min) 15 ICU Level of Service A Analysis Period (min) 15 ICU Level of Service A ICU Level of Service | Average Delay 39.3 | Average Delay | 6.3 |
| Analysis Dariod (min) 15 Analysis Dariod (min) 15
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Analysis Period (min) 15
 | ntersection Capacity Utilization 73.5% ICU Level of Service | D Intersection Capacity Utilization 2 | 48.6% ICU Level of Service A |
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 | | Analysis Period (min) 15 | Analysis Period (min) | 15 |

Synchro 6 Report Page 3

Prineville TSP 5:00 pm 8/23/2002 2025 No Build PM Peak PHF .95 The Transpo Group

Prineville TSP 5:00 pm 8/23/2002 2025 No Build PM Peak PHF .95 The Transpo Group

Owment NB1 NB1<
ne Configurations free free <three< th=""> free free</three<>
Multication Model
and control 0.05
aik Hour Factor 0.95 <th0.95< th=""> 0.95 0.95</th0.95<>
unity flow rate (vpl) 0
destrians ne Width (ft) sking Speed (fts) sking Speed (fts) sking Speed (fts) streent Blockage hit um flare (veh) streent Blockage dian stonge veh) streent Blockage (ft) streent Blockage stonge (s) to tablocked dian stonge veh) streent Blockage to tablocked to tablocked dian stonge veh) streent Blockage stonge (s) to tablocked dian stonge veh) streent Blockage to tablocked to tablocked dian stonge veh) streent Blockage to tablocked to tablocked dian stonge veh) streent Blockage to tablocked to
width (ft) width (ft) siking Speed (fts) None fittum flare (vel) None dian type None conflicting volume 118 dian type 947 dian unblocked vol 118 u, unblocked vol 118 u, unblocked vol 123 u, unblocked vol 134 u, unblocked vol 134 diante free % 0 f(s) 36 dume free % 0
alking Speed (Its) rrent Blockage and Type dian Type dian Type dian storage veh) stream signal (It) : platron unblocked 1. stage 1 conf vol 1. stage 2 conf vol 2. stage 2 conf vol 1. stage 2 conf vol 1. stage 2 conf vol 2. stage 2 conf vol 1. stage 1 conf to 1 2. stage 2 conf vol 1. stage 2 conf vol 1. stage 1 conf to 1 2. stage 2 conf vol 1. stage 1 conf to 1 2. stage 2 conf vol 1. stage 1 conf to 1 2. stage 2 conf vol 1. stage 1 conf to 1 2. stage 2 conf vol 1. stage 2 conf vol 1. stage 1 conf to 1 2. stage 2 conf vol 1. stage 1 conf to 1 2. stage 2 conf vol 1. stage 1 conf to 1 1. stage 1 conf to 1 1. stage 1 conf to 1 1. stage 2 conf vol 1. stage 2 conf vol 2. stage 2 conf vol 1. stage 2 conf vol 2. stage 2 conf vol 3. stage 2 conf vol 4. stage 2 conf vo
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jht turn flare (veh) None None edian storage veh) Anne None edian storage veh) stream signal (t) 4 stream signal (t) 4 947 947 947 947 0 .: platoon unblocked .: platoon unblocked 1118 947 0 947 947 0 0 .: stage 1 cont vol 1118 947 0 947 947 947 0 0 .: stage 1 cont vol 1118 947 0 947 947 947 0 0 .: stage 1 cont vol 1118 947 0 947 947 0 0 .: stage 1 cont vol 1118 947 0 947 947 0 0 .: stage 1 cont vol 1118 947 0 100 100 100 100 100 .: stage 1 cont vol 1118 947 34 2:3 2:3 2:3 2:3 2:3 2:3 2:3 2:3 2:3 2:3 2:3 2:3 2:3 2:3 2:3
Image None None adian type adian type adian type adian type adian type adian type adian stonage wh) barto out who code 1. stage 1 conf vol 118 947 0 947 947 0 1. stage 1 conf vol 118 947 0 947 947 0 2. stage 2 conf vol 118 947 0 947 947 0 au unblocked vol 1118 947 0 947 947 0 at unblocked vol 1118 947 0 947 947 0 at unblocked vol 118 947 0 947 23 23 at unblocked vol 100 100 100 100 100 100 casted (s) 2.3 2.3 2.3 2.3 2.3 2.3 at unblocked vol 100 100 100 100 100 100 teactor Lane #
adian storage veh) stream signal (t) (platoon unblocked conflicting volume 11 stage 1 conf vol 2 strage 2 conf vol 1, stage 1 conf vol 2 strage 2 conf vol 1, stage 1 conf vol 2 strage 2 conf vol 1 11 stage 1 conf vol 2 strage 2 conf vol 1 11 stage 1 conf vol 2 strage 2 conf vol 1 11 stage 1 conf vol 2 strage 1 2 strage 2 conf vol 1 12 strage 2 conf vol 2 strage 2 conf vol 1 12 strage 1 conf vol 2 strage 2 conf vol 1 12 strage 1 conf vol 2 strage 2 conf vol 1 12 strage 1 conf vol 2 strage 2 conf vol 1 12 strage 1 conf vol 2 strage 2 conf vol 1 12 strage 1 conf vol 2 strage 2 conf vol 1 12 strage 2 conf vol 1 13 st
stream signal (t) : platoon unblocked : platoon unblocked : stage 1 conf vol : stage 2 conf vol : stage 2 conf vol : stage 2 conf vol : unblocked vol : unblocked vol : tage (s) : 2 stage (s)
Indicided Indicided <t< td=""></t<>
4. conflicting volume 118 947 0 947 947 947 0 1. stage 1 conf vol 1. 347 0 947 947 947 0 1. stage 2 conf vol 118 947 0 947 947 947 0 2. stage (s) 7.2 6.6 6.3 4.2 4.2 2 stage (s) 3.6 4.1 3.4 2.3 2.3 2 stage (s) 0 100 100 100 100 2 stage (s) 3.6 4.1 3.4 2.3 2.3 2 stage (s) 0 100 100 100 100 1 stage (s) 0 2.4 3.4 2.3 2.3 2 stage (s) 0 100 100 100 100 1 stage (s) 1 3.4 2.4 2.3 2.3 2 stage (s) 0 2.4 2.4 2.3 2.3 2 stage (s) 0 2.4 2.4 2.3 2.3 9 stage for (s) 12 3.4 2.4 2.3 9 stage for (s) 13 32 2.4 307 9 stage for (s) 100 100 100 1
1. stage 1 cont vol 2. stage 1 cont vol 2. stage 2 cont vol 1118 947 0 947 947 947 0 2. unblocked vol 1118 947 0 947 947 947 0 2 stage (s) 2. 5.6 6.3 7.2 6.6 6.3 4.2 2 stage (s) 3.6 4.1 3.4 2.3 2.3 2.3 2 stage (s) 3.6 4.1 3.4 2.3 2.3 2.3 (s) 0 100 100 100 100 100 queue free % 0 100 100 100 100 100 tume Left 0 241 2.34 2.34 2.3 2.3 tume Left 0 0 0 0 0 100 100 tume Right 0 0 0 0 0 0 0 0 tume Right 0 0 0 0 0 0 0 0 0 0 tume Lott 254
4. stage 2 com vol 1. stage 2 com vol 0 4. stage 4 con 0 0. unblocked vol 118 947 04 947 04 4.2 2 stage (s) 1.2 6.6 6.3 7.2 6.6 6.3 4.2 4.2 2 stage (s) 3.6 4.1 3.4 3.4 3.4 2.3 2.3 (s) 3.6 4.1 3.4 3.6 4.1 3.7 2.3 (s) 0 100 100 100 100 100 queue free % 0 254 207 697 1578 ecton. Lane # SB1<
u, unblocked vol 1118 947 0 947 947 947 0 10 single(s) 7.2 6.6 6.3 7.2 6.6 6.3 4.2 4.2 (s) 3.6 4.1 3.4 3.6 4.1 3.4 2.3 2.3 quene free % 0 100 100 100 100 100 100 100 capacity (veh/h) 0 254 1065 234 254 307 697 1578 ume Total 342 947 100 ume Total 342 947 100 ume Right 0 0 time Left 0 0 mino Delay (s) 2183 0.0 euc Loss F proach LOS F section Summary
single (s) 7.2 6.6 6.3 7.2 6.6 6.3 4.2 4.2 2 stage (s) 3.6 4.1 3.4 3.6 4.1 3.4 2.3 2.3 4.2 4.2 4.2 4.2 4.2 4.2 4.2 4.2 4.2 4.2
2 stage (s) 2 2 stage (s) 2 (s) 36 4.1 3.4 2.3 2.3 queue free % 0 100 100 100 100 100 capacity (veh/h) 0 254 1065 2.34 2.3 2.3 2.3 cetion.Lane # SB1 SW1 7 578 1578 tume Total 342 947 7 578 1578 tume Left 0 0 0 0 0 0 1578 tume Left 0 0 0 0 0 0 0 1578 tume Left 0 0 0 0 0 0 0 0 0 tume Left 0
(s) 3.6 4.1 3.4 2.3 2.3 queue free % 0 100 100 100 100 queue free % 0 100 100 100 100 ection.1 0 254 307 697 1578 tume Total 342 947 1578 1578 tume Left 0 0 100 100 100 tume Left 0 0 0 1578 1578 tume Left 0 0 0 100 100 100 tume Left 0 0 0 0 1578 1578 tume Left 0 0 0 0 0 0 1578 tume Left 0 0 0 0 0 0 1578 1578 tume Left 0 0 0 0 0 0 1478 1578 tume Left 0 0 0 0 0 0 0 1478 1578 tume Lots 21
queue free % 0 100 100 100 capacity (veh/h) 0 254 105 234 254 307 697 1578 eeton. Lane# SB1 SW1 1 1578 1578 eeton. Lane# SB1 SW1 1 1578 1578 ume Total 32 947 1 1 1 1 ume Total 32 947 1
capacity (veh/h) 0 254 1055 234 237 697 1578 ection.Lane # SB1 SW1 SM SM SM SM 1578 ume Total 342 947 SM SM <tds< td=""></tds<>
ection, Lane # SB 1 SW 1 ume Total 342 947 tume Left 0 0 tume Right 0 0 tume Right 0 0 tume Right 1.35 0.56 tume to Capacity 1.35 0.56 tume Length 95th (ft) 452 0 turo Delay (s) 218.3 0.0 arto Delay (s) 218.3 0.0 proach Delay (s) 218.3 0.0 proach LOS F
ume Total 342 947 ume Left 0 0 ume Kight 0 0 ume Right 0 0 ume to Capacity 1.35 0.56 eue Length 95th (t) 452 0 Artol Delay (s) 218.3 0.0 Artol Delay (s) 218.3 0.0 Sroach Delay (s) 218.3 0.0 Sroach LOS F Sroach LOS A Sreaction Summary
ume Left 0 0 tume Right 0 0 H 254 1700 tume to Capacity 1.35 0.56 tume to Capacity 1.35 0.56 tume to Capacity 1.35 0.56 tume to Capacity 1.35 0.0 tume to Capacity 218.3 0.0 net LOS F 0.0 proach LOS F 0.0 proach LOS F 0.0 arsection Summary 1.0 1.0
ume Right 0 0 1 254 1700 ume to Capacity 135 0.56 eue Length 95th (ft) 452 0 ntrol Delay (s) 218.3 0.0 ne LOS F no ach Delay (s) 218.3 0.0 proach LOS F proach LOS F
H ume to Capacity 254 1700 ume to Capacity 1.35 0.56 une Loss 12 14.52 0 triol Delay (s) 218,3 0.0 e LOS F oroach Delay (s) 218,3 0.0 oroach LOS F oroach LOS F
ure Lo Capacity 1.35 0.56 eue Length 95th (ft) 4.52 0 ent Delay (s) 218.3 0.0 en LOS 218.3 0.0 proach Delay (s) 218.3 0.0 proach LOS F proach LOS F
eue Length 95h (ft) 452 0 htroi Delay (s) 218.3 0.0 htroi Delay (s) 218.3 0.0 proach LOS F proach LOS F
mroi Deaty (s) 218.3 0.0 ne LOS 7 1 proach Delay (s) 218.3 0.0 proach LOS F 2 ersection Summary
ie LOS oraach Delay (s) 218.3 0.0 oraach LOS F sreaction Summary
organi percipito 210-0 0-0 proach LOS F srsection Summary
srsection Summary
57 0
resection Capacity Utilization 74.7% ICULI evel of Service D
alysis Period (min) 15

Insignalized Intersection Capacity Analysis

וווחה לחוכ מדו א	נסו אר	NS 20					6/22/2005
	*	۲	×	~	6	*	
nent	NBL	NBR	SET	SER	NWL	NWT	
Configurations	۴					*	
control	Stop		Stop			Free	
	%0		%0			0%	
e (veh/h)	135	0	0	0	0	1145	
Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
flow rate (vph)	142	0	0	0	0	1205	
trians							
Vidth (ft)							
ig Speed (ft/s)							
nt Blockage							
urn flare (veh)							
n type	None		None				
n storage veh)							
am signal (ft)							
atoon unblocked	1001	c		c	c		
nmicung volume	CU21	D	-	D	D		
tage 1 conf vol							
nblocked vol	1205	0	71	0	0		
gle (s)	9.9	6.3	7.2	6.6	4.2		
tage (s)							
	4.1	3.4	3.6	4.1	2.3		
eue free %	20	100	100	100	100		
oacity (veh/h)	178	1065	306	882	1578		
on, Lane #	NB 1	1 W 1					
e Total	142	1205					
e Left	0	0					
e Right	0	1205					
	178	1700					
e to Capacity	0.80	0.71					
: Length 95th (ft)	135	0					
l Delay (s)	76.3	0.0					
OS	ш						
ach Delay (s)	76.3	0.0					
ach LOS	LL.						
ection Summary							
je Delay			8.0				
ection Capacity Util	ization		78.2%	0	:U Leve	el of Service D	
sis Period (min)			15				

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*	æ		*	æ			÷	*-		÷	۳.
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
CH Distantad	1.00	0.99		200-1-00	0.33			200.1	0.02		20.1	0.00
Satd. Flow (prot)	1319	1380		1319	1377			1396	1227		1398	1227
Fit Permitted	0.16	1.00		0.13	1.00			0.84	1.00		0.83	1.00
Satd. Flow (perm)	223	1380		184	1377			1215	1227		1198	1227
Volume (vph)	125	1100	45	50	1025	60	10	5	55	20	10	105
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vpn)	132	8C I.I.	4	20	R/01	50	_ <	o 0	202	7	-	
RIUK Reduction (vpn)	130	1204		D C	1110			0 4	0		D 66	8 2 2
Heavy Vehicles (%)	2%	2%	2%	2%	2%2	2%2	1%	1%	1%	1%	1%	1%
Parking (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Turn Type	Perm			Perm			Perm		Perm	Perm		Perm
Protected Phases		2			9			ω			4	
Permitted Phases	2			9			∞		ω	4		4
Actuated Green, G (s)	71.6	71.6		71.6	71.6			10.4	10.4		10.4	10.4
Effective Green, g (s)	71.6	71.6		71.6	71.6			10.4	10.4		10.4	10.4
Actuated g/C Ratio	0.80	0.80		0.80	0.80			0.12	0.12		0.12	0.12
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	177	1098		146	1095			140	142		138	142
v/s Ratio Prot		c0.87			0.83							
V/S Katio Perm	0.59			0.29				0.01	0.01		c0.03	0.01
v/c Ratio	0.75	1.10		0.36	1.04			0.11	0.05		0.23	0.09
Unitorm Delay, d1	4.6	9.2		2.6	9.2			35.7	35.4		36.2	35.6
Progression Factor	1.00	1.00		1.07	1.08			1.00	1.00		1.00	1.00
Incremental Delay, d2	24.6	51.5		2. c	26.3			4.0	0.1		0.9	0.0
Loud of Somico	7.67	7.00		+ 0 <	7.00			0.00	0.00		0.70	0.00
Annrach Dalay (c)	כ	63.0		¢	34.8			35.6	د		36.1	ב
		200			5			2			3	
		Ц			ر			ב			ב	
Intersection Summary												
HCM Average Control E	Delay		48.6	I	CM Lev	el of Se	rvice		۵			
HCM Volume to Capaci	ity ratio		0.99									
Actuated Cycle Length	(s)		90.0	S	um of lo	st time	(s)		8.0			
Intersection Capacity U	tilization		98.0%	2	CU Leve	l of Ser	vice		ш			
Analysis Period (min)			GL									
c Critical Lane Group												

HCM Signalized Inter 8: OR 126 & Deer Sti	sectio reet	n Cap	acity	vnalysi	s						6/22/	2005
	•	t	*	1	Ŧ	~	4	+	٠	۶	-	
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	۶	\$		۶	æ			ęţ.			4Þ	
Ideal Flow (vphpl) Total Lost time (s)	1800	1800	1800	1800 4.0	1800 4 0	1800	1800	1800	1800	1800	1800 4.0	1800
Lane Util. Factor	00 ⁻	1.00		1.00	1.00			0.95			0.95	
Frt	1.00	0.99		1.00	0.99			0.98			0.95	
Fit Protected	0.95	1.00		0.95	1.00			0.97			0.98	
Satd. Flow (prot)	1466	1370		1466	1380			2753			2713	
Flt Permitted	0.17	1.00		0.07	1.00			0.61			0.63	
Satd. Flow (perm)	267	1370		101	1380			1731			1748	
Volume (vph)	65 0 0 1	1040	100	20	860	35	255	95	50	100	120	105
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vpn) PTOP Beduction (vmb)	80 0	9601	60L		c06	37	208	9 <u></u>	22	40 L	120	
	89	1196		21	940	• c		409	- C	0 0	278	
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	1%	1%	1%	1%	1%	1%
Parking (#/hr)		0			0			0			0	
Tum Type	Perm			Perm			Perm			Perm		
Protected Phases	G	9		c	2		0	œ		-	4	
Actuated Green G (c)	61 0	610		610	610		o	21.0		t	210	
Effective Green. a (s)	61.0	61.0		61.0	61.0			21.0			21.0	
Actuated g/C Ratio	0.68	0.68		0.68	0.68			0.23			0.23	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Vehicle Extension (s)	3.5	3.5		3.5	3.5			2.5			2.5	
Lane Grp Cap (vph)	181	929		68	935			404			408	
v/s Ratio Prot		c0.87			0.68							
v/s Ratio Perm	0.25			0.21	10 1			c0.24			0.16	
	00	1.43		- 0	10.1			1000.1			00.0	
Progression Factor	1.22	0.94		1.04	1.23			1.00			01.4	
Incremental Delay, d2	0.5	130.2		1.1	10.2			47.8			4.2	
Delay (s)	8.2	143.9		7.2	28.1			82.3			35.7	
Level of Service	۷	ш		A	ပ			ш			۵	
Approach Delay (s)		136.6			27.7			82.3			35.7	
Approach LOS		ш			ပ			ш			۵	
Intersection Summary												
HCM Average Control D€	lay		82.4	Í	CM Lev	el of Se	rvice		ш			
HCM Volume to Capacity	ratio		1.22									
Actuated Cycle Length (s			0.06	σ.	um of lc	st time	(s)		8.0			
Intersection Capacity Util Analysis Dariod (min)	zation	2	15.1%	2	U Leve	I OT SEN	VICE		F			
di Defacto Left Lane. R	ecode	with 1 th	s dana	ane as a	a left lar	je.						
c Critical Lane Group			b									Ľ

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Synchro 6 Report Page 7

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Movement Ell El	Moement Ell Ell Ell No	Movement Lane Configurations	1	1	/	Ň	* ⊥	*	+	٠	م	-	→		•	1	/	
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Letter Comparisons T Letter Comparisons T Letter Comparisons T	Configurations No	Lane Configurations	EBL	EBT	EBR V	VBL M	/BT WB	R NBL	NBT	NBR	SBL	SBT	SBR	Movement	EBL	EBT	EBR	WBL
Mean Mean Mode Mode <th< td=""><td>Teal Fork (reg) 400</td><td></td><td>-</td><td>4</td><td></td><td>- 000</td><td>4</td><td></td><td>4 0001</td><td>0001</td><td>- 000 1</td><td>4 0001</td><td>0001</td><td></td><td>ions</td><td></td><td>0001</td><td></td></th<>	Teal Fork (reg) 400		-	4		- 000	4		4 0001	0001	- 000 1	4 0001	0001		ions		0001	
Term Term <th< td=""><td>Induction 100 1</td><td></td><td></td><td></td><td>200</td><td></td><td></td><td></td><td>1000</td><td>1000</td><td></td><td></td><td></td><td></td><td></td><td></td><td>NN QI</td><td></td></th<>	Induction 100 1				200				1000	1000							NN QI	
Effection 100 000 1	Current of internation Current of internation<		0.4	0.4		4.0	0.4	4.1	4.0		0.4	0.4			s) 4.0	4.6		0.4
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Satt Fov Total Tat Tat<	Addition 131 313 136 323 3460 333 3460 333 3461 Control (control) 273 334 334 335 <td>Flt Permitted</td> <td>0.09</td> <td>1.00</td> <td>0</td> <td>0.12 1</td> <td>8.</td> <td>0.14</td> <td>1.00</td> <td></td> <td>0.28</td> <td>1.00</td> <td></td> <td>Flt Permitted</td> <td>0.18</td> <td>1.00</td> <td></td> <td>0.15</td>	Flt Permitted	0.09	1.00	0	0.12 1	8.	0.14	1.00		0.28	1.00		Flt Permitted	0.18	1.00		0.15
Weitung frags 7333 733 733	Volume (arc) 155 753 155 753 155 753 155 753 <t< td=""><td>Satd. Flow (perm)</td><td>121 1</td><td>347</td><td></td><td>183 1;</td><td>361</td><td>220</td><td>1500</td><td></td><td>382</td><td>1480</td><td></td><td>Satd. Flow (perm</td><td>n) 278</td><td>3 1381</td><td></td><td>230</td></t<>	Satd. Flow (perm)	121 1	347		183 1;	361	220	1500		382	1480		Satd. Flow (perm	n) 278	3 1381		230
Retain factor, Ful: 05 05 05 05 05 05 055 <	Flow (whi) 105 0.55	Volume (vph)	185	735	185	50	720 11	0 70	305	20	130	390	145	Volume (vph)	36	386	35	20
R10F Reduction (rgh) 135 74 145 21 74 145 27 74 75 71 75 71 75 71 75 71 75 71 75 71 75 71 75 71 75 71 75 703 73 703 73 703 73 703 73 703 73 703 73 703 <th< td=""><td>Add Find Total To</td><td>Peak-hour factor. PHF</td><td>0.95 (</td><td>3.95 C</td><td>0.95 (</td><td>0.95 0</td><td>.95 0.5</td><td>5 0.95</td><td>0.95</td><td>0.95</td><td>0.95</td><td>0.95</td><td>0.95</td><td>Peak-hour factor</td><td>r. PHF 0.95</td><td>36.0</td><td>0.95</td><td>0.95</td></th<>	Add Find Total To	Peak-hour factor. PHF	0.95 (3.95 C	0.95 (0.95 0	.95 0.5	5 0.95	0.95	0.95	0.95	0.95	0.95	Peak-hour factor	r. PHF 0.95	36.0	0.95	0.95
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and Coup Flow (vip) 15 66 0 13 54 0 13 55 1073 0 107 0 <th< td=""><td>march Diame <th< td=""><td>RTOR Reduction (vph)</td><td>0</td><td>10</td><td>0</td><td>0</td><td>9</td><td>0</td><td>б </td><td>0</td><td>0</td><td>15</td><td>0</td><td>RTOR Reduction</td><td>) (hah)</td><td></td><td>0</td><td>0</td></th<></td></th<>	march Diame Diame <th< td=""><td>RTOR Reduction (vph)</td><td>0</td><td>10</td><td>0</td><td>0</td><td>9</td><td>0</td><td>б </td><td>0</td><td>0</td><td>15</td><td>0</td><td>RTOR Reduction</td><td>) (hah)</td><td></td><td>0</td><td>0</td></th<>	RTOR Reduction (vph)	0	10	0	0	9	0	б 	0	0	15	0	RTOR Reduction) (hah)		0	0
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Effective Green, G is 3 64.0 42.0 58.0 58.0 58.3 68	Effective Green, g(s) 54.0 42.0 28.0 28.0 28.0 38.0	Actuated Green, G (s)	54.0	54.0	4	4 2 .0 4	-2.0	28.C	28.0		28.0	28.0		Permitted Phase	s			0
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Clearance Time (s) 30 4.0 4.0 4.0 4.0 4.0 7.4 0.74	Clearance Time (s) 30 40	Actuated g/C Ratio	0.60	0.60	5).47 C	.47	0.31	0.31		0.31	0.31		Effective Green,	g (s) 66.3	66.3		66.3
Venicle Extension (s) 30 20 20 30 30 15 15 15 40 41 41 41 41 41 </td <td>Vehicle Extension (s) 30 20 20 20 30 30 15 15 15 15 15 10 40 Vehicle Extension (s) 310 0.13 0.14 1.14 1.15 1.16 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10</td> <td>Clearance Time (s)</td> <td>3.0</td> <td>4.0</td> <td></td> <td>4.0</td> <td>4.0</td> <td>4.0</td> <td>4.0</td> <td></td> <td>4.0</td> <td>4.0</td> <td></td> <td>Actuated g/C Rat</td> <td>itio 0.74</td> <td>1 0.74</td> <td></td> <td>0.74</td>	Vehicle Extension (s) 30 20 20 20 30 30 15 15 15 15 15 10 40 Vehicle Extension (s) 310 0.13 0.14 1.14 1.15 1.16 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10	Clearance Time (s)	3.0	4.0		4.0	4.0	4.0	4.0		4.0	4.0		Actuated g/C Rat	itio 0.74	1 0.74		0.74
Lane Grp Cap (vph) 179 808 635 63 467 119 400 213 315 316 0.03	Lane GIP Cap (vph) 179 808 85 635 68 467 119 460 35 310 <th< td=""><td>Vehicle Extension (s)</td><td>3.0</td><td>2.0</td><td></td><td>2.0</td><td>2.0</td><td>3.0</td><td>3.0</td><td></td><td>1.5</td><td>1.5</td><td></td><td>Clearance Time (</td><td>(s) 4.C</td><td>4.0</td><td></td><td>4.0</td></th<>	Vehicle Extension (s)	3.0	2.0		2.0	2.0	3.0	3.0		1.5	1.5		Clearance Time ((s) 4.C	4.0		4.0
vis Ratio Prot 0.10 c0.71 0.26 0.03 0.01	vis Ratio Port 0.10 0.01 0.03 <th0.03< th=""> 0.03 0.03</th0.03<>	Lane Grp Cap (vph)	179	808		85	535	30	467		119	460		Vehicle Extension	n (s) 3.5	3.5		3.5
v/s Ratio Perm 0.56 0.29 0.34 0.36 v/s Ratio Perm 0.13 0.078 v/c Ratio 1.09 1.19 0.62 1.37 1.09 0.83 1.15 1.19 0.13 0.03 V/c Ratio 1.09 1.81 2.0 31.0 31.0 31.0 0.13 0.13 0.13 0.13 0.13 0.13 0.13 0.13 0.13 0.13 0.13 0.13 0.13 0.13 0.13 0.13 0.13 0.14 0.13 0.14 1.01 1.00 0.13 0.14 0.13 0.14 0.13 0.14 0.13 0.14 0.13 0.14 0.13 0.14 0.13 0.14 0.12 0.14 0.12 0.14 0.12 0.15 0.15 0.15 0.15 0.15 0.15 0.15 0.15 0.15 0.16 0.12 0.15 0.15 0.16 0.12 0.15 0.15 0.15 0.15 0.15 0.15 0.15 <	vis Ratio Perim 0.56 0.29 0.34 0.36 vis Ratio Perim 0.13 vic Ratio 1.09 1.19 0.62 1.37 1.09 0.13 0.13 vic Ratio 1.09 1.19 0.73 0.73 0.13 0.13 Vic Ratio 1.09 1.81 2.40 31.0 0.00 1.00 1.00 0.13 Progression Factor 1.03 0.73 0.01 1.00 1.00 1.00 0.13 0.14 0.13 Progression Factor 1.02 1.03 1.00 1.00 1.00 1.00 1.01 1.01 1.04 1.4 1.54 Progression Factor 1.23 169.1 1.35 1.4 4.1 4.1 4.1 Delay (s) F F D T 2.5 1.65 1.4 4.1 Approach Delay (s) F F D T 2.5 1.65 1.4 4.1 Approach LOS F F	v/s Ratio Prot	0.10 CL	0.71		8	.64		0.26			c0.37		Lane Grp Cap (v	(ha) 205	1017		169
vic Ratio 1.09 1.19 1.31 1.15 1.19 0.13 0.00 Uniform Delay, d1 27.1 18.0 18.1 24.0 31.0 31.0 31.0 0.12 0.13 0.00 Uniform Delay, d1 27.1 18.0 18.1 24.0 1.00 1.00 1.00 1.00 0.12 0.13 0.13 0.13 0.13 0.13 0.13 0.13 0.13 0.13 0.13 0.13 0.13 0.13 0.12 0.13 0.14 0.12 0.14 0.13 0.14 0.12 0.14 0.13 0.14 0.13 0.14 0.13 0.14 0.13 0.14 0.13 0.14 0.12 0.12 0.15	vic Ratio 1.09 1.19 0.62 1.37 1.09 0.83 1.15 1.19 vic Ratio 0.18 1.06 Progression Factor 1.01 1.01 1.01 1.00 1.01	v/s Ratio Perm	0.56		3	0.29		0.34			0.36			v/s Ratio Prot		c0.78		
Uniform Delay, d1 27.1 18.0 18.1 24.0 31.0 31.0 31.0 100 <td>Uniform Delay, d1 27.1 18.0 18.1 24.0 31.0<td>v/c Ratio</td><td>1.09</td><td>1.19</td><td></td><td>).62 1</td><td>.37</td><td>1.05</td><td>0.83</td><td></td><td>1.15</td><td>1.19</td><td></td><td>v/s Ratio Perm</td><td>0.13</td><td>~</td><td></td><td>0.09</td></td>	Uniform Delay, d1 27.1 18.0 18.1 24.0 31.0 <td>v/c Ratio</td> <td>1.09</td> <td>1.19</td> <td></td> <td>).62 1</td> <td>.37</td> <td>1.05</td> <td>0.83</td> <td></td> <td>1.15</td> <td>1.19</td> <td></td> <td>v/s Ratio Perm</td> <td>0.13</td> <td>~</td> <td></td> <td>0.09</td>	v/c Ratio	1.09	1.19).62 1	.37	1.05	0.83		1.15	1.19		v/s Ratio Perm	0.13	~		0.09
Progression Factor 1.07 0.81 0.73 0.81 1.00 <td>Progression Factor 1.07 0.81 0.73 0.81 1.00<td>Uniform Delay, d1</td><td>27.1</td><td>18.0</td><td></td><td>18.1 2</td><td>4.0</td><td>31.0</td><td>28.7</td><td></td><td>31.0</td><td>31.0</td><td></td><td>v/c Ratio</td><td>0.18</td><td>3 1.06</td><td></td><td>0.12</td></td>	Progression Factor 1.07 0.81 0.73 0.81 1.00 <td>Uniform Delay, d1</td> <td>27.1</td> <td>18.0</td> <td></td> <td>18.1 2</td> <td>4.0</td> <td>31.0</td> <td>28.7</td> <td></td> <td>31.0</td> <td>31.0</td> <td></td> <td>v/c Ratio</td> <td>0.18</td> <td>3 1.06</td> <td></td> <td>0.12</td>	Uniform Delay, d1	27.1	18.0		18.1 2	4.0	31.0	28.7		31.0	31.0		v/c Ratio	0.18	3 1.06		0.12
Incremental Delay, d2 49.2 85.4 12.3 189.1 135.4 11.4 128.9 106.6 Progression Factor 1.44 1.54 1.00 Delay (s) 78.2 99.9 25.5 188.5 166.4 40.2 159.9 137.6 0.2 27.5 1.5 Delay (s) 78.2 99.9 25.5 188.5 166.4 40.2 159.9 137.6 0.2 27.5 1.5 Approach Delay (s) F F D 78.2 99.9 28.4 58.4 45.8 43.4 Approach LOS F F E F F 44.4 <td></td> <td>Progression Factor</td> <td>1.07</td> <td>0.81</td> <td>0</td> <td>0.73 0</td> <td>.81</td> <td>1.00</td> <td>1.00</td> <td></td> <td>1.00</td> <td>1.00</td> <td></td> <td>Uniform Delay, d</td> <td>11 3.6</td> <td>11.9</td> <td></td> <td>3.4</td>		Progression Factor	1.07	0.81	0	0.73 0	.81	1.00	1.00		1.00	1.00		Uniform Delay, d	11 3.6	11.9		3.4
Delay (s) 78.2 99.9 25.5 188.5 166.4 4.02 159.9 137.6 15 14.2 15 14.1 14 14 15 14 16 16 15 16 14 16 14 16 14 16 16 18 16 14 18 14 18 18 18 18 18 18 18 18 14 16 16 17 14 16 </td <td>Delay (s) 78.2 99.9 25.5 186.4 4.0.2 159.9 137.6 Incremental Delay, d2 0.2 27.5 Approach Delay (s) E F C F D F F 0.0 27.5 Approach Delay (s) 6.1 14.0 Handle (s) 6.1 14.0 Approach Delay (s) 5.4 45.8 Approach Delay (s) F F D 7.42 14.0 Approach Delay (s) 5.4 45.8 Approach LOS F F E F Approach Delay (s) 4.4 HCM Average Control Delay 12.5 HCM Level of Service F Acutated Cycle Length (s) 7.4 HCM Volume to Capacity Traition 13.1 Acutated Cycle Length (s) F Acutated Cycle Length (s) F Acutated Cycle Length (s) 12.0 Acutated Cycle Length (s) F Acutated Cycle Length (s) F Analysis Period (min) 15 Acutated Cycle Length (s) F Acutated Cycle Length (s) F Analysis Per</td> <td>Incremental Delay, d2</td> <td>49.2</td> <td>85.4</td> <td></td> <td>12.3 16</td> <td>9.1</td> <td>135.4</td> <td>11.4</td> <td></td> <td>128.9</td> <td>106.6</td> <td></td> <td>Progression Fact</td> <td>tor 1.44</td> <td>1.54</td> <td></td> <td>1.00</td>	Delay (s) 78.2 99.9 25.5 186.4 4.0.2 159.9 137.6 Incremental Delay, d2 0.2 27.5 Approach Delay (s) E F C F D F F 0.0 27.5 Approach Delay (s) 6.1 14.0 Handle (s) 6.1 14.0 Approach Delay (s) 5.4 45.8 Approach Delay (s) F F D 7.42 14.0 Approach Delay (s) 5.4 45.8 Approach LOS F F E F Approach Delay (s) 4.4 HCM Average Control Delay 12.5 HCM Level of Service F Acutated Cycle Length (s) 7.4 HCM Volume to Capacity Traition 13.1 Acutated Cycle Length (s) F Acutated Cycle Length (s) F Acutated Cycle Length (s) 12.0 Acutated Cycle Length (s) F Acutated Cycle Length (s) F Analysis Period (min) 15 Acutated Cycle Length (s) F Acutated Cycle Length (s) F Analysis Per	Incremental Delay, d2	49.2	85.4		12.3 16	9.1	135.4	11.4		128.9	106.6		Progression Fact	tor 1.44	1.54		1.00
Level of Service E F D F F D Delay (s) 5.4 45.8 49. Approach Delay 96.3 179.2 60.1 142.0 A D A D A Approach Delay 96.3 179.2 60.1 142.0 A A 44.4 A Approach Delay 124.5 HCM Level of Service F D A A HCM Average Control Delay 124.5 HCM Level of Service F A A A HCM Average Control Delay 124.5 HCM Level of Service F A A A A HCM Average Control Delay 124.5 HCM Level of Service F A A A B B HCM Average Control Delay 124.5 HCM Level of Service H A A B	Level of Service E F D D Belay (s) 5.4 45.8 Approach Delay (s) 96.3 179.2 60.1 142.0 Approach Delay (s) 5.4 45.8 Approach Delay (s) 96.3 179.2 60.1 142.0 Approach Delay (s) 5.4 45.4 Approach Delay F F F F 4.44 Approach Delay 124.5 HCM Level of Service F Approach LOS D HCM Average Control Delay 124.5 HCM Level of Service F Approach LOS D HCM Average Control Delay 124.5 HCM Level of Service F Approach LOS D HCM Average Control Delay 12.10 Artuated Cycle Level of Revice H Approach Cole A D HCM Volume to Capacity ratio 12.0 Artuated Cycle Level of Revice H Analysis Period (min) Analysis Period (min) Artuated Cycle Level of H(s) Analysis Period (min) Criti	Delay (s)	78.2	99.9	. 4	25.5 18	8.5	166.4	40.2		159.9	137.6		Incremental Dela	ay, d2 0.2	27.5		1.5
Approach Delay (s) 96.3 173.2 60.1 142.0 Approach Delay (s) F F 74.4 Approach LOS F F 44.4 Intersection Summary Approach Delay (s) 44.4 Intersection Summary D A HCM Average Control Delay 13.1 Mersection Summary D HCM Average Control Delay 13.1 Mersection Summary Approach Delay HCM Volume to Capacity tratio 13.0% RUM Kolume to Capacity tratio 1.00 HCM Volume to Capacity Utilization 13.3 Sum of lost time (s) 12.0 HCM Volume to Capacity Utilization 13.3 Cul Level of Service H HCM Volume to Capacity Utilization 13.0% Cul Level of Service H HCM Volume to Capacity Utilization 13.0% Cul Level of Service H HCM Volume to Capacity Utilization 13.0% 10.0 9.0 Intersection Capacity Utilization 15.5 Analysis Period (min) 15 C intical Lane Group C intical Lane Group 10.0 10.0	Approach Delay (s) 96.3 179.2 60.1 14.0 Approach Delay (s) F F 44.4 Approach LOS F F 44.4 Intersection Summary Approach LOS 0 Intersection Summary 1.31 Approach LOS 0 Intersection Summary 1.31 Approach LOS 0 HCM Average Control Delay 1.31 Approach LOS 0 HCM Average Control Delay 1.31 Approach LOS 0 HCM Average Control Delay 1.31 Approach LOS 0 Actuated Cycle Length (s) 0 Sum of lost time (s) 1 Actuated Cycle Length (s) 12.0% Intersection Capacity Utilization 9 Intersection Capacity Utilization 12.3.0% ICU Level of Service H Analysis Period (min) 15 Actuated Cycle Length (s) 1 Critical Lane Group Critical Lane Group Critical Lane Group 1	Level of Service	ш	ш		ပ	ш	œ			ш	ш		Delay (s)	5.4	45.8		4.9
Approach LOS F E F Approach Delay (s) 4.4 Intersection Summary Approach LOS D D Intersection Summary Intersection Summary D HCM Average Control Delay 1.31 HCM Average Control Delay 4.08 HCM Volume to Capacity ratio 1.31 HCM Your to Capacity ratio 1.00 HCM Volume to Capacity ratio 1.31 0.00 Average Control Delay 4.08 HCM Volume to Capacity ratio 1.33 0.00 Average Control Delay 4.08 HCM Volume to Capacity ratio 1.33 0.00 Average Control Delay 4.08 HCM Volume to Capacity ratio 1.33 0.00 Average Control Delay 4.08 Analysis Period (min) 1.5 Average Control Delay 1.00 Analysis Period (min) 1.5 Average Control Delay 1.12 C critical Lane Group 1.5 Average Control Delay 1.12	Approach LOS F F F 44.4 Intersection Summary Approach Delay (s) 44.4 Intersection Summary Approach LOS D HCM Average Control Delay 124.5 HCM Level of Service F HCM Average Control Delay 124.5 HCM Level of Service F HCM Average Control Delay 123.0% Cum of lost time (s) 12.0 Actuated Cycle Length (si) 12.0 Actuated Cycle Length (s) P Intersection Capacity Utilization 123.0% ICU Level of Service H Analysis Period (min) 15 Critical Lane Group P Critical Lane Group Critical Lane Group Critical Lane Group Critical Lane Group	Approach Delay (s)		96.3		17	9.2		60.1			142.0		Level of Service	4	-		A
Intersection Summary Approach LOS D HCM Average Control Delay 124.5 HCM Level of Service F Intersection Summary 40.8 HCM Average Control Delay 1.31 Intersection Summary 40.8 HCM Volume to Capacity ratio 1.31 Intersection Summary 40.8 Actuated Cycle Length (s) 90.0 Num of lost time (s) 1.00 Actuated Cycle Length (s) 12.0 Actuated Cycle Length (s) 90.0 Analysis Period (min) 15 Critical Lane Group 91.2% c Critical Lane Group 15 Critical Lane Group 1.15	Intersection Summary Approach LOS D HCM Average Control Delay 124.5 HCM Level of Service F HCM Volume to Capacity ratio 1.31 Intersection Summary P Actuated Cycle Length (s) 90.0 Sum of lost time (s) 12.0 Analysis Period (min) 15 Intersection Capacity Utilization 9 Analysis Period (min) 15 Actuated Cycle Length (s) 9 Critical Lane Group Critical Lane Group Critical Lane Group 6	Approach LOS		ш			ш		ш			ш		Approach Delay	(s)	44.4		
HCM Average Control Delay 124.5 HCM Level of Service F HCM Average Control Delay 124.5 HCM Level of Service F HCM Average Control Delay 124.5 HCM Level of Service F HCM Volume to Capacity ratio 1.31 HCM Volume to Capacity Utilization 1.30% Actuated Cycle Length (s) 90.0 Actuated Cycle Length (s) 1.00 Actuated Cycle Length (s) 0.0 Control Level of Service H Cycle Lane Cycle Length (s) 0.0 Control Level of Service Cycle Lane Cycle Length (s) 0.0 Control Level of Service Cycle Lane Cycle Length (s) 0.0 Control Level of Service Cycle Lane Cycle Length (s) 0.0 Control Level of Service Cycle Lane Cycle Length (s) 0.0 Control Level of Service Cycle Lane Cycle Length (s) 0.0 Control Level of Service Cycle Lane Cycle Length (s) 0.0 Control Level of Service Cycle Lane Cycle Length (s) 0.0 Cycle Lane Cycle L	HCM Average Control Delay 124.5 HCM Level of Service F HCM Average Control Delay 124.5 HCM Level of Service F HCM Volume to Capacity ratio 1.31 HCM Volume to Capacity ratio Capacity ratio Actuated Cycle Length (s) 20.0 Sum of lost time (s) 12.0 HCM Volume to Capacity Tatio Actuated Cycle Length (s) 20.0 Sum of Service H HCM Volume to Capacity Utilization 2.0 Analysis Period (min) 15 Cutical Lane Group c Critical La	Intersection Summary												Approach LOS				
HCM Volume to Capacity ratio 1.31 HCM Volume to Capacity ratio 1.31 HCM Volume to Capacity ratio 1.31 HCM Volume to Capacity ratio 1.30 Actuated Cycle Length (s) 90.0 Actuated Cycle Leng	HCM Volume to Capacity ratio HCM Volume to Capacity ratio Actuated Cycle Length (s) 90.0 Sum of lost time (s) 12.0 Actuated Cycle Length (s) 90.0 Sum of lost time (s) 12.0 Intersection Capacity Utilization 123.0% ICU Level of Service H Analysis Period (min) 15 Critical Lane Group C Critical Lane Group	HCM Average Control Del	Ne	1	14 5	ICH	A Level of	Service		ш				Intersection Sum	nmarv			
Actuated Cycle Length (s) 90.0 Sum of lost time (s) 12.0 HCM Volume to Capacity and 1.00 HCM Volume to Capacity 1.	Actuated Cycle Length (s) 9.0 Sum of lost time (s) 12.0 HCM Volume to Capacity ratio Actuated Cycle Length (s) 9.0 Sum of lost time (s) 12.0 HCM Volume to Capacity ratio Actuated Cycle Length (s) Intersection Capacity Utilization 123.0% ICU Level of Service H Analysis Period (min) 15 ICU Level of Service H Analysis Period (min) 15 Critical Lane Group Compared Cycle Length (s) Analysis Period (min) 12.0 Critical Lane Group Cycle Length (s) Cycle Length (s) Critical Lane Group Cycle Length (s) Cycle Cycle Cycle Cycle Cycle Length (s) Cycle Cycl	HCM Volume to Capacity	ratio		5.6	5				-				HCM Averade Cr	ontrol Delav		40.8	
c Critical Lane Group couper out and contraction to compare the contract of service H Analysis Period (min) 15 IC Level of Service H Analysis Period (min) 15 IC Level of Service H Analysis Period (min) 15 Critical Lane Group 15 Critical Lane Critical La	Intersection capacity Utilization 123.0% ICU Level of Service H Actuated Cycle Length (s) Actuated Cycle Length (s) Analysis Period (min) 15 ICU Level of Service H Actuated Cycle Length (s) Analysis Period (min) 15 Critical Lane Group C Critical Lane Group C Critical Lane Group C Critical Lane Group		ano			Sum	of loct tir	no (c)		12.0					Canacity ratio			
Analysis Period (min) 15 Critical Lane Group 15 Critical Lane Critical Lan	Analysis Period (min) 15 15 15 15 15 15 15 15 15 15 15 15 15	Intersection Canacity Utiliz	ation	123	0%0	ICU	l evel of 3	Service		2 1				Achilated Cycle I	enath (s)		0.08	
c Critical Lane Group dI Defacto Left Lane. Recode with 1 though lane at c Critical Lane Group	c Critical Lane Group dl Defacto Left Lane. Recode with 1 th c Critical Lane Group	Analvsis Period (min)			15									Intersection Cap	acity Utilizatio	u	91.2%	
dl Defacto Left Lane. Recode with 1 though lane at c Critical Lane Group	dl Defacto Left Lane. Recode with 1 th c Critical Lane Group	c Critical Lane Group												Analvsis Period ((min)		15	
c Critical Lane Group	c Critical Lane Group													dl Defacto Left	Lane. Recor	de with	though	lane as
														c Critical Lane	Group		•	

ICM Signalized Inte 0: OR 126 & Elm S	ersectio	on Cap	acity A	Analysi	S						6/22	2005
	1	t	1	5	ŧ	~	1	←	•	٠	-	
lovement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
ane Configurations	۶	æ		۴	\$			¢ t			4t)	
leal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
otal LOSt UITIE (S) ane I Itil Factor	0.4 0.4	0.4		1 00	0.4			0.4.0			0.4.0	
tt	1.00	0.99		1.00	1.00			0.97			0.97	
It Protected	0.95	1.00		0.95	1.00			0.98			0.97	
atd. Flow (prot)	1466	1381		1466	1383			2756			2730	
It Permitted	0.18	1.00		0.15	1.00			0.71			0.67	
atd. Flow (perm)	278	1381		230	1383			1982			1878	
olume (vph)	35	985	35	20	935	25	75	105	50	155	55	50
eak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
dj. Flow (vph)	37	1037	37	21	984	26	79	111	53	163	58	53
TOR Reduction (vph)	0	-	0	0	-	0	0	33	0	0	27	0
ane Group Flow (vph)	37	1073	0	21	1009	0	0	210	0	0	247	0
eavy Vehicles (%)	5%	2%	5%	5%	2%	5%	1%	1%	1%	1%	1%	1%
arking (#/hr)		0			0			0			0	
um Type	Perm			Perm			Perm			Perm		
rotected Phases		9			0			ω			4	
ermitted Phases	9			2			∞			4		
ctuated Green, G (s)	66.3	66.3		66.3	66.3			15.7			15.7	
ffective Green, g (s)	66.3	66.3		66.3	66.3			15.7			15.7	
ctuated g/C Ratio	0.74	0.74		0.74	0.74			0.17			0.17	
learance Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
ehicle Extension (s)	3.5	3.5		3.5	3.5			2.5			2.5	
ane Grp Cap (vph)	205	1017		169	1019			346			328	
's Ratio Prot		c0.78			0.73							
's Ratio Perm	0.13			0.09				0.11			c0.13	
c Ratio	0.18	1.06		0.12	0.99			0.61		-	0.94dl	
niform Delay, d1	3.6	11.9		3.4	11.5			34.3			35.3	
rogression Factor	1.44	1.54		1.00	1.00			1.00			1.00	
icremental Delay, d2	0.2	27.5		1.5	26.0			2.5			8.9	
elay (s)	5.4	45.8		4.9	37.5			36.8			44.3	
evel of Service	A	۵		A	۵			۵			۵	
pproach Delay (s)		44.4			36.9			36.8			44.3	
pproach LOS		۵			۵			۵			۵	
Itersection Summary												
CM Average Control D	elay		40.8	Ĩ	CM Lev	el of Se	rvice					
CM Volume to Capacit	y ratio		1.00	C	1				0			
ctuated Cycle Length (s)		0.08	<u>ה</u>		st time	(s)		0.1 20			
itersection Capacity Ut	lization		91.2%	2	U Leve	I of Sen	/ICe		L			
nalysis Period (min)			ດ <u>ເ</u>									
Deracto Lett Lane.	Kecode	I I. UIIM	uguou	ane as a	a lett lar	le.						
Critical Lane Group												

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	۶	÷		۶	\$			¢			÷	
Sign Control		Free			Free			Stop			Stop	
Grade		%0			%0			%0			%0	
Volume (veh/h)	25	1180	10	10	1000	5	9	10	10	10	15	20
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	26	1242	;	7	1053	ъ	7	7	7	1	16	21
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX. platoon unblocked												
vC. conflicting volume	1058			1253			2403	2379	1247	2387	2382	1055
vC1. stage 1 conf vol												
vC2 stage 2 conf vol												
vCii. unblocked vol	1058			1253			2403	2379	1247	2387	2382	1055
tC single (s)	41			41			7.1	6.5	62	7.1	6.5	6.2
tC 2 stade (s)								2			5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
n0 dilata frae %	QR			go			17	89	QF	35	ъ.	60
bo due nee %	000			00			- ;	8	010	0.0	5 6	32
civi capacity (venni)	04/			040			2	3	017	0	25	C/7
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	26	1253	11	1058	32	47						
Volume Left	26	C	11	C	;	11						
Volume Dicht		, <u>+</u>		о и		21						
				0041	- 00	- 00						
CSH	04/		040	00/1	07	39						
Volume to Capacity	0.04	0.74	0.02	0.62	1.20	1.21						
Queue Length 95th (ft)	e	0	-	0	95	119						
Control Delay (s)	10.8	0.0	11.7	0.0	464.9	374.4						
Lane LOS	ш		ш		ш	ш						
Approach Delay (s)	0.2		0.1		464.9	374.4						
Approach LOS					ш	ш						
Interception Common												
Average Delay			13.5						1			
Intersection Capacity Ut	llization		76.2%	2	U Leve	I of Ser	vice					
Analysis Period (min)			15									

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HCM Unsignalized Intersection Capacity Analysis 12: OR 126 & Knowledge Street

12: OR 126 & Know	ledge :	Street					6/22/2005
	t	۲	4	ŧ	4	×	
Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	÷		۴	*	×		
Sign Control	Free			Free	Stop		
Grade	%0			%0	%0		
Volume (veh/h)	1025	35	85	750	75	60	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Hourly flow rate (vph)	1079	37	89	789	29	63	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type					None		
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked							
vC, conflicting volume			1116		2066	1097	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol			1116		2066	1097	
tC, single (s)			4.1		6.4	6.2	
tC, 2 stage (s)							
tF (s)			2.2		3.5	3.3	
p0 queue free %			85		0	75	
cM capacity (veh/h)			615		50	255	
Direction, Lane #	EB 1	WB 1	WB 2	NB 1			
Volume Total	1116	89	789	142			
Volume Left	0	89	0	79			
Volume Right	37	0	0	63			
cSH	1700	615	1700	78			
Volume to Capacity	0.66	0.15	0.46	1.82			
Queue Length 95th (ft)	0	13	0	308			
Control Delay (s)	0.0	11.8	0.0	504.3			
Lane LOS		ш		ш			
Approach Delay (s)	0.0	1.2		504.3			
Approach LOS				ш			
Intersection Summary							
Average Delay			34.0				
Intersection Capacity Ut Analysis Period (min)	ilization	~	32.4% 15	⊆	SU Leve	l of Service	ш

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Movement Et	ВГ	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	r	æ,		٣	÷,			¢			¢	
Ideal Flow (vphpl) 18(00	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s) 4	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor 1.0	00.	1.00		1.00	1.00			1.00			1.00	
Frt 1.0	0 <u>.</u>	0.95		1.00	0.99			0.97			0.97	
Fit Protected 0.0	.95	1.00		0.95	1.00			0.98			0.99	
Satd. Flow (prot) 16.	329	1630		1629	1696			1690			1714	
Fit Permitted 0.1	.20	1.00		0.18	1.00			0.72			0.90	
Satd. Flow (perm) 34	346	1630		310	1696			1237			1560	
Volume (vph)	45	495	240	150	600	45	135	125	85	60	205	75
Peak-hour factor, PHF 0.	.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	47	521	253	158	632	47	142	132	89	63	216	79
RTOR Reduction (vph)	0	33	0	0	5	0	0	25	0	0	22	0
Lane Group Flow (vph)	47	741	0	158	674	0	0	338	0	0	336	0
Heavy Vehicles (%) 5	5%	5%	5%	5%	5%	5%	1%	1%	1%	1%	1%	1%
Turn Type Per	srm			Perm			Perm			Perm		
^D rotected Phases		2			9			œ			4	
Permitted Phases	2			9			ω			4		
Actuated Green, G (s) 22	2.1	22.1		22.1	22.1			17.0			17.0	
Effective Green, g (s) 22	2.1	22.1		22.1	22.1			17.0			17.0	
Actuated g/C Ratio 0.4	47	0.47		0.47	0.47			0.36			0.36	
Clearance Time (s) 4	4.0	4.0		4.0	4.0			4.0			4.0	
Vehicle Extension (s) 5	5.0	5.0		5.0	5.0			5.0			5.0	
Lane Grp Cap (vph) 16	162	765		145	796			446			563	
v/s Ratio Prot		0.45			0.40							
v/s Ratio Perm 0.	14			c0.51				c0.27			0.22	
v/c Ratio 0.2	29	0.97		1.09	0.85			0.76			0.60	
Uniform Delay, d1 7	7.7	12.2		12.5	11.0			13.2			12.3	
Progression Factor 1.	00.	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2 2	2.7	25.1		100.8	9.1			8.6			2.6	
Delay (s)	а. а	5/.3		113.3				×1.8			14.0	
	×	בי ג		-	י כ ז			ט כ ג				
Approacn Delay (s)		35.7			31.1			21.8			14.8	
Approach LOS								ပ			ш	
Intersection Summary												
HCM Average Control Delay	>		31.1	Т	CM Lev	el of Sei	vice		υ			
HCM Volume to Capacity ra	atio		0.94									
Actuated Cycle Length (s)			47.1	ō	nn of lo	st time (s)		8.0			
ntersection Capacity Utiliza	ation	10	1.4%	2	U Leve	l of Serv	ice		ი			
Analysis Period (min)			15									

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HCM Unsignalized Ir 14: OR 126 & Laughl	itersec in Roá	ction C ad	apacit	y Anal)	/sis		6/22/2005
	ሻ	t	ŧ	¥	•	~	
Movement	EBL	EBT	WBT	WBR	SEL	SER	
Lane Configurations		*	÷		۶		
Sign Control		Free	Free		Stop		
Grade		%0	%0		%0		
Volume (veh/h)	0	410	475	35	95	0	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Hourly flow rate (vph)	0	432	500	37	100	0	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type					None		
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked							
vC, conflicting volume	537				950	518	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	537				950	518	
tC, single (s)	4.1				6.4	6.2	
tC, 2 stage (s)							
tF (s)	2.2				3.5	3.3	
p0 queue free %	100				65	100	
cM capacity (veh/h)	1016				285	551	
Direction, Lane #	EB 1	WB 1	SE 1				
Volume Total	432	537	100				
Volume Left	0	0	100				
Volume Right	0	37	0				
cSH	1700	1700	285				
Volume to Capacity	0.25	0.32	0.35				
Queue Length 95th (ft)	0	0	38				
Control Delay (s)	0.0	0.0	24.3				
Lane LOS			U				
Approach Delay (s)	0.0	0.0	24.3				
Approach LOS			ပ				
Intersection Summary							
Average Delay			2.3				
Intersection Capacity Util	ization	7	%6 [.] 0t	<u>○</u>	U Level	of Service A	
Analysis Period (min)			15				

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	\$	~	- -	•	→ ,		
Movement	WBL W	BR NB	ST NE	BR S	3L SBT	Movement WBL WBR NBT NBR SBL SBT	
Lane Configurations	r	×	+	×.	*	Lane Configurations 🏋 🛧 🚓	
Sign Control	Stop	Ener.	e.		Free	Sign Control Stop Free Free	
Grade	%0	ō	%		%0	Grade 0% 0% 0%	
Volume (veh/h)	165	20 37	70	95	5 265	Volume (veh/h) 75 85 880 85 30 650	
Peak Hour Factor	0.95 (.95 0.9	95 0.	95 0	95 0.95	Peak Hour Factor 0.95 0.95 0.95 0.95 0.95 0.95	
Hourly flow rate (vph)	174	21 38	39 2	05	5 279	Hourly flow rate (vph) 79 89 926 89 32 684	
Pedestrians						Pedestrians	
Lane Width (ft)						Lane Width (ft)	
Walking Speed (ft/s)						Walking Speed (ft/s)	
Percent Blockage						Percent Blockage	
Right turn flare (veh)						Right turn flare (veh)	
Median type	Vone					Median type None	
Median storage veh)						Median storage veh)	
Upstream signal (ft)						Upstream signal (ft) 650	
pX, platoon unblocked						pX, platoon unblocked	
vC, conflicting volume	619	389		(1)	39	vC, conflicting volume 1376 508 1016	
vC1, stage 1 conf vol						vC1, stage 1 conf vol	
vC2, stage 2 conf vol						vC2, stage 2 conf vol	
vCu. unblocked vol	679	389			6	vCri. unblocked vol 1376 508 1016	
tC, single (s)	6.4	6.2		Ì	£.	tC, single (s) 6.8 6.9 4.1	
tC, 2 stage (s)						tC, 2 stage (s)	
tF (s)	3.5	3.3			Ņ	tF(s) 3.5 3.3 2.2	
p0 queue free %	58	97		Ē	0	p0 queue free % 39 82 95	
cM capacity (veh/h)	415	659		÷	60	cM capacity (veh/h) 130 510 679	
Direction I ane #	WR 1 W	R 2 NR	1 NF	S C S	1 SR 2	Direction Jane # WR 1 NR 1 SR 1 SR 2	
Volumo Total	17.4	24 20			5 270		
	174	7		9	5 7/3 E		
	t 0	5					
		Z1 270		00	0 027		
COH	412				00/1 60		
Volume to Capacity	0.42	0.03 0.2	23 0.	12 0	00 0.16 0		
Queue Length 95th (ft)	51	2	0	0	0	Queue Length 95th (ft) 139 0 0 4 0	
Control Delay (s)	19.8	0.6 0	0.	0.0	.1 0.0	Control Delay (s) 64.0 0.0 0.0 1.8 0.0	
Lane LOS	ပ	в			A	Lane LOS F A	
Approach Delay (s)	18.8	0	o.		₹.	Approach Delay (s) 64.0 0.0 0.6	
Approach LOS	ပ					Approach LOS F	
Intersection Summary						Intersection Summary	
Average Delav		e.	4			Averade Delav 5.9	
Intersection Capacity Utili	zation	36.9	%	ICU	evel of Servic	ce A ICU Level of Service	æ
Analysis Period (min)			15)		Analysis Period (min) 15	1
Prineville TSP 5:00 nm 8/	23/2002	2025 No I	Ruild P	M Peak	PHF 95	Swichin 6 Renord Drinewille TSD 5-00 nm 8/33/2002 2025 No Ruild DM Peak DHF 95	Svnchro 6 Renort
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HCM Signalized Intersection Capacity Analysis 17: 10th Street & Main Street

17: 10th Street & Ma	in Stre	et			,						6/22	/2005
	•	Ť	۲	1	ŧ	~	4	+	٠	۶	-	\mathbf{F}
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		ţ	*		¢			ţ			ţ	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)		4.0	4.0		4.0			4.0			4.0	
Lane Util. Factor		1.00	1.00		1.00			0.95			0.95	
Frt		1.00	0.85		0.99			0.99			0.98	
Fit Protected		0.96	1.00		0.97			0.99			1.00	
Satd. Flow (prot)		1711	1515		1719			3293			3274	
Flt Permitted		0.69	1.00		0.74			0.75			0.95	
Satd. Flow (perm)		1229	1515		1318			2495			3111	
Volume (vph)	205	40	210	09	35	2	140	535	40	2	460	85
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	216	42	221	63	37	2	147	563	42	2	484	89
RTOR Reduction (vph)	0	0	138	0	ო	0	0	9	0	0	21	0
Lane Group Flow (vph)	0	258	83	0	102	0	0	746	0	0	557	0
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	2%	2%	2%	2%	2%	2%
Turn Type	Perm		Perm	Perm			Perm			Perm		
Protected Phases		4			4			2			7	
Permitted Phases	4		4	4			2			2		
Actuated Green, G (s)		15.2	15.2		15.2			21.8			21.8	
Effective Green, g (s)		15.2	15.2		15.2			21.8			21.8	
Actuated g/C Ratio		0.34	0.34		0.34			0.48			0.48	
Clearance Time (s)		4.0	4.0		4.0			4.0			4.0	
Vehicle Extension (s)		3.0	3.0		3.0			3.0			3.0	
Lane Grp Cap (vph)		415	512		445			1209			1507	
v/s Ratio Prot												
v/s Ratio Perm		c0.21	0.05		0.08			c0.30			0.18	
v/c Ratio		0.62	0.16		0.23			0.62			0.37	
Uniform Delay, d1		12.5	10.4		10.7			8.5			7.3	
Progression Factor		1.00	1.00		1.00			1.00			1.00	
Incremental Delay, d2		2.9	0.1		0.3			0.9			0.2	
Delay (s)		15.4	10.6		11.0			9.5			7.4	
Level of Service		B	B		ш			4			۷	
Approach Delay (s)		13.2			11.0			9.5			7.4	
Approach LOS		В			ш			4			A	
Intersection Summary												
HCM Average Control Do	elay		9.6	Т	CM Lev	el of Se	rvice		۷			
HCM Volume to Capacity	y ratio		0.62									
Actuated Cycle Length (s	s)		45.0	S	um of lo	st time	(s)		8.0			
Intersection Capacity Utii	lization		67.2%	2	SU Leve	l of Ser	/ice		U			
Analysis Period (min)			15									
c Critical Lane Group												

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18: 9th Street & Mai	n Stree											
	1	t	۲	>	ŧ	~	4	•	٠	٦	-	\mathbf{F}
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		÷			÷		۶	÷		۶	*	۰.
Sign Control		Stop			Stop			Free			Free	
Grade		%0			%0			%0			%0	
Volume (veh/h)	80	0	245	0	0	0	160	770	0	0	770	130
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	8	0	258	0	0	0	168	811	0	0	811	137
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)											318	
pX, platoon unblocked	0.87	0.87	0.87	0.87	0.87		0.87					
vC, conflicting volume	1958	1958	811	2216	2095	811	947			811		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2104	2104	782	2402	2262	811	939			811		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	100	24	100	100	100	73			100		
cM capacity (veh/h)	26	33	341	4	26	378	633			815		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3					
Volume Total	342	0	168	811	0	811	137					
Volume Left	84	0	168	0	0	0	0					
Volume Right	258	0	0	0	0	0	137					
cSH	85	1700	633	1700	1700	1700	1700					
Volume to Capacity	4.03	00.0	0.27	0.48	0.00	0.48	0.08					
Queue Length 95th (ft)	Е	0	27	0	0	0	0					
Control Delay (s)	Ъ	0.0	12.7	0.0	0.0	0.0	0.0					
Lane LOS	ш	٩	ш									
Approach Delay (s)	Ъ	0.0	2.2		0.0							
Approach LOS	ш	A										
Intersection Summary												
Average Delay		-	508.9									
Intersection Capacity Uti	lization	Ű	32.7%	2	U Leve	l of Sen	vice		ш			
Analysis Period (min)			15									

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Prineville TSP 5:00 pm 8/23/2002 2025 No Build PM Peak PHF .95 The Transpo Group

wement Well NBT	
Configurations M Image Configrations <	Lane Configurations Y T A B Sign Control Stop 500 700 500 Sign Control 0% 0% 0% 0% Volume (veh/h) 20 15 15 770 570 5 Peak Hour Factor 0.95 0.95 0.95 0.95 0.95 0.95 0.95 Houry How rate (vph) 21 16 811 600 5 9 Pedestrum 0.35 0.95 0.95 0.95 0.95 0.95 Houry How rate (vph) 21 16 811 600 5 Pedestrum 0.05 1300 960 5 960 5 Proteinet Blockage None 1300 960 960 5 5 Proteinet Blockage 145 603 605 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 </th
Control Stop Free Sign Control Stop Free Free 16 0% <td< td=""><td>Sign Control Stop Free Free Grade 0% 0% 0% 0% Colume (vehh) 0% 0% 0% 0% 0% 0% Paulue (vehh) 0%</td></td<>	Sign Control Stop Free Free Grade 0% 0% 0% 0% Colume (vehh) 0% 0% 0% 0% 0% 0% Paulue (vehh) 0%
1 0% </td <td>Grade 0% 0% 0% 0% Volume (veh/h) 20 15 770 570 5 Path Hour Factor 035</td>	Grade 0% 0% 0% 0% Volume (veh/h) 20 15 770 570 5 Path Hour Factor 035
me (veh/h) 60 255 700 70 265 575 10 20 15 70 Hour Factor 0.35<	Volume (veh/h) 20 15 770 570 5 Peak Hour Factor 0.95
Hour Fractor 0.95	Peak Hour Factor 0.95 <th0.95< th=""> 0.95 0.95</th0.95<>
vy flow rate (vpl) 63 268 737 74 279 605 811 strians strians strians edestrians redestrians redstrians redestrians redestrian	Hourly flow rate (vph) 21 16 811 600 5 Pedestrians Lae width (ff) Nativing Speed (fts) 1 811 600 5 Lane width (ff) Valking Speed (fts) 1 <td< td=""></td<>
strians Erectations Erectations Erectations Width (f) Erec Width (f) Erec Width (f) Wrath (f) Erec Width (f) Erec Width (f) Int Blockage Erec Width (f) Erec Width (f) Int Blockage Erec Width (f) Erec Width (f) Int Blockage Erec Width (f) Erec Width (f) Int Flockage Erec Width (f) Erec Width (f) Int Flockage Modein type None Int Flockage Modian type None Int Flockage None </td <td>Pedestrians Lane Width (ft) Valking Speed (fts) Percent Blockage Right turn flare (veh) Median type Right turn flare (veh) Median storage veh) Upstream signal (ft) Dystram signal (ft) C, stage 1 conf vol VC, conflicting volume VC, stage 2 conf vol VC, stage 1 conf vol VC, stage 2 conf vol VC, stage 1 conf vol VC, stage 2 conf vol VC, stage 1 conf vol VC, stage 2 conf vol VC, stage 2 conf vol VC, stage 1 conf vol VC, stage 1 conf vol VC, stage 2 c</td>	Pedestrians Lane Width (ft) Valking Speed (fts) Percent Blockage Right turn flare (veh) Median type Right turn flare (veh) Median storage veh) Upstream signal (ft) Dystram signal (ft) C, stage 1 conf vol VC, conflicting volume VC, stage 2 conf vol VC, stage 1 conf vol VC, stage 2 conf vol VC, stage 1 conf vol VC, stage 2 conf vol VC, stage 1 conf vol VC, stage 2 conf vol VC, stage 2 conf vol VC, stage 1 conf vol VC, stage 1 conf vol VC, stage 2 c
Width (th) Lane Width (fh) Lane Width (fh) ing Speed (fts) Valing Speed (fts) Valing Speed (fts) ing Speed (fts) Valing Speed (fts) Present Blockage furn flare (veh) None Right furn flare (veh) Present Blockage furn flare (veh) None Right furn flare (veh) None in type None Right furn flare (veh) None an storage veh) B60 Median type None an storage veh) B60 Median type None at storage veh) Storaficting volume 1337 774 1300 at storage veh) Storaficting volume 1337 774 811 1300 at storage veh) Stage 1 conf vol Stage 2 conf vol 72 813 56 565 at blocked vol 1337 774 811 Stage 2 conf vol 72 814 52 41 at blocked vol 1337 774 811 514 565 516 565 516 565 516 516 51 51 51 51 51 51 <	Lane Width (ft) Walking Speed (fts) Percent Blockage Right furn flare (veh) Median type Median type Median storage veh) Median storage veh Median storage veh
ng Speed (fts) Waiking Speed (fts) ng Speed (fts) Waiking Speed (fts) nt Blockage Ercent Blockage turn flare (veh) Percent Blockage turn flare (veh) Percent Blockage turn flare (veh) None turn flare (veh) None an storage veh) None attorn unblocked V. G. stage 2 conf vol stage 2 conf vol None	Waiking Speed (tts) Percent Blockage Right turn flare (veh) Median type Median type Median storage veh) Upstream signal (th) 2. Stage veh) Upstream signal (th) 2. Stage 2 conf vol VC1, stage 1 conf vol VC1, stage 2 conf vol VC2, stage 2 conf vol VC2, stage 2 conf vol VC2, stage 2 conf vol VC3, stage 3 conf VC3, stage 2 conf vol VC3, stage 3 conf VC3, stage 2 conf vol VC3, stage 3 conf VC3, stage 3 c
Biochool Precent Biockage	Percent Blockage Right furn flare (veh) Median type None Right furn flare (veh) 1300 Median type 1300 Upstream signal (f) 1300 Upstream signal (f) 1300 VC, conflicting volume 145 VC, stage 1 conf vol 605 VC1, stage 1 conf vol 645 VC1, stage 2 conf vol 64 VC2, stage 2 conf vol 64 VC1, stage 1 conf vol 63 VC2, stage 2 conf vol 64 VC1, stoge (s) 64 C2, stage (s) 63 C2, stage (s) 63 C3, stage (s) 63 C4 63 C5 4.1 C6, stage (s) 6.4 C6, stage (s) 6.4 C6, stage (s) 6.4 C6, stage (s) 6.7
Intervense Intervense Intervense Eight turn flare (ef) Eight turn flare (ef) Fight tur	Right furn flackwords Median type (vef) Median type standard (r) Median storage veh) Median storage veh Median stor
Initial (k1) None	Median type Median type Median storage veh) Upstream signal (th) DyX, platonou unblocked vC1, stage 1 conf vol vC1, stage 2 conf vol vC2, stage 2 conf vol vC2, stage 2 conf vol vC2, stage 2 conf vol vC3, stage 2 conf vol vC4, stage 1 conf vol vC3, stage 2 conf vol vC4, stage 1 conf vol
In type None None In storage veh) Nedian storage veh) Nedian storage veh) 1300 aan storage veh) Een storage veh) Nedian storage veh) 1300 aan storage veh) Een storage veh) Nedian storage veh) 1300 aan storage veh) Een storage veh) Nedian storage veh) 1300 aan storage veh Nedian storage veh) Nedian storage veh) 1300 aan storage veh Nedian storage veh Nedian storage veh 1300 anticiting volume 1937 774 811 1300 unblocked vol 1937 774 811 Nedian storage to onf vol 1445 603 605 stora (sol) 6.4 6.2 4.1 f.0 f.0 f.0 f.0 f.1 f.0 f.1 f.0 f.1 f.0 f.1 f.0 f.1 f.0 f.1 f.1 f.0 f.1	Median type None Median type 1300 960 Upstream signal (f) 1300 960 px, platoon unblocked 1300 960 px, platoon unblocked 603 605 px, stage 1 onf vol 603 605 vC1, stage 1 onf vol 603 605 vC1, stage 2 onf vol 64 62 4.1 vC2, stage (s) 6.4 6.2 4.1 tC, stage (s) 6.4 6.2 4.1 tC, stage (s) 6.4 6.2 4.1 tC, stage (s) 6.8 5.3 2.2 tF (s) 3.5 3.3 2.2 op queue tree % 86 97 98
In storage veh) median storage veh) median storage veh) ann storage veh) ann storage veh) median storage veh veh veh veh veh veh veh veh veh ve	Median storage veh) 1300 960 Upstream signal (ft) 1300 960 pX, platroon unblocked 145 603 605 vC, conflicting volume 1445 603 605 vC, unblocked vol 1445 603 605 vU, unblocked vol 1445 603 605 vL, unblocked vol 1445 603 605 vC, stage 2 conf vol 1445 603 605 vL, unblocked vol 1445 603 605 vC, stage (s) 5.4 6.2 4.1 vC, stage (s) 3.5 3.2 22 PT (c, stage (s) 3.5 3.3 2.2 PO queue free % 86 97 98
am signal (ft) 860 (a model of the second by the signal (ft) 1300 (b model of the second by the signal (ft) 1300 (b model of the second by the signal (ft) 1317 (c model of the second by the signal (ft) 1317 (c model of the second by the sec	Upstream signal (ii) 1300 960 pX, platom unblocked 145 603 605 vC1, stage 1 conf vol 145 603 605 vC1, stage 1 conf vol 145 603 605 vC2, stage 2 conf vol 145 603 605 vC3, stage 2 conf vol 145 603 605 vC4, unblocked vol 145 603 605 tC, 2 stage (s) 5.4 6.7 4.1 tC, 2 stage (s) 6.8 7 98 of queatory (veh/h) 143 499 973
ation unblocked px, platoon unblocked px, or conflicting volume 1337 774 811 vc. conflicting volume 1445 603 605 vc. conflicting volume 1445 603 605 stage 2 conf vol stage 2 conf vol vc. stage 2 conf vol vc. unblocked vol 1337 774 811 vc. unblocked vol 1337 774 811 vc. unblocked vol 1337 774 811 vc. unblocked vol 1337 774 stage 2 conf vol vc. stage 2 conf vol vc. stage 2 conf vol vc. unblocked vol vc. unblocked vol 1337 774 stage 2 conf vol vc. unblocked vc. vc. unblocked vc. unb	pX, platoon unblocked vC, conflicting volume 1445 603 605 vC1, stage 1 conf vol vC2, stage 2 conf vol vC2, unblocked vol 1445 603 605 vC2, unblocked vol 1445 603 605 tC, stage (s) 6.4 6.2 4.1 tC, 2 stage (s) 3.5 3.3 2.2 tF (s) 3.5 3.7 38 of depadity (veh/h) 143 499 973
Inflicting volume 137 774 811 VC. conflicting volume 1445 603 605 stage 1 conf vol stage 1 conf vol vC.1, stage 1 conf vol vC.2, stage 2 conf vol vC.3, stage 2	vC. conflicting volume 1445 603 605 vC1, stage 1 conf vol vC2, stage 2 conf vol vC1, unbiocked vol 1445 603 605 tC, single (s) 6.4 6.2 4.1 tC, 2 stage (s) 5.5 3.3 2.2 tF (s) 3.5 3.3 2.2 eM queue free % 63 97 98 eM queue free % 9 973
stage 1 conf vol vC1, stage 1 conf vol stage 2 conf vol vC2, stage 2 conf vol unblocked vol 1937 774 811 unblocked vol 1937 774 6.4 6.2 4.1 fe (s) 6.4 6.2 4.1 6.2 4.1	vC1, stage 1 conf vol vC2, stage 2 conf vol vC2, stage 2 conf vol CU, undecked vol 145 603 605 tC, stage (s) 6.4 6.2 4.1 tC, 2 stage (s) 5.5 3.3 2.2 tF (s) 3.5 3.3 2.2 tF (s) 8.5 97 98 kM capadity (veh/h) 143 499 973
stage 2 control vC2. stage 2 control unblocked vol 1937 774 811 unblocked vol 1937 774 811 unblocked vol 1937 774 6.4 6.2 4.1 tps://stage (s) 6.4 6.2 4.1 6.2 4.1	vC2, stage 2 conf vol vCu, unblocked vol 1445 603 605 tC, single (s) 6.4 6.2 4.1 tC, 2 stage (s) 5.3 3.3 2.2 tF (s) 3.5 3.3 2.2 tP (s) 85 97 98 kM capadity (veh/h) 143 499 973
unbiocked vol 1937 774 811 vol 1936 603 605 vol unbiocked vol 1445 603 605 vol unbiocked vol 1445 603 605 tC, single (s) 6.4 6.2 4.1 tC, single (s) 6.4 6.2 tC, single (s) 6.4 tC, single (v.u. unbiocket vol 1445 603 605 tC, single (s) 6.4 6.2 4.1 tC, 2 stage (s) 5.5 3.3 2.2 tF (s) 3.5 3.3 2.2 k0 queue free % 85 97 98 k0 queue free % 143 499 973
amonomentation 100 101 100 100 100 100 100 100 100 10	CC straig to the component of the compon
	Co, angle (s) 0.4 0.2 4.1 C.C. 2 stage (s) 3.5 3.3 2.2 p0 queue free % 85 97 98 cM capacity (veh/h) 143 499 973
	rtu, z stage (s) tF (s) 3.5 3.3 2.2 p0 queue free % 85 97 98 cM capacity (veh/h) 143 499 973
	ור (א)
	po queue iree % oo 9/ 90 cM capacity (veh/h) 143 499 973
	CIVI CAPACILY (VEI/III) 143 499 9/3
padry (vervn) 4/ 389 813	
ion, Lane # WB 1 NB 1 SB 1 SB 2 Direction, Lane # EB 1 NB 1 NB 2 SB 1	Direction, Lane # EB1 NB1 NB2 SB1
ie Total 332 811 279 605 Volume Total 37 16 811 605	Volume Total 37 16 811 605
	Volume Left 21 16 0 0
	Volume Rinht 16 0 0 5
	Volume to Capacity 0.18 0.02 0.48 0.36
3 Length 95th (tt) 641 U 38 U Uueue Length 95th (tt) 16 1 U U	Queue Length 95th (tt) 16 1 0 0
ol Delay (s) 518.8 0.0 11.7 0.0 26.3 8.8 0.0 0.0	Control Delay (s) 26.3 8.8 0.0 0.0
-OS F B Lane LOS D A	Lane LOS D A
ach Delay (s) 518.8 0.0 3.7 Approach Delay (s) 26.3 0.2 0.0	Approach Delay (s) 26.3 0.2 0.0
ach LOS F Aboritach LOS D	Approach LOS D
ection Summary	Intersection Summary
ge Delay 86.5 O.8	Average Delav 0.8
ection Capacity Utilization 89.0% ICU Level of Service E E Intersection Capacity Utilization 52.8% ICU	•
Analysis Daried (min) 45 Analysis Daried (min) 45	Intersection Capacity Utilization 52.8% ICU Level of Sei

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HCM Unsignalized Intersection Capacity Analysis 21: 2nd Street & Main Street

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Aovement	FBI	FBT	FBR	WBI	WBT	WBR	NBI	NBT	NBR	SBI	SBT	SBR
ane Configurations		÷			÷		۴	£,		٢	ۍ <u>،</u>	
Sign Control		Stop			Stop			Free			Free	
Grade		%0			%0			%0			%0	
/olume (veh/h)	35	55	100	20	85	120	170	345	15	85	485	75
Deak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	37	58	105	21	89	126	179	363	16	89	511	79
^o edestrians												
-ane Width (ft)												
Valking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Jpstream signal (ft)											302	
X, platoon unblocked	0.76	0.76	0.76	0.76	0.76		0.76					
C, conflicting volume	1621	1466	550	1553	1497	371	589			379		
/C1, stage 1 conf vol												
C2, stage 2 conf vol												
/Cu, unblocked vol	1816	1612	409	1726	1654	371	460			379		
C, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
C, 2 stage (s)												
F (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
00 queue free %	0	0	79	0	0	81	78			92		
cM capacity (veh/h)	0	58	491	0	54	677	825			1163		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
/olume Total	200	237	179	379	89	589						
/olume Left	37	21	179	0	89	0						
/olume Right	105	126	0	16	0	79						
SH	0	0	825	1700	1163	1700						
/olume to Capacity	Ец	Ъ	0.22	0.22	0.08	0.35						
Queue Length 95th (ft)	Ъ	Ъ	21	0	9	0						
Control Delay (s)	ЕЦ	Ľ	10.6	0.0	8.4	0.0						
-ane LOS	ш	ш	В		A							
Approach Delay (s)	Εr	ш	3.4		1.1							
Approach LOS	ш	ш										
ntersection Summary												
Average Delay			ш									
ntersection Capacity Ut	ilization	ĺ	71.7%	2	SU Leve	el of Ser	vice		C			
Analysis Parind (min)			15									

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Movement EBL EBL EBR W Lane Configurations 0% 0% 0% 0% Sign Control 0% 0% 5 0 5 Carde 0% 0% 5 0 5 Volume (veh/h) 5 0 5 0 5 Peak Hour Factor 0.95 0.95 0.95 5 Peak Hour Factor 0.95 0 5 0 Valking Speed (fts) 5 0 5 0 Percent Blockage Right turn fare (veh) None 8 Right um fare (veh) None 1134 487 1 Valking Speed (fts) None 1134 487 1 Valking Speed (fts) None 1134 487 1 Valking Speed (fts) 0 7.2 6.6 6.2 Percent Blockade 1197 1134 487 1 VC1, stage 1 conf vol 7.2 6.6 6.2 1 VC1, stage 1 conf vol 7.2 6.6 6.2 1 VC1, stage 1 conf vol 7.2 6.6 6.2 1 VC1, stage 1 conf vol 7.2 6.6 6.2 1	3 5 5 MBL ▲	1132 None 0.095 None	368 65 65 65 65 65 65 65 65 65 65 65 65 65	NBL 🖈	↓ NBT	NBR 🔪	۳	-	\mathbf{r}
Movement EBL EBT EBR V Lane Configurations 44 5 00 5 Sign Control Stop 5 0	ス WBL 5 0.95 1134 1134	WBT Stop 8 00% 0.95 0 0 0 1132	368 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95	NBL	ABT A	NBR	B		
Lane Configurations A Sign Control Stop Grade 0% Outime (veh/h) 5 0 5 Volume (veh/h) 5 0 5 Peak Hour Factor 0.95 0.95 0 Houny flow rate (vph) 5 0 5 0 Houny flow rate (vph) 5 0 5 0 5 Houny flow rate (vph) 5 0 5 0 5 0 Valking Speed (ft/s) 5 0 6 7 1 <t< th=""><th>ຊ 0.95 1134 0.95 5 0.95 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5</th><th>Stop 0% 0.95 0 0 1132</th><th>368 368 368 368</th><th></th><th>4</th><th></th><th>200</th><th>SBT</th><th>SBR</th></t<>	ຊ 0.95 1134 0.95 5 0.95 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	Stop 0% 0.95 0 0 1132	368 368 368 368		4		200	SBT	SBR
Sign Control Stop Sign Control \$10p Colume (vel/h) 5 0% Volume (vel/h) 5 0% Volume (vel/h) 5 0% Peak Hour Factor 0.95 0.95 0.95 Houry flow rate (vph) 5 0 5 0 Houry flow rate (vph) 5 0 5 0 5 Houry flow rate (vph) 5 0 5 5 5 5	ຊີ 55 0.00 11 13 4	Stop 0% 0.95 0.95 1132	308 0.95 308 0.95		F			÷	
Grade 0% Volume (keh/h) 5 0 5 Peak Hour Fatcon 0.95 0.95 0.95 0 Houry Hour Fatcon 0.95 0.95 0 5 0<	5 0.95 1134	0% 000 1132	368 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95		Free			Free	
Volume (ven/h) 5 0 5 Peak Hour Factor 0.95 0.95 0.95 0 5 Peak Hour Factor 0.95 0.95 0.95 0 5 Peak Hour Factor 0.95 0.95 0 5 0 5 Lane Width (ft) None 0 5 0 5 0 5 0 5 0 5 0 5 0 5 0 5 0 5 0 5 0 5 0 5 0 5 0 5 0 5 0 5 5 0 5 <td>ة 1334 1334 1334</td> <td>0.95 0.35 1132</td> <td>30 30 30 30 30 30 30 30 30 30 30 30 30 3</td> <td></td> <td>%0</td> <td></td> <td></td> <td>%0</td> <td></td>	ة 1334 1334 1334	0.95 0.35 1132	30 30 30 30 30 30 30 30 30 30 30 30 30 3		%0			%0	
Peak Hour Factor 0.95 0.95 0.95 0 5 Pedestrians Lane Width (ft) 5 0 5 9 5 9 5 9 5 9 5 9 5 9 5 Pedestrians 1 2 2 2 3 5 0 5 7 7 2 2 4 2 4 2 4 2 4 4 7 1	5 0.95 1134	0.95 0.90 1132	0.95 308 308	S	345	10	125	460	5
Hourly flow rate (vph) 5 0 5 Lane Widh (ft) Seed (fts) Seed (fts) Seed (fts) Lane Widh (ft) Walking Speed (fts) None Seed (fts) Walking Speed (fts) None Seed (fts) Seed (fts) Percent Blockage None None Seed (fts) Right turn flare (veh) None None Seed (fts) Median storage veh) None None Seed (fts) Upstream signal (ft) None Seed (fts) Seed (fts) VC1 stage 1 conf vol None None Seed (fts) Seed (fts) VC2 stage 2 conf vol 1197 1134 487 1 VC1, stage 1 conf vol 7.2 6.6 6.2 Seed (fts) C2 stage (s) 3.5 4.0 3.3 Seed (fts) Seed (fts) ft(5) 3.5 4.0 3.3 Seed (fts)	1 1 1 3 4 5	0 None 1132	38	0.95	0.95	0.95	0.95	0.95	0.95
Pedestrians Lane Width (ft) Van Speed (fts) Percent Blockage Right turn flare (veh) Median type Median type None Median type Vot, ozorflicting volume VC, conflicting volume VC, stage 1 conf vol VC, stage 2 conf vol VC, stage 2 conf vol VC, stage 2 conf vol VC, stage 1 conf vol VC, stage 1 conf vol VC, stage 1 conf vol VC, stage 1 conf vol VC, stage (s) VC, stage (7 1134	None 1132	368	5	363	1	132	484	5
Lane Width (ft) Valking Speed (fts) Percent Blocked Right turn flare (veh) Median type Median type Vect, platoon unblocked vc, conflicting volume vc1, stage 1 conf vol vc1, stage 1 conf vc1, stage 1 conf vol vc1, stage 1 conf vc1, stage 1	1134	None 1132	368						
Walking Speed (ft/s) Percent Blockage Right turn flare (veh) Median storage veh) Median storage veh) pX, platoon unblocked vC, conflicting volume 1197 VC1, stage 1 cont vol vC1, stage 1 cont vol vC1	1134	None 1132	368						
Percent Blockage Right turn flare (veh) Median type Median type Me	1134	None 1132	368						
Right turn flare (veh) Median type Median type Median storage veh) Upstream signal (ft) pX, platoon unblocked vC, conflicting volume vC1, stage 1 conf vol vC1, stage 1 conf vol vC2, stage (s) vC3, stage (s) vC3, stage (s) vC4, stage (s) vC3, stage (s) vC4,	.7 1134	None 1132	368						
Median type None Median type None Median stronge veh) None Upstream signal (ft) Name Dytham stronge veh) Name Upstream signal (ft) Name PX, platoon unblocked 1134 487 VC, conflicting volume 1197 1134 487 VC, stage 1 conf vol 1197 1134 487 1 VC, stage 2 conf vol 1197 1134 487 1 VC, unblocked vol 1197 1134 487 1 VC, single (s) 7.2 6.6 6.2 1 VC, single (s) 3.5 4.0 33 1 PC, single (s) 3.5 4.0 33 1 PC, queue free % 96 100 99 0 90 90	.7 1134	None 1132	368						
Median storage veh) Median storage veh) Upstream signal (ft) Dextream signal (ft) pX, platoon unblocked 137 487 1 pX. platoon unblocked 1134 487 1 pX. platoon unblocked 1197 1134 487 1 vC1, stage 1 conf vol 1197 1134 487 1 vC2, stage 2 conf vol 1197 1134 487 1 vC1, unblocked vol 1197 172 6.6 6.2 1 vC1, unblocked sol 7.2 8.6 6.2 1 1 1 4.87 1 vC2, stage (s) 7.2 6.6 6.2 2 1 1 1 1 1 1 3 <	.7 1134	1132	368						
Upstream signal (ti) 133 487 1 pX, platoon unblocked 1197 1134 487 1 vC, conflicting volume 1197 1134 487 1 vC, conflicting volume 1197 1134 487 1 vC1, stage 1 conf vol 1197 1134 487 1 vC2, stage 2 conf vol 7.2 6.6 6.2 1 vC1, unblocked vol 7.2 6.6 6.2 1 tC, stage (s) 3.5 4.0 3.3 9 p0 queue free % 96 100 99 93 cM capacity (veh/h) 131 177 575 575	7 1134	1132	368						
px, platoon unblocked 1134 487 1 vC, conflicting volume 1197 1134 487 1 vC1, staget or onf vol 1197 1134 487 1 vC1, staget or onf vol 1197 1134 487 1 vC1, staget or onf vol 1197 1134 487 1 vC2, unblocked vol 7.2 6.6 6.2 1 vC1, staget (s) 7.2 6.6 6.2 1 vC2, staget(s) 7.2 6.6 6.2 1 rC, 2 staget(s) 7.2 6.6 6.2 1 rC, 2 staget(s) 3.5 4.0 3.3 9 p0 queue free % 96 100 99 93 9	1134	1132	368						
wc. conflicting volume 1197 1134 487 1 vC1, stage 1 conf vol vC1, stage 2 conf vol 1197 1134 487 1 vC1, stage 2 conf vol 1197 1134 487 1 vCu, unblocked vol 1197 1134 487 1 vCu, unblocked vol 7.2 6.6 6.2 1 tC, single (s) 7.2 6.6 6.2 1 tC, single (s) 3.5 4.0 3.3 1 17 575 p0 queue free % 96 100 99 0 90 99 20 33	1134	1132	368						Ľ
vC1, stage 1 conf vol vC2, stage 2 conf vol vCu, unblocked vol 1197 1134 487 1 vCu, stalge (s) 7.2 6.6 6.2 tC, 2 stage (s) 3.5 4.0 3.3 FF (s) 96 100 99 cM capacity (veh/h) 131 177 575				489			374		
vC2, stage 2 conf vol vCu, unblocked vol 1197 1134 487 1 tC, single (s) 7.2 6.6 6.2 tC, 2 stage (s) 3.5 4.0 3.3 FF (s) 96 100 99 coll capacity (veh/h) 131 177 575									
vCu, unblocked vol 1197 1134 487 1 tC, single (s) 7.2 6.6 6.2 tF (s) 3.5 4.0 3.3 p0 queue free % 96 100 99 cM capacity (veh/h) 131 177 575									
tC, single (s) 7.2 6.6 6.2 tC, 2 stage (s) 3.5 4.0 3.3 p0 queue free % 96 100 99 cM capacity (veh/h) 131 177 575	7 1134	1132	368	489			374		
tC, 2 stage (s) tF (s) 3.5 4.0 3.3 p0 queue free % 96 100 99 cM capacity (veh/h) 131 177 575	2 7.2	6.6	6.2	4.1			4.1		
IF (s) 3.5 4.0 3.3 p0 queue free % 96 100 99 cM capacity (veh/h) 131 177 575									Ľ
p0 queue free % 96 100 99 cM capacity (veh/h) 131 177 575	3 3.5	4.0	3.3	2.2			2.2		
cM capacity (veh/h) 131 177 575	97	100	6	100			68		
	5 160	177	670	1058			1168		
Dimotion Long # ED 1 ME 1 ND 1 C									
Volume I otal 11 /4 3/9	9 621								
Volume Left 5 5 5	5 132								
Volume Right 5 68 11	1								
cSH 213 546 1058 1	8 1168								
Volume to Capacity 0.05 0.13 0.00 (0 0.11								
Queue Length 95th (ft) 4 12 0	60								
Control Delay (s) 22.7 12.6 0.2	2 2.9								
Lane LOS C B A	A								
Approach Delay (s) 22.7 12.6 0.2	2 2.9								
Approach LOS C B									
Intersection Summary									
Average Delav 2.8	8								
Intersection Capacity Utilization 67.8%	CI %	IJ I evel	of Serv	vice.		С			
Analysis Period (min) 15	5			2)			

	•	t	۲	\$	ŧ	~	4	•	٠	۲	-	\mathbf{F}
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		¢			¢		۴	£.		٢	÷	
Sign Control		Stop			Stop			Free			Free	
Grade		%0			%0			%0			%0	
Volume (veh/h)	20	15	2ı	10	S	280	0	40	10	350	45	15
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	21	16	2	7	2	295	0	42	7	368	47	16
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked		1				1						
vC, conflicting volume	1132	845	55	845	847	47	63			53		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1132	845	55	845	847	47	63			53		
tC, single (s)	7.2	6.6	6.2	7.2	9.9	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	79	63 03	66	95	86 86	71	100			76		
cM capacity (veh/h)	101	225	1003	215	224	1013	1521			1534		
Direction one #	1	1 0/11		CON	501	000						
						200						
Volume Total	42	311	0	53	368	63						
Volume Left	21	1	0	0	368	0						
Volume Right	2	295	0	11	0	16						
cSH	148	855	1/00	1/00	1534	1/00						
Volume to Capacity	0.28	0.36	0.00	0.03	0.24	0.04						
Queue Length 95th (ft)	27	42	0	0	24	0						
Control Delay (s)	38.6	11.6	0.0	0.0	8.1	0.0						
Lane LOS	ш	m			∢							
Approach Delay (s)	38.6	11.6	0.0		6.9							
Approach LOS	ш	ш										
Intersection Summary												
Average Delav			9.8									
Intersection Capacity Ut	tilization	~,	52.9%	9	U Level	of Serv	vice		A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis 24: 7th Street & Juniper Street

24: 7th Street & Juni	per St	reet	-	,			6/22/2005
	Ť	1	7	ŧ	•	٩	
Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	£,			÷	×		
Sign Control	Free			Free	Stop		
Grade	%0			%0	%0		
Volume (veh/h)	400	40	20	360	35	40	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Hourly flow rate (vph)	421	42	21	379	37	42	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type					None		
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked							
vC, conflicting volume			463		863	442	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol			463		863	442	
tC, single (s)			4.1		6.4	6.2	
tC, 2 stage (s)							
tF (s)			2.2		3.5	3.3	
p0 queue free %			86		88	93	
cM capacity (veh/h)			1093		317	613	
Direction, Lane #	EB 1	WB 1	NB 1				
Volume Total	463	400	62				
Volume Left	0	21	37				
Volume Right	42	0	42				
cSH	1700	1093	427				
Volume to Capacity	0.27	0.02	0.18				
Queue Length 95th (ft)	0	-	17				
Control Delay (s)	0.0	0.6	15.3				
Lane LOS		۷	U				
Approach Delay (s)	0.0	0.6	15.3				
Approach LOS			U				
Intersection Summary							
Average Delay			1.6				
Intersection Capacity Uti	lization	7	18.5%	0	:U Leve	of Service	A
Analysis Period (min)			15				

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Movement EBL E	EBT	WBT	WBR	SWL	SWR	
Lane Configurations	÷	÷		×		
Sign Control Fr	ree	Free		Stop		
Grade	%0	%0		%0		
Volume (veh/h) 55 4	405	455	15	10	35	
Peak Hour Factor 0.95 0.	.95	0.95	0.95	0.95	0.95	
Hourly flow rate (vph) 58 4	426	479	16	7	37	
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None		
Median storage veh)						
Jostream signal (ft)						
oX. platoon unblocked						
/C, conflicting volume 495				1029	487	
/C1, stage 1 conf vol						
/C2, stage 2 conf vol						
/Cu, unblocked vol 495				1029	487	
C, single (s) 4.1				6.4	6.2	
C, 2 stage (s)						
F (s) 2.2				3.5	3.3	
00 queue free % 95				96	94	
:M capacity (veh/h) 1064				244	579	
Direction Lane # FB 1 WF	Б 1	SW 1				
Volume Total 484 4	105	17				
		7 t				
/olume Leit 50	0 4					
	0	10				
1064 1/	3	443				
Volume to Capacity 0.05 0.	0.29	0.11				
Queue Length 95th (ft) 4	0	б				
Control Delay (s) 1.6	0.0	14.1				
Lane LOS A		m				
Approach Delay (s) 1.6 t	0.0	14.1				
Approach LOS		ш				
ntersection Summary						
Averade Delav		1 4				
ntersection Capacity I Hilization	G	Z 20/2			of Service	
Inclusion Capacity Cuinzand	,	20.00 T	2		0	
		2				

CM Unsignalized Intersection Capacity Analysis

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fovement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
ane Configurations		¢			¢			¢			¢	
ign Control		Free			Free			Stop			Stop	
srade		%0			%0			%0			%0	
'olume (veh/h)	20	10	15	0	5	5	20	30	5	5	45	10
eak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
lourly flow rate (vph)	21	1	16	0	5	5	21	32	5	5	47	11
edestrians												
ane Width (ft)												
Valking Speed (ft/s)												
ercent Blockage												
tight turn flare (veh)												
fedian type								None			None	
fedian storage veh)												
Ipstream signal (ft)												
X, platoon unblocked												
C, conflicting volume	7			26			103	71	18	89	76	8
C1, stage 1 conf vol												
C2, stage 2 conf vol												
Cu, unblocked vol	1			26			103	71	18	89	76	ω
C, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
C, 2 stage (s)												
= (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
0 queue free %	66			100			97	96	100	66	94	66
M capacity (veh/h)	1615			1594			824	811	1063	858	805	1077
irection, Lane #	EB 1	WB 1	NB 1	SB 1								
olume Total	47	11	58	63								
olume Left	21	0	21	2								
olume Right	16	5	5	1								
SH	1615	1594	834	845								
olume to Capacity	0.01	00.0	0.07	0.07								
tueue Length 95th (ft)	-	0	9	9								
control Delay (s)	3.3	0.0	9.6	9.6								
ane LOS	۷		۷	۷								
pproach Delay (s)	3.3	0.0	9.6	9.6								
pproach LOS			۷	A								
Intersection Summary												
verage Delay			7.4									
ntersection Capacity Uti	lization		24.7%	9	SU Leve	I of Sen	vice		4			
nalysis Period (min)			15									

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*	æ,		۶	÷			÷			÷	
Sign Control		Free			Free			Stop			Stop	
Grade		%0			%0			%0			%0	
Volume (veh/h)	20	330	40	15	175	30	40	10	25	35	15	10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	21	347	42	16	184	32	42	11	26	37	16	7
Pedestnans												
Lane Width (II)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	216			389			645	658	368	653	663	200
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	216			389			645	658	368	653	663	200
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			66			88	97	96	60	96	66
cM capacity (veh/h)	1360			1175			362	374	679	352	372	843
Direction. Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	21	389	16	216	79	63						
Volume Left	2 2	0	9 4		40	37						
Volume Right	- -	40	20	33	36	5 5						
NURN DUIND	1360	1700	1175	1700	434	305						
Volume to Canacity		000		012		910						
	20.0	CZ-0		2.0	0.1	0.10						
						+ 1 + 1						
Control Delay (s)	1.1	0.0		0.0	ZGL	10.8						
Lane LOS	∢		∢		ပ	ပ						
Approach Delay (s)	0.4		0.6		15.2	15.8						
Approach LOS					ပ	ပ						
Intersection Summary												
Average Delav			3.2									
Intersection Capacity Ut	ilization	.,	32.9%	9	CU Leve	I of Serv	vice		4			
Analysis Period (min)			15									

HCM Unsignalized I 28: Lynn Street & Pa	nterseo aulina I	ction C Hwy (C	apacit	y Anal <u>y</u> Flat R	∕sis d)		6/22/2005
	٩	۴	4	+	-	•	
Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	×			÷	\$		
Sign Control	Stop			Free	Free		
Grade	%0			%0	%0		
Volume (veh/h)	165	220	135	215	455	115	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Hourly flow rate (vph)	174	232	142	226	479	121	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type	None						
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked							
vC, conflicting volume	1050	539	600				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1050	539	600				
tC, single (s)	6.4	6.2	4.1				
tC, 2 stage (s)							
tF (s)	3.5	3.3	2.2				
p0 queue free %	20	57	86				
cM capacity (veh/h)	216	544	982				
Direction, Lane #	EB 1	NB 1	SB 1				
Volume Total	405	368	600				
Volume Left	174	142	0				
Volume Right	232	0	121				
cSH	330	982	1700				
Volume to Capacity	1.23	0.14	0.35				
Queue Length 95th (ft)	448	13	0				
Control Delay (s)	160.8	4.5	0.0				
Lane LOS	ш	∢					
Approach Delay (s)	160.8	4.5	0.0				
Approach LOS	ш						
Intersection Summary							
Average Delay			48.6				
Intersection Capacity Uti	lization	Ű	36.4%	2	:U Leve	el of Service E	
Analysis Period (min)			15				

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25	
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30	
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Movement EBL EBT WBT WBR SBL SBR	Movement	EBT EBR WBL V	/BT NBL NBR	
Lane Configurations 🏹 🔶 🛉	Lane Configurations	¢	+ +	
Sign Control Free Free Stop	Sign Control F	ree F	ree Stop	
Grade 0% 0% 0%	Grade	0%	0% 0%	
Volume (veh/h) 10 355 410 0 0 15	Volume (veh/h)	80 15 0	30 10 0	
Peak Hour Factor 0.95 0.95 0.95 0.95 0.95 0.95	Peak Hour Factor 0	1.95 0.95 0.95 (0.95 0.95 0.95	
Hourly flow rate (vph) 11 374 432 0 0 16	Hourly flow rate (vph)	84 16 0	32 11 0	
Pedestrians	Pedestrians			
Lane Width (ft)	Lane Width (ft)			
Walking Speed (ft/s)	Walking Speed (ft/s)			
Percent Blockage	Percent Blockade			
Richt turn flare (veh)	Right turn flare (veh)			
Mediantone (2000) Mediantone (2000)	Median type		None	
	Median storade veh)		2	
pX, platoon unblocked	pX, platoon unblocked			
vC, conflicting volume 432 826 432	vC, conflicting volume	100	124 92	
vC1, stage 1 conf vol	vC1, stage 1 conf vol			
vC2. stage 2 conf vol	vC2, stage 2 conf vol			
vCu. unblocked vol 432 826 432	vCu. unblocked vol	100	124 92	
tC sincle (s) 41 64 62	tC. sincle (s)	41	64 62	
	tC, 2 starte (c)	-	1	
FL(c) condition (c) 25 33	to; z suge (s)	66	35 33	
		100	0.0	
	bu queue liee %	100	001 66	
cin capacity (vervir) 1112 334 618	civi capacity (ven/n)	1480	809 902	
Direction. Lane # EB1 EB2 WB1 SB1	Direction. Lane # E	B1 WB1 NB1		
Volume Tedal 11 271 122 16	Volume Total	100 22 11		
		100 32		
	Volume Lett	11 0		
Volume Right 0 0 0 16	Volume Right	16 0 0		
cSH 1112 1700 1700 618	cSH 1	700 1700 869		
Volume to Capacity 0.01 0.22 0.25 0.03	Volume to Capacity 0	0.06 0.02 0.01		
Queue Lenoth 95th (#) 1 0 0 2	Queue Length 95th (ft)	0 1		
		0.0		
		E .		
Approacn Delay (s) 0.2 0.0 11.0	Approach Delay (s)	0.0 0.0 9.2		
Approach LOS B	Approach LOS	A		
Intersection Summany	Intersection Summary			
		1		
Average Delay 0.3	Average Delay	0.7		
Intersection Capacity Utilization 32.8% ICU Level of Service A	Intersection Capacity Utiliz	ation 15.4%	ICU Level of Service	
		0		

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2025 Build Traffic Operations Analysis - Synchro

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fovement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
ane Configurations	٢	*	*	۴	ł	*		¢			¢	
sign Control		Free			Free			Stop			Stop	
Brade		%0			%0			%0			%0	
(olume (veh/h)	2	200	S	35	530	10	S	0	45	15	0	5
eak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
fourly flow rate (vph)	5	737	ъ	37	558	7	S	0	47	16	0	S
edestrians												
ane Width (ft)												
Valking Speed (ft/s)												
ercent Blockage												
Right turn flare (veh)												
fedian type								None			None	
fedian storage veh)												
lostream signal (ft)												
X. platoon unblocked												
C conflicting volume	568			742			1384	1389	737	1426	1384	558
C1 stare 1 conf vol	200			!			-	000	5			000
C.2 stage 1 cont vol												
Cir inhlocked vol	568			742			1384	1380	737	1426	1384	558
C. single (s)	4.2			4.2			7.2	6.6	6.3	7.2	99	6.3
C, Stade (s)	!			!			!	0	2	!	0	2
= (s)	2.3			2.3			3.6	4,1	3.4	3.6	4.1	3.4
O dueue free %	66			96			95	100	88	83	100	66
M ranacity (veh/h)	020			834			111	131	407	80	132	516
in addand (value)	5			5			-	2	5	2	101	2
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1				
olume Total	2	737	2	37	558	11	53	21				
'olume Left	ß	0	0	37	0	0	2	16				
olume Right	0	0	2	0	0	11	47	2				
SH	970	1700	1700	834	1700	1700	321	117				
volume to Capacity	0.01	0.43	00.0	0.04	0.33	0.01	0.16	0.18				
Nueue Length 95th (ft)	0	0	0	ę	0	0	14	16				
control Delay (s)	8.7	0.0	0.0	9.5	0.0	0.0	18.4	42.6				
ane LOS	۷			۷			U	ш				
pproach Delay (s)	0.1			0.6			18.4	42.6				
pproach LOS							υ	ш				
Intersection Summan												
werade Delav			16									
ntersection Canacity Lh	tilization		51 1%	2	III eve	I of Ser	vice		٩			
malvsis Period (min)			15			5	2		:			
()												

HCM Unsignalized Intersection Capacity Analysis 2: OR 126 & Tom Mcall

EBL EBT EBR WF Free 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%	3L WBT → 3L WBT → 5 710 25 710 25 747 26 747	MBR NBL	Stop 🛟 NBT	٩	🥕 s	→ ¹	\mathbf{F}
EBL EBT EBR Wr 789 0.955 5 10 0.95 0.95 0.95 0 0 1005 0.5 10 789 1005 5 10 789 1005 5 10 789 1005 5 10 789 1005 5 10 789 1005 5 10 789 1005 5 10 789 1005 5 10 789 1005 5 10 789 1005 5 10 789 1005 5 10 789 1005 5 10 780 1005 5 10 800 1005 5 10 800 1005 5 10 800 1005 5 10	3L WBT 7 4 5 7 10% 25 7 10% 25 7 10% 26 7 47	MBR NBL	Stop		SBL	CBT	
Free 0% 0.95 5 5 0.95 0.95 0.95 0.95 0.95 0 1005 5 7 789 10 789 10 789 10 789 10 789 10 789 10 789 10 789 10 789 10 789 10 789 10 789 10 789 800 5 10 789 10 789 10 789 10 78 10 789 10 78 10 789 10 78 10 789 10 10 10 780 800 10 10 800 800 10 10 800 800 10 10	4 Free 0% 35 0.95 26 747 26 747	1 40 15 0.95 0.95 42 16	Ston	NBR		100	SBR
Free 0 955 5 0 0 1005 5 0 0 1005 5 0 789 10 789 10 789 10 789 10 789 10 789 2 10 789 2 10 789 2 10 789 2 789 10 789 10 789 2 800 10 789 10 789 10 780 10 789 10 789 10 780 100 100 100 100 100 100 100 100 100 1	Free 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%	40 15 0.95 0.95 42 16	Stop			÷	
0 0% 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95	25 710 95 0.95 747	40 15 0.95 0.95 42 16	L			Stop	
0 955 5 10 0 1005 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0	25 710 95 0.95 26 747	40 15 0.95 0.95 42 16	%0			%0	
0.95 0.95 0.95 0.95 0. 789 10 789 10 789 10 4.2 4 10 789 10 800 800 80	95 0.95 26 747	0.95 0.95 42 16	0	06	20	0	9
0 1005 5 10 789 10 789 10 789 10 700 10 800 10 800 10 100 10 800 10	26 747	42 16	0.95	0.95	0.95	0.95	0.95
789 10. 789 10. 789 10. 7.2.3 2. 100 800 800 66 81 WB1 WB2 NB			0	95	53	0	7
789 10 789 10 7.89 10 4.2 4 4.2 2.3 2 100 8 800 6 81 WB1 WB2 NB							
789 10 789 10 789 10 4.2 2.3 2 100 800 68 800 68 800 68							
789 10 789 10 4.2 4 100 10 800 68 80 WB1 WB2 NB							
789 10 789 10 4.2 4 100 800 800 66 800 68 100 800 68 100 800 800 800 800 800 800 800 800 80							
789 10 789 10 7.89 10 4.2 4 4.2 2.3 2 100 8 800 6 800 6 81 WB1 WB2 NB							
789 10. 789 10. 789 10. 4.2 2.3 2. 100 80 61. 800 61. 61 WB1 WB2 NB			None			None	
789 10 789 10 4.2 4 100 2.3 2 800 60 60 60 61 WB1 WB2 NB							
789 10. 789 10. 4.2 4 4 2.3 2. 100 800 66 800 61 WB1 WB2 NB							
789 10 789 10 7.2.3 2 100 800 66 800 66 61 WB1 WB2 NB							
789 10 4.2 4 2.3 2 100 66 800 64 EB1 WB1 WB2 NB	11	1818	1850	1008	1903	1811	747
789 10. 4.2 4.2 4.2 2. 2.3 2.3 2.0 8.0 8.0 8.0 8.0 8.0 10. 10.0 6.0 10. 10.0 10.0 10.0 10.0							
789 10. 4.2 4 4 2.3 2.3 2 800 6 60 6 61 WB 1 WB 2 NB							
4.2 4.2 4.2 4.2 4.2 100 100 100 100 100 100 100 100 100 10	11	1818	1850	1008	1903	1811	747
2.3 2.3 2.100 800 800 800 800 800 800 800 800 800	1.2	7.2	6.6	6.3	7.2	6.6	6.3
2.3 2.3 100 800 800 801 100 801 100 801 100 100							
100 60 800 800 800 800 800 800 800 800 80	.3	3.6	4.1	3.4	3.6	4.1	3.4
800 60 EB1 WB1 WB2 NB	96	71	100	67	0	100	67
EB1 WB1 WB2 NB	59	54	68	283	32	73	401
	1 SB 1						
1011 1/4 42 1	11 63						
0 26 0	16 53						
5 0 42 3	95 11						
800 659 1700 1	77 38						
0.00 0.04 0.02 0.0	63 1.65						
° 0 0	88 167						
0.0 1.1 0.0 54	1.4 549.6						
A	L L						
0.0 1.0 54	1.4 549.6						
	ц ц						
20.8							
Jtilization 77.7%	ICU Level	of Service		۵			
15							
0.0 0.04 0.0 0.0 0.0 1.1 0.0 54 0.0 1.0 54 20.8 20.8 20.8 101ization 77.7%	000 1.00 1.4 549.6 1.4 549.6 1.4 549.6 1.0 Level	of Se	Zice	Ķ	Q	Ķc	Vice

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	•		_	-	•				4		,	×								
Movement	EBL EB	ž	BL	BTS	BT (SBR	nt	SEL	SET N	IWT NV	VR SV	NL SWR								
Lane Configurations	2-		F	•	¢.	Lane Con	nfigurations	-	•	¢Å.		к. к								
Sign Control	Stop		Ĩ	ee F	ree		(idhqv) w	1800	1800 1	800 18	00 18	00 1800								
Grade	%0	ç		0/c	%0		st time (s)	4.0	4.U	4.0	•	4.U 4.U								
Volume (ven/n)	0110					140 Lane Un.	I. Factor	00.1	00.1	00.1		00.1.00								
Peak Hour Factor	1.0 CE.0	ی ۵	90 0		CR.		-	00.1	00.1	0.93		00 0.85								
Hourly flow rate (vpn)	116	5	11 17	20 2	842	153	cted	0.95	1.00	1.00	э.	95 1.00								
Pedestrians						Satd. Flow	ow (prot)	1569	1651 1	539	15	69 1404								
Lane Width (ft)						Flt Permit	itted	0.33	1.00	1.00	o.	95 1.00								
Walking Speed (ft/s)						Satd. Flov	w (perm)	537	1651 1	539	15	69 1404								
Percent Blockage						Volume (v	(hdh)	180	230	295 3	00 3	15 140								
Right turn flare (veh)						Peak-hou	ur factor, PHF	0.95	0.95 (0.95 0.	95 0.	95 0.95								
Median type	None					Adi. Flow	(hav) v	189	242	311 3	16 3	32 147								
Median storage veh)						RTOR Re	eduction (vph)	c	C	55	c	0 110								
Unstream signal (ft)				1.0	311		Dun Flow (voh)	180	242	572	~ ~	32 37								
nX nlatoon unblocked	40 680	0	82		-		chicles (02.)	700	700	700	20/04	700 700								
PX, platoon analocica	20.0	30	04					20	a /0	a /0	0/0	0/0 0/0								
	E 1007	0	20			I um I ype	e	-erm				Perm								
						Protected	d Phases		9	7		œ								
VCZ, stage 2 cont vol						Permitted	d Phases	9				œ								
vCu, unblocked vol	2329 9(6 0(94			Actuated	l Green, G (s)	27.8	27.8	27.8	÷	1.9 11.9								
tC, single (s)	6.5 6	e v	4.2			Effective (Green, g (s)	27.8	27.8	27.8	÷	1.9 11.9								
tC, 2 stage (s)						Actuated	I g/C Ratio	0.58	0.58 (0.58	Ö	25 0.25								
tF (s)	3.6 3	4	2.3			Clearance	ce Time (s)	4.0	4.0	4.0	4	4.0 4.0								
p0 queue free %	0	22	96			Vehicle E	Extension (s)	3.0	3.0	3.0	.,	3.0 3.0								
cM capacity (veh/h)	30 26	38 5	47			Lane Gro	o Can (vnh)	313	962	897	e.	91 350								
Direction I and #	ER 1 NR	1 NF	C CE	1		v/s Ratio F	Prot	2	0.15 cl	0.37	00	21								
						Vs Bath	Perm	0.35				0.03								
Volume Iotal	13/	11 17	5 07	GG				0.60	1 25 (164	C	R5 0.10								
	116	5.	- -	0			Dalay d1	0.00	4 0	99	5 4	7 0 13 8								
Volume Right	21	0	0	53			vion Footor			0.0		001								
cSH	35 54	17 17	00 17	8			atel Delett and	<u>.</u>	00.											
Volume to Capacity	3.88 0.0	94	66 0.	59			niai Delay, uz	0.0	- 0	0. 2	- 2	0.1 0.1								
Queue Length 95th (ft)	Еr	ო	0	0				9.7	9.0	8.1	ñ	2.7 13.9								
Control Delay (s)	Err 11	8	0.0	0.0			Service	A	A -	A .		B								
Lane LOS	ш	ш				Approach	n Uelay (s)		۲.1	8.1	7	0.9								
Approach Delay (s)	Err	2		0.0		Approach	h LOS		∢	∢		v								
Approach LOS	ш					Intersection	ion Summary													
							erade Control De	10		127	NOH	I avial of Carvice								
Intersection Summary							lumo to Canacity	ratio		02.0	NOT NOT		D							
Average Delay		00	<u>)</u> .5							1 10	0.100	of loot time (o)	0							
Intersection Capacity Util	zation	73.8	3%	ICU	Level (of Service D		- officer	17	707		OI IOST UITIE (S)	0.0							
Analysis Period (min)			15				Pariod (min)	ZaliOII	Ę	15	22		c							
							allane Groun			2										
							-													
Prineville TSP 5:00 pm 8,	23/2002 20	125 P.M	Peak E	3uild PF	HF .95	Svnchro 6 Report	e TSP 5:00 pm 8/	23/2002	2025 Pi	M Peak E	Suild PH	IF .95	Svnchro	o 6 Report						
The Transpo Group						Page 3 The Trans	Ispo Group						•	Page 4						
							2000 0000													
Montention Initial control Montention Mo		רי א	` ₊	Ļ	لَر	•	7			٩	t	*	4	ŧ	ļ	_	-	بر ب	-	•
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Description Description <thdescription< th=""> <thdescription< th=""></thdescription<></thdescription<>	Movement	EBL	3T V	BT W	BR S)EL	SER		Movement	EBL	EBT	EBR	WBL	WBT V	BR N	BL NE	3T NB	R SBL	SBT	SBR
Interference 0.0 </td <td>Lane Configurations</td> <td>-</td> <td></td> <td>•</td> <td>*</td> <td>-</td> <td>×</td> <td></td> <td>l ane Configurations</td> <td>٢</td> <td>4</td> <td></td> <td>*</td> <td>4</td> <td></td> <td></td> <td>4</td> <td></td> <td>4</td> <td>ľ</td>	Lane Configurations	-		•	*	-	×		l ane Configurations	٢	4		*	4			4		4	ľ
Class method Class method<	Ideal Flow (vphpl)	1800 18	00 18	300 18	300 18	800	800		Ideal Flow (vphpl)	1800	1800	1800	1800	1800 1	800 18	300 180	00 180	0 1800	1800	1800
Image: Interfactor Image:	Total Lost time (s)	4.0	1.0	4.0	4.0	4.0	4.0		Total Lost time (s)	4.0	4.0		4.0	4.0		4	0. 4	o.	4.0	4.0
Free Ten Ten <td>Lane Util. Factor</td> <td>1.00 1.</td> <td>00</td> <td>.00</td> <td>.00</td> <td>00.</td> <td>1.00</td> <td></td> <td>Lane Util. Factor</td> <td>1.00</td> <td>1.00</td> <td></td> <td>1.00</td> <td>1.00</td> <td></td> <td>1.0</td> <td>00 1.0</td> <td>0</td> <td>1.00</td> <td>1.00</td>	Lane Util. Factor	1.00 1.	00	.00	.00	00.	1.00		Lane Util. Factor	1.00	1.00		1.00	1.00		1.0	00 1.0	0	1.00	1.00
Proceed: 0.06 1.00	Fr	1.00 1.	8	.00 00	0.85 1	8.	0.85		Frt	1.00	0.97		1.00	0.98		1.0	9.0 0.8	55	1.00	0.85
Effective Construction 100 110 100	Flt Protected	0.95 1.	00	.00	00.	.95	1.00		Flt Protected	0.95	1.00		0.95	1.00		0.0	95 1.0	0	0.96	1.00
Three mutation 0.03 1.00 1.03 1.00 1.03 1.00 1.03 1.00 1.03 1.00 1.03 1.00 1.03 1.00 1.03 1.00 1.03 1.00 1.03 1.00 1.03	Satd. Flow (prot)	1629 17	14 1.	714 1	457 16	629	457		Satd. Flow (prot)	1319	1350		1319	1363		137	78 122	7	1381	1227
Statt Function Statt F	Fit Permitted	0.33 1.	00	.00	00.00	.95	1.00		Flt Permitted	0.43	1.00		0.33	1.00		0.7	70 1.0	0	0.71	1.00
Mean Filter Signed Signed <td>Satd Flow (nerm)</td> <td>566 17</td> <td>14 1.</td> <td>714 14</td> <td>457 1f</td> <td>329</td> <td>457</td> <td></td> <td>Satd Flow (nerm)</td> <td>601</td> <td>1350</td> <td></td> <td>461</td> <td>1363</td> <td></td> <td>100</td> <td>JG 122</td> <td>2</td> <td>1019</td> <td>1227</td>	Satd Flow (nerm)	566 17	14 1.	714 14	457 1f	329	457		Satd Flow (nerm)	601	1350		461	1363		100	JG 122	2	1019	1227
Bit Manuching Ham Ging Big Ging Ging Ging Ging Ging Ging Ging Gi	Volume (voh)	345 8	30	270	170	160	385			130	545	125	20	435	60 1	05	5	35 45	5	130
and fertion and fertin and fertion	Peak-hour factor PHF	0.95 0	95 0	95 0	0 95 0	95	195		Peak-hour factor PHF	0.95	0.95	0.95	0.95	0.95	95 0	95 0.9	35 0.0	10 95	0.95	0.95
Click Reduction (wai) 0 0 0 2 10 0	Adi Flow (voh)	363 8	74 (008	179	168	405		Adi Flow (vph)	137	574	132	53	458	63 1	11	5	8 47	5	137
Turn form 33 34 60 100 163 153 141 151<	RTOR Reduction (vph)	0	0	0	70	0	247		RTOR Reduction (vph)	0	80	0	0	2	0	0	0	2 0	0	114
Time Perm Perm <th< td=""><td>Lane Group Flow (vph)</td><td>363 8</td><td>74 (</td><td>006</td><td>109</td><td>168</td><td>158</td><td></td><td>Lane Group Flow (vph)</td><td>137</td><td>698</td><td>0</td><td>53</td><td>516</td><td>0</td><td>0</td><td>16 1</td><td>1</td><td>52</td><td>23</td></th<>	Lane Group Flow (vph)	363 8	74 (006	109	168	158		Lane Group Flow (vph)	137	698	0	53	516	0	0	16 1	1	52	23
Prime 0 <td>Turn Tvbe</td> <td>Derm</td> <td></td> <td>Å</td> <td>E me</td> <td>ľ</td> <td>em</td> <td></td> <td>Heavy Vehicles (%)</td> <td>5%</td> <td>5%</td> <td>5%</td> <td>5%</td> <td>5%</td> <td>5%</td> <td>1% 1</td> <td>% 1</td> <td>% 1%</td> <td>1%</td> <td>1%</td>	Turn Tvbe	Derm		Å	E me	ľ	em		Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	1% 1	% 1	% 1%	1%	1%
Primulation Serie Serie Permination Permi	Protected Phases		4	8		9			Parking (#/hr)	0	0	0	0	0	0	0	0	0	0	0
Automatic Green (6) 550	Permitted Phases	4			œ		9		Tum Type	Perm			Perm		Pe	E	Pen	m Perm		Pem
Climation Climation Cli	Actuated Green, G (s)	55.0 55	5.0 5	5.0 5	5.0 2	0.7	27.0		Protected Phases		2			9			8		4	
Antened Creen 61	Effective Green, a (s)	55.0 55	5.0 5	5.0 5	5.0 2	7.0	27.0		Permitted Phases	2			9			œ		8		4
Contracting (s) (1)	Actuated g/C Ratio	0.61 0.	61 0	.61 0	0.61 0	0.30	0.30		Actuated Green, G (s)	6.99	6.99		66.9	6.9		15	.1 15	÷.	15.1	15.1
Prime State State <th< td=""><td>Clearance Time (s)</td><td>4.0</td><td>1.0</td><td>4.0</td><td>4.0</td><td>4.0</td><td>4.0</td><td></td><td>Effective Green, g (s)</td><td>6.99</td><td>60.9</td><td></td><td>60.9</td><td>6.9</td><td></td><td>15</td><td>.1 15</td><td>₹.</td><td>15.1</td><td>15.1</td></th<>	Clearance Time (s)	4.0	1.0	4.0	4.0	4.0	4.0		Effective Green, g (s)	6.99	60.9		60.9	6.9		15	.1 15	₹.	15.1	15.1
Classifier Classifier <thclassifier< th=""> Classifier Classifi</thclassifier<>	Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		Actuated g/C Ratio	0.74	0.74		0.74	0.74		0.	17 0.1	7	0.17	0.17
Reade Permin 0.51 0.33 0.10 0.31 0.30 0.31 0.30 0.31 0.30 0.31 0.30 0.31 0.30 0.31	Lane Grp Cap (vph)	346 10	47 1(347 8	390 4	489	437		Clearance Time (s)	4.0	4.0		4.0	4.0		4	.0 4	0.	4.0	4.0
And Parting 0.05 0.01 0.03 0.01 0.03 0.01 0.03 0.01 0.03 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.03 0.01 0.01 0.03 0.01	v/s Ratio Prot	.0	51 0	.35	0	0.10			Vehicle Extension (s)	3.0	3.0		3.0	3.0		З	.0	0.	3.0	3.0
Origential TS	v/s Ratio Perm	50.64		0	08	0	0.11		Lane Grp Cap (vph)	447	1004		343	1013		16	39 20	90	171	206
Indemneties of it 113 103 103 101 003	v/c Ratio	1.05 0.	83 0	.57 0	0.12 0	.34	0.36		v/s Ratio Prot		c0.52			0.38						
Primerial Disk/L 100 0.03 0.33 100 100 0.03 0.33 100 100 0.03 0.33 0.11 0.01 0.01 0.01 0.03	Uniform Delay, d1	17.5 1	3.9 1	0.5	7.4 2	24.6	24.7		v/s Ratio Perm	0.23			0.11			, . 03	12 0.0	1	0.05	0.02
Incremental bleak, d5 618 61 73 23 31 33 43 35 315 325 315 325 315 325 315 326 315 326 315 326 315 326 315 326 315 326 315 326 316 100	Progression Factor	1.00 1.	0 00	.93 0	0.83 1	00.	1.00		v/c Ratio	0.31	0.70		0.15	0.51		0.6	39 0.0	90	0.30	0.11
Delay (s) 73 18 10.4 61 55 7.0 100<	Incremental Delay, d2	61.8 5	5.9	0.7	0.1	1.9	2.3		Uniform Delay, d1	3.8	6.1		3.3	4.8		35	.2	ŝ	32.8	31.8
Level of Service E B A C C C 10 01 10 01	Delav (s)	79.3 19	1.8	0.4	6.1 2	6.5	27.0		Progression Factor	0.57	0.48		0.91	0.68		1.0	00 1.0	0	1.00	1.00
Approach Delay (s) 372 9.4 269 316	Level of Service	ш	œ	œ	A	C	С		Incremental Delay, d2	1.3	2.9		0.8	1.5		1	0	-	1.0	0.2
Approach LOS D A <t< td=""><td>Approach Delav (s)</td><td>37</td><td>12</td><td>9.4</td><td>2</td><td>6.9</td><td></td><td></td><td>Delav (s)</td><td>3.5</td><td>5.9</td><td></td><td>3.8</td><td>4.8</td><td></td><td>46</td><td>.2 31</td><td>9.</td><td>33.9</td><td>32.0</td></t<>	Approach Delav (s)	37	12	9.4	2	6.9			Delav (s)	3.5	5.9		3.8	4.8		46	.2 31	9.	33.9	32.0
Approach Delay 5.5 4.7 40.8 32.5 HCM Average Control Delay 26.6 HCM Level of Service C D C HCM Average Control Delay 0.82 Sum of fost time (s) 8.0 No C D C HCM Average Control Delay 1.5 CU Level of Service C C No Sum of fost time (s) 8.0 Analysis Period (min) 1.5 CU Level of Service C Analysis Period (min) 0.69 Num of fost time (s) 8.0 C critical Lane Group 1.17 HCM Average Control Delay 1.17 HCM Evel of Service D C C critical Lane Group 7.12% CU Level of Service D 0.0 Sum of fost time (s) 8.0 Analysis Period (min) 1.5 CU Level of Service D 0.0 Sum of fost time (s) 8.0 C critical Lane Group 1.7 Analysis Period (min) 1.7 Analysis Period (min) 1.7 Analysis Period (min) 8.0 C critical Lane Group 1.7 Analysis Period (min) 1.7 Analysis Period (min) 0.0 Sum of fost time (s)	Approach LOS		۵	A		υ			Level of Service	4	4		۷	A				с U	U	0
Mineration Summary Aproach LOS A D C Microstation Service C C Microstation Service D C MCM Volume to Capacity Tation 0.82 Microstation Service B Microstation Service B MCM Volume to Capacity Tation 1.5 CU Level of Service C B C Analysis Period (min) 1.5 CU Level of Service C B C Analysis Period (min) 1.5 Num of lost time (s) 8.0 Num of lost time (s) 8.0 Analysis Period (min) 1.5 Critical Lane Group 74.7% ICU Level of Service B Analysis Period (min) 1.5 Num of lost time (s) 8.0 Num of lost time (s) 8.0 Analysis Period (min) 1.5 Num of lost time (s) 9.0.0 Sum of lost time (s) 8.0 Analysis Period (min) 1.1 HCM Level of Service B 0.0 1.1 1.1 Analysis Period (min) 1.5 Critical Lane Group 1.1 1.1 1.1 1.1									Approach Delay (s)		5.5			4.7		40	Ø		32.5	
Tick Average Control Delay Z6.6 HCM Level of Service C HCM Average Control Delay 11.7 HCM Level of Service B HCM Average Control Delay 11.7 HCM Level of Service B Actuated Cycle Length (s) 90.0 Sum of lost time (s) B Actuated Cycle Length (s) 90.0 Sum of lost time (s) B Actuated Cycle Length (s) 90.0 Sum of lost time (s) B Analysis Period (min) 15 Cut Level of Service D C Critical Lane Group 17, 7% ICU Level of Service D Analysis Period (min) 15 74,7% ICU Level of Service D C Critical Lane Group 15 74,7% ICU Level of Service D Analysis Period (min) 15 Critical Lane Group 17,7% ICU Level of Service D Analysis Period (min) 15 Critical Lane Group 15 Critical Lane Group D D Analysis Period (min) 15 Critical Lane Group 15 D D D Analysis Period (min) 15 Critical Lane Group 15 <	Intersection Summary								Approach LOS		∢			∢					U	
HCLaw Volume to Capacity ratio 0.82 Intersection Summary Intersection Summary And Wolume to Capacity Ultration 71.2% ICU Level of Service B Analysis Period (min) 15 ICU Level of Service B Critical Lane Group 1.1.7% ICU Level of Service B Critical Lane Group 1.1.7% ICU Level of Service B Critical Lane Group 1.1.7% ICU Level of Service B Critical Lane Group 1.1.7% ICU Level of Service B Critical Lane Group 1.1.7% ICU Level of Service B	HCM Average Control D	elay	N.	6.6	HCM	M Leve	of Service C		:											
Prinevile 5:00 m 8/23/2002 2025 PM Peak Build PHF .95 0.00 sum of lost time (s) 8.0 Hattade Cycle Length (s) 90.0 Sum of lost time (s) 8.0 Intersection Capacity Utilization 71.7% ICU Level of Service B Analysis Period (min) 15 Noume to capacity Utilization 74.7% ICU Level of Service D Critical Lane Group 15 Critical Lane Group 17.7% ICU Level of Service D	HCM Volume to Capacit	ratio	0	.82					Intersection Summary											
Prinevile C Classicity ratio 0.09 Sum of lost time (s) 8.0 Analysis Period (min) 15 CU Level of Service D 8.0 Analysis Period (min) 15 Sum of lost time (s) 8.0 Analysis Period (min) 15 Critical Lane Group 17.% ICU Level of Service D Analysis Period (min) 15 Critical Lane Group 15 Sum of lost time (s) 8.0 Analysis Period (min) 15 Critical Lane Group 15 Sum of lost time (s) 8.0 Analysis Period (min) 15 Critical Lane Group 15 Critical Lane Group 15	Actuated Cycle Length (a		ග	0.0	Sum	ר of los	time (s) 8.0		HCM Average Control E	Delay		11.7	Ĭ	M Level	of Servid	e		ш		
Analysis Period (min) 15 90.0 Sum of lost time (s) 8.0 c Critical Lane Group 74.7% ICU Level of Service D Analysis Period (min) 15 Critical Lane Group 7.7% ICU Level of Service D Prineville TSP 5:00 pm 8/23/2002 2025 PM Peak Build PHF .95 Synchro 6 Report Prineville TSP 5:00 pm 8/23/2002 2025 PM Peak Build PHF .95 Synchro 6 Report	Intersection Capacity Uti	ization	71.	2%	ЫC	Level	of Service C		HCM Volume to Capaci	ity ratio		0.69								
c Critical Lane Group Analysis Period (min) c Critical Lane Group Prineville TSP 5:00 pm 8/23/2002 2025 PM Peak Build PHF .95 Synchro 6 Repor	Analysis Period (min)			15					Actuated Cycle Length	(s)		90.06	S	m of lost	time (s)		œ	o.		
Analysis Period (min) 15 c Critical Lane Group 15 Prinevile TSP 5:00 pn 8/23/2002 2025 PM Peak Build PHF .95 Synchro 6 Report	c Critical Lane Group								Intersection Capacity UI	tilization		74.7%	⊇ 2	J Level c	f Service	¢,				
Prineville TSP 5:00 m 8/23/2002 2025 PM Peak Build PHF .95 Synchro 6 Report									Analysis Period (min) c Critical Lane Group			15								
Prineville TSP 5:00 m 8/23/2002 2025 PM Peak Build PHF .95 Synchro 6 Report																				
Prineville TSP 5:00 m 8/23/2002 2025 PM Peak Build PHF .95 Synchro 6 Report Prineville TSP 5:00 pm 8/23/2002 2025 PM Peak Build PHF .95 Synchro 6 Report																				
Prineville TSP 5:00 pm 8/23/2002 2025 PM Peak Build PHF .95 Synchro 6 Report Prineville TSP 5:00 pm 8/23/2002 2025 PM Peak Build PHF .95 Synchro 6 Report																				
Prineville TSP 5:00 pm 8/23/2002 2025 PM Peak Build PHF .95 Synchro 6 Report Prineville TSP 5:00 pm 8/23/2002 2025 PM Peak Build PHF .95 Synchro 6 Report																				
Prineville TSP 5:00 pm 8/23/2002 2025 PM Peak Build PHF .95 Synchro 6 Report Synchro 6 Report Synchro 6 Report																				
	Prineville TSP 5:00 pm 5	23/2002 2	025 PA	d Peak	Build PF	HF .95		Synchro 6 Report	Prineville TSP 5:00 pm	8/23/200	72 2025	: PM Pea	k Build	PHF .95				ŝ	/nchro 6	Report

fovement		t	~	5	Ļ	1	•	-	•	۶	•	¥
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
ane Configurations	٢	÷		۴	÷			¢ţ.			¢₽	
deal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
otal Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
ane Util. Factor	1.00	1.00		1.00	1.00			0.95			0.95	
Ľ	1.00	0.98		1.00	0.99			16.0			0.96	
It Protected	0.95	1.00		0.95	1.00			0.97			0.99	
atd. Flow (prot)	1466	1367		1466	1374			2751			2732	
It Permitted	0.41	1.00		0.37	1.00			0.65			0.71	
ata. Flow (perm)	629	130/	00	ROC	13/4	10	166	184/	C H	76	1001	00
olume (vpn)	90	920	00		4/5	30	100	95	20	500	120	
eak-fiour lactor, PHF	0.90	0.90	0.80	0.90	0.40	0.90	0.80	0.90	0.80	0.90	0.90	0.90
TOB Beduction (vmb)	∩ ⊂	000 V	3 0	- C	000 °	50	3		3 <	5	1 Z O	8 0
ane Group Flow (vph)	95	612		21	534	0 0		262			238	
leavy Vehicles (%)	5%	5%	5%	5%	5%	5%	1%	1%	1%	1%	1%	1%
arking (#/hr)		0			0			0			0	
urn Type	Perm			Perm			Perm			Perm		
rotected Phases		9			2			ω			4	
ermitted Phases	9			2			∞			4		
ctuated Green, G (s)	64.4	64.4		64.4	64.4			17.6			17.6	
ffective Green, g (s)	64.4	64.4		64.4	64.4			17.6			17.6	
ctuated g/C Ratio	0.72	0.72		0.72	0.72			0.20			0.20	
clearance Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
ehicle Extension (s)	3.5	3.5		3.5	3.5			2.5			2.5	
ane Grp Cap (vph)	457	978		407	983			361			382	
/s Ratio Prot	-	c0.45			0.39							
/s Ratio Perm	0.15	00 0		0.04				c0.16			0.12	
/c Ratio	0.21	0.63		0.05	0.54			1000.			0.62	
Initorm Delay, d1	4.3	6.6		3.8	6.0			34.7			33.2	
rogression Factor	1.26	1.14		0.65	1.31			1.00			1.00	
ncremental Delay, d2	0.8	2.4		0.1				13.7			2.7	
lelay (s)	6.2	9.9		2.6	8.9			48.4			35.9	
evel of Service	<	< 2		∢								
pproach Delay (s)		9.4			8.7			48.4			35.9	
pproacn LUS		¥			A			ב			ב	
ntersection Summary												
ICM Average Control De	lay		19.9	т	CM Lev	el of Sei	vice		æ			
ICM Volume to Capacity	ratio		0.67	C	;				0			
ctuated Cycle Length (s			90.0	מ פ	nm of Io	st time (s)		0. 0 0. 0			
ntersection Capacity Utili nalveie Period (min)	zation	-	8.U% 15	2	U Leve	I OT SEN	lce		2			
Defacto Left Lane. R	ecode	with 1 th	el douor	ne as a	a left lan	e.						

HCM Signalized Intersection Capacity Analysis 9: OR 126 & Main Street

9: OR 126 & Main St	treet	25)	a circh a		5						6/22	/2005
	٠	t	۲	1	ŧ	~	4	+	٠	۶	-	\mathbf{F}
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	۶	÷		۶	÷		۶	÷		۶	÷	
ldeal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.97		1.00	0.97		1.00	0.97	
Fit Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1319	1356		1466	1345		1466	1500		1319	1502	
Flt Permitted	0.26	1.00		0.48	1.00		0.14	1.00		0.28	1.00	
Satd. Flow (perm)	361	1356		741	1345		220	1500		382	1502	
Volume (vph)	06	400	75	50	420	110	30	305	20	130	390	85
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	95	421	62	53	442	116	32	321	74	137	411	89
RTOR Reduction (vph)	0	œ	0	0	10	0	0	6	0	0	ი	0
Lane Group Flow (vph)	95	492	0	53	548	0	32	386	0	137	491	0
Parking (#/hr)	0	0			0	0				0		0
Tum Type	om+pt			Perm			Perm			Perm		
Protected Phases	5	2			9			∞			4	
Permitted Phases	2			9			ω			4		
Actuated Green, G (s)	54.0	54.0		44.1	44.1		28.0	28.0		28.0	28.0	
Effective Green, g (s)	54.0	54.0		44.1	44.1		28.0	28.0		28.0	28.0	
Actuated g/C Ratio	0.60	0.60		0.49	0.49		0.31	0.31		0.31	0.31	
Clearance Time (s)	3.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	2.0		2.0	2.0		3.0	3.0		1.5	1.5	
Lane Grp Cap (vph)	279	814		363	659		68	467		119	467	
v/s Ratio Prot	0.02	c0.36			c0.41			0.26			0.33	
v/s Ratio Perm	0.18			0.07			0.15			c0.36		
v/c Ratio	0.34	0.60		0.15	0.83		0.47	0.83		1.15	1.05	
Uniform Delay, d1	10.5	11.3		12.6	19.7		25.0	28.7		31.0	31.0	
Progression Factor	0.87	0.93		0.64	0.67		1.00	1.00		1.00	1.00	1
Incremental Delay, d2	0.6	2.6		0.8	11.0		5.1	11.4		128.9	55.8	
Delay (s)	9.8	13.1		8.8 8.0	24.1		30.1	40.2		159.9	86.8	
Level of Service	A	ß		4	C		ပ			ш	LL I	
Approach Delay (s)		12.6			22.8			39.4			102.5	
Approach LOS		В			ပ						ш	
Intersection Summary												
HCM Average Control D	elay		45.6	I	CM Lev	el of Se	rvice		۵			
HCM Volume to Capacity	y ratio		0.94									
Actuated Cycle Length (s	s)		90.06	ō	um of lo	st time	(s)		12.0			
Intersection Capacity Uti	lization	0,	92.2%	9	SU Leve	l of Sen	/ice		ш			
Analysis Period (min)			15									
c Critical Lane Group												

Prineville TSP 5:00 pm 8/23/2002 2025 PM Peak Build PHF .95 The Transpo Group

Synchro 6 Report Page 8

Synchro 6 Report Page 7

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	r	÷		*	æ			фЪ			4 b	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			0.95			0.95	
	00.1	0.99		00.1	00.1			18.0			0.97	
Fit Protected	0.95	1.00		0.95	1.00			0.98			0.97	
Satd. Flow (prot)	1466	1378		1466	1382			2757			2727	
Fit Permitted	0.46	1.00		0.45	1.00			0.81			0.75	
Satd. Flow (perm)	706	1378		698	1382			2255			2087	
Volume (vph)	25	465	25	15	465	15	50	75	35	85	40	35
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	26	489	26	16	489	16	53	79	37	89	42	37
RTOR Reduction (vph)	0	-	0	0	-	0	0	33	0	0	ŝ	0
Lane Group Flow (vph)	26	514	0	16	504	0	0	136	0	0	135	0
Heavy Vehicles (%)	5%	5%	5%	5%	2%	5%	1%	1%	1%	1%	1%	1%
Parking (#/hr)		0			0			0			0	
Turn Type	Perm			Perm			erm			Perm		
Protected Phases		9			2			ω			4	
Permitted Phases	9			2			ω			4		
Actuated Green, G (s)	71.9	71.9		71.9	71.9			10.1			10.1	
Effective Green, g (s)	71.9	71.9		71.9	71.9			10.1			10.1	
Actuated g/C Ratio	0.80	0.80		0.80	0.80			0.11			0.11	
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Vehicle Extension (s)	3.5	3.5		3.5	3.5			2.5			2.5	
Lane Grp Cap (vph)	564	1101		558	1104			253			234	
v/s Ratio Prot		c0.37			0.36							
v/s Ratio Perm	0.04			0.02				0.06			c0.06	
//c Ratio	0.05	0.47		0.03	0.46			0.54			0.58	
Jniform Delay, d1	1.9	2.9		1.9	2.9			37.7			37.9	
Progression Factor	1.52	1.65		0.45	0.45			1.00			1.00	
Incremental Delay, d2	0.1	0.9		0.1	1.3			1.7			2.8	
Delay (s)	3.0	5.7		0.9	2.5			39.5			40.7	
Level of Service	<	∢		∢	∢			۵			۵	
Approach Delay (s)		5.6			2.5			39.5			40.7	
Approach LOS		۷			۷			۵			۵	
Intersection Summary												
HCM Average Control D	elay		12.7	Ĩ	CM Lev	el of Sen	vice		B			
HCM Volume to Capacit	y ratio		0.48									
Actuated Cycle Length (:	s)		90.0	้ง	um of lo	st time (s	()		8.0			
Intersection Capacity Uti	lization	7	19.3%	0	:U Leve	of Servi	e		A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Inte 11: OR 126 & Junipe	rrsectic er Stre	on Cap et	acity <i>F</i>	vnalysi	s						6/22	2005
	1	t	۲	*	ŧ	~	4	+	٠	۶	-	\mathbf{F}
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	۴	¢.		۴	£,		۴	¢.		۴	¢.	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00		1.00	0.92		1.00	0.95	
Fit Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1629	1712		1629	1712		1693	1649		1693	1693	1
Satd. Flow (perm)	0.30 508	1712		357	1712		0.73 1293	1649		0.74 1324	1.00 1693	
Volume (vph)	20	570	5	35	475	2	50	10	10	10	30	15
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	21	600	2 2	37	500	υ Ω	23	5	5	5	32	16
RTOR Reduction (vph)	0		0	0		0	0	9	0	•	o 0	0
Lane Group Flow (vph)	21	604	0	37	504	0	23	16	0	11	39	0
Heavy venicies (%)	%6	%G	%G	%6	%G	%G	%L	1%	%L	%L	1%	%L
I um I ype	негш	•		Ferm	c		неш	c		негш	¢	
Protected Phases	•	4		0	œ		c	v		9	٥	
Permitted Phases	4 4				101		7 0	0 11		0 0	0.44	
Effortive Green, G (S)	40.4	40.4		40.4	40.4		0.14 0.14	0. 14 0. 17		4 I.0	4 I.O	
Actuated o/C. Ratio	0.45	10.45		10.45	0.45		0.46	0.46		0.46	0.46	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	228	768		160	768		598	762		612	783	
v/s Ratio Prot		c0.35			0.29			0.01			0.02	
v/s Ratio Perm	0.04			0.10			c0.04			0.01		
v/c Ratio	0.09	0.79		0.23	0.66		0.09	0.02		0.02	0.05	
Uniform Delay, d1	14.3	21.1		15.3	19.4		13.6	13.1		13.1	13.3	
Progression Factor	1.31	1.25		1.00	1.00		00.1	1.00		1.01	66.0	
Delay (e)	4 a a a	а 1 Б		16.0	21.4		0.0	12.0		12.5	12.5	
Level of Service	2 2 2 2	0		B	0		B			2 2 2 2	<u>е</u>	
Approach Delay (s)		31.0			21.0			13.7			13.3	
Approach LOS		U			ပ			В			В	
Intersection Summary												
HCM Average Control D	elay		25.1	Í	CM Lev	el of Se	rvice		U			
HCM Volume to Capacit	y ratio		0.43									
Actuated Cycle Length (:	s)		0.06	ō	um of lc	ost time	(s)		8.0			
Intersection Capacity Uti	lization	7	18.2%	9	U Leve	l of Ser	/ice		4			
Analysis Period (min)			15									
c Critical Lane Group												

Prineville TSP 5:00 pm 8/23/2002 2025 PM Peak Build PHF .95 The Transpo Group

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		S		18(ö	1			Ť																						
-	•	SBT	÷	1800	4.0	1.00	0.96	1.00	1714	1.00	1714	220	0.95	232	27	284	1%		4		14.9	0.23	4.0	5.0	566	c0.17		09.0	1 00	1.5	13.6	ш	13.2	ш					
-	٠	SBL	r	1800	4.0	1.00	1.00	0.95	1693	0.51	912	60	0.95	63	0	63	1%	Perm		4 0	14.9	14.9 0 33	4.0	5.0	301	-	0.07	12.0	1 00	0.7	11.6	ш							
4	×.	NBR		1800								105	0.95	111	0	0	1%																			в		8.0	u
•	-	NBT	¢	1800	4.0	1.00	0.94	1.00	1680	1.00	1680	170	0.95	179	50	240	1%		∞	0.11	9.4.	14.9 0 22	4.0	5.0	555	0.14		0.43	0.0	1.1	12.9	в	13.6	ш					
,	•	NBL	F	1800	4.0	1.00	00.1	0.95	1693	0.48	860	135	0.95	142	0	142	1%	Perm	c	0 00 7	14.9	0.33	4.0	5.0	284		0.17	0.50	1 00	2.9	15.0	в				vice		s)	<u>p</u>
•	1	WBR		1800								45	0.95	47	0	0	5%																			el of Ser		st time (
1	ţ	WBT	¢	1800	4.0	1.00	0.99	1.00	1692	1.00	1692	460	0.95	484	9	525	5%		9		7.77	7.77	4.0	5.0	833	0.31	00 0	0.03	1 00	2.2	10.6	ш	17.8	B		CM Leve		II lost	
,	4	WBL	F	1800	4.0	1.00	00.1	0.95	1629	0.23	401	160	0.95	168	0	168	5%	Perm	c	0	7.77	7.77	4.0	5.0	197		c0.42	68.0	0.0	30.5	40.5	۵				Ĭ		ວ <u>ເ</u>	2
	۲	EBR		1800								240	0.95	253	0	0	5%																			15.3	0.71	45.1	15 15
	t	EBT	÷	1800	4.0	1.00	0.94	1.00	1617	1.00	1617	395	0.95	416	40	629	5%		N		7.77	777	4.0	5.0	796	0.39		0.79	9.0 1 00	6.2	15.7	В	15.1	ш					
•	١.	EBL	F	1800	4.0	1.00	00.1	0.95	1629	0.35	599	45	0.95	47	0	47	5%	Perm	c		7777	777	4.0	5.0	295		0.08	0.10	0.0	0.5	6.8	A				elay	y ratio	s) Intetion	
		ovement	ane Configurations	eal Flow (vphpl)	otal Lost time (s)	ane Util. Factor	-	t Protected	atd. Flow (prot)	t Permitted	atd. Flow (perm)	olume (vph)	eak-hour factor, PHF	dj. Flow (vph)	TOR Reduction (vph)	ane Group Flow (vph)	eavy Vehicles (%)	um Type	rotected Phases	ermitted Phases	ctuated Green, G (s)	rective Green, g (s)	learance Time (s)	ehicle Extension (s)	ane Grp Cap (vph)	s Ratio Prot	s Ratio Perm	c Ratio	rindilli Delay, u I	cremental Delay. d2	elay (s)	evel of Service	pproach Delay (s)	pproach LOS	tersection Summary	CM Average Control D	CM Volume to Capaci	ctuated Cycle Length (alysis Period (min) Critical Lane Group
																																						A	
	•	UBR				45	C67	47									0.69	Dco		406		2.0	3.3	88	394													if Service A	
		VBL NBR	~	stop	0%	10 45	G6.0 G6.1	11 47						one			1.69 U.69	100 AC1		201 496	64 63	7.0 E.0	3.5 3.3	92 88	135 394													Level of Service A	
	 <!--</td--><td>VBT NBL NBR</td><td>* *</td><td>Free Stop</td><td>0% 0%</td><td>415 10 45</td><td>G6.0 G6.0 G6.0</td><td>437 11 47</td><td></td><td></td><td></td><td></td><td></td><td>None</td><td></td><td></td><td>1.69 U.69</td><td>0C0 AC11</td><td></td><td>1201 496</td><td></td><td></td><td>3.5 3.3</td><td>92 88</td><td>135 394</td><td>4B 1</td><td>58</td><td>11</td><td>47</td><td>262</td><td>18</td><td>20.4</td><td>0</td><td>20.4</td><td>O</td><td></td><td></td><td>ICU Level of Service A</td><td></td>	VBT NBL NBR	* *	Free Stop	0% 0%	415 10 45	G6.0 G6.0 G6.0	437 11 47						None			1.69 U.69	0C0 AC11		1201 496			3.5 3.3	92 88	135 394	4B 1	58	11	47	262	18	20.4	0	20.4	O			ICU Level of Service A	
	~ ~ ~ + ~	WBL WBT NBL NBR	¥ ↑ ¥	Free Stop	0% 0%	25 415 10 45	GR:0 GR:0 GR:0 GR:0	26 437 11 47						None			0.69 0.69 0.69	000 8011 000		400 1201 406	41 64 62		2.2 3.5 3.3	96 92 88	728 135 394	VB 2 NB 1	437 58	0 11	0 47	700 292 36 6 30	0.20 0.20 D 18	0.0 20.4	0	20.4	0		1.2	1.7% ICU Level of Service A	2
		EBR WBL WBT NBL NBR	× + 4	Free Stop	0% 0%	5 25 415 10 45	0.30 0.30 0.30 0.30	5 26 437 11 47						None			0.69 0.69 0.69	000 6011 000		400 1201 406	41 F20		2.2 3.5 3.3	96 92 88	728 135 394	VB 1 WB 2 NB 1	26 437 58	26 0 11	0 0 47	728 1700 292	0.04 0.20 3 0 18	10.1 0.0 20.4	B	0.6 20.4	0		12	44.7% ICU Level of Service A	15
		EBT EBR WBL WBT NBL NBR	4 4 4	Free Free Stop	0% 0% 0%		GEU GEU GEU GEU GEU	647 5 26 437 11 47						None		432	0.69 0.69 0.69	000 000		400 1201 406		270 E.O. I.F.	2.2 3.5 3.3	96 92 88	728 135 394	EB1 WB1 WB2 NB1	653 26 437 58	0 26 0 11	5 0 0 47	1700 728 1700 292 0.36 0.64 0.36 0.30	0.30 0.04 0.20 0.20 D 3 D 18	0.0 10.1 0.0 20.4	с Ф	0.0 0.6 20.4	0		12	zation 44.7% ICU Level of Service A	15
		EBT EBR WBL WBT NBL NBR		Free Free Stop	0% 0% 0%		GR:0 GR:0 GR:0 GR:0 GR:0 GR:0	rph) 647 5 26 437 11 47			(S)			None	(lue	th 432 200 200 200 200 200 200 200 200 200 2		ume 000 1138 000		NOI 400 1201 406			2.2 3.5 3.3	96 92 88	n) 728 135 394	EB1 WB1 WB2 NB1	653 26 437 58	0 26 0 11			12 000 0.04 0.20 0.20 0.20 0.40 0.40 0.		с м	s) 0.0 0.6 20.4	U	Viet	12	city Utilization 44.7% ICU Level of Service A	(ii)

6/22/2005 HCM Signalized Intersection Cart 6/22/2005 15: Peters Street & Main Street 15: Feters Street & Main Street 16: Peters Street & Main Street 10: Peters Peters Peters 10: Peters Peters 11: Peters Peters 11: Peters Peters 11: Peters Street & Peters 11: Peters Peters 11: Peters	Eczacols Eczel	■ SER 	Tables 622.2006 ECCM Signalized Intersection Cat 	6	→ メ <i>×</i> ←	NBT NBR SBL SBT	* * *	1800 1800 1800 1800	4.0 4.0 4.0 4.0	1.00 1.00 1.00 1.00	1.00 0.85 1.00 1.00	1.00 1.00 0.95 1.00	476F 4ED0 4676 476F	CO/I 0/01 NNCI CO/I	1.00 1.00 0.48 1.00	1765 1500 852 1765	410 315 100 375	0.95 0.95 0.95 0.95	400 000 40E 00E	432 332 103 393	0 122 0 0	432 210 105 305	432 210 100 330	2% 2% 2% 2%	Perm Perm		0	о В		31.7 31.7 31.7 31.7	317 317 317 317	01:1 01:1 01:1	063 063 063 063		4.0 4.0 4.0 4.0	3.0 3.0 3.0 3.0		1119 951 540 1119	c0.24 0.22	011 010		0.39 0.22 0.19 0.35	44 39 38 43		1.00 1.00 1.00	10 05 08		5.4 4.4 4.6 5.2		AAAA	5.0 5.1		¢			8.3 HCM Level of Service A	0.46	50.0 Sum of lost time (c) 8.0		04.0% ICU LEVEI 01 SEIVICE A	15
6/22/2005 6/22/2005 15: Peters Street Lane Configurations Ideal Flow (pchp) Total Lost time (s) Lane Unit Factor Fit Fit Protected Stati Flow (perm) Volume (vph) Fit Perak.hour factor (perm) Fit Perak.hour factor (perm) Fit Protected Phases Protected Phases Protected Phases Protected Phases Protected Phases Protected Phases Protected Phases Protected Phases Protected Cradic Difform Delay (s) Approach Delay (s	 6/22/2005 HCM Signalized 1 15: Peters Street 15: Peters Street 15: Peters Street 15: Peters Street 16: Peters Street	Control Control 005 0.222005 005 0.25 005 0.25 003 0.25 003 0.25 003 0.25 003 0.25 003 0.25 0105 0.25 023 0.25 033 0.25 033 0.26 033 0.26 033 0.26 033 0.26 033 0.26 033 0.26 033 0.26 033 0.26 033 0.26 033 0.26 033 0.26 033 0.26 044 0.26 033 0.26 044 0.26 033 0.26 044 0.26 053 0.26 054 0.26 055 0.26 056 0.26 057 0.26 058 0.26 059 0.26 050 0.26 050 0.26 050 0.26 050 0.26 050 <td< td=""><td>Indysis 6222005 IHCM Signalized 1 R Str Morement R Str Str Str Str Morement R Str Str Str Str Str R Str Str Str Str Str R Str Str Str Str</td><td>& Main Street</td><td>*</td><td>WBL WBR</td><td>*</td><td>1800 1800</td><td>4.0 4.0</td><td>1.00 1.00</td><td>1.00 0.85</td><td>0.95 1.00</td><td>1070</td><td></td><td>0.95 1.00</td><td>1676 1500</td><td>230 20</td><td>F 0.95 0.95</td><td>100 010 100 010</td><td>747 71</td><td>h) 0 17</td><td>h) 242 4</td><td>11) 242 4</td><td>2% 2%</td><td>Perm</td><td>0</td><td>x</td><td>α</td><td></td><td>s) 10.3 10.3</td><td>103 103</td><td>C.01 C.01 (</td><td>021 021</td><td></td><td>4.0 4.0</td><td>3.0 3.0</td><td>000</td><td>345 309</td><td>c0.14</td><td></td><td></td><td>0.70 0.01</td><td>18.4 15.8</td><td></td><td>00.1 00.1</td><td>2 63 DD</td><td>0.0</td><td>24.7 15.8</td><td>- -</td><td>а С</td><td>24.0</td><td>(</td><td>ر</td><td></td><td>У</td><td>n Delav</td><td>acity ratio</td><td>th (e)</td><td></td><td>UUIIZAUON</td><td></td></td<>	Indysis 6222005 IHCM Signalized 1 R Str Morement R Str Str Str Str Morement R Str Str Str Str Str R Str Str Str Str Str R Str Str Str Str	& Main Street	*	WBL WBR	*	1800 1800	4.0 4.0	1.00 1.00	1.00 0.85	0.95 1.00	1070		0.95 1.00	1676 1500	230 20	F 0.95 0.95	100 010 100 010	747 71	h) 0 17	h) 242 4	11) 242 4	2% 2%	Perm	0	x	α		s) 10.3 10.3	103 103	C.01 C.01 (021 021		4.0 4.0	3.0 3.0	000	345 309	c0.14			0.70 0.01	18.4 15.8		00.1 00.1	2 63 DD	0.0	24.7 15.8	- -	а С	24.0	(ر		У	n Delav	acity ratio	th (e)		UUIIZAUON	
		603 0.0 <td>Indysis Indysis Indysis Indysis Indysis Indysis 1 1 1 1 1 1 1 1 0 0 0 0 0 0 1 0 0 0 0 0 0 1 0 0 0 0 0 0 1 0 0 0 0 0 0 2 1 0 0 0 0 0 2 1 0 0 0 0 0 2 1 0 0 0 0 0 2 1 0 0 0 0 0 2 1 0 0 0 0 0 2 1 0 0 0 0 0 2 1 0 0 0 0 0 3 3 3 3 3 3 3 2 1 0 0 0 0 0 2 1 0 0 0 0 0 3 3 3 3 3 3 <</td> <td>: Peters Street</td> <td></td> <td>vement</td> <td>he Configurations</td> <td>al Flow (vphpl)</td> <td>tal Lost time (s)</td> <td>he Util. Factor</td> <td></td> <td>Protected</td> <td></td> <td>Ia. Flow (prot)</td> <td>Permitted</td> <td>td Flow (nerm)</td> <td>lume (vph)</td> <td>ak-hour factor. Ph</td> <td></td> <td>. Flow (vpn)</td> <td>OR Reduction (vp</td> <td>De Groun Flow (vr</td> <td>ie gioup riow (v)</td> <td>avy Vehicles (%)</td> <td>m Tvne</td> <td>staated Dhaces</td> <td>otected Phases</td> <td>mitted Phases</td> <td></td> <td>tuated Green, G (s</td> <td>active Green a (s</td> <td>cuive diceri, y (s</td> <td>huated o/C Ratio</td> <td></td> <td>earance I ime (s)</td> <td>hicle Extension (s</td> <td></td> <td>he Grp Cap (vph)</td> <td>Ratio Prot</td> <td>Datio Dorm</td> <td></td> <td>Katio</td> <td>iform Delay d1</td> <td></td> <td>ogression Factor</td> <td>remental Delav d</td> <td>I CI I CI I CI CI CI CI CI CI CI CI CI C</td> <td>lav (s)</td> <td></td> <td>vel ot service</td> <td>proach Delav (s)</td> <td></td> <td></td> <td>:</td> <td>ersection Summar</td> <td>M Average Contra</td> <td>M Volume to Cap</td> <td>nated Ovela Land</td> <td></td> <td>ersection Capacity</td> <td>alysis Period (min</td>	Indysis Indysis Indysis Indysis Indysis Indysis 1 1 1 1 1 1 1 1 0 0 0 0 0 0 1 0 0 0 0 0 0 1 0 0 0 0 0 0 1 0 0 0 0 0 0 2 1 0 0 0 0 0 2 1 0 0 0 0 0 2 1 0 0 0 0 0 2 1 0 0 0 0 0 2 1 0 0 0 0 0 2 1 0 0 0 0 0 2 1 0 0 0 0 0 3 3 3 3 3 3 3 2 1 0 0 0 0 0 2 1 0 0 0 0 0 3 3 3 3 3 3 <	: Peters Street		vement	he Configurations	al Flow (vphpl)	tal Lost time (s)	he Util. Factor		Protected		Ia. Flow (prot)	Permitted	td Flow (nerm)	lume (vph)	ak-hour factor. Ph		. Flow (vpn)	OR Reduction (vp	De Groun Flow (vr	ie gioup riow (v)	avy Vehicles (%)	m Tvne	staated Dhaces	otected Phases	mitted Phases		tuated Green, G (s	active Green a (s	cuive diceri, y (s	huated o/C Ratio		earance I ime (s)	hicle Extension (s		he Grp Cap (vph)	Ratio Prot	Datio Dorm		Katio	iform Delay d1		ogression Factor	remental Delav d	I CI I CI I CI CI CI CI CI CI CI CI CI C	lav (s)		vel ot service	proach Delav (s)			:	ersection Summar	M Average Contra	M Volume to Cap	nated Ovela Land		ersection Capacity	alysis Period (min
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Intracection Capacity Analysis Intracection Capacity Analysis Ell Mol Mol Mol Mol Mol Ell Free Top Mol Mol Mol Mol Mol 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% <td>Intersection Capacity Analysis In Road In P In In Road NBT NBT Stap 0% 0% 0% 0% <td>In Road MBT MBT MBT MBT EBL EBT WBT WBT WBT WBT 0.95 0.95 0.95 0.95 10 0.95 0.95 0.95 0.95 11 0.95 0.95 0.95 10 0.95 0.95 10 10 0.95 0.95 10 10 0.1700 247 0.41 0.41 0.0 120 247 0.2 0.0 0.0 247 0.10 0.0 0.0 247 0.10 0.0 0.0 247 0.2 1700 1700 247 0.2 1700 1700 247 0.2 0.0 0.0 247 0.2 0.0 0.0 247 0.2 0.0 0.0 247 0.2 15 15 15</td><td>EBL EBT M EBL EBT M 0.95 0.96 0 0.95 0.95 0 0.95 0.95 0 0.155 0.453 5 0.157 0.453 5 100 130 130 100 0.184 1 1700 130 2 0.0 0.0 2 0.0 0.0 2</td><td>lin Road</td><td>ペ ナ ↓ ↓ ↑ や</td><td>EBL EBT WBT WBR SEL SER</td><td>₹. ₹.</td><td>Free Free Stop</td><td>0% 0% 0%</td><td>0 430 485 175 95 0</td><td>0.95 0.95 0.95 0.95 0.95 0.95</td><td>0 453 511 184 100 0</td><td></td><td></td><td></td><td></td><td></td><td></td><td>cuci Cuci</td><td></td><td></td><td></td><td></td><td></td><td>695 1055 603</td><td></td><td></td><td></td><td>605 10E 603</td><td>600 GG01 GG0</td><td>4.1 6.2</td><td></td><td></td><td>20 26 20</td><td>2.2 0.0</td><td>100 59 100</td><td>887 247 494</td><td></td><td>ED 1 M/D 1 SE 1</td><td></td><td>453 695 100</td><td>0 0 100</td><td></td><td>0 184 0</td><td>1200 1200 247</td><td></td><td>0.27 0.41 0.41</td><td>د م</td><td>0 0</td><td>0.0 0.0 29.2</td><td><i>c</i></td><td>c</td><td>0.0 0.0 29.2</td><td>c</td><td>c</td><td></td><td>23</td><td>· · · · · · · · · · · · · · · · · · ·</td><td>Ization 50.4% ICU Level of Service A</td><td>15</td><td></td></td>	Intersection Capacity Analysis In Road In P In In Road NBT NBT Stap 0% 0% 0% 0% <td>In Road MBT MBT MBT MBT EBL EBT WBT WBT WBT WBT 0.95 0.95 0.95 0.95 10 0.95 0.95 0.95 0.95 11 0.95 0.95 0.95 10 0.95 0.95 10 10 0.95 0.95 10 10 0.1700 247 0.41 0.41 0.0 120 247 0.2 0.0 0.0 247 0.10 0.0 0.0 247 0.10 0.0 0.0 247 0.2 1700 1700 247 0.2 1700 1700 247 0.2 0.0 0.0 247 0.2 0.0 0.0 247 0.2 0.0 0.0 247 0.2 15 15 15</td> <td>EBL EBT M EBL EBT M 0.95 0.96 0 0.95 0.95 0 0.95 0.95 0 0.155 0.453 5 0.157 0.453 5 100 130 130 100 0.184 1 1700 130 2 0.0 0.0 2 0.0 0.0 2</td> <td>lin Road</td> <td>ペ ナ ↓ ↓ ↑ や</td> <td>EBL EBT WBT WBR SEL SER</td> <td>₹. ₹.</td> <td>Free Free Stop</td> <td>0% 0% 0%</td> <td>0 430 485 175 95 0</td> <td>0.95 0.95 0.95 0.95 0.95 0.95</td> <td>0 453 511 184 100 0</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>cuci Cuci</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>695 1055 603</td> <td></td> <td></td> <td></td> <td>605 10E 603</td> <td>600 GG01 GG0</td> <td>4.1 6.2</td> <td></td> <td></td> <td>20 26 20</td> <td>2.2 0.0</td> <td>100 59 100</td> <td>887 247 494</td> <td></td> <td>ED 1 M/D 1 SE 1</td> <td></td> <td>453 695 100</td> <td>0 0 100</td> <td></td> <td>0 184 0</td> <td>1200 1200 247</td> <td></td> <td>0.27 0.41 0.41</td> <td>د م</td> <td>0 0</td> <td>0.0 0.0 29.2</td> <td><i>c</i></td> <td>c</td> <td>0.0 0.0 29.2</td> <td>c</td> <td>c</td> <td></td> <td>23</td> <td>· · · · · · · · · · · · · · · · · · ·</td> <td>Ization 50.4% ICU Level of Service A</td> <td>15</td> <td></td>	In Road MBT MBT MBT MBT EBL EBT WBT WBT WBT WBT 0.95 0.95 0.95 0.95 10 0.95 0.95 0.95 0.95 11 0.95 0.95 0.95 10 0.95 0.95 10 10 0.95 0.95 10 10 0.1700 247 0.41 0.41 0.0 120 247 0.2 0.0 0.0 247 0.10 0.0 0.0 247 0.10 0.0 0.0 247 0.2 1700 1700 247 0.2 1700 1700 247 0.2 0.0 0.0 247 0.2 0.0 0.0 247 0.2 0.0 0.0 247 0.2 15 15 15	EBL EBT M EBL EBT M 0.95 0.96 0 0.95 0.95 0 0.95 0.95 0 0.155 0.453 5 0.157 0.453 5 100 130 130 100 0.184 1 1700 130 2 0.0 0.0 2 0.0 0.0 2	lin Road	ペ ナ ↓ ↓ ↑ や	EBL EBT WBT WBR SEL SER	₹. ₹.	Free Free Stop	0% 0% 0%	0 430 485 175 95 0	0.95 0.95 0.95 0.95 0.95 0.95	0 453 511 184 100 0							cuci Cuci						695 1055 603				605 10E 603	600 GG01 GG0	4.1 6.2			20 26 20	2.2 0.0	100 59 100	887 247 494		ED 1 M/D 1 SE 1		453 695 100	0 0 100		0 184 0	1200 1200 247		0.27 0.41 0.41	د م	0 0	0.0 0.0 29.2	<i>c</i>	c	0.0 0.0 29.2	c	c		23	· · · · · · · · · · · · · · · · · · ·	Ization 50.4% ICU Level of Service A	15	

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IOVEMENT VVBL VVBR IND IND	BR SE	3L S	ВТ		Moveme
ane Configurations 🎀 🛉 🖡					Lane Co
ign Control Stop Free		Œ	ee		Sign Co
irade 0% 0%		-)%		Grade
olume (veh/h) 75 85 1040 8	85	30	25		Volume
eak Hour Factor 0.95 0.95 0.95 0.5	.95 0.1	95 0	95		Peak H
lourly flow rate (vph) 79 89 1095 8	89	32 8	68		Hourly f
edestrians					Pedestr
ane Width (ft)					Lane W
/alking Speed (ft/s)					Walking
ercent Blockage					Percent
light turn flare (veh)				_	Right tu
ledian type None					Median
ledian storage veh)				_	Median
pstream signal (ft) 968					Upstrea
X, platoon unblocked					pX, plat
C, conflicting volume 1637 592	118	84			vC, con
C1, stage 1 conf vol					vC1, sta
C2, stage 2 conf vol					vC2, sta
Cu, unblocked vol 1637 592	11	84			vCu, un
C, single (s) 6.8 6.9	4	<u>.</u>			tC, sing
C, 2 stage (s)					tC, 2 st
² (s) 3.5 3.3	N	Ņ			tF (s)
0 queue free % 9 80		95			b0 duer
M capacity (veh/h) 87 449	2	85			cM cap
virection, Lane # WB 1 NB 1 NB 2 SB	31 SB	2			Directio
olume Total 168 730 454 33	21 5	62			Volume
olume Left 79 0 0	32	0			Volume
olume Right 89 0 89	0	0			Volume
SH 152 1700 1700 58	85 170	00			cSH
olume to Capacity 1.11 0.43 0.27 0.0	05 0.3	34			Volume
tueue Length 95th (ft) 227 0 0	4	0			Queue
control Delay (s) 165.7 0.0 0.0 1	1.8 0	0.			Control
ane LOS F	A				Lane LC
pproach Delay (s) 165.7 0.0 0	0.6				Approac
pproach LOS F					Approat
tersection Summary					Intersec
verage Delay 12.6					Average
Itersection Capacity Utilization 63.7%	ICUL	evel of	Service B		Intersec
nalysis Period (min) 15					Analysis

Analysis ίŧν έ -tio d Inter محناط

ovement EBI ine Configurations a on Control ade (veh/h) 11 sak Hour Factor 0.95	1	1	١	ŧ	~	4	+	٠	۲	-	7
vement EBI ine Configurations ade Control ade veh/h) 10 sak Hour Factor 0.95	•	*	•			-	-	-		•	•
Ine Configurations gn Control ade slume (veh/h) 10 sak Hour Factor 0.95	L EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
gn Control ade blume (veh/h) 10 sak Hour Factor 0.95	*	*-	۶	*	۴.	۶	*	*	۶	*	*-
ade blume (veh/h) 10 eak Hour Factor 0.96	Stop			Stop			Free			Free	
olume (veh/h) 10 sak Hour Factor 0.95	%0			%0			%0			%0	
eak Hour Factor 0.95	0 20	120	10	25	S	40	845	20	S	655	65
	5 0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
ourly flow rate (vph) 11	1 21	126	7	26	S	42	889	21	5	689	68
edestrians											
ine Width (ft)											
alking Speed (ft/s)											
ercent Blockage											
ght turn flare (veh)											
edian type	None			None							
edian storage veh)											
ostream signal (ft)							318				
(, platoon unblocked 0.73	3 0.73		0.73	0.73	0.73				0.73		
C, conflicting volume 1692	2 1695	689	1811	1742	889	758			911		
1, stage 1 conf vol											
2, stage 2 conf vol											
Cu, unblocked vol 1942	2 1946	689	2104	2010	850	758			878		
, single (s) 7.1	1 6.5	6.2	7.1	6.5	6.2	4.1			4.1		
, 2 stage (s)											
(s) 3.t	5 4.0	3.3	3.5	4.0	3.3	2.2			2.2		
) queue free % 37	7 53	72	13	36	<u> 8</u> 6	95			66		
1 capacity (veh/h) 17	7 45	447	12	41	266	853			565		
rection, Lane # EB 1	1 EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
olume Total 11	1 21	126	11	26	5	42	889	21	5	689	68
olume Left 11	1	0	1	0	0	42	0	0	5	0	0
olume Right (0	126	0	0	2	0	0	21	0	0	68
H 1	7 45	447	12	4	266	853	1700	1700	565	1700	1700
olume to Capacity 0.6%	3 0.47	0.28	0.87	0.64	0.02	0.05	0.52	0.01	0.01	0.41	0.04
ueue Length 95th (ft) 41	1 42	29	47	59	2	4	0	0	-	0	0
ontrol Delay (s) 401.5	5 141.6	16.2	613.3	190.3	18.8	9.4	0.0	0.0	11.4	0.0	0.0
Ine LOS F	ш.	ပ	ш	ш	ပ	4			ш		
pproach Delay (s) 58.6	G		274.6			0.4			0.1		
proach LOS	ш		ш								
tersection Summary											
rerage Delay		11.1									
tersection Capacity Utilizatic	uo	63.6%	2	DU Leve	el of Ser	vice		B			
alysis Period (min)		15									

Prineville TSP 5:00 pm 8/23/2002 2025 PM Peak Build PHF .95 The Transpo Group

Synchro 6 Report Page 16

Synchro 6 Report Page 15

Momental Image: Mark and the second sec	Movement EBL EBT EBR WBL WBT NBL NB	へ ← ✓ ✓	٠						.	
Monument Large Company Ex Not	Movement EBL EBT EBR WBL WBT WBR NBL NB	-		¥ →			4	~	←	Ł
Constrained No	Lane Configurations T	3R NBL NBT NBR	SBL S	BT SBF	~	Movement	WBL	WBR	NBT N	IBR S
File End End <td>Ideal Flow (vphp) 1800<td>* *</td><td>*</td><td>+</td><td></td><td>Lane Configurations</td><td>۶</td><td>×.</td><td>*</td><td>×.</td></td>	Ideal Flow (vphp) 1800 <td>* *</td> <td>*</td> <td>+</td> <td></td> <td>Lane Configurations</td> <td>۶</td> <td>×.</td> <td>*</td> <td>×.</td>	* *	*	+		Lane Configurations	۶	×.	*	×.
Tratility fielder 100	Total Lost time (s) 4.0 1.00	00 1800 1800 1800	1800 18	300 1800	0	Sign Control	Stop		Free	
Lum Lum <thlum< th=""> <thlum< th=""> <thlum< th=""></thlum<></thlum<></thlum<>	Lane Util. Factor 100	4.0 4.0 4.0 4.0	4.0	4.0 4.0	0	Grade	%0		%0	
France 100<	FIT Trans 1.00 <t< td=""><td>00 1.00 1.00 1.00</td><td>1.00</td><td>.00 1.00</td><td></td><td>Volume (veh/h)</td><td>30</td><td>55</td><td>730</td><td>40</td></t<>	00 1.00 1.00 1.00	1.00	.00 1.00		Volume (veh/h)	30	55	730	40
Freeder 0000 000 000 00	FIF Protected 0.95 1.00 0.05 1.00 0.05 1.00 0.05 1.00 0.05 1.00 0.05 1.00 0.05 1.00 0.00 0.05 1.00 0.05 1.00 0.05 1.00 0.00 0.05 1.00 0.00 0.05 1.00 0.00 0.05 1.00 0.00 0.05 1.00 0.00 0.05 1.00 0.00 0.05 1.00 0.00 0.05	85 1.00 1.00 0.85	1.00	.00 0.8		Peak Hour Factor	0.95	0.95	0.95 (.95 0
Statt Floring Tite	Sadt Flow (prd) 1660 1748 1485 1660 1748 1485 150 100 100 100 100 100 100 110 110 11	00 0.95 1.00 1.00	0.95 1	.00 1.00	0	Hourly flow rate (vph)	32	58	768	42
Exernited Dial	Fill Permitted 0.64 1.00 0.35 1.00 0.35 1.00 0.35 1.00 0.35 0.05 0.95 <th0.95< th=""> 0.95 0.95</th0.95<>	85 1676 1765 1500	1676 17	65 150		Pedestrians				
Statt Favi (germ) 113 143 143 143 143 143 143 143 143 143 143 144	Static Flow (perm) 1119 1748 1485 1032 1748 1485 103 505 515 150 550 55 150 550 55 150 550 55 550 55 550 55 550 55 750 55 7105 7105 7105 7105 7105 750 55 7105 7101 7101 7101 7101 7101 7101 7101 7101 7101 7101 7101 7101 7101 7101 7101 7101 7101 7101 7101 71111 71111 7111	00 0.35 1.00 1.00	0.33 1	.00 1.00	0	Lane Width (ft)				
Wolfmer (wth) 255 36	Volume (vph) 285 190 230 60 160 205 150 550 55 55 53 63 63 635<	85 617 1765 1500	590 17	765 150		Walking Speed (ft/s)				
Flash function: 0.5	Preak-hour factor, PHF 0.95 0.9	05 160 550 50	220	530 21	20	Percent Blockage				
Addit Forward Addit Fo	Adi. Flow (vph) 300 200 242 63 168 216 168 579 5 RTOR Reduction (vph) 0 0 168 0 156 0 150 0 0 236 237 333	95 0.95 0.95 0.95	0.95 0	.95 0.9		Right turn flare (veh)				
TCH Reduction (rgh) 30 20 50 30 30 20 75 25 <td>RTIOR Reduction (vph) 0 168 0 150 0 0 150 0 0 200 2</td> <td>16 168 579 53</td> <td>232</td> <td>558 22(</td> <td>0</td> <td>Median type</td> <td>None</td> <td></td> <td></td> <td></td>	RTIOR Reduction (vph) 0 168 0 150 0 0 150 0 0 200 2	16 168 579 53	232	558 22(0	Median type	None			
Method Si Si <th< td=""><td>Lare Group Flow (vph) 300 200 74 63 168 679 33 Heary Vehicles (%) 3% 3% 3% 3% 3% 2% 2% 2% Heary Vehicles (%) 3% 3% 3% 3% 3% 2% 2% 2% 2% Protected Phases 4 4 8 8 2 2 2% 3% 337<td>50 0 0 23</td><td>0</td><td>6 0</td><td>0</td><td>Median storage veh)</td><td></td><td></td><td></td><td></td></td></th<>	Lare Group Flow (vph) 300 200 74 63 168 679 33 Heary Vehicles (%) 3% 3% 3% 3% 3% 2% 2% 2% Heary Vehicles (%) 3% 3% 3% 3% 3% 2% 2% 2% 2% Protected Phases 4 4 8 8 2 2 2% 3% 337 <td>50 0 0 23</td> <td>0</td> <td>6 0</td> <td>0</td> <td>Median storage veh)</td> <td></td> <td></td> <td></td> <td></td>	50 0 0 23	0	6 0	0	Median storage veh)				
Hand Vertices (%) 3%<	Heary Vehicles (%) 3% 3% 3% 3% 3% 3% 2% 3%	66 168 579 30	232	558 12	2	Upstream signal (ft)				
Lut Fort	Tun Type Prot Perm Prot Perm Prot Perm Prot Perm Perm Prot Perm Perm Perm Prot Perm	3% 2% 2% 2%	2%	2% 2%	9	pX, platoon unblocked	0.92			
Protected Plases 4 3 33	Protected Phases 4 4 4 8 8 2 Permitted Phases 4 4 4 8 8 2 2 Permitted Phases 4 4 8 18.3 18.3 18.3 33.7 30.0	rot Perm Proi	Perm	Pro	t I	vC, conflicting volume	1489	768		~
Ferrited Fenses 4 3	Permitted Phases 4 8 8 3	8 2		9	0	vC1, stage 1 conf vol				
Actuated Green G(s) 133 133 133 337	Actuated Green, G (s) 18.3 18.3 18.3 18.3 18.3 33.7	2	9			vC2, stage 2 conf vol				
Effective Green (3) (3)	Effective Green, g(s) 18.3 18.3 18.3 18.3 18.3 18.3 33.7 33.0 30.2 30.3 33.0 30.3 33.0 30.3 33.0 30.3 33.0 30.3 33.0 30.3 33.0 30.3 30.3 30.3 30.3 30.3 30.3 30.3 30.3 30.3 30.3 30.3 30.3 30.3 30.3 30.3 30.3 30.3 30.3 30.3	3.3 33.7 33.7 33.7	33.7 3	3.7 33.		vCu, unblocked vol	1535	768		~
Actualed GC Ratio 030	Actuated g/C Ratio 0.30 0.30 0.30 0.30 0.30 0.56 0.53 0.30 <td>3.3 33.7 33.7 33.7</td> <td>33.7 3</td> <td>3.7 33.</td> <td>2</td> <td>tC, single (s)</td> <td>6.4</td> <td>6.2</td> <td></td> <td></td>	3.3 33.7 33.7 33.7	33.7 3	3.7 33.	2	tC, single (s)	6.4	6.2		
Clearance Time (s) 40	Clearance Time (s) 4.0	30 0.56 0.56 0.56	0.56 0	.56 0.5(6	tC, 2 stage (s)		0		
Vehicle Extension (s) 3.0	Vehicle Extension (s) 3.0 0.0	4.0 4.0 4.0 4.0	4.0	4.0 4.(0	tF (s)	3.5	3.3		
Ratio Forti 31 533 453 315 333 433 311 331 631 633	Lane Grp Cap (vph) 341 533 453 315 533 453 347 991 84 vis Ratio Prot 0.11 0.05 0.10 0.04 0.33 0.33 0.0 vis Ratio Prot 0.88 0.38 0.16 0.20 0.22 0.17 0.33 0.0 vis Ratio Prot 0.88 0.38 0.16 0.20 0.32 0.17 0.33 0.0 1.00 <td< td=""><td>3.0 3.0 3.0 3.0</td><td>3.0</td><td>3.0 3.(</td><td></td><td>p0 queue tree %</td><td>22</td><td>86</td><td></td><td></td></td<>	3.0 3.0 3.0 3.0	3.0	3.0 3.(p0 queue tree %	22	86		
vs Rate Pert 0.1 0.04 0.33 0.32 0.03 vs NB1 NB1 <th< td=""><td>v/s Ratio Prot 0.11 0.05 0.10 0.04 0.33 0 v/s Ratio Perm c0.27 0.06 0.26 0.27 0.33 0 v/s Ratio 0.38 0.38 0.16 0.20 0.32 0.13 0.32 V/s Ratio 0.038 0.38 0.16 0.20 0.32 0.13 0.38 0.00 Uniform Delay, d1 19.8 16.4 15.2 15.4 16.0 15.2 7.9 8.6 5. Progression Factor 1.00</td><td>53 347 991 843</td><td>331 (</td><td>91 84:</td><td>m</td><td>cM capacity (ven/n)</td><td>111</td><td>401</td><td></td><td>~</td></th<>	v/s Ratio Prot 0.11 0.05 0.10 0.04 0.33 0 v/s Ratio Perm c0.27 0.06 0.26 0.27 0.33 0 v/s Ratio 0.38 0.38 0.16 0.20 0.32 0.13 0.32 V/s Ratio 0.038 0.38 0.16 0.20 0.32 0.13 0.38 0.00 Uniform Delay, d1 19.8 16.4 15.2 15.4 16.0 15.2 7.9 8.6 5. Progression Factor 1.00	53 347 991 843	331 (91 84:	m	cM capacity (ven/n)	111	401		~
Norme Cold Cold <t< td=""><td>vis Ratio Perm c0.27 0.06 0.27 0.27 vic Ratio 0.88 0.38 0.16 0.20 0.32 0.15 0.88 0.0 vic Ratio 0.88 0.16 0.20 0.32 0.15 0.48 0.58 0.0 Vic Ratio 0.88 0.16 0.20 0.32 0.15 0.78 0.58 0.0 Progression Factor 1.00</td><td>04 0.33 0.02</td><td>0</td><td>.32 0.0</td><td>8</td><td>Direction, Lane #</td><td>WB 1</td><td>VB 2</td><td>NB 1 N</td><td>B2 S</td></t<>	vis Ratio Perm c0.27 0.06 0.27 0.27 vic Ratio 0.88 0.38 0.16 0.20 0.32 0.15 0.88 0.0 vic Ratio 0.88 0.16 0.20 0.32 0.15 0.48 0.58 0.0 Vic Ratio 0.88 0.16 0.20 0.32 0.15 0.78 0.58 0.0 Progression Factor 1.00	04 0.33 0.02	0	.32 0.0	8	Direction, Lane #	WB 1	VB 2	NB 1 N	B2 S
vic Ratio 0.38 0.36 0.16 0.22 0.15 0.48 0.56 0.16 0.00	vic Ratio 0.88 0.38 0.16 0.22 0.32 0.15 0.48 0.58 0.0 Progression Factor 1.00 </td <td>0.27</td> <td>c0.39</td> <td></td> <td></td> <td>Volume Total</td> <td>32</td> <td>58</td> <td>768</td> <td>42</td>	0.27	c0.39			Volume Total	32	58	768	42
Unitemental Delay, d1 198 164 152 154 160 152 154 160 120 100	Uniform Delay, d1 19.8 16.4 15.2 15.4 16.0 15.2 7.9 8.6 5. Progression Factor 1.00 1	15 0.48 0.58 0.04	0.70 0	.56 0.1!		Volume Left	32	0	0	0
Progression Factor 1.00 </td <td>Progression Factor 1.00 1.11 0.0 1.00 1.00 1.01 0.0 1.01 0.0 1.01 0.0 1.01 0.00 1.11 0.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00</td> <td>5.2 7.9 8.6 5.9</td> <td>9.5</td> <td>8.4 6.3</td> <td>e e</td> <td>Volume Right</td> <td>0</td> <td>58</td> <td>0</td> <td>42</td>	Progression Factor 1.00 1.11 0.0 1.00 1.00 1.01 0.0 1.01 0.0 1.01 0.0 1.01 0.00 1.11 0.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	5.2 7.9 8.6 5.9	9.5	8.4 6.3	e e	Volume Right	0	58	0	42
Incremental Delay, d2 218 0.4 0.3 0.1 4.8 2.5 0.1 1.1 2.3 0.4 0.45 0.02 0	Incremental Delay. d2 21.8 0.4 0.2 0.3 0.3 0.1 4.8 2.5 0. Level of Service D 4 0.2 0.3 0.3 0.1 4.8 2.5 0. Level of Service D 4 B B B B 4 1.1 Approach Delay (s) 26.4 15.8 15.8 11.1 Approach LOS C B B B B B 14.1 Approach LOS C B B B B B 14.1 Approach LOS C B B B B B 14.1 Approach LOS C B B B B B 14.1 Active to Capacity ratio 0.76 Actuated Cycle Length (s) 60.0 Sum of lost time (s) 8.	00 1.00 1.00 1.00	1.00	.00 1.00		cSH	111	401	1700 1	200 8
	Level of Sarvice 11.0 12.4 13.1 12.1 11.1 0.1 Level of Sarvice D B B B B B B B B B B B B B B B 1.1 0.1	0.1 4.8 2.5 0.1	11.7	2.3 0.4		Volume to Capacity	0.28	0.14	0.45 (0.02 0
Level of Service U B B B A C B B F Control Delay (s) 26.4 15.8 11.1 12.2 Control Delay (s) 26.4 15.8 11.1 12.2 Control Delay (s) 26.4 20.0 0.0 0 Approach Delay (s) C B B B B B B Control Delay (s) 21.8 10.0 0.0 Approach Delay (s) C B	Level or Service U B B B B B B J B J B J B J B J B J J J J J B J B J	5.3 12.7 11.1 6.0	21.2	0.7 6.		Queue Length 95th (ft)	27	12	0	0
Approach Delay (s) Co.4 D.3.0 D.1.1 Lare LOS E C Approach LOS C B B B B C 0.0 Approach LOS C B Tese control Delay 15.9 HCM Level of Service B Approach Delay (s) 27.6 0.0 HCM Volume to Capacity ratio 0.76 HCM Level of Service B Acreage Delay 1.8 Acreage Delay 1.8 HCM Volume to Capacity ratio 0.76 Sum of lost time (s) 8.0 Acreage Delay 1.8 Acreage Delay 1.8 Actuated Cycle Length (s) 60.0 Sum of lost time (s) 8.0 Analysis Period (min) 1.5 Analysis Period (min) 1.5 Analysis Period (min) 15 Critical Lane Group Critical Lane Group Critical Lane Group 1.8 Analysis Period (min) 1.5 Analysis Period (min) 1.6 Analysis Period (min) 1.5 Analysis Period (min) 1.5 Analysis Period (min) 1.5 Analysis Period (Approact Detay (s) 20.4 15.0 15.0 11.1 Approact LOS C B B B Herresection Summary 15.9 HCM Level of Service 1 HCM Volume to Capacity ratio 0.76 Actuated Cycle Length (s) 60.0 Sum of lost time (s) 8.		· د	- 2 C		Control Delay (s)	49.8	15.5	0.0	0.0
Approact Los Description Description <thdescription< th=""> <thdescription< th=""></thdescription<></thdescription<>	Approach LOS Control Delay 15.9 HCM Level of Service I Intersection Summary 15.9 HCM Level of Service I HCM Voluered Cycle Leopacity ratio 0.76 Actuated Cycle Leopacity and (s) 8.		-	7 0		Lane LOS	ш	ပ		
Intersection Summary Approach LOS D HCM Average Control Delay 15.9 HCM Level of Service B HCM Notume to capacity ratio 0.76 B Intersection Summary 18 Acting Cycle Length (s) 60.0 Sum of lost time (s) 8.0 Intersection Capacity Utilization 50.8% ICU Analysis Period (min) 15 Cutical Lane Group Cutical Lane Group 16 Analysis Period (min) 15	Intersection Summary HCM Average Control Delay HCM Volume to Capacity ratio Actuated Cycle Length (5) 80.0 Sum of lost time (s) 8.	۵		0		Approach Delay (s)	27.6		0.0	
HCM Average Control Delay 15.9 HCM Level of Service B Intersection Summary 18 HCM Volume to Capacity ratio 0.76 Average Delay 1.8 1.8 HCM Volume to Capacity ratio 0.76 Average Delay 1.8 1.8 Intersection Capacity Utilization 8.0 0.76 Average Delay 1.8 Intersection Capacity Utilization 8.2.3% ICU Level of Service 1.8 Analysis Period (min) 15 Analysis Period (min) 15 C Ortical Lane Group C Ortical Lane Group Control 15	HCM Average Control Delay 15.9 HCM Level of Service HCM Volume to Capacity ratio 0.76 Actuated Cycle Length (s) 60.0 Sum of lost time (s) 8.					Approach LOS				
HCM Volume to Capacity ratio 0.76 1.8 1.8 Average Delay 1.8 1.8 Actuated Cycle Length (s) 60.0 Sum of lost time (s) 8.0 Intersection Capacity Utilization 50.8% ICU Intersection Utilization 82.3% ICU Level of Service E Analysis Period (min) 15 CL Level of Service Critical Lane Group Critical Lane Group 1.6 CL Level of Service Critical Lane Group 1.6 CL Level of Service E Analysis Period (min) 1.6 CL Level of Ser	HCM Volume to Capacity ratio 0.76 Actuated Cycle Length (s) 60.0 Sum of lost time (s) 8.	of Service B				Intersection Summary				
Actuated Cycle Length (s) 60.0 Sum of lost time (s) 8.0 Intersection Capacity Utilization 50.8% ICU Intersection Capacity Utilization 82.3% ICU Level of Service E Analysis Period (min) 15 15 c Critical Lane Group	Actuated Cycle Length (s) 60.0 Sum of lost time (s) 8.					Average Delav			18	
Intersection Capacity Utilization 82.3% ICU Level of Service E Analysis Period (min) 15 Analysis Period (min) 15 c Critical Lane Group		ime (s) 8.0				Intersection Capacity Uti	ilization	5	0.8%	ICU
Analysis Period (mn) 15 c Critical Lane Grup	Intersection Capacity Utilization 82.3% ICU Level of Service	Service				Analysis Period (min)			15	
	Analysis Period (min) 15									

NE 7th Street & I	VIain S	5					
	5	1	←	•	۶		
ement	WBL	WBR	NBT	NBR	SBL	SBT	
e Configurations	۴	*	+	×	٢	*	
Control	Stop		Free			Free	
de de	%0		%0			0%	
ime (veh/h)	30	55	730	40	40	605	
k Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
rly flow rate (vph)	32	58	768	42	42	637	
estrians							
e Width (ft)							
king Speed (ft/s)							
cent Blockage							
it turn flare (veh)							
ian type	None						
ian storage veh)							
tream signal (ft)						542	
platoon unblocked	0.92						
conflicting volume	1489	768			811		
, stage 1 conf vol							
, stage 2 conf vol							
, unblocked vol	1535	768			811		
single (s)	6.4	6.2			4.1		
2 stage (s)							
	3.5	3.3			2.2		
ueue free %	72	86			95		
apacity (veh/h)	111	401			815		
ction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2	
me Total	32	58	768	42	42	637	
ime Left	32	0	0	0	42	0	
me Right	0	58	0	42	0	0	
	111	401	1700	1700	815	1700	
me to Capacity	0.28	0.14	0.45	0.02	0.05	0.37	
ue Length 95th (ft)	27	12	0	0	4	0	
trol Delay (s)	49.8	15.5	0.0	0.0	9.7	0.0	
e LOS	ш	U			۷		
roach Delay (s)	27.6		0.0		0.6		
roach LOS	Δ						
section Summary							
age Delay			1.8				
section Capacity Uti	lization	~	50.8%	<u>0</u>	U Level	of Service	A
lysis Period (min)			15				

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	•,	1	18									Ö.			ŭ	>																				
→	SBT	£,	1800	4.0	1.00	0.98	1.00	1680	00.1	1680	485	0.95	511	0	584	20	9		45.5	0 7 0	4.0	3.0	1176	0.35	0.50	4.5	1.00	1.5	e.0	A A	5 ×					
≯	SBL	-	1800	4.0	1.00	00.1	0.95	1629	20.0	896	85	0.95	80	- e	89	Perm		9	45.5	C.C4	4.0	3.0	627	010	0.10	3.2	1.00	0.5	3.7	A						
•	NBR		1800								15	0.95	16	- C	0	20																	m		<mark>8</mark> 0	1
-	- NBT	£.	1800	4.0	1.00	0.99	1.00	1703	00.1	1703	345	0.95	363	7 120	377	2	2		45.5	02 U	4.0	3.0	1192	0.22	0.32	3.8	1.00	0.7	4.5	A A A	A					
•	- NBL	*	1800	4.0	1.00	00.1	0.95	1629	0.39	666	245	0.95	258		258 F0/2	Dem		2	45.5	40.70	4.0	3.0	466	00.00	0.55	4 .8	1.00	4.7	9.5	¥			rvice		s) rice	2
~	WBR		1800								120	0.95	126	- c	1%	2																	el of Se		st time (
ŧ	WBT	£.	1800	4.0	1.00	1.90	1.00	1630	00.1	1630	6	0.95	92 92	101	134	2	∞		11.5	0.11.0	4.0	3.0	288	c0.08	0.46	24.0	1.00	1.2	52.2 5	0 2 2 2 2 2	0 I		CM Lev		um of lo	
1	WBL	٢	1800	4.0	1.00	00.T	0.95	1693	0.35	620	35	0.95	37	3 C	37	Perm		8	11.5	0.18 0.18	4.0	3.0	110	000	0.00	23.4	1.00	1.8	25.2	د			Ĭ		ສ⊆	2
1	EBR		1800								190	0.95	200	- C	1 0/2	2																	11.7	0.54	65.0 13.7%	12
t	EBT	24 24	1800	4.0	1.00	0.89	1.00	1583	00.1	1583	65	0.95	68	GQ1	103	2	4		11.5	0.1 C	4.0	3.0	280	0.07	0.37	23.6	1.00	0.8	24.4	24.4	C				u	
1	EBL	*	1800	4.0	1.00	00.1	0.95	1693	0.43	0//	35	0.95	37	5 C	37	Perm		4	11.5	0.11 0.18	4.0	3.0	136	0.01	20.0	23.1	1.00	1.1	24.2	د			av	/ ratio	s) 'ization	
	Movement	ane Configurations	deal Flow (vphpl)	Total Lost time (s)	Lane Util. Factor		Fit Protected	Satd. Flow (prot)		Satd. Flow (perm)	Volume (vph)	Peak-hour factor, PHF	Adj. Flow (vph)	KI UK Keauction (vpn)	Lane Group Flow (vph)		Protected Phases	Permitted Phases	Actuated Green, G (s)	Effective Green, g (s)	Clearance Time (s)	Vehicle Extension (s)	Lane Grp Cap (vph)	//s Ratio Prot	V/S Ratio Perm	Jniform Delay, d1	Progression Factor	ncremental Delay, d2	Delay (s)	Level of Service	Approach LOS	ntersection Summarv	HCM Average Control C	HCM Volume to Capaci	Actuated Cycle Length (Intersection Canacity 1It	Analysis Period (min) Analysis Period (min) Critical Lane Group
																																			A	
•	SBR				5	CR.0	Q																	SB 2	S OI			0.00	0	0.0					of Service A	
· •	SBT SBR	***	Free	0%	570 5 Def 0.65		600 5							640 640	042									SB 1 SB 2	600 5		200 1700	0.00	0 0	0.0 0.0					I Level of Service A	
	VBT SBT SBR		Free Free	0% 0%	570 570 5 Def off		600 600 5							242	300 642									VB2 SB1 SB2	600 600 5 		700 1700 1700	0.35 0.35 0.00	0 0	0.0 0.0 0.0		0.00			ICU Level of Service A	
· · · · ·	VBL NBT SBT		Free Free	0% 0%	15 570 570 5 Vie one one one		16 600 600 5							643 000 F	1300 042	605					2.2	98 22	9/3	4B1 NB2 SB1 SB2	16 600 600 5 		973 1700 1700 1700	0.02 0.35 0.35 0.00	1 0 0 0	8.8 0.0 0.0 0.0	A 00	2.0		0.7	.7% ICU Level of Service A	2
· · · · · · · · · · · · · · · · · · ·	BR NBL NBT SBT SBR		Free Free	0% 0%	15 15 570 570 5 Vec one one one		16 16 600 600 5							1000 610	1300 042	500 605		200 005		1.6 2.0	3.3 2.2	97 98	501 973	B2 NB1 NB2 SB1 SB2	16 16 600 600 5 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2			103 0.02 0.35 0.35 0.00	2 1 0 0 0	12.4 8.8 0.0 0.0 0.0	B A D D	0.0		0.7	41.7% ICU Level of Service A	2
	EBL EBR NBL NBT SBT SBR		stop Free Free	0% 0% 0%	20 15 15 570 570 5 Vec one one one one		21 16 16 600 600 5						one	1000 640	1300 042	232 600 605					3.5 3.3 2.2	89 97 98	193 501 9/3	B1 EB2 NB1 NB2 SB1 SB2	21 16 16 600 600 5 21 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		193 501 973 1700 1700	1,11 0.03 0.02 0.35 0.35 0.00	9 2 1 0 0 0	26.0 12.4 8.8 0.0 0.0 0.0		C. 0.1		0.7	ation 41.7% ICU Level of Service A	2
	EBL EBR NBL NBT SBR		Stop Free Free	0% 0%	20 15 15 570 570 5 005 005 005 005 005		n) 21 16 16 600 600 5						None	640 640	1300 042 ad	ne 1232 600 605	0	100			3.5 3.3 2.2	89 97 98	193 501 973	EB1 EB2 NB1 NB2 SB1 SB2	21 16 16 600 600 5 21 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2			0.11 0.03 0.02 0.35 0.35 0.00	(ft) 9 2 1 0 0 0	26.0 12.4 8.8 0.0 0.0 0.0	202 D B A	CO 200		0.7	by Utilization 41.7% ICU Level of Service A	6

HCM Unsignalized II 22: 5th Street & Mai	nterse n Stree	ction C st	apacit	y Anal <u>y</u>	ysis						6/22	2005
	•	t	۲	>	ŧ	~	4	+	•	۶	-	\mathbf{F}
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		÷			÷			÷			÷	
Sign Control		Stop			Stop			Free			Free	
Grade		%0			%0			%0			%0	
Volume (veh/h) Deak Hour Factor	0 05	0 0	0 05	0 05	0 08	95 0 05	0 05	420 0.95	10 0.05	125 0.05	585 0 05	0 05
Hourly flow rate (vph)	0.00 0	0	0.00 2	20 20	0	100	2 2	442	11	132	616	<mark>5</mark>
Pedestrians												Ľ
Lane Width (ft)												
Walking Speed (ft/s)												Ľ
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1439	1345	618	1345	1342	447	621			453		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1439	1345	618	1345	1342	447	621			453		
tC, single (s)	7.2	6.6	6.2	7.2	6.6	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	94	100	66	95	100	83	66			88		
cM capacity (veh/h)	82	131	484	113	131	605	945			1092		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	11	105	458	753								
Volume Left	5	S	S	132								
Volume Right	2	100	11	S								
cSH	140	497	945	1092								
Volume to Capacity	0.07	0.21	0.01	0.12								
Queue Length 95th (ft)	9	20	0	10								
Control Delay (s)	32.7	14.2	0.2	2.9								
Lane LOS	۵	ш	۷	۷								
Approach Delay (s)	32.7	14.2	0.2	2.9								
Approach LOS	Δ	Ю										

				0		
				ervice		
				l of S		
				Leve		
∡	ი			Ы		
`	c,i					
∢	0.2		3.1	.9%	15	
۷	0.2		3.1	80.9%	15	

Intersection Summary Average Delay Intersection Capacity Utilization Analysis Period (min)

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HCM Unsignalized Intersection Capacity Analysis 23: Lynn Street & Main Street

23: Lynn Street & Mi	ain Str	eet	-								6/22	/2005
	1	Ť	*	1	ŧ	~	•	+	٠	۶	-	\mathbf{F}
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		¢			¢		۴	÷		٢	÷	
Sign Control		Stop			Stop			Free			Free	
Grade		%0			%0			%0			%0	
Volume (veh/h)	20	15	2	10	5	305	0	6	10	400	100	15
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	21	16	2	1	5	321	0	95	5	421	105	16
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1374	1061	113	1061	1063	100	121			105		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1374	1061	113	1061	1063	100	121			105		
tC, single (s)	7.2	6.6	6.2	7.2	6.6	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	65	06	66	93	97	99	100			71		
cM capacity (veh/h)	61	158	932	143	157	947	1448			1467		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	42	337	0	105	421	121						
Volume Left	21	11	0	0	421	0						
Volume Right	5	321	0	1	0	16						
cSH	83 83	755	1700	1700	1467	1700						
Volume to Capacity	0.45	0.45	0.00	0.06	0.29	0.07						
Queue Length 95th (ft)	48	58	0	0	8	0						
Control Delay (s)	72.3	13.5	0.0	0.0	8.4	0.0						
Lane LOS	ш	ш			∢							
Approach Delay (s)	72.3	13.5	0.0		6.6							
Approach LOS	ш	В										
Intersection Summary												
Average Delay			10.9									
Intersection Capacity Uti	llization	4,	57.5%	⊆	SU Leve	l of Sen	vice		ш			
Analysis Period (min)			15									

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-	t	۲	\$	ŧ	•	•		
Movement	EBT	EBR	WBL	WBT	NBL	NBR		Movement
Lane Configurations	æ			÷	¥			Lane Configurations
Sign Control F	Free			Free	Stop			Sign Control
Grade	%0	L	00	%0	%0			Grade
Volume (ven/n)	530	22	202	485	35	040 10		Volume (ven/n)
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95		Peak Hour Factor
Hourly flow rate (vph)	558	58	21	511	37	42		Hourly flow rate (vph)
Pedestrians								Pedestrians
Lane Width (ft)								Lane Width (ft)
Walking Speed (ft/s)								Walking Speed (ft/s)
Percent Blockage								Percent Blockage
Right turn flare (veh)								Right turn flare (veh)
Median type					None			Median type
Median storage veh)								Median storage veh)
Upstream signal (ft)								Upstream signal (ft)
pX, platoon unblocked								pX, platoon unblocked
vC, conflicting volume			616		1139	587		vC, conflicting volume
vC1, stage 1 conf vol								vC1, stage 1 conf vol
vC2, stage 2 conf vol								vC2, stage 2 conf vol
vCu, unblocked vol			616		1139	587		vCu, unblocked vol
tC. single (s)			4.1		6.4	6.2		tC. single (s)
tC. 2 stage (s)								tC. 2 stage (s)
tF (s)			2.2		3.5	3.3		tF (S)
n0 dilette %			86		83	6		
cM capacity (veh/h)			959		217	508		cM capacity (veh/h)
(222		:	222		(march) Grandha ma
Direction, Lane # E	EB 1	NB 1	NB 1					Direction, Lane # E
Volume Total	616	532	79					Volume Total
Volume Left	0	21	37					Volume Left
Volume Right	58	0	42					Volume Right
cSH 1	200	959	312					cSH
Volume to Capacity (0.36	0.02	0.25					Volume to Capacity
Queue Lenath 95th (ft)	0	2	25					Queue Length 95th (ft)
Control Delav (s)	0.0	0.6	20.4					Control Delav (s)
Lane LOS		A	C					Lane LOS
Annroach Delav (s)	00	0.6	20.4					Annroach Delav (s)
Approach LOS			U					Approach LOS
C								
Intersection summary								Intersection Summary
Average Delay			1.6					Average Delay
Intersection Capacity Utiliz	ation	ŝ	5.4%	2	U Level	l of Se	VICE B	Intersection Capacity Utiliz
Analysis Period (min)			15					Analysis Period (min)

ersection Capacity Analysis

5: 7th Street & Huds	speth	Road	apacıı	y Allal	cick		6/22/2005
	۲	Ť	Ŧ	¥	ف	¥	
lovement	EBL	EBT	WBT	WBR	SWL	SWR	
ane Configurations		÷	\$		¥		
ign Control		Free	Free		Stop		
trade		%0	%0		%0		
olume (veh/h)	170	420	580	75	10	70	
eak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
lourly flow rate (vph)	179	442	611	79	1	74	
edestrians							
ane Width (ft)							
/alking Speed (ft/s)							
ercent Blockage							
tight turn flare (veh)							
ledian type					None		
ledian storage veh)							
pstream signal (ft)							
X, platoon unblocked							
C, conflicting volume	689				1450	650	
C1. stage 1 conf vol							
C2. stage 2 conf vol							
Cu, unblocked vol	689				1450	650	
C, single (s)	4.1				6.4	6.2	
C, 2 stage (s)							
= (s)	2.2				3.5	3.3	
0 queue free %	80				91	84	
M capacity (veh/h)	006				115	467	
irection, Lane #	EB 1	WB 1	SW 1				
olume Total	621	689	84				
olume Left	179	0	1				
olume Right	0	79	74				
SH	006	1700	338				
olume to Capacity	0.20	0.41	0.25				
tueue Length 95th (ft)	18	0	24				
ontrol Delay (s)	4.8	0.0	19.2				
ane LOS	۷		ပ				
pproach Delay (s)	4.8	0.0	19.2				
pproach LOS			U				
Itersection Summary							
verage Delay			3.3				
Itersection Capacity Util	lization		85.4%	2	CU Leve	I of Service	Ш
nalysis Period (min)			15				

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	1	t	۲	4	ŧ	~	•	+	٠	۲	-	¥
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		÷			÷			÷			÷	
Sign Control		Free			Free			Stop			Stop	
Grade		%0			%0			%0			%0	
Volume (veh/h)	20	10	15	0	ъ	2	20	30	5	£	45	10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	21	1	16	0	S	£	21	32	5	5	47	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1			26			103	71	18	89	76	8
vC1. stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1			26			103	71	18	89	76	ω
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	66			100			97	96	100	66	94	66
cM capacity (veh/h)	1615			1594			824	811	1063	858	805	1077
Direction Lane #	FR 1	WR 1	NR 1	SR 1								
Volume Total		7										
	4	= '	8	3 1								
Volume Lett	17	э [,]	17	Ω.								
Volume Right	16	S	2	7								
cSH	1615	1594	834	845								
Volume to Capacity	0.01	0.00	0.07	0.07								
Queue Length 95th (ft)	~	0	9	9								
Control Delay (s)	3.3	0.0	9.6	9.6								
Lane LOS	A		۷	∢								
Approach Delay (s)	3.3	0.0	9.6	9.6								
Approach LOS			∢	∢								
Intersection Summary												
Averade Delav			7.4									
Intersection Capacity Ut	ilization		24.7%	9	SU Leve	l of Serv	vice		A			
Analvsis Period (min)			15									
			2									

HCM Unsignalized Intersection Capacity Analysis 27: Lynn Street & Knowledge Street

27: Lynn Street & Ki	nowled	ge Str	eet								27.19	GUUZ/
	1	t	۲	\$	ŧ	~	•	•	٠	٠	-	$\mathbf{\hat{v}}$
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*	÷		۶	÷			÷			÷	
Sign Control		Free			Free			Stop			Stop	
Grade		%0			%0			%0			%0	
Volume (veh/h)	20	383	40	15	200	30	40	10	25	35	15	10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	21	403	42	16	211	32	42	7	26	37	16	11
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	242			445			727	740	424	735	745	226
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	242			445			727	740	424	735	745	226
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	<u> 8</u>			66			87	97	96	88	95	66
cM capacity (veh/h)	1330			1120			317	336	632	308	333	816
Direction. Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	21	445	16	242	79	63						
Volume Left	21	0	16	0	42	37						
Volume Right	0	42	0	32	26	7						
cSH	1330	1700	1120	1700	383	351						
Volume to Capacity	0.02	0.26	0.01	0.14	0.21	0.18						
Queue Length 95th (ft)	-	0	-	0	19	16						
Control Delay (s)	7.7	0.0	8.3	0.0	16.8	17.5						
Lane LOS	A		۷		ပ	ပ						
Approach Delay (s)	0.3		0.5		16.8	17.5						
Approach LOS					U	ပ						
Intersection Summary												
Average Delay			3.1									
Intersection Capacity Ut	ilization		35.8%	⊆	SU Leve	l of Sen	/ice		4			
Analysis Period (min)			15									

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Observation EL EN Non-on-on-on-on-on-on-on-on-on-on-on-on-o	Answert Ext Not	Monetiment Els Not Stat Lane Comparison Lane	Monetiment Els Not Sign Monetiment Els Not		•	۲	•	←	→	•				٠	t	ţ	∢_
Tarte Configurations 1 A	Tarter for the formations 1 <th>Configurations No No</th> <th>Configurations No No</th> <th>Movement</th> <th>EBL</th> <th>EBR</th> <th>NBL</th> <th>NBT</th> <th>SBT</th> <th>SBR</th> <th></th> <th>Movem</th> <th>ent</th> <th>EBL</th> <th>EBT</th> <th>NBT V</th> <th>NBR</th>	Configurations No	Configurations No	Movement	EBL	EBR	NBL	NBT	SBT	SBR		Movem	ent	EBL	EBT	NBT V	NBR
Gene Control Sign Control Sign Control Free Free Call calt rank (r) 100	Constrained Constrained <thconstrained< th=""> <thconstrained< th=""></thconstrained<></thconstrained<>	Bin Bin Chance Display Display <thdisplay< th=""> Display Di</thdisplay<>	Bin Bin Chance File File <th< td=""><td>Lane Configurations</td><td>۴</td><td>×_</td><td>r</td><td>+</td><td>+</td><td>*-</td><td></td><td>Lane C</td><td>onfigurations</td><td>٢</td><td>+</td><td>+</td><td></td></th<>	Lane Configurations	۴	×_	r	+	+	*-		Lane C	onfigurations	٢	+	+	
Total Last Time (a) 4.0 4.0 4.0 6.0	Transition (a) A	Total factor 10	Indentification AI	Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800		Sign Cc	introl		Free	Free	
Ame Ult Fador 100 <	Ame Out In Factor 100	End Control Co	mer mer <td>Total Lost time (s)</td> <td>4.0</td> <td>4.0</td> <td>4.0</td> <td>4.0</td> <td>4.0</td> <td>4.0</td> <td></td> <td>Grade</td> <td></td> <td></td> <td>%0</td> <td>%0</td> <td>1</td>	Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0		Grade			%0	%0	1
Free 10 0.05 100 <td>Fraction 100 10</td> <td>Freekends 100 1</td> <td>FF Feet form 100 10</td> <td>Lane Util. Factor</td> <td>1.00</td> <td>1.00</td> <td>1.00</td> <td>1.00</td> <td>1.00</td> <td>1.00</td> <td></td> <td>Volume</td> <td>(veh/h)</td> <td>10</td> <td>375</td> <td>420</td> <td>0</td>	Fraction 100 10	Freekends 100 1	FF Feet form 100 10	Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00		Volume	(veh/h)	10	375	420	0
Surf Fewrited USB Figure (VD) Figure (VD) <th< td=""><td>Sand Ferencision 0/35 1/3</td><td>Surf Frequencial 100</td><td>Surf How (and) Total Total</td><td>нц </td><td>1.00</td><td>0.85</td><td>1.00</td><td>1.00</td><td>1.00</td><td>0.85</td><td></td><td>Peak H</td><td>our Factor</td><td>0.95</td><td>0.95</td><td>0.95</td><td>0.95</td></th<>	Sand Ferencision 0/35 1/3	Surf Frequencial 100	Surf How (and) Total	нц 	1.00	0.85	1.00	1.00	1.00	0.85		Peak H	our Factor	0.95	0.95	0.95	0.95
State Termitation Dist Dist <thdis< th=""> Dist <thdist< th=""></thdist<></thdis<>	Surf Exercised Sign 100	State Through (1) So all (1)	Statt Free Mark Total		0.95	1.00	0.95	1.00	1.00	1.00		Hound	low rate (vpn)	:	395	442	D
Transmitter	Transmitter	Start Fertines USS 1/3	Sint Form No No <	Satd. Flow (prot)	1093	GL GL	1093	787	787	61.GI		Fedest	ians				
Salar Event TB3 TC3 TB3 TC3 TB3 TC3 TB3 TC3 TC3 <th< td=""><td>Satistic Merilian Satistic Merilian</td><td>Source (rel) material static form Top <t< td=""><td>Substruction Name State Name Name</td><td></td><td>G8.0</td><td>00.1</td><td>0.4.1</td><td>00.1</td><td>00.1</td><td>00.1</td><td></td><td>Lanew</td><td>iath (Tt)</td><td></td><td></td><td></td><td></td></t<></td></th<>	Satistic Merilian	Source (rel) material static form Top Top <t< td=""><td>Substruction Name State Name Name</td><td></td><td>G8.0</td><td>00.1</td><td>0.4.1</td><td>00.1</td><td>00.1</td><td>00.1</td><td></td><td>Lanew</td><td>iath (Tt)</td><td></td><td></td><td></td><td></td></t<>	Substruction Name State Name		G8.0	00.1	0.4.1	00.1	00.1	00.1		Lanew	iath (Tt)				
Waternet Freeken <	Addition Teach of tabon Teach of tabo	Water factor, FHF 05 270 050 0.50	Partner (M) 2/0 0.0 <th< td=""><td>Satd. Flow (perm)</td><td>1693</td><td>1515</td><td>/38</td><td>1/82</td><td>1/82</td><td>1515</td><td></td><td>Walking</td><td>I Speed (tt/s)</td><td></td><td></td><td></td><td></td></th<>	Satd. Flow (perm)	1693	1515	/38	1/82	1/82	1515		Walking	I Speed (tt/s)				
AFF-MUTATION: 1.13 0.13	Cast Not Not Not Not Not Not Not Not Not No	Aff Flow (vpl) 17 35 64 Andread for (vpl) 17	All Town (and) 1/3 5/3 1/3	Volume (vph)	165	270	160	280	480	115		Percent	Blockage				
And Control 1/3 2/4 6/6 7/1 <th< td=""><td>RUCk Reduction (vpn) 14 24 160 0.0 121 Model and conge veh Flow (vpn) 14 2 16 0 0 12 16 1</td><td>All Flow (ref) 11 241 060 0.21 Meeter (ref) Meeter (ref)</td><td>And Frick Constrained <thconstrained< th=""> <thconstrained< th=""> <</thconstrained<></thconstrained<></td><td>Peak-nour factor, PHF</td><td>0.95 </td><td>0.95</td><td>0.95 CG1</td><td>0.95</td><td>0.95</td><td>0.95</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<>	RUCk Reduction (vpn) 14 24 160 0.0 121 Model and conge veh Flow (vpn) 14 2 16 0 0 12 16 1	All Flow (ref) 11 241 060 0.21 Meeter (ref)	And Frick Constrained Constrained <thconstrained< th=""> <thconstrained< th=""> <</thconstrained<></thconstrained<>	Peak-nour factor, PHF	0.95 	0.95	0.95 CG1	0.95	0.95	0.95							
RTOR Relation (rol) 1 21 8 5 5 Imer Verhlers (s) 15 16 16 16 16 16 16 16 16 16 16 16 16 16	Random Construction	MCINF Reduction (vpi) 11 2 6 6 Farty Month 11 1	R:OR Fleededing volue 2.41 Control resolution 4.42	Adj. Flow (vph)	174	284	168	295	505	121		Median	type				
ame Constrainty of the constra	Instruction	Heavy Values (Fig) 17 70 168 50 55 <td>mark Table <tht< td=""><td>RTOR Reduction (vph)</td><td>0</td><td>214</td><td>0</td><td>0</td><td>0</td><td>56</td><td></td><td>Median</td><td>storage veh)</td><td></td><td></td><td></td><td></td></tht<></td>	mark Table Table <tht< td=""><td>RTOR Reduction (vph)</td><td>0</td><td>214</td><td>0</td><td>0</td><td>0</td><td>56</td><td></td><td>Median</td><td>storage veh)</td><td></td><td></td><td></td><td></td></tht<>	RTOR Reduction (vph)	0	214	0	0	0	56		Median	storage veh)				
Heary Values (%) 1%	Heary Values (%) 1%	Turn Type Ferm Perm Ferm 2 6 Perm C. confiction of the control 42 Turn Type 2 6 7 5 10 10 10 42 2	Turn Type Ferrer Profess (\$) 15 16	Lane Group Flow (vph)	174	20	168	295	505	65		Upstree	ım signal (ft)				
Turn Type Perm Perment mass Perment mass <t< td=""><td>Turn Types Ferm Perm 42 Trutter Phases 4 2 6 42 Protected Phases 4 2 6 42 Protected Phases 4 2 6 42 Protected Phases 4 2 6 41 Protected Phases 4 2 6 44 41 Permeted Phases 30 30 30 30 30 30 44 41 Actuated Coreno (s) 30</td><td></td><td>Turn Type: Ferm Coll sage (o) Coll sage (o)</td><td>Heavy Vehicles (%)</td><td>1%</td><td>1%</td><td>1%</td><td>1%</td><td>1%</td><td>1%</td><td></td><td>pX, plat</td><td>oon unblocked</td><td></td><td></td><td></td><td></td></t<>	Turn Types Ferm Perm 42 Trutter Phases 4 2 6 42 Protected Phases 4 2 6 42 Protected Phases 4 2 6 42 Protected Phases 4 2 6 41 Protected Phases 4 2 6 44 41 Permeted Phases 30 30 30 30 30 30 44 41 Actuated Coreno (s) 30		Turn Type: Ferm Coll sage (o)	Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%		pX, plat	oon unblocked				
Princición Phases 4 2 6 CCL subjectión Phases CCL subjectión Phases <thcl phases<<="" subjectión="" td=""><td>Printedie Theses 2 6 Cuts table 1 on vol Cuts table 1 on vol Cuts table 2 on fvol Cuts table 2 on fvol Cuts table 2 on vol Cuts table 2 on fvol Cuts table 2 on vol Cuts table 2 on vol</td><td>Protection Protection A 2 6 Actuated Oriento (2) 9 9 1 2 6 Actuated Oriento (2) 9 0 10 10 41 41 Actuated Oriento (3) 30 30 50 40 40 41 41 Actuated Oriento (10) 30<td>Printed Plases 4 2 6 Aduated Plases 4 1 2 6 Aduated Plases 8 9 9 9 9 9 9 4 1 Aduated Plases 8 9 9 9 9 9 9 9 9 9 4 1</td><td>Turn Type</td><td></td><td>Perm</td><td>Perm</td><td></td><td></td><td>berm</td><td></td><td>VC, con</td><td>flicting volume</td><td>442</td><td></td><td></td><td></td></td></thcl>	Printedie Theses 2 6 Cuts table 1 on vol Cuts table 1 on vol Cuts table 2 on fvol Cuts table 2 on fvol Cuts table 2 on vol Cuts table 2 on fvol Cuts table 2 on vol	Protection Protection A 2 6 Actuated Oriento (2) 9 9 1 2 6 Actuated Oriento (2) 9 0 10 10 41 41 Actuated Oriento (3) 30 30 50 40 40 41 41 Actuated Oriento (10) 30 <td>Printed Plases 4 2 6 Aduated Plases 4 1 2 6 Aduated Plases 8 9 9 9 9 9 9 4 1 Aduated Plases 8 9 9 9 9 9 9 9 9 9 4 1</td> <td>Turn Type</td> <td></td> <td>Perm</td> <td>Perm</td> <td></td> <td></td> <td>berm</td> <td></td> <td>VC, con</td> <td>flicting volume</td> <td>442</td> <td></td> <td></td> <td></td>	Printed Plases 4 2 6 Aduated Plases 4 1 2 6 Aduated Plases 8 9 9 9 9 9 9 4 1 Aduated Plases 8 9 9 9 9 9 9 9 9 9 4 1	Turn Type		Perm	Perm			berm		VC, con	flicting volume	442			
Permitted Phases Permitted Phases CC: stage 2 confrod Actuaded Green, G (s) 90 96 196 196 Actuaded Green, G (s) 90 96 196 196 Effective Green, G (s) 90 916 196 196 Effective Green, G (s) 90 916 196 196 Effective Green, G (s) 00 916 954 954 Actuaded Green, G (s) 30 30 30 30 30 30 Ceraance Track 30 30 30 30 30 30 30 30 Vehicle Extension (s) 30 <td>Attrated Green 4 2 6 VCCL unblocked vol 41 Attrated Green 5(5) 30 30 136 136 136 141 Effective Green 0(5) 30 30 30 30 30 141 Effective Green 0(5) 30</td> <td>Permitted Phases 1 2 4 2 4 2 4</td> <td>Formation Formation <t< td=""><td>Protected Phases</td><td>4</td><td></td><td></td><td>2</td><td>9</td><td></td><td></td><td>vC1, st</td><td>age 1 conf vol</td><td></td><td></td><td></td><td></td></t<></td>	Attrated Green 4 2 6 VCCL unblocked vol 41 Attrated Green 5(5) 30 30 136 136 136 141 Effective Green 0(5) 30 30 30 30 30 141 Effective Green 0(5) 30	Permitted Phases 1 2 4 2 4 2 4	Formation Formation <t< td=""><td>Protected Phases</td><td>4</td><td></td><td></td><td>2</td><td>9</td><td></td><td></td><td>vC1, st</td><td>age 1 conf vol</td><td></td><td></td><td></td><td></td></t<>	Protected Phases	4			2	9			vC1, st	age 1 conf vol				
Antimeter Green, G (s) 9.0	Actuated Green (s) 30 196 196 196 196 196 142 42 Actuated Green (s) 30 90 196 196 196 196 196 196 196 196 127 12 126 12 126 <td>Automatic Green, G (s) 90 196 196 196 196 142 Effective Green, G (s) 0 0 0 0 0 10 42 Attaterio Green, G (s) 0 0 0 0 0 10 42 42 Attaterio Green, G (s) 0 0 0 0 0 10 22 53 54 0 40 40 40 42 42 44 46 44 46 44 46 44 42 44 46 44 <</td> <td>Automatic Green (5) 0 0 10 10 10 10 14 12 Effective Green (6) 0 0 10 10 10 10 10 11 22 14 23</td> <td>Permitted Phases</td> <td></td> <td>4</td> <td>0</td> <td></td> <td></td> <td>y</td> <td></td> <td>vC2. st</td> <td>age 2 conf vol</td> <td></td> <td></td> <td></td> <td></td>	Automatic Green, G (s) 90 196 196 196 196 142 Effective Green, G (s) 0 0 0 0 0 10 42 Attaterio Green, G (s) 0 0 0 0 0 10 42 42 Attaterio Green, G (s) 0 0 0 0 0 10 22 53 54 0 40 40 40 42 42 44 46 44 46 44 46 44 42 44 46 44 <	Automatic Green (5) 0 0 10 10 10 10 14 12 Effective Green (6) 0 0 10 10 10 10 10 11 22 14 23	Permitted Phases		4	0			y		vC2. st	age 2 conf vol				
Finance Creating (a) 50 50 50 50 50 50 50 50 50 50 50 41 Actuated Creating (b) 30 30 50 50 55 56	Freeder Green (15) 0.0	Effective 0:0 0	Freeder Stander Stander <t< td=""><td></td><td>00</td><td>00</td><td>106</td><td>10.6</td><td>19.6</td><td>10.6</td><td></td><td>vCu. ur</td><td>blocked vol</td><td>442</td><td></td><td></td><td></td></t<>		00	00	106	10.6	19.6	10.6		vCu. ur	blocked vol	442			
Activated 90C Ratio 0.25 0.26 0.34 </td <td>Autored SC Ratio 0.2 0.2 0.3</td> <td>Actuated of Ratio 0.25 0.24 0.36 0.34 0.36 0.34 0.36 0.34 0.36 0.36 <th0.36< th=""> 0.36 0.36</th0.36<></td> <td>Actuated of Ratio 0.25 0.24 0.34 <th0.34< th=""> 0.34 0.34</th0.34<></td> <td></td> <td></td> <td></td> <td>10.6</td> <td>10.6</td> <td>10.6</td> <td>10.6</td> <td></td> <td>tC. sinc</td> <td>le (s)</td> <td>4.1</td> <td></td> <td></td> <td></td>	Autored SC Ratio 0.2 0.2 0.3	Actuated of Ratio 0.25 0.24 0.36 0.34 0.36 0.34 0.36 0.34 0.36 0.36 <th0.36< th=""> 0.36 0.36</th0.36<>	Actuated of Ratio 0.25 0.24 0.34 <th0.34< th=""> 0.34 0.34</th0.34<>				10.6	10.6	10.6	10.6		tC. sinc	le (s)	4.1			
Clarating in volume	Contacted function 4.0	Constance function 4.0	Matter Value Value <t< td=""><td></td><td>3.0</td><td>0.5</td><td>0.54</td><td>0.64</td><td>0.54</td><td>13.0</td><td></td><td>tC 2st</td><td>ade (s)</td><td></td><td></td><td></td><td></td></t<>		3.0	0.5	0.54	0.64	0.54	13.0		tC 2st	ade (s)				
Ventole Extension (s) 3.0	Vertrade Extension 3.0	Valuation 3.0 3	Variation (s) 30			070				40.0		tF (s)	(2) 28	2.2			
Lume Control 110 110 110 An end of Cap (Val) 416 373 395 94 811 Ver Ratio Perm 0.01 0.02 0.33 0.33 0.34 WB1 FB1	Intercepting 113 313 353 544 511 112 Inter GT Cap (vpt) 116 373 355 54 811 881 93 93 93 93 93 93 93 93 93 93 93 93 93 94 96	Image: Construction	$ \begin{array}{c c c c c c c c c c c c c c c c c c c $			5 0	0 C	0.0	0.0			b0 dner	ie free %	66			
arrestrictor brown, with arrestriction. Lame # EB1 EB2 WB1 SB1 vick Ratio 0.05 0.23 0.04 0.05 0.23 0.04 0.01	vis Ratio Port 0.10 0.3 0.17 0.38 0.04 0.17 0.38 0.04 0.17 0.38 0.04 0.01 0.0 0	Kale Petru 0.10 0.0	Michael Michael <t< td=""><td></td><td>116</td><td>373</td><td>305</td><td>OEA</td><td>OFA</td><td>0.0 811</td><td></td><td>cM cap</td><td>acity (veh/h)</td><td>1102</td><td></td><td></td><td></td></t<>		116	373	305	OEA	OFA	0.0 811		cM cap	acity (veh/h)	1102			
Name Name <th< td=""><td>With Ratio Underform <thunderform< th=""> <thunderform< th=""> <th< td=""><td>We rection With the rest of the res of the rest of the rest of the rest of the</td><td>Ware Manding Ware Manding</td><td></td><td>4 0</td><td>010</td><td>383</td><td>4CA</td><td>+CA</td><td>011</td><td></td><td></td><td>(</td><td></td><td>1</td><td></td><td></td></th<></thunderform<></thunderform<></td></th<>	With Ratio Underform Underform <thunderform< th=""> <thunderform< th=""> <th< td=""><td>We rection With the rest of the res of the rest of the rest of the rest of the</td><td>Ware Manding Ware Manding</td><td></td><td>4 0</td><td>010</td><td>383</td><td>4CA</td><td>+CA</td><td>011</td><td></td><td></td><td>(</td><td></td><td>1</td><td></td><td></td></th<></thunderform<></thunderform<>	We rection With the rest of the res of the rest of the rest of the rest of the	Ware Manding		4 0	010	383	4CA	+CA	011			(1		
Non-browner Non-browner Color	Notice 0.03 0.23 0.04 0.01 <th0.01< th=""> 0.01 0.01 <t< td=""><td>with and permined 0.43 0.31 0.53 0.04 11 395 442 16 11 305 442 11 305 442 11 305 442 11 305 442 11 305 442 1100 101</td><td>We ratio Volume Left 11 305 422 16 701 702 702 702 702 702 702 702 702 702 702 702 702 702 703</td><td>V/S Ratio Prot</td><td>0.10</td><td>10.0</td><td>000</td><td>0.17</td><td>0.Z0</td><td></td><td></td><td>Directic</td><td>n, Lane #</td><td>EB 1</td><td>EB 2 \</td><td>VB 1</td><td>SB 1</td></t<></th0.01<>	with and permined 0.43 0.31 0.53 0.04 11 395 442 16 11 305 442 11 305 442 11 305 442 11 305 442 11 305 442 1100 101	We ratio Volume Left 11 305 422 16 701 702 702 702 702 702 702 702 702 702 702 702 702 702 703	V/S Ratio Prot	0.10	10.0	000	0.17	0.Z0			Directic	n, Lane #	EB 1	EB 2 \	VB 1	SB 1
Vic Ratio Vic Mail	Vic Ratio Volume Left 11 0 0 0 Progression Factor 1.09 1.4 1.5 4.1 0<	Directation 0.43 0.31 0.35 0.14 0.35 0.010 0.0 <	Difform Delay, d1 1.42 0.13 0.33 0.00	V/S Katio Perm		0.05 0	0.23			0.04		Volume	Total	7	395	442	16
Uniform Delay, d1 116 103 51 4.1 55 4.1 0<	Uniform Delay, d1 116 103 51 41 55 41 Progression Factor 100 100 100 100 100 100 100 100 100 100 100 00 0 0 0 0 0 0 0 0 100 100 100 100 100 100 100 100 100 100 11 0 0 0 11 0 0 0 11 1 0 0 11 1 0 0 11 1 0 0 0 11 1 1	During Line Tite	Uniform Delay, (1 116 10.9 5.1 4.7 5.5 4.1 100 110 100 100 111 0 0 0 0 111 0 0 111 0 0 111 0 0 111 0 0 111 0 0 111 0 0 111 111 0 0 111 <td>v/c Ratio</td> <td>0.42</td> <td>0.19</td> <td>0.43</td> <td>0.31</td> <td>0.53</td> <td>0.08</td> <td></td> <td>Volume</td> <td>Left</td> <td>1</td> <td>0</td> <td>0</td> <td>0</td>	v/c Ratio	0.42	0.19	0.43	0.31	0.53	0.08		Volume	Left	1	0	0	0
Progression Factor 1.00 1.10 1.102 1.700 1.700 1.00 0.01 1.23 0.26 0.00 0.11 1.00 1.00 1.10 1.00 1.00 1.10 1.00 1.00 1.10 1.00 1.00 1.00 1.10 1.00 1.00 1.10 1.00 1.00 1.10 1.00 1.00 1.11 1.00 1.00 1.00 1.01 1.10 1.10 1.102 1.102 1.102 1.102 1.102 1.102 1.102 1.102 1.102 1.102 1.102 1.102 1.102 1.102	Progression Factor 1.00 1.01 1.02 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 <td>Progression Factor 1.00 1.10 0.01<td>Progression Factor 1.00 1.01 0.23 0.26 0.00 0 1.1 0 0 1.1 0 0 1.1 0 0 1.1 0 0 1.1 0 1.00 1.11 1.11 1.11 1.11 <</td><td>Uniform Delay, d1</td><td>11.6</td><td>10.9</td><td>5.1</td><td>4.7</td><td>5.5</td><td>4.1</td><td></td><td>Volume</td><td>Right</td><td>0</td><td>0</td><td>0</td><td>16</td></td>	Progression Factor 1.00 1.10 0.01 <td>Progression Factor 1.00 1.01 0.23 0.26 0.00 0 1.1 0 0 1.1 0 0 1.1 0 0 1.1 0 0 1.1 0 1.00 1.11 1.11 1.11 1.11 <</td> <td>Uniform Delay, d1</td> <td>11.6</td> <td>10.9</td> <td>5.1</td> <td>4.7</td> <td>5.5</td> <td>4.1</td> <td></td> <td>Volume</td> <td>Right</td> <td>0</td> <td>0</td> <td>0</td> <td>16</td>	Progression Factor 1.00 1.01 0.23 0.26 0.00 0 1.1 0 0 1.1 0 0 1.1 0 0 1.1 0 0 1.1 0 1.00 1.11 1.11 1.11 1.11 <	Uniform Delay, d1	11.6	10.9	5.1	4.7	5.5	4.1		Volume	Right	0	0	0	16
Incremental Delay, d2 0.7 0.2 0.5 0.0 0.2 0.5 0.0 0.2 0.5 0.0 0.2 0.5 0.0 0.2 0.5 0.0 0.2 0.5 0.0 0.2 0.5 0.0 0.2 0.5 0.0 0.0 1 0 0 0 2 0.0 0.0 11 0 0 0 1 0 0 0 11 1 0 0 0 11 1 0 0 0 1 1 0 0 0 1 1 0 0 0 1 1 0 0 0 1 1 0 0 0 1 1 1 0 0 1 1 1 0 0 1	Incremental Delay, d2 0.7 0.2 0.5 0.0 0.2 0.7 0.2 0.5 0.0 0.2			Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		cSH		1102	1700	1700	609
Delay (s) 12.3 11.2 5.9 4.9 6.0 4.2 Evel of Service B B A A A A Evel of Service B B A A A A B A B A Control Delay (s) 8.3 0.0 0.0 11.1 A pproach Delay (s) 11.6 A A A A A A A A B B B B A A Control Delay (s) 0.1 0.0 0.0 11.1 A pproach LOS B A A A A A A A A A A B A B A A A A A B B A A A A A B B A A B B A A B B B B B B B B B B	Delay (s) 12.3 11.2 5.9 4.9 6.0 4.2 Approach Delay (s) 11.6 A A A A A A A A A A A A B B A A A A A Cueue Length 95th (ft) 1 0 0 11.1 Approach Delay (s) 11.6 S.3 S.7 A A A B A A B A A B A A B A B A A B A A B A A B A A B A A B A A B B A A A B B A A A A A B B A A A A A B B A A A A A A B B B B	Delay (s) 12.3 11.2 5.9 4.9 6.0 4.2 Approach Delay (s) 11.6 0 0 0 11.1 Approach Dolay 7.3 HCM Level of Service A B B B A A A A A B	Delay (s) 12.3 11.2 5.9 4.9 6.0 4.2 Even of Service B B A A A A A B	Incremental Delay, d2	0.7	0.2	0.7	0.2	0.5	0.0		Volume	to Capacity	0.01	0.23	0.26	0.03
Level of Service B A A A A A A B A A B A A B B A A Control Delay (s) B B A A A D <thd< thd=""> D <thd< th=""> <t< td=""><td>Level of ServiceBAAAAApproach Delay (s)11.65.35.7BBABABApproach Delay (s)11.65.35.7BBABBABApproach Delay (s)11.65.35.7ABBABBABBABBDD<tdd< td="">DDDD<</tdd<></td><td>Level of Service B A A A A A Control Delay (s) B:3 5.7 B:3 5.7 B:1 B:1 A A A Dered of Service B A A A Dered of Service B:1 Dered of Service B:1 Dered of Service A A A A Dered of Service Dered of Service</td><td>Level of Service B A A A A A A A A A A B B B B B B B B B B B B B B B D <thd< th=""> D <thd< th=""></thd<></thd<></td><td>Delay (s)</td><td>12.3</td><td>11.2</td><td>5.9</td><td>4.9</td><td>0.9</td><td>4.2</td><td></td><td>Queue</td><td>Lenath 95th (ft)</td><td>-</td><td>0</td><td>0</td><td>2</td></t<></thd<></thd<>	Level of ServiceBAAAAApproach Delay (s)11.65.35.7BBABABApproach Delay (s)11.65.35.7BBABBABApproach Delay (s)11.65.35.7ABBABBABBABBDD <tdd< td="">DDDD<</tdd<>	Level of Service B A A A A A Control Delay (s) B:3 5.7 B:3 5.7 B:1 B:1 A A A Dered of Service B A A A Dered of Service B:1 Dered of Service B:1 Dered of Service A A A A Dered of Service	Level of Service B A A A A A A A A A A B B B B B B B B B B B B B B B D <thd< th=""> D <thd< th=""></thd<></thd<>	Delay (s)	12.3	11.2	5.9	4.9	0.9	4.2		Queue	Lenath 95th (ft)	-	0	0	2
Approach Delay (s) 11.6 5.3 5.7 Lane LOS A A Approach Delay B A A O 0.1 1.1 Approach LOS B A A A O 0.1 1.1 Intersection Summary 7.3 HCM Level of Service A A A P P P HCM Volume to Control Delay 7.3 HCM Level of Service A <td>Approach Delay (s) 11.6 5.3 5.7 Lane LOS A A Approach LOS B A A A O 0.1</td> <td>Approach Delay (s) 11.6 5.3 5.7 Approach Delay (s) 0.2 0.0 11.1 Approach LOS B A</td> <td>Approach Delay (s) 11.6 5.3 5.7 Lane LOS A A Approach Delay B A B B B A<!--</td--><td>Level of Service</td><td>ш</td><td>ш</td><td>۷</td><td>۷</td><td>۷</td><td>A</td><td></td><td>Control</td><td>Delav (s)</td><td>8.3</td><td>0.0</td><td>0.0</td><td>11.1</td></td>	Approach Delay (s) 11.6 5.3 5.7 Lane LOS A A Approach LOS B A A A O 0.1	Approach Delay (s) 11.6 5.3 5.7 Approach Delay (s) 0.2 0.0 11.1 Approach LOS B A	Approach Delay (s) 11.6 5.3 5.7 Lane LOS A A Approach Delay B A B B B A </td <td>Level of Service</td> <td>ш</td> <td>ш</td> <td>۷</td> <td>۷</td> <td>۷</td> <td>A</td> <td></td> <td>Control</td> <td>Delav (s)</td> <td>8.3</td> <td>0.0</td> <td>0.0</td> <td>11.1</td>	Level of Service	ш	ш	۷	۷	۷	A		Control	Delav (s)	8.3	0.0	0.0	11.1
Approach LOS B A Approach LOS 0.2 0.0 11.1 Intersection Summary 7.3 HCM kenage 7.3 HCM kenage 0.4 8.0 0.3 HCM Volume to Capacity ratio 0.49 6.0 8.0 0.1 0.3 0.3 0.3 Actuated Cycle Length (s) 36.6 Sum of lost time (s) 8.0 Natives ction Capacity Utilization 0.3 Intersection Capacity Utilization 5.7% ICU Level of Service B Analysis Period (min) 15 Critical Lane Group 15 Critical Lane Group 15 16 17 15	Approach LOS B A Approach LOS 0.2 0.1.1 Intersection Summary 7.3 HCM Level of Service A B Intersection Summary B B HCM Volume to Capacity ratio 0.49 36.6 Sum of lost time (s) 8.0 Average Delay 3.3.3.3 Actuated Cycle Length (s) 36.6 Sum of lost time (s) 8.0 Average Delay 3.3.3.3 Intersection Capacity Utilization 55.7% ICU Level of Service B Average Delay 1.1 Analysis Period (min) 15 Cut Level of Service B Analysis Period (min) 15 C Critical Lane Group C C Critical Lane Group 15 Analysis Period (min) 15	Approach LOS B A Approach Delay (s) 0.2 0.0 11.1 Intersection Summary 7.3 HCM Level of Service A B Intersection Summary B HCM Average Control Delay 7.3 HCM Level of Service A Intersection Summary 0.3 B HCM Average Control Delay 7.3 HCM Level of Service A Intersection Summary 0.3 D 0.3 D	Approach LOS B A Intersection Summary 7.3 HOM Level of Service A Intersection Summary 7.3 HOM Level of Service A HCM Volume to Capacity ratio 0.4 3.6 Sum of lost time (s) 0.3 HCM Volume to Capacity Utilization 5.7% ICU Level of Service A Intersection Summary 0.3 Actuated Cycle Length (s) 36.6 Sum of lost time (s) 8.0 Intersection Capacity Utilization 0.3 Intersection Capacity Utilization 5.7% ICU Level of Service B Analysis Period (min) 15 Cutical Lane Group 15 Critical Lane Group 15 Analysis Period (min) 15	Approach Delay (s)	11.6			5.3	5.7			Lane L(SC	A			Ш
Intersection Summary Approach LOS E HCM Average Control Delay 7.3 HCM Level of Service A HCM Volume to Capacity ratio 0.49 Average Delay 0.3 HCM Volume to Capacity ratio 0.49 Average Delay 0.3 HCM Volume to Capacity tratio 0.5,1% Intersection Capacity Utilization 0.3 Intersection Capacity Utilization 55,7% ICU Level of Service B Analysis Period (min) 15 Analysis Period (min) 15 c Critical Lane Group Critical Lane Group 15	Intersection Summary Approach LOS B HCM Average Control Delay 7.3 HCM Level of Service A HCM Volume to Capacity ratio 0.49 Intersection Summary 0.3 HCM Volume to Capacity ratio 0.49 Average Delay 0.3 HCM Volume to Capacity ratio 0.49 Average Delay 0.3 Actuated Cycle Length (s) 36.6 Sum of lost time (s) 8.0 Intersection Capacity Utilization 5.7% ICU Level of Service B Analysis Period (min) 15 Analysis Period (min) 15 c Critical Lane Group Critical Lane Group 15	Intersection Summary Approach LOS B HCM Average Control Delay 7.3 HCM Level of Service A HCM Volume to Capacity ratio 0.49 Intersection Summary 0.3 HCM Volume to Capacity ratio 0.49 Sum of lost time (s) 8.0 HCM Volume to Capacity Utilization 55.7% ICU Level of Service 9.0 Intersection Capacity Utilization 55.7% ICU Level of Service 9.0 Analysis Period (min) 15 ICU Level of Service 9.0 c Critical Lane Group Critical Lane Group 15 15	Intersection Summary Approach LOS B HCM Average Control Delay 7.3 HCM Level of Service A HCM Average Control Delay 7.3 HCM Level of Service A HCM Volume to Capacity ratio 0.49	Approach LOS	ш			4	۷			Approa	ch Delay (s)	0.2		0.0	11.1
HCM Average Control Delay 7.3 HCM Level of Service A HCM Average Control Delay 7.3 HCM Level of Service A HCM Volume to Capacity ratio 0.49 Average Delay 0.3 HCM Volume to Capacity ratio 0.49 Average Delay 0.3 Actuated Cycle Length (s) 36.6 Sum of lost time (s) 8.0 Intersection Capacity Utilization 5.7% ICU Level of Service B Analysis Period (min) 15 Intersection Capacity Utilization 15 c Critical Lane Group c Critical Lane Group 15	HCM Average Control Delay 7.3 HCM Level of Service A HCM Volume to Capacity ratio 0.49 Average Delay 0.3 HCM Volume to Capacity ratio 0.49 Average Delay 0.3 Actuated Cycle Length (s) 36.6 Sum of lost time (s) 8.0 Intersection Capacity Utilization 33.3% Intersection Capacity Utilization 55.7% ICU Level of Service B Analysis Period (min) 15 Analysis Period (min) 15 Critical Lane Group Critical Lane Group 15	HCM Average Control Delay 7.3 HCM Level of Service A HCM Volume to Capacity ratio 0.49 Average Delay 0.3 HCM Volume to Capacity ratio 0.49 Average Delay 0.3 HCM Volume to Capacity Utilization 5.6 Sum of lost time (s) 8.0 Intersection Capacity Utilization 5.7 It resection Capacity Utilization 33.3% Intersection Capacity Utilization 15 Analysis Period (min) 15 Analysis Period (min) 15 Critical Lane Group 15	HCM Average Control Delay 7.3 HCM Level of Service A HCM Volume to Capacity ratio 0.49 Average Delay 0.3 HCM Volume to Capacity ratio 0.49 Average Delay 0.3 Actuated Cycle Length (s) 36.6 Sum of lost time (s) 8.0 15 Intersection Datacity Utilization 55.7% ICU Level of Service B 15 Analysis Period (min) 15 Cutical Lane Group c Critical Lane Group 15	Intersection Summary								Approa	ch LOS				ш
HCM Volume to Capacity ratio 049 0.3 Actuated Cycle Length (s) 36.6 Sum of lost time (s) 8.0 Actrage Delay Intersection Capacity Utilization 55.7% ICU Level of Service B Analysis Period (min) 15 Analysis Period (min) 15 Critical Lane Group	HCM Volume to Capacity ratio 049 0.3 Actuated Cycle Length (s) 36.6 Sum of lost time (s) 8.0 Intersection Capacity Utilization 5.7% ICU Level of Service B Analysis Period (min) 15 ICU Level of Service Capacity Utilization 3.3% Analysis Period (min) 15 CU Level of Service Capacity Utilization 2.1%	HCM Volume to Capacity ratio 049 0.3 Actuated Cycle Length (s) 35.6 Sum of lost time (s) 8.0 Actuated Cycle Length (s) 35.7% Intersection Capacity Utilization 33.3% Intersection Capacity Utilization 55.7% ICU Level of Service B Analysis Period (min) 15 Analysis Period (min) 15 C Critical Lane Group	HCM Volume to Capacity ratio 0.49 0.49 Actuated Cycle Length (s) 36.6 Sum of tost time (s) 8.0 Actuated Cycle Length (s) 36.6 Sum of tost time (s) 8.0 Intersection Capacity Utilization 55.7% ICU Level of Service 8 Analysis Period (min) 15 ICU Level of Service 8 C tritical Lane Group 15 ICU Level of Service 15	HCM Average Control De	av		7.3	HO	MLeve	I of Service	A	Interced	tion Summary				
Actuated Cycle Length (s) 36.6 Sum of lost time (s) 8.0 Actuated Cycle Length (s) 36.6 Sum of lost time (s) 8.0 Intersection Capacity Utilization 55.7% ICU Level of Service B Analysis Period (min) 15 Analysis Period (min) 15 Critical Lane Group 15 Critical Lane Group 15	Actuated Cycle Length (s) 36.6 Sum of lost time (s) 8.0 Intersection Capacity Utilization 33.3% Intersection Capacity Utilization 55.7% ICU Level of Service B Analysis Period (min) 15 Analysis Period (min) 15 Critical Lane Group Critical Lane Group Critical Lane Group 15	Actuated Cycle Length (s) 36.6 Sum of lost time (s) 8.0 Intersection Capacity Utilization 55.7% ICU Level of Service B Analysis Period (min) 15 Analysis Period (min) 15 c Critical Lane Group Critical Lane Group Critical Lane Group	Actuated Cycle Length (s) 36.6 Sum of lost time (s) 8.0 Intersection Capacity Utilization 55.7% ICU Level of Service B Analysis Period (min) 15 Analysis Period (min) 15 c Critical Lane Group c Critical Lane Group 600	HCM Volume to Capacity	ratio		0.49									0	
Intersection Capacity Utilization 55.7% ICU Level of Service B Analysis Period (min) 15 Analysis Period (min) 15 Critical Lare Group Critical Lare Group	Intersection Capacity Utilization 55.7% ICU Level of Service B Analysis Period (min) 15 Analysis Period (min) 15 C Critical Lare Group	c Critical Lane Group	c Critical Lane Group	Actuated Cycle Length (s			36.6	U.	m of los	t time (s)	8.0	Average	e uelay		č	0.0	
Analysis Period (min) 15 c Critical Lane Group	Analysis Period (min) 15 c Critical Lare Group	Analysis Period (min) 15 c Critical Lane Group	c Critical Lare Group	Intersection Capacity Utili	zation	2	5.7%	10	J Level	of Service	; œ		Corrigation Capacity Unit	IIZALIOU	Ó	15.0%	
c Critical Lane Group	c Critical Lane Group	c Critical Lane Group	c Critical Lane Group	Analysis Period (min)			15									2	
				c Critical Lane Group													

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nvement	БВІ	FRT	WRT	WRR	S.BI	SRR	
ine Configurations	F	*	*			×	
an Control	•	Free	Free		Stop	-	
rade		%0	%0		%0		
olume (veh/h)	10	375	420	0	0	15	
eak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
ourly flow rate (vph)	1	395	442	0	0	16	
edestrians							
ine Width (ft)							
alking Speed (ft/s)							
ercent Blockage							
ght turn flare (veh)							
edian type					None		
edian storage veh)							
ostream signal (ft)							
(, platoon unblocked							
C, conflicting volume	442				858	442	
1. stage 1 conf vol							
2, stage 2 conf vol							
u, unblocked vol	442				858	442	
, single (s)	4.1				6.4	6.2	
t, 2 stage (s)							
(s)	2.2				3.5	3.3	
) queue free %	66				100	97	
/ capacity (veh/h)	1102				320	609	
rection, Lane #	EB 1	EB 2	WB 1	SB 1			
olume Total	11	395	442	16			
olume Left	1	0	0	0			
olume Right	0	0	0	16			
H	1102	1700	1700	609			
olume to Capacity	0.01	0.23	0.26	0.03			
ueue Length 95th (ft)	-	0	0	7			
ontrol Delay (s)	8.3	0.0	0.0	11.1			
ine LOS	A			ш			
pproach Delay (s)	0.2		0.0	11.1			
oproach LOS				ш			
tersection Summary							
rerage Delay			0.3				
tersection Capacity Ut	ilization		33.3%	2	SU Leve	of Service	A
alysis Period (min)			15				

Prineville TSP 5:00 pm 8/23/2002 2025 PM Peak Build PHF .95 The Transpo Group

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Movement EBT EBR WBL WBI NBI Lane Configurations P P P P P Sign Control Free 0% 0% 0% 0%	BL NBR	
Lane Configurations the Free Stop Sign Control Free Ctop Grade 0% 0% 0%		
Sign Control Free Stop Grade 0% 0% 0%	ſ	
Grade 0% 0%	do	
Hourly flow rate (vph) 84 16 0 179 11	11 0	
Pedestrians		
Lane Width (ft)		
Walking Speed (ft/s)		
ercent Blockage		
Agnt turn näre (ven) Modion tune (ven)	00	
Median type Median storade veh)	D	
viculari storage veri) Instream signal (ft)		
oX. platoon unblocked		
vC, conflicting volume 100 271	71 92	
/C1, stage 1 conf vol		
/C2, stage 2 conf vol		
/Cu, unblocked vol 271	71 92	
C, single (s) 4.1 6.4	.4 6.2	
U, Z Stage (S)	сс Ц	
r (s) 2.2 3.3 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	99 100	
cM capacity (veh/h) 1486 716	16 962	
Direction, Lane # EB 1 WB 1 NB 1		
/olume Total 100 179 11		
/olume Left 0 0 11		
/olume Right 16 0 0		
SH 1700 1700 716		
/olume to Capacity 0.06 0.11 0.01		
Queue Length 95th (ft) 0 0 1		
Control Delay (s) 0.0 0.0 10.1		
-ane LOS		
Approach Leiay (s) 0.0 0.0 10.1 Approach LOS B		
ntersection Summary		
Average Delay 0.4	and of Camboo	~
ntersection Capacity Utilization 19.4% ICU Leve	evel of Service	A

2025 Build & TDM Traffic Operations Analysis - Synchro

HCM Signalized Intersection Capacity Analysis 9: OR 126 & Main Street

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	1	et		ľ	el el		1	el el		1	el el	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.98		1.00	0.97		1.00	0.97		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1319	1356		1466	1345		1466	1500		1319	1501	
FIt Permitted	0.27	1.00		0.49	1.00		0.16	1.00		0.29	1.00	
Satd. Flow (perm)	379	1356		750	1345		243	1500		401	1501	
Volume (vph)	87	389	73	49	408	107	29	297	68	126	379	83
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	92	409	77	52	429	113	31	313	72	133	399	87
RTOR Reduction (vph)	0	8	0	0	10	0	0	9	0	0	9	0
Lane Group Flow (vph)	92	478	0	52	532	0	31	376	0	133	477	0
Parking (#/hr)	0	0			0	0				0		0
Turn Type	pm+pt			Perm			Perm			Perm		
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	54.0	54.0		44.2	44.2		28.0	28.0		28.0	28.0	
Effective Green, g (s)	54.0	54.0		44.2	44.2		28.0	28.0		28.0	28.0	
Actuated g/C Ratio	0.60	0.60		0.49	0.49		0.31	0.31		0.31	0.31	
Clearance Time (s)	3.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	2.0		2.0	2.0		3.0	3.0		1.5	1.5	
Lane Grp Cap (vph)	288	814		368	661		76	467		125	467	
v/s Ratio Prot	0.02	c0.35			c0.40			0.25			0.32	
v/s Ratio Perm	0.17			0.07			0.13			c0.33		
v/c Ratio	0.32	0.59		0.14	0.80		0.41	0.81		1.06	1.02	
Uniform Delay, d1	10.3	11.1		12.5	19.3		24.5	28.5		31.0	31.0	
Progression Factor	0.87	0.93		0.63	0.65		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	2.4		0.7	9.4		3.5	9.8		98.7	47.2	
Delay (s)	9.5	12.7		8.6	22.0		28.0	38.2		129.7	78.2	
Level of Service	А	В		А	С		С	D		F	E	
Approach Delay (s)		12.2			20.8			37.5			89.3	
Approach LOS		В			С			D			F	
Intersection Summary												
HCM Average Control E	Delay		40.9	H	ICM Lev	vel of Se	ervice		D			
HCM Volume to Capaci	ty ratio		0.89									
Actuated Cycle Length	(s)		90.0	S	Sum of l	ost time	(s)		12.0			
Intersection Capacity U	tilization	1	90.5%	[(CU Leve	el of Ser	vice		E			
Analysis Period (min)			15									

c Critical Lane Group

APPENDIX E TRANSPORTATION SYSTEMS FUNDING SOURCES

Table 1:Summary of Road-Related Transportation Funding Programs: FederalSources

Table 2:Summary of Road-Related Transportation Funding Programs: StateSources

Table 3:Summary of Road-Related Transportation Funding Programs: LocalSources

Table 1 Transportation Systems 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) (Bridge Program)	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 buildings, unoff.
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.
Timber Receipts (USFS)	The United States Forest Service shares 25 percent of national forest receipts with counties. By Oregon law (ORS 294.060), the County then allocates 75 percent of the national forest receipts to the road fund

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	and 25 percent to local school districts.
Community Development Block Grants (CDBG)	Community Development Block Grants (CDBG) are administered by the Department of Housing and Urban Development (HUD) and could potentially be used for transportation improvements in eligible areas.
Forest Highway Program	Support all public lands (including BLM), not just forest

Table 2 Transportation Systems 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 County share of the State Highway Fund is allocated based on population and vehicle registration.
	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.

⊐r Sa le <u>ç</u>	ie Oregon Revised Statutes allow ODOT to construct toll bridges to connect state highways and improve fety and capacity. The Statues also allow private development of toll bridges. Recent actions by the Oregon gislature provide authority for developing toll roads. State authority for congestion pricing does not exist; nev gislation would be required.
Immediate Opportunity Fund (IOF) Fii sp re: m: fur reg	anced at a level of \$5 million per year to a maximum of \$40 million through FY96. The fund is to suppor ecific economic developments in Oregon through the construction and improvement of roads and is stricted for use in situations that require a quick response and commitment of funds. It is anticipated that the aximum amount available for a single project is \$500,000 or 10 percent of the annual program level. This nd may be used only when other sources of financial support are unavailable or insufficient and are not placement or substitute for other funding sources.
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 3 Transportation Systems 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.

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.

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APPENDIX F

PUBLIC MEETING NOTICES, AGENDA & COMMENTS

MEMORANDUM			
То:	Prineville TSP, Technical Advisory Committee (TAC)	Date:	December 10, 2004
From:	Andy Mortensen, The Transpo Group TG: 04206.00		04206.00
Subject:	City of Prineville TSP - TAC Meeting #1 Summary		

Technical Advisory Committee Meeting #1

December 9, 2004 - 1:00 - 3:00 p.m.

AGENDA

- I. Introduction General introduction of members, summary of hand-out materials and project schedule.
- II. Goals & Objectives
- III. Street Standards
- IV. Next Steps

ATTENDANCE

TAC	Organization	Phone Number / e-mail
Gordon Gillespie	Prineville City Council	447-3715
Dale Keller	Les Schwab	ggillespie@crestviewcable.com 480-0403 Kellerbiz@crestviewcable.com
Peter Russell	ODOT – Region #4	388-6046
Howard Becker	City of Prineville Police	Peter.l.russell@odot.state.or.us 447-8332 hbecker@prinevillepd.org
James H. Mole Sr.	City of Prineville Public Works	408-5472 J.Mole@cityofprineville.com
Penny L. Keller	Crook County Road	447-4644
Bill Zelenka	Crook County Planning	Penny.Keller@co.crook.or.us 447-8156 Bill.Zelenka@co.crook.or.us
Michael Cerbone	City of Prineville Planning	447-8326
		mcerbone@cityofprineville.com
Mark Radabaugh	DLCD	388-6157

Andy Mortensen	The Transpo Group	(503) 472-3099 andym@thetranspogroup.com

DISCUSSION

The TAC's discussion of various issues are summarized below. We categorized the discussion by topic rather than chronological order.

Follow-up action items are noted in italics.

TSP Coordination

Coordination with the Draft Crook County TSP was needed, in particular regarding overlap with the Prineville UGB related to (1) state/county growth estimates (see below) and (2) planned "projects" (e.g. Millican Road interchange at OR 126 & Bremer Road connection).

Prineville is in-process developing its Comprehensive Plan, which the TSP should coordinate with.

Andy to contact and coordinate with Debra McMahon, of DMC Consulting, and integrate the CP working Draft Map and Framework.

Growth

Most recent 20-year population forecasts, coordinated and agreed upon by Crook County and DLCD, should be used as baseline for Prineville TSP update. Discussion ensued that the forecasts may not necessarily reflect recent trends of new, affordable housing and inter-city work commute regional dynamics.

21,000 population forecast for Prineville by 2025. City needs to have one consistent forecast for all public facility plans.

Transpo has already established design hour traffic volume adjustments factors (seasonalization and growth) with concurrence by ODOT TPAU unit.

Michael to forward to Transpo summary documentation.

Goals & Objectives

There will be refinement and additions to the draft Goals & Objectives (hand-out). Citizen issues are being integrated into the 2005 Draft TSP, focusing in growth management to retain a small town atmosphere. How the City addresses these issues needs to be integrated into a pro-active public involvement effort (see Public Involvement below), with particular emphasis on street width and livability.

Multi-Modal Plan and Program Development

There were a variety of issues raised and discussed, including:

- (1) Truck route connectivity through town, changing truck travel patterns, and an immediate need for the completion of the planned, northern arterial truck route. There is some community sensitivity to the use and term "Truck Route" and the need to re-label as something like "Northern Arterial" (general consensus of the TAC), in part due to the closure of mills and concern of cut-through truck traffic. Conceptual engineering of the final phase completing the Northern Arterial to address these issues.
- (2) *Poor street connectivity* there are a number of Prineville streets that lack full connectivity, are "dog-legged" or dead-end in critical areas.
- (3) *City* Railroad there are 7 at-grade crossings. Whether or not to keep the City's rail spur is a question that is very likely to continue beyond the Draft TSP development process and adoption in 2005. Issue will, in part, be addressed as part of the conceptual engineering of Phase II Northern Arterial.
- (4) *Juniper Canyon/Bremmer Road impacts* the 2005 TSP needs to assess its impact within the 20-year planning horizon, as there will be a number of new homes in the area.
- (5) *Sidewalks* are really important, from both a connectivity/safety issue but also to address ADA requirements. Need to identify missing links and prioritize improvements. TSP scope includes hand-held GPS data collection to fully address ADA requirements for Self-Examination, TSP outcome will serve as ADA Transition Plan.
- (6) The "Y" conceptual engineering of a possible round-about at the OR 126 / US 26 (Third Street) connection should evaluate and consider (a) O'Neil Highway connection and Ochoco River Bridge design; (b) possible connection to Second Street (as an alternative east-west route to Third Street, with connections to OR 27 and South Prineville); and, (c) truck

Consultant Team to consider (1) Bend's Juniper Ridge Roundabout as part of the planning for the "Y." and (2) City's Railroad and crossings as part of Phase II/Northern Arterial (analysis may provide City with further information (e.g. cost) in on-going assessment for the railroad.

City Staff to discuss Sidewalk Inventory Staffing, Transpo to train staffing (coordination already taken with School District and Crook County GIS Staff). Otherwise Transpo to contact City Police (Quelar) and/or Crook County Christian school to find volunteer staffing for data collection.

Transportation Demand Management

Consultant has already coordinated with *Commute Options for Central Oregon* (full summary will be included in Stakeholder Interview Summary, distributed to TAC

later in December). Expansion of carpool/vanpool program, inter-city bus and additional park-and-ride facilities to be explored.

City is assessing possible park-and-ride facility on the Ochoco Rim, with possible multi-use trail connections. There is a need to identify other park-and-ride facilities in Prineville.

Policies & Ordinance(s)

DLCD would like to see a *street connectivity* ordinance, draft 1998 TSP included some work on street functional classification and design that specifies street spacing.

IFC and Dept of Forestry have fire planning policies, and City should assess need for fire safety/traffic circulation projects, especially on the Ochoco benches (not necessarily down in the river valley).

Traffic Impact Analysis – need to identify a TIA "trigger." Draft 1998 TSP has trigger for state highways, need to add language to TIA requirements for "trigger" on city streets.

New school location is a growing concern. Impacts to busing and sidewalk system development becomes critical. Possibility of re-locating two schools along OR 126 may have implications of TSP (e.g. new street extensions, re-prioritization of TSP recommended improvements).

Drainage issues and designs do have implications of TSP, with regards to recommended street standards.

Coordinated parks planning is important to identify where park system enhancements can dove-tail with good pedestrian system planning (which affects and supports efficient and safe street design).

Public Involvement

Public involvement effort to focus on public education of:

- (a) street design (minimum widths) need to emphasize that extremely wide streets are (1) more expensive to build, (2) more expensive to maintain, and (3) reduces pedestrian crossing lengths (exposure) and improves safety by helping reduce excessive auto speeds.
- (b) *sidewalk design* to enhance pedestrian safety and address ADA legal requirements.

Need to initiate Public Involvement effort in January, to include coordinated workshop setting with Comp Plan effort to provide education on street and sidewalk design.

Transpo to (1) assimilate sidewalk and street design material for January Workshop and (2) brainstorm development of PI packet of materials for PI process, including 1-2 page flyer (for "counter" handouts in public buildings and some businesses).

These materials need to illustrate that the designs help Prineville meet their goals and objectives and address Prineville citizen concerns:

Managing growth to retain Prineville's small town atmosphere, through effective and efficient management of tax revenues in support of public works priorities.

MEMORANDUM				
То:	Prineville TSP, Technical Advisory Committee (TAC)	Date:	February 15, 2005	
From:	Andy Mortensen, The Transpo Group TG: 04206.00		04206.00	
Subject:	City of Prineville TSP - TAC Meeting #2 Summary			

Technical Advisory Committee Meeting #2

February 15, 2005 - 1:00 - 3:00 p.m.

AGENDA

- I. Summary of Existing Conditions Draft TSP Chapter 4 (sent by e-mail prior to meeting)
- II. "Y" Intersection Improvement Options handout memo
- III. Draft Recommendations to Revise Street Standards handout memo
- IV. Public Meeting Schedule & Strategy
- V. Next Steps

ATTENDANCE

TAC	Organization	Phone Number / e-mail
Gordon Gillespie	Prineville City Council	447-3715
		ggillespie@crestviewcable.com
Peter Russell	ODOT – Region #4	388-6046
		Peter.l.russell@odot.state.or.us
Howard Becker	City of Prineville Police	447-8332
		hbecker@prinevillepd.org
James H. Mole	City of Prineville Public Works	408-5472
Sr.		J.Mole@cityofprineville.com
Bill Zelenka	Crook County Planning	447-8156
		Bill.Zelenka@co.crook.or.us
Michael Cerbone	City of Prineville Planning	447-8326
		mcerbone@cityofprineville.com
Barry Johnson	W&H Pacific	388-4255
		BJohnson@whpacific.com
Andy Mortensen	The Transpo Group	(503) 472-3099
	_	andym@thetranspogroup.com

DISCUSSION

The TAC's discussion of various issues is summarized below. We categorized the discussion by topic.

Existing Conditions - Draft TSP Chapter #4

Overview of Existing Conditions, including inventory update of transportation system elements was discussed. Highlights included:

- (1) Revised Oregon Highway Plan (1999) Mobility Standards
- (2) Establishment of base, 2005 P.M. Peak hour traffic conditions
- (3) Consistent measures of traffic operations for state and city facilities using Highway Capacity Manual calculation of volume-to-capacity rather than delay-based methods.
- (4) Testing a new city policy threshold of V/C=.90 for Existing Conditions, further evaluation of Future conditions to determine final policy recommendation, and recommendations to city to possible revise traffic impact analysis policy requirement if a new standard is developed.
- (5) Summary of traffic operations -existing deficiencies at:
 - ➤ US 26 / OR 126 ("Y) stop controlled approaches
 - ➤ 3rd(US 26) & Main
 - ➢ 9th & Main
 - \triangleright 7th & Main
 - ➢ OR 126 & O'Neil

No surprises, as measured conditions mostly confirm common occurrences of traffic sore points. TSP Update scope of work was defined with these hot spots already in mind. Bottom line, as was the focus in the 1998 TSP Update – **further define options that provide alternatives to 3rd Street**. Recent projects that help this are the 9th Street extension to US 26, 4th Street between Court & Elm, new signal onus 26 at Combs Flat and new signal on 3rd Street (US 26) at Harwood.

Future alternative improvements will need to address issue of disconnectivity along major City routes.

Other issues to address in evaluation of future, multi-modal plan components:

- (1) ADA accessibility (will be addressed as part of the ped inventory, TSP plan element)
- (2) Safe Routes to School (same)
- (3) Downtown revitalization/urban renewal
- (4) 3rd Street (US 26) traffic signal system (possible replacement of old equipment and upgrade to better manage variable traffic demand
- (5) Peters Road intersection with Main Street

- (6) Juniper Canyon Development
- (7) Need to double-check functional classification for some local streets (e.g. Lynn Blvd., Combs Flat).

"Y" INTERSECTION

The concept of a roundabout (RAB) was discussed in detail. In general, the ROW for a 1- or 2-lane RAB easily fits in the current "Y" area. Prineville Bridge replacement project also identifies additional ROW acquisition for free right turn from US 26 to OR 126 westbound, across Les Schwab property. The following highlights issues needing to be addressed as part of RAB option:

- 1-lane vs 2-lane RAB, considering large truck maneuverability and impacts to small vehicle operations (safety and operations)
- > Possibility of slip ramps that significantly reduce traffic volume through RAB
- RAB placement with respect to adjacent land use (south side of 3rd Street) and possible 4th leg connection to 2nd Street
- Access control along state highway ROW, particularly the south side of current "Y," including the need to either provide some form of frontage access or relocation of some existing uses
- Need to specific individual traffic movements, by vehicle class especially larger truck/trailer combo's
- > Relationship to O'Neil Highway and Locust intersection circulation
- Relationship to new Crooked River bridge, with possible slip-ramp to 2nd Street as an interim access solution
- Relationship to adjacent school (will the school eventually re-locate?)

Other possible solutions might include a single intersection controlled by a new traffic signal, with or without possible slip lanes (e.g. westbound US 26 to north US 26 and/or southbound US 26 to west OR 126)

For all options, the issue of how best to connect 2^{nd} Street as a viable alternative to 3^{rd} needs to be identified.

NORTHERN ARTERIAL

Three distinctively different options need to be evaluated that link the new 9th Street alignment, through and across Main Street to Laughlin at 7th Street:

- 9th to 10th via Claypool/Beaver transition, 10th to Laughlin Extension via new ROW paralleling railroad;
- (2) 9th Extension through and across Main Street (impacting existing supermarket – Price Slasher) to City RR ROW and then to Laughlin at 7th Street; (this option would require abandonment of rail operation, need to investigate possibility of joint ROW use for street and rail operations); and,
- (3) 9th Street re-alignment to 7th Street (via Claypool/Beaver transition), upgrade 7th Street between Main and Laughlin



In all options, need to evaluate:

- truck mobility/access (e.g. curb radii)
- bicycle lanes and pedestrian facilities (type of curb extension and crossing facilities, including refuge islands where appropriate) to match new 9th Street connector
- revisions to North Main Street lane configuration and traffic control (e.g. 3-lane instead of 4-lane, modifications to on-street parking, need for separate turn lanes at critical intersections, posted speed, bicycle lanes, etc.)
- impacts to alleviate 3rd Street congestion

Again, because this improvement is essentially one of the two (the "Y" being the other) most important, long-term improvements in Prineville, the communication of these options with the public and policy makers needs to emphasize *community-wide needs* in balance with *individual property ownership* – long-term.

OTHER IMPROVEMENT OPTIONS

Other possible solutions that need to be evaluated include:

- Harwood signal (new) / 3rd Street Crossing possibility of closing School Crossing at Meadowlake / Locust – relationship with "Y" improvement options.
- (2) O'Neil Highway intersection at Or 126 possibility of consolidating with Rimrock Road at OR 126 as an interim solution for 20-year TSP.
- (3) Knowledge St. / Juniper Street consolidated intersection/crossing of US 26 (3rd St) and Juniper / Hudspeth consolidated intersection of Laughlin Road – continuous connection between north and south Prineville and linkage to High School, integrating multi-use path connection for ped and bicycle



- (4) New Crooked River Bridge to improve long-term, local circulation and access. Identify long-term solution, which may or may not fall within 20-year TSP planning horizon, including one or a combination of the following options:
 - Sister structure next to existing OR 126 bridge (to be reconstructed) consolidating (if possible) O'Neil Highway and Rimrock Road connection across river to 2nd Street; may retail right-in and right-out access to /from O'Neil Highway at OR 126

- Re-align O'Neil Highway with new bridge across Crooked River to US 26 at 9th Street, then disconnect O'Neil Highway at OR 126
- Construct new Crestview Extension bridge across Crooked River with connection to OR 27; may retain right-in/right-out access on OR 126 at Rimrock Road and full access at O'Neil Highway (option is already part of 1998 Draft TSP)
- (5) New interchange on OR 126 at either Tom McCall/Millican (as already shown in Draft 1998 TSP and current draft of Crook County TSP)

DRAFT STREET DESIGN STANDARDS

Out of time to discuss, postponed until next TAC meeting.

TAC and PUBLIC MEETINGS

The schedule for upcoming meetings is:

March 1, 2005 TAC Meeting #3 (1:00-3:00 pm) / Public Meeting #1 (time TBA) > Future LOS / Need

Draft Improvement Options

March 10, 2005 TAC Meeting #4 (1:00-3:00 pm) / Public Meeting #2 (time TBA) > Draft TSP

March 24, 2005 TAC Meeting #5 (1:00-3:00 pm) / Public Meeting #3 (time TBA)

Final TSP

Implementation Policies
MEM	ORANDUM		
To: From:	Prineville TSP, Technical Advisory Committee (TAC) Andy Mortensen,	Date: TG:	March 9, 2005 04206.00
	The Transpo Group		
Subject:	City of Prineville TSP - TAC Mee	eting #3 A	Agenda
Tecl	hnical Advisory Com	mittee	e Meeting #3
	<u>Thursday, March</u>	<u>n 10, 2</u>	<u>2005</u>
	<u>1:00 - 3:00</u>	<u>p.m.</u>	
Locati	ion: Prineville	City H	Hall
	AGEND	Α	
I.	Summary of Future Traffic Condiscussion)	nditions (j	presentation &
II.	Draft Recommendations to Rev (further discussion)	vise City S	Street Standards
III.	Transportation Improvement C discussion))ptions (p	presentation &
	• Streets, Pedestrian and Bicyc	cle System	n Improvements
IV.	 Public Meeting Schedule <i>March 10, 2005</i> – Future con and Options March 24, 2005 – Draft Plan 	ditions, I 1 Finding	mprovement Needs s & Recommendations
V	Next Meeting: Thurs., March	n 24, 200	5 – 1:00-3:00 pm

MEM	ORANDUM			
То:	Prineville TSP, Advisory Com	Technical mittee (TAC)	Date:	May 11, 2005
From:	Andy Mortens The Transpo (en, Group	<u>TG:</u>	04206.00
Subject:	City of Prinevi	ille TSP – TAC Mee	eting #4 A	Igenda
Tec	hnical Adv	isory Com	mittee	e Meeting #4
	Thur	rsday, <u>May</u>	11, 2	005
		1.00 3.00	nm	
	_	<u>1.00 - 5.00</u>	<u>p.m.</u>	
Locat	ion:	Meadow I	Lakes	Country Club
		AGEND	A	
I.	Transportation	n Improvement C)ptions (p	presentation &
	• Streets, Pec	lestrian and Bicyc	ele System	n Improvements
II.	Northern Arte	erial Options - Re	finement	
III.	Stakeholder M	eeting Findings (discussion	n)
IV.	Public Meeting	g Schedule		
May 1 May 2	1, 2005 – Futur 25, 2005 – Draft	e conditions, Imp Plan Refinement	provemer	at Needs and Options
V. N	ext Meeting:	May 25, 2005 -	- 1:00-3:0)0 pm
<u> </u>				

MEMO	ORANDUM		
То:	Prineville TSP, Technical Advisory Committee (TAC)	Date:	May 25, 2005
From:	Andy Mortensen, The Transpo Group	<u>TG:</u>	04206.00
Subject:	City of Prineville TSP - TAC Mee	eting #5 A	Agenda
Tecl	nnical Advisory Com	mittee	e Meeting #5
	<u>Thursday, May</u>	<u>25, 2</u>	<u>005</u>
	<u>1:00 - 3:00</u>	<u>p.m.</u>	
Locati	ion: City Hall		
	AGEND	Α	
I.	Transportation Improvement Cdiscussion)o Streets, Pedestrian and Bicyc	Options (p cle System	presentation & n Improvements
II.	Northern Arterial Options - Rea	finement	
III.	Implementation Plan (discussion	n)	
IV.	Public Meeting Schedule		
	<i>May 25, 2005</i> – Draft Plan Refit	nement	
V.	Next Steps: Draft TSP Docum Commission Meeting(s)	entation a	and Council/Planning

PRINEVILLE TRANSPORTATION SYSTEM PLAN – PRESS RELEASE

On Thursday, March 10, 2005 from 6:00-8:00 pm, the city of Prineville will be hosting the first of three Public Open House Meetings to discuss its Transportation System Plan. The Public Open House Meeting will be held at Meadowlakes Golf Course, 300 SW Meadow Lakes Drive, Prineville Oregon 97754 (phone – 541-447-7113).

The City's Transportation system Plan was last adopted in 1994 and is in need of updating. Some of the transportation improvement options that the City is exploring are: completion of the Northern Arterial (9th Street to Laughlin Road), reconfiguration of the "Y" intersection (US 26 and Highway 126); and new traffic signals, sidewalks and bike lanes where needed in critical locations. Improvement options will be displayed and discussed at the Open House Meeting. The public is encouraged to attend and provide comment and input.

The Transportation System Plan is expected to be completed by the end of April, 2005. Future Public Open House meetings will be held later in March and early April, 2005 to discuss the draft Plan recommendations. ----Original Message----From: Andy Mortensen [mailto:AndyM@thetranspogroup.com]
Sent: Friday, May 20, 2005 2:20 PM
To: co@eaglenewspapers.com
Cc: Michael Cerbone; Johnson, Barry; mbertalot@eaglenewspapers.com; cindym@cityofprineville.com
Subject: Prineville Transportation System Plan Open House - May 25, 2005 - Press Release

Please consider publishing the following in your Tuesday, May 24th edition of the Central Oregonian.

PRESS RELEASE: PRINEVILLE TRANSPORTATION SYSTEM PLAN UPDATE

The public is invited to attend and participate in the third and final public open house meeting to be held:

When? Wednesday, May 25, 2005 – 6:00-7:30 p.m.

Where? Meadow Lakes Golf Club, 300 SW Meadow Lakes Drive, Prineville Oregon, 97754, (541) 447-7113

The consultant team will present and discuss their recommendations for:

- Major Highway and Street Improvements
- 1. US 26 / Hwy 126 Junction
- 2. North Arterial
- 3. Knowledge Street / Juniper Street / Hudspeth Road
- 4. OR 126 at McCall Road
- Pedestrian and Bicycle system improvement plans and projects throughout the city

Over the next several months the City of Prineville Planning Commission and City Council will consider the consultants findings and recommendations and public input. Advanced notification of future Planning Commission and City Council meetings considering the Draft TSP will be posted once meeting dates have been set.

If you have any questions please call Michael Cerbone, City Planning Director, at 447-8326.

Caters to its customers EXECUTIVE FILE



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Clausen Dr

Terry Harper and his wife, Deb, stand in front of their Prineville store, Wagner's Price Slasher, on Thursday. With 18 years of grocery-chain experience under Terry's belt, the Harpers have been operators of the grocery store since 1996.

Bend Kampground (closed)

Cascade Village måll

Magner's Price Slasher has no-frills approach to grocery shopping

By Ernestine Bousquet The Bulletin

eg Cross / The Bu

énd Parkway

hether to approve State Transport nent Plan (STIP) ersion of the plan ling for construct 20 million inter-20 million inter-20 cooley-Hwy. 97 ncluding an over-- and off-ramps. ould pay \$15 mil-

on. See Wal-Mart / B5

PRINEVILLE — Terry Harper spent 18 years with Albertsons grocery chain, working his way up from checker to store manager. But he always wanted to own a grocery store. Harper, 49, and his wife, Deb, 48, finally got that chance three years ago when they decided to buy Wagner's Price Slasher, a low-price, independently owned grocery store on Main Street. Opened in 1991, the Prineville store was one of four Wagner's in Central Oregon owned by John and Tom Overbay. The Overbays sold the Bend and Redmond stores to Albertsons in the mid-1990s, but kept the Prineville store onen.

Sonuc

2005

At John Overbay's beckoning At John Overbay's beckoning in 1996, Terry Harper quit his job as store manager at the Albert-sons in Redmond to run the Wag-ner's in Prineville. Deb Harper came a year later to work as the bookkeeper and office manager. Overbay offered the Harpers the chance to buy Wagner's after the couple's deal to buy a big-box grocery store in Mount Angel fell through. They negotiated a phase-in deal, where the Harpers would buy stock in increments until they own the store outright

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an offer to ulready have

Number of employees: An average of 31 employees year-round Phone: 541-447-2600 Wagner's Price Slasher Address: 930 N. Main St., Prineville THE BASICS Hours: 6 a.m. to 10 p.m., daily

the Harpers have kept the name and the low prices. They have also retained the no-frills ap-proach, offering basic amenities, such as a deli and a bakery, while forgoing a pharmacy or photo de-veloping department.

What kind of niche do you fill? Terry: Well, I think indepen-dent grocery stores, they have the ability to tailor their stores in the particular neighborhood that they are in. It's something that they are in. It's something that the corporate stores have a one-size-fits-all mentality. We have the ability to carry the products that the customers need, and we have the flexibility to order and fill

Deb: There is a gal who gets a specific brand of soy milk and flavor that we don't keep on the shelf because it doesn't have a high enough volume. But we order it for her at any point in time that she comes in.
How have you had to adapt to the market in Prineville?
Terry: Well, the Prineville market is pretty basic meat-and-potatoes people, and so we don't emphasize a lot on organics or ... gournet foods. It's just your basic items.
Have you seen more demand for those kinds of items?
Terry: There is. Prineville is growing so rapidly that the customers are changing, and so we'll have to fitems?
Deb: But I think it's a lot easier for us. As we hear customers want something, it only takes us maybe a week to respond and research and try to find a product. Where, with a corporation, there is a lot of hierarchy to go through.
What are the challenges of being an independently owned grocery store?
Terry: The banking fees and the insurance of larger stores to get our costs down in that respect, and so that is a big challenge.

A L S O I N S I D E

Getting away - together

What we (and our parents) did at summer camp, see Page B2.

Stocks report

For a complete listing of stocks, including mutual funds, see Pages B4-B5.

S BUSINES BRIEFS

Online survey

extended to deadline

Friday

The deadline to com-plete an online survey of the area's accredited in-vestors has been extended to Friday to attract more participants, according to Mike Osborn, a manage-ment, financial and start-up consultant in Bend who is one of several local vol-unteers from Economic Development for Central Oregon and the Central Oregon and the Central Oregon and the Central Oregon and the Central Oregon ang the survey asp?guid=7246ED9D. The purpose of the sur-vey is to gauge Central Oregon angel investors' interest in making seed and early-stage invest-ments.

– Cathy Carroll

Wicrosoft

gets deadline from EU

BRUSSELS, Belgium — Microsoft has until the middle of next week to comply with the European Commission's antitrust ruling, or face daily fines of up to \$5 million, Eu-rope's competition moni-tor said Monday. The commission ruled in March 2004 that Microsoft had abused its dominant position in the European position in the European company paid a 497 mil-lion euro fine last summer, but has not acted on two orders to change its busi-ness practices.

Online sales to grow this year

CHICAGO — Online re-tail sales are expected to grow 23 percent this year, cracking the \$100 billion mark for the first time and garnering a bigger share of shopping dollars, despite Internet security threats. Online sales, how-ever, accounted for 4.6 percent of the retail busi-ness in 2004 and will grow to 5.5 percent in 2005, the study predicted. — From wire reports

special requests. What is an example of an item that someone can special order?

in June 2007. Since taking over Wagner's,

here else."

ffer from

La Pine's chamber head steps down in order to travel, write

n offer from some-

Campagnino, ad of recruiting \ccenture

By Lily Raff The Bulletin

After two years at the helm of the La Pine Chamber of Com-merce, Paul Cathcart is packing up and heading, well, every-where. The chamber's board of direc-tors announced Thursday that the executive director is stepping down June 30. "It's been a fun whirlwind, but

arket is not quite reewheeling days 990s, when fierce for talent from the nomy spawned ur-about brand-new pr-up bonuses. But employers plan to o bonuses to their sing recruits, up ent last year. Dharte, 22, who re-liploma from the f Dayton in Ohio e challenging part b hunt was choos-

ed on a slogan: The Outdoors at Your Front Door. The slogan is now posted on signs at the north and south ends of La Pine, along Highway 97. It is also part of a map and business brochure Cathcart published last year. Cathcart also kicked off a ra-dio advertising campaign for the community. The chamber's membership increased by about

he continued. "It's just going to be an ongoing process for years. And life is too short." Beginning this July, Cathcart said he plans to travel around the Northwest, then the rest of the country. He will also try to sell a couple of screenplays he has written. He said he will continue to vol-unteer and serve as a board member for the La Pine Commu-

Median sales price nationwide \$188.8

Soaring property Canter of the second second

44 states showed higher sales compared with the previous year.

\$200,000 ---

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had been y in the last ng college efited most nzy among late 1990s, hard when e burst, inology col-

of online year, only 35-year-old had a job, ent in 2000, ysis of cenould of the Institute.

Whereas earnings of young people without a college degree declined by 0.8 percent from 2000 to 2004, to \$13.38 an hour, on average, wages of young college graduates fell 2.8 percent, to \$22.41.

Now, as the job market starts warming up across the country, demand for new college graduates is picking up, too. At Purdue University, the number of employers visiting campus has increased by 12 percent to 15 percent this year, said Timothy B. Luzader, director of the center for career opportunities.

At the University of Dayton, Greg Hayes, the executive director of career services, expects a 7 percent increase in the hiring of graduates this year. Marcia B. Harris, director of career services at the University of North Carolina, said that this year about 35 percent of graduating seniors had jobs awaiting them, up from 30 percent last year and about 15 percent in 2003.

The Department of Labor does not break out statistics on the job status of young college graduates. But it does show that the unemployment rate of workers ages of 20 to 24, the typical age at graduation, dropped 1.2 percentage points over the last two years, to 8.9 percent, even as the total unemployment rate declined 0.8 percentage points, to 5.2 percent.

Some professions are hotter than others. Accounting majors are benefiting after the passage of the Sarbanes-Oxley Act, which forced company executives to take responsibility for the accuracy of their accounting. Hayes added that majors in security-related fields, from computer science to engineering, are also having a good year. Even manufacturing compa-

nies, which for years have done nothing but shed workers, are picking up graduates.

Harpers Owners belong to Associated Grocers group in Seattle

Continued from B1 What about buying merchandise?

Terry: We belong to Associated Grocers in Seattle, and we get our groceries there. They are a co-op, meaning that the independent grocery stores own stock in Associated. So we're also owners of our own warehouse. And they have over 400 stores that buy from them and they service Washington, Oregon, Hawaii, Alaska and Guam.

What are some other challenges?

Terry: It's always your people, trying to retain people and the training. Training is an ongoing thing, and we don't have a lot of resources.

Deb: We are the personnel department.

Terry: We are it. We are the maintenance, the personnel, the administration, the legal — you name it.

What are some of the hurdles to lining up financing as an independent grocery store?

Deb: We applied for a smallbusiness loan. The paperwork and the information that they required was excessive. **Terry:** I think (it's hard) especially for the grocery stores because your profit margin in a grocery store is very small. You make 25 (percent) or 30 percent on a can of beans, but by the time you pay your overhead — the electricity, the building cost, the insurance, all the finance charges — you're making about 1 percent on every dollar that you put through the till in a grocery store. So the banker looks at that profit margin and says, 'You guys are crazy.'

How did you get around those hurdles?

Terry: Mr. John Overbay. I suppose we could call him Dad.

Deb: He has been a tremendous help to us. ... We found a seller that was willing to work with us and loan us the money.

What advice would you have for fellow entrepreneurs, such as yourselves, who are either looking to get into the grocery business or trying to start their own businesses?

Terry: If they have many years of experience in the field, in whichever field they want to pursue in business, then that works to their advantage. Deb: Persistence. Don't get dis-

Deb: Persistence. Don't get discouraged because you're going to run into hurdles.

Terry: You have to do a lot of homework on the neighborhood you want to go into, what the growth patterns are, who else is coming in, what the particular town needs or does not need. As you take over the store, what do you see on the horizon?

Terry: Payments. No, I hope we can continue to do business like we have in the past and retain our business.

Deb: For this store, there are some plans and some upgrades we would like to do. ... There is always something that needs to be replaced. And we want to keep it running smooth and doing things that benefit the employees, so it's a good place to work and therefore it benefits the community.

Ernestine Bousquet can be reached at 541-504-2336 or at <u>ebo</u>usquet@bendbulletin.com.



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on approves ill forward it yay Adminiseral Transit heir final ap-

would inity at the inry move givthe area and from devel-Mart site and uniper Ridge ast of the inThe city's street policy specifies that traffic-field counts in an application be less than six months old. The field counts the company used in its original, incomplete application are dated Jan. 18. The company will therefore have to conduct a new field count and update its analysis for an August submission.

some costs for the company, too.

For opponents of the project, the new deadline changes little.

"We're committed to staying the course in terms of what our organization plans to do: continuing to build community education and opposition to a Supercenter," said Michael Funke, a founder of Our Community First, a group organized to oppose the Supercenter. "From the very beginning, we always thought the solution to the traffic problem up there was going to be a major factor." The Supercenter would be the largest individual retailer in Bend at 204,000 square feet. Supercenters sell the types of merchandise available at a typical Wal-Mart and also have a full grocery store.

Christian Trejbal can be reached at 541-617-7837 or at ctrejbal@bendbulletin.com.



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Your Crook County newspaper since 1882

Central Oregonian

THE FUTURE OF PRINEVILLE TRAFFIC?

Business, property owners comment against four proposed truck routes

City officials have discussed putting in an alternate route for residents to travel east to west in town since 1998, but the issue came to a boiling point with property owners vesterday.

Thursday afternoon.

property owners met in a "stakeholder's meeting" in the city council meeting room with officials to discuss the

effects of the four proposed routes.

"This plan goes through my shop," one Prineville resident said.

"Well this other one goes through my house," another responded.

In 2003, city officials and transportation engineers introduced four route possibilities to accomplish the project.

At the stakeholder's meeting, residents questioned city officials and discussed the impacts the four conceptual routes may have on their businesses or homes.

"Currently on Third Street, during peak hours in the morning and evening there are significant delays," said Barry Johnson, a transportation engineer with W & H Pacific.

About 25 bodies packed into the small meeting room. Every seat in the room was taken.

All four of the proposed routes would affect at least one property owner and possibly result in their home or business being condemned.

"There are certainly impacts with each option," said Johnson.

Two of the proposed routes run through property where Price Slasher is located.

An attendant pointed out that in a survey the city conducted late last year, the number one priority for residents was jobs.

According to Terry Harper, owner of Price Slasher, if the store had to close down, 33 employees would be displaced.

"We get over 1,000 customers a day. Those customers would have to go down Third Street to Erickson's or Ray's," explained Harper.

"There are no easy answers. You're talking about peoples homes or peoples jobs," said Becky Moore. She and her husband own the property Price Slasher is located on.

She explained to the crowd that historically, Prineville has always had three grocery stores.

"There's been a grocery store there since August 1948. It was owned by Scotty and Eilinor McLean and was called Scotty's Grocery. They added onto it twice and then moved across the street," Moore continued. "This is history to us."

Price Slasher has occupied their current building since October 1991.

City officials are updating their comprehensive plan, which plans for the anticipated growth within the next 20 years. A plan dealing with transportation is a piece of the comprehensive plan.

"The goal is to create a plan to make the city viable as a whole and spread the traffic throughout town," explained Johnson.

"We've all driven downtown. We all know what that's like. These are options to alleviate the traffic on

W & H PACIFIC/VANCE W. TONG/CENTRAL OREGONIAN The City of Prineville is considering these four options as a means of developing an alternative east-west route through the city.

Third Street," explained Jim Mole, City of Prineville Public Works director.

All four routes start on Deer and Ninth Street and eventually connect with Laughlin Road.

City officials welcomed suggestions of alternate routes, and one Prineville resident suggested moving the "blue route" (see map). His suggestion was to start the particular route at an intersection further west, rather than on Deer and Ninth Street.

At the stakeholder's meeting, residents questioned when a route would be picked and by whom.

"It just depends how fast the community grows and where that growth is," explained Michael Cerbone, city planning director. He added that if the homes on the Hudspeth and Pahlisch Homes property on the north side of town build quickly, the need would need to be addressed sooner.

Cerbone estimated that these changes may take place within the next five to 10 years.

"These options will go to the planning commission," explained Jim Mole, City of Prineville Public Works director. "They will make a recommendation to the City Council who will ultimately make the decision."

"The guys before you now are not the ones making the decision," Mole continued.

Residents also voiced concerns about developing their property, if in the end, the city is going to have to condemn it.

Cerbone said he did not know how property value would be affected.

"All we're trying to do is accommodate growth, so we can grow logically," said Cerbone.

Prineville resident Ruth Cox was concerned about the time the meeting was taking place. She mentioned people with children are picking up their students at 3:30 p.m., the time of the meeting, and suggested a different time for the meetings be considered.

There will be two more open houses to discuss the conceptual transportation plans before plans are presented to the city planning commission. Dates have not been set yet.

Doing nothing is the worst choice

It's taken about seven years for plans to be developed by the city for a route that would bypass downtown.

In 1998, city officials explored the idea of an alternate route to Third Street to take drivers from the west side of town to the east.

City officials have presented four options to the community and all four would impact homes, businesses, or in some cases, both.

We first reported on those four route options in November 2003.

In the last year and a half, the subject of the west-east downtown bypass has remained pretty quiet. Until yesterday.

Thursday afternoon, city officials held a "stakeholder's meeting" for property owners who may be affected by one of the four proposed routes.

Although the meeting was not a public meeting, every seat in the room was taken.

Public hearings, meetings, and even open houses have been held to gather input from the community on the city's development of the transportation system plan (of which a piece includes this bypass), but attendance has been lacking.

At the last open house on March 10 at Meadow Lakes, Michael Cerbone, city planning director guessed that 12 people attended. However, most were elected officials or department heads. Cerbone estimated five people were community members.

The City of Prineville has practically been begging for community input. That's exactly what they got Thursday.

It's safe to say that the four proposed routes weren't popular. When you look at the map, each of the routes goes over the top of either a business or a house - or a multiple thereof. Needless to say, the people in those houses or businesses weren't pleased with the proposed options.

Consider the case of Price Slasher. Only one of the routes bypasses their property. One literally goes right over the top of the building, while another narrowly misses the northeast corner.

As more meetings take place in the coming months, there is going to be an untold amount of debate on how to solve this problem.

We think the need for an alternate route to Third Street is undeniable. Unfortunately, there does not seem to be a way to construct one without impacting one or more homes or businesses. At this point, it would seem that the southernmost route would impact the least number of people and would make use of an

existing city street.

The reality of the situation is whichever route is ultimately chosen, someone is going be impacted and quite possibly have their home or business condemned by the city.

However, with the anticipated growth of Prineville, perhaps doing nothing is the worst choice of all.

Michelle Bertalot for the editorial board

Roundabout is our best choice for the 'Y'

Almost everyone has driven through the "Y" heading out of town, and most have driven through it during peak times - around 8 a.m. and 5 p.m.

It's not fun.

Drivers sit and wait as the semi-trucks try to make that awkward turn onto Madras Highway.

Pedestrians play "chicken," waiting for a gap in the stream of heavy traffic to make their dash and cross the busy road.

It's dangerous and as Prineville continues to grow, it's just going to get worse.

We believe the best option presented so far is the roundabout.

It's important to keep in mind, this is a Prineville-sized roundabout, not like ones in Bend.

It's estimated the roundabout would be 220 feet in diameter, which is about 40 feet in diameter larger than the biggest roundabout in Bend.

The size will allow trucks to travel through it relatively easily and would give a focal point for visitors entering Prineville.

Also, the slip lanes, or bypass lanes, will allow drivers to bypass the roundabout altogether if they need to.

The second option presented was putting a signal by Gee's Chinese Restaurant at the bottom of the grade. We are not in support of this option.

The current configuration of the "Y" already results in drivers having to stop when a semi-truck has to turn onto Madras Highway.

A T-intersection would continue to stop traffic flows, just as the "Y" intersection is doing now.

Also, in the winter when the grade has packed snow (with an exception of this year of course), coming to a stop at the bottom seems dangerous.

Whether Prineville residents like it or not, the Bend-Redmond-Prineville area is quickly becoming the booming tri-cities area of Oregon.

It's not uncommon in this area for people to live in one city and commute for work to another - Prineville residents included.

State departments like the Oregon Department of Transportation have been completing road projects like the east and west Powell Butte passing lanes to help accommodate for the central Oregon growth.

We believe Prineville needs to also do our part and accommodate for it as well.

Michelle Bertalot for the editorial board

Roundabout being considered for west 'Y'

Roundabout, signaled intersection are two options being explored

In as little as six years, Prineville may be getting it's first roundabout.

City officials are updating the city's transportation system plan. The plan includes options for reconfiguring the "Y" where Highway 126 and 26 intersect.

Michael Cerbone, city planning director, listed several problems with the current "Y" including

pedestrian safety and traffic back-up during peak hours.

"It's difficult for people coming off the grade to head out Madras Highway," Cerbone said.

He identified that with Ochoco Elementary relatively close to the intersection, it is also difficult for pedestrians to cross.

"When it was a low volume intersection, I'm sure it functioned fine. Now that the volume has been increasing, it's starting to show some problems," explained Barry Johnson, project manager for the Bendbased engineering company W&H Pacific.

Employees with the city's public works department counted vehicles at the beginning of the year during peak hours for the transportation system plan.

According to Jim Mole, public works director, on the O'Neil junction on a weekday from 4:30 to 5:30 p.m., there were 1,241 trips. On Tom McCall Road during the same time, employees counted 1,183 vehicles and passing the intersection of Ninth and Madras Highway they counted 1,098 trips.

"Compared to the '98 TSP (transportation system plan), it's not quite double," said Mole. "It's almost doubled, but not quite, with the growth in the city and county."

City officials are primarily considering two options for improving the "Y."

"We looked at two different roundabout options and a signalized T-intersection," said Johnson. "It's at a very conceptual stage at this point in terms of the transportation system plan," he continued.

The first roundabout option was approximately 170 feet in diameter. City officials asked that the diameter be increased to deal with truck traffic, so the conceptual diameter of the roundabout is about 220 feet.

"The roundabout is relatively large," Cerbone said. "We have a couple of truck freight companies in town like Schwab that have to be able to navigate their vehicles through," he continued.

Cerbone added that in the summer, Prineville has increased recreational traffic coming through the "Y." "Be it horse trailers or fifth-wheels, they need to be able to navigate," said Cerbone.

The second, larger roundabout option also has slip lanes, an option that the first proposed roundabout lacked. Slip lanes are lanes that bypass the roundabout for drivers who do not need to use the roundabout to reach their destination.

"The only movements having to enter the roundabout are those essentially making left turns," Johnson said.

If plans go through for the roundabout, at this point, it would be the largest roundabout in central Oregon. "Size wise, there have certainly been roundabouts of this size built before. The ones here in Bend are

typically more compact because they are in much more dense urban areas where they have been built," said Johnson.

The largest roundabout in Bend is on Colorado Avenue and Century drive and is about 180 feet in diameter.

Other roundabout sizes in Bend range between 120 and 140 feet in diameter - about half the size of the proposed roundabout for the "Y" intersection.

"I think folks who may not like the roundabout are used to the ones in Bend, which kind of get small," said Cerbone.

The second option city officials are looking at is a signalized T-intersection at the NE corner of Gee's Chinese Restaurant parking lot.

"The T-intersection is kind of the standard that's been used for decades and decades, when we have three major lanes coming together like this," explained Johnson.

Cerbone said at this time, he doesn't have a preference to either of the projects.

"Aesthetically, the roundabout would give more of a gateway treatment to town than a T-intersection," Cerbone added.

From an air quality standpoint, Johnson explained that a T-intersection would call for more drivers to stop and idle their vehicles and produce more pollution.

"The roundabout adjusts for traffic flow, if there is very little traffic, someone doesn't have to be idling at all, where at a signal they may have to come in and wait for the light to change," he added.

The cost of either projects is unknown because the projects are still in the conceptual design phase. Because the project involves two intersecting state highways, the Oregon Department of Transportation would also most likely be involved, especially with funding.

Cerbone identified that the project may be eligible for STIP (State Transportation Improvement Project) funding, because of Highway 126 and 26.

"We hope to get funding from the state to complete the project," Cerbone said.

There are multiple steps the project still has to go through.

The project is still in the beginning stages.

"This would be at least six years, maybe even 10 years," Cerbone said.

City identifies three projects to ease traffic

City officials are exploring multiple options for three future transportation projects.

The three projects involve improving access from Tom McCall Road and Millican Road onto Highway 126, constructing an alternative route to travel from north of Prineville to the south without using Main Street and alleviating congestion where O'Neil Highway (Highway 360) and Highway 126 meet.

Citizens can view the plans at a transportation system plan open house on May 25 from 6 to 7:30 p.m. at Meadow Lakes.

W&H Pacific, a Bend-based engineering company, has proposed four options to improve traffic flow at the top of the grade.

"It's relatively difficult to make a left off of Tom McCall and Millican," said Michael Cerbone, city planning director. "Especially if you hit peak traffic times."

City officials have met with the Prineville airport commission to discuss possible complications improvements may bring.

Two of the options involve an underpass at either Tom McCall or Millican Road.

The preferred option is constructing an overpass at Tom McCall Road.

"It's typical of what's seen on (Highway) 97 and I-5," Cerbone added.

A fourth option is a split diamond at Millican Road and at Tom McCall Road.

Cerbone said one of these options may come into effect five to 10 years from now.

Another project is to create an alternative route for drivers to travel from the north to south side of town.

There are two routes city officials are considering. The preferred route extends from Hudspeth Street, aligning it with Juniper Street, and would require widening Juniper and part of Second Street. Also, a traffic signal would be installed at Third and Juniper Streets.

If Juniper and Hudspeth were aligned, the two roads would essentially be the same road, in which case it would probably have the same name. Johnson was not sure if the streets would have to be renamed to either Juniper or Hudspeth.

The second option is to again align Hudspeth with Juniper Street, but to then create a new road that would connect with Knowledge.

"It has some conflicts at Third Street with the creek crossing. Plus there is a lot of properties impacted on the north side of Third Street," said Johnson.

The new road in the second option would affect the tennis courts, a church on Third Street, and would cross in front of Crook County Middle School.

Main Street has the highest volume of drivers traveling north and south.

"It has some capacity problems, which is one of the reasons we're trying to improve this- to relieve some of the pressure on Main Street," said Johnson.

The third project is to construct a route that would connect O'Neil Highway with Ninth Street.

"It's really difficult for people to make left hand turns onto (Highway) 126," said Cerbone.

The conceptual plans show the route extending over a sewer lagoon off of O'Neil Highway. "It's very conceptual at this point," said Cerbone.

"What we're looking at is rerouting people who are going to make those left hand turns," he continued. "This is 10 to 20 years out. It will need a lot of refinement.

Last meeting, not last chance

In today's issue of the Central Oregonian we feature three additional projects outlined in the city's updated transportation system plan (TSP).

The three projects involve improving access from Tom McCall Road and Millican Road onto Highway 126, constructing an alternative route to travel from north of Prineville to the south without using Main Street, and alleviating congestion where O'Neil Highway (Highway 360) and Highway 126 meet.

Other projects, higher on city officials' priority lists, are to improve the West "Y" area with possibly a roundabout, and create a route for drivers to travel from the east to west side of town.

These projects may occur sometime between five to 20 years from now.

The last TSP open house meeting will be held on Wednesday, May 25 from 6 to 7:30 p.m. at Meadow Lakes.

This open house meeting is an opportunity for citizens to bring up concerns and alternatives to proposed conceptual plans. It's also an opportunity to view maps of the various options each project has.

While it's the last open house meeting, it's important to note, this isn't the public's last chance to comment.

First, a more in-depth design of any one of these plans is needed before a project could be started.

That plan would then have to be approved by the planning committee, and then by the city council. Both of these entities have a visitors/public comment section scheduled in each public meeting where citizens can bring up questions or concerns.

Without direction from the public, how are these committees to know what is best for Prineville? This is your town and we implore citizens to attend these meetings and tell city officials what you think.

Michelle Bertalot for the editorial board

Final open house for the city's Transportation System Plan held on Wednesday evening

The public is invited to attend and participate in the third and final public open house meeting to be held on Wednesday, May 25, from 6 to 7:30 p.m. at the Meadow Lakes Golf Club.

The consultant team will present and discuss their recommendations for major highway and street improvements which include US 26/Hwy 126 Junction, North Arterial, Knowledge Street/Juniper Street/Hudspeth Road, and Highway 126 at McCall Road.

The plan also includes pedestrian and bicycle system improvement plans and projects throughout the city. Over the next several months the City of Prineville Planning Commission and City Council will consider the consultants findings and recommendations and public input. Advanced notification of future Planning Commission and City Council meetings considering the Draft TSP will be posted once meeting dates have been set.

If you have any questions please call Michael Cerbone, City Planning Director, at 447-8326.

Recommended traffic route would go through Price Slasher

City would be forced to compensate store's owners

A plan to improve east-west Prineville traffic may result in the closure or relocation of Wagner's Price Slasher, a grocery store on North Main Street.

Wednesday night was the last open house TSP meeting and about 26 property, business, and homeowners attended to ask questions and express concerns about the conceptual plans.

One of those projects is the "northern arterial," a project that would give drivers an alternate route to travel east-west without using Main Street.

The City of Prineville is updating the transportation system plan (TSP) which identifies various projects which would improve Prineville traffic and be capable of handling projected population growth.

"The whole goal is to improve connectivity other than Third Street," explained Barry Johnson, project manager for Bend-based engineering company W&H Pacific. Johnson and Andy Mortensen, regional transportation planning manager for the Transpo Group, Inc., are the two engineers city officials have worked with to identify traffic problems.

Johnson and Mortensen recommended Ninth Street as the preferred route to improve east-west connectivity.

The Ninth Street route follows the existing street, would extend through Price Slasher, and connect with the railroad right of way.

"It didn't come with any surprise. We kind of knew that was their first option," said Terry Harper. Harper and his wife, Deb, are co-owners of Price Slasher. They are purchasing the Prineville business from John and Tom Overbay.

"From a construction standpoint, this is the lower cost option," said Johnson.

Although construction costs may be lower, the city of Prineville would have to acquire the property, most likely by purchasing the property - that cost is unknown.

"It's difficult to place a dollar amount on that specifically," said Mortensen.

"It's been made very clear to us, they want to continue to operate a business in that area and I suspect that in order for them to want to participate in something like that, would be looking to the public to help fund the cost of a new structure," said Robb Corbett, Prineville city manager.

After the public meeting, the owner of Price Slasher, Harper, and the property owners met privately with the transportation engineers.

"We sat down with our views and what we would like to see. We want to work with the city. Realistically, it's a necessity in the future and we're working on a plan to try and relocate and get us a new building," said Harper.

"Moving a grocery store is an enormous project. We just want to help them understand this is what happens to move a grocery store, the time frame involved in the moving, and so on and so forth," he continued.

The Price Slasher building has been at that location for about 45 years and employs about 35 people.

"The thought of having a new building is great. We would love to have a new building, but from the landlord's perspective, they are taking some prime real estate that's really valuable. It splits their property. They also own the computer store (TLC Computers) and Perfect For U. They own this whole block, and it would split it right in half," said Harper.

The property of the grocery store is owned by Becky Moore of West Linn, Ore.

"Nobody wants (to fight). It's not a win-win situation, but we're looking for a win-win situation. If it's not in the budget to help us relocate, their second option would be to realign 10th Street," said Harper.

Realigning 10th Street is a second option engineers and city officials have looked at. There are three different routes that could be used. All routes affect a homeowner or business.

Irene and Jack Duckett have owned and operated Duckett Welding, LLC in Prineville for more than 40 years.

The business is located on the corner of Beaver and Ninth Streets and if the decision was made to go with a 10th Street alignment, which would bypass Price Slasher, it is possible their business would be affected.

"We've been doing well with all this building. I don't know who doesn't come to us," said Irene. The couple has lived in Prineville for more than 45 years.

The couple has lived in Filleville for more than 45 years.

The Ducketts would move their business, if they had to.

"We have to do something to make a living," Irene said.

Although last Wednesday was the last TSP open house meeting, before any plan is finalized, final design plans would have to be completed and approved by the city planning commission and city council.

Mortensen made it clear to attendants at Wednesday's meeting this was the beginning of the process and the beginning of public hearings.

"We don't want people to feel like, 'Gosh this is a done deal," said Mortensen.

APPENDIX G

DRAFT TSP REVIEW COMMENTS





Oregon Department of Transportation

Program and Planning Unit 63085 N. Highway 97 Suite 107 Bend, OR 97701 Telephone (541) 388-6046 FAX (541) 388-6361 E-mail: peter.l.russell@odot.state.or.us

February 23, 2004

Andy Mortensen Regional Transportation Planning Manager The Transpo Group, Inc. 309 NE 3rd St., Suite 5 McMinnville, OR 97128

RE: ODOT comments on draft Chapter 4 of Prineville TSP

Dear Andy,

Thanks for giving us the opportunity to comment upon the draft Chapter 4 of the Prineville TSP, which deals with existing conditions. Overall, the chapter looks good. I have identified some areas where the text cited the incorrect *Oregon Highway Plan (OHP)* designations or mobility standards or highway names.

Highway Designations

Table 4-3 on page 10 needs one modification and one addition. The addition is OR 126, which as the highway enters Prineville by Millican Road and descends the grade, is classified as an Expressway. The addition to Table 4-3 should be a row that reads "OR 126 from UGB to MP 17.92 (O'Neil Hwy), 0.70 V/C for <45mph and 0.70 V/C for >=45mph, State/Expressway." This means the current row six of the table needs to be modified as follows "OR 126 from MP 17.92 (O'Neil Hwy) to U.S. 26 'Y'' while the remaining information in row six is correct.

The text in the second paragraph on page 10 ("Within Prineville, the mobility standards...") will need to be modified as well to include the mobility standards for Expressways.

Mobility Standards

David Boyd has pointed out the TSP should reference the *OHP* at page 75, second bullet that states intersections where traffic on the non-highway approach that must either stop or yield shall not exceed the V/C for District/Local Interest Roads. The City is free to determine its own standards for intersections where all of the approaches are under City jurisdiction.

Table 4-4 needs several corrections regarding the correct V/C standard. These are provided below:

U.S. 26 & Combs Flat Road - .75 (also text has highway misidentified as OR 126) OR 126 & Millican - .70 for the highway, .80 for the side street. (also text has road incorrectly as "McMillian") OR 126 & Tom McCall - .70 for the highway, .80 for the sidestreet

U.S. 26 & 9th St. - .80 for the highway, .85 for the sidestreet

In terms of why the differences above, U.S. 26 and Combs Flat Road is a signalized intersection; OR 126 is a Statewide Expressway with a posted speed greater than 45mph and sidestreets controlled by stop signs; U.S. 26 is a Regional Highway posted at less than 45mph and the sidestreet controlled by a stop sign.

Highway Names

This is always a confusing section in every planning document as there are route numbers, which is how the public knows most roads, then highway numbers, which is how ODOT stores its data, and then highway names. The only mistake in Table 4-1 is how it references the route number.

Ochoco Highway No. 41 begins as OR 126 in Redmond and passes through the "Y" at the west end of Prineville. There the OR 126 route ends as Ochoco Highway changes its route number to U.S. 26 which passes all the way through town along Third Street. The portion of the highway from Redmond until the intersection with O'Neil Highway at MP 17.92 is a Statewide Highway and an Expressway. From there eastward, it's a Statewide.

Madras-Prineville Highway No. 360 begins in Madras as U.S. 26 and terminates at the west "Y."

Crooked River Highway No. 14 begins in Prineville at the intersection of Third and Main as OR 27 and goes south to U.S. 20 just west of Brothers.

O'Neil Highway No. 370 starts at the junction with U.S. 97.

Paulina Highway No. 380 originates at the intersection of Third Street and Combs Flat Road in the eastern portion of Prineville. (The text on Page 2, second paragraph "In Prineville, the arterial network..." incorrectly labels Combs Flat Road as a Crook County facility. Combs Flat Road is in fact the route used by Paulina Highway.)

Map corrections

Figure 4-1 misidentifies Combs Flat Road as a Crook County facility when in fact it is the Paulina Highway No. 380. It would also be helpful if this map were relabeled "Existing Street Classifications, Signals, and Jurisdiction."

Currently, there's no map which depicts the Special Transportation Area (STA) on U.S. 26 (Third Street) and OR 27 (Main Street).

Text calls the Existing Bikeway Map Figure 4-4, but the map label has it incorrectly as Figure 4-3. Similarly, Existing Sidewalk Map is called Figure 4-5 in the text, but labeled 4-4.

In general, all of the maps are display a large area in an small space and are difficult to read. A better presentation might be 11X17 maps which are then folded in half into the document.

Table Corrections

Table 4-4 on page 12 lists a series of existing signalized highways, but misidentifies the highway. All of the signalized intersections in Prineville are on U.S. 26, not OR 126.

Miscellany

A better title for Table 4-3 on page 10 would be "Mobility Standards for Prineville UGB Area – Volume/Capacity Ratios for State Highways and Local Streets"

On page 11 the text discusses a future signal at U.S. 26/Knowledge. The future signal under discussion will actually be at U.S. 26/Harwood.

The text does not existing safety problems in any detail. There are Safety Priority Index System (SPIS) sites within the Prineville UGB. The Safety Investment Program (SIP) also classifies much of U.S. 26 through Prineville as a Category 3 (3-5 fatal or severe injury crashes). The text should identify and discuss these safety issues as well as any on the local system, albeit the source for those will likely be more anecdotal, but still valuable.

The bikeways section only discusses bikeways and whether they are on or off the street. It might be helpful to identify barriers to bicyclists or identify which highways/arterials/collectors/local streets are friendly or unfriendly to bicyclists.

I recognize the chapter will be revised once the sidewalk inventory information is available. As downtown Prineville is an STA, identifying substandard sidewalks or crossings or ramps will be critically important.

Again, on balance the TSP does a thorough job of presenting existing conditions. If you have any questions, feel free to contact me at (541) 388-6046.

Peter Russell Senior Planner

cc: David Boyd, Region 4 Access Management Engineer Jim Bryant, Program & Planning Unit Interim Manager Joel McCarroll, Region 4 Traffic Operations

Recommended Changes to Comprehensive Plan and Land Development Ordinance to Implement the Transportation System Plan
APENDIX H RECOMMENDED UPDATES TO COMPREHENSIVE PLAN AND LAND DEVELOPMENT ORDINANCE TO IMPLEMENT THE TRANSPORTATION SYSTEM PLAN INTRODUCTION
The following report, prepared originally by W&H Pacific, Inc. (1998) for the City of Prineville, and updated as part of the 2005 Draft TSP, is intended to help guide the City of Prineville in updating their Comprehensive Plan and implementing ordinances in order to comply with the Transportation Planning Rule (TPR). It includes proposed revisions to the following documents:
 Comprehensive Plan (July, 1997). Land Development Ordinance No. 1057, hereafter referred to as the "Development Ordinance" (March, 1998).
The proposed code amendments are organized around the following TPR compliance issues:
 A. Approval Process for Transportation Facilities B. Assure Amendments are Consistent with the Transportation System Plan (TSP) C. Recommended Regulations to Provide Notice to Public Agencies D. Street Standards E. Safe and Convenient Pedestrian and Bicycle Circulation F. Bicycle Parking G. Protecting Existing and Future Operation of Facilities
A brief discussion of the TPR compliance issues rationale for the proposed code changes introduces each subsection. A table identifying the proposed language and its suggested location(s) within the adopted Prineville ordinances follows.
For both the comprehensive plan and development ordinance, proposed new code language is <i>italicized</i> , and existing code language remains in a regular font format. Those sections of the existing code proposed for deletion are distinguished with a strikethrough , and proposed replacement language immediately follows. The Transportation Planning Rule (TPR)

In 1991, the Oregon Transportation Planning Rule (TPR) was adopted to implement State Planning Goal 12–Transportation (amended in May and September 1995). The Transportation Planning Rule requires all jurisdictions to revise their land use regulations to implement a Transportation System Plan that addresses the following elements of the TPR:

Amend land use regulations to reflect and implement the Transportation System Plan.

Clearly identi	fy which transportation facilities, services, and improvements are allowed outright, and which will be conditionally permitted or
permitted thro	ugh other procedures.
Adopt land us corridors and	e or subdivision ordinance measures, consistent with applicable federal and state requirements, to protect transportation facilities, sites for their identified functions, to include the following topics:
<i>т</i>	ccess management and control;
- p	rotection of public use airports;
- 0	oordinated review of land use decisions potentially affecting transportation facilities;
-	onditions to minimize development impacts to transportation facilities;
- ra	sgulations to provide notice to public agencies providing transportation facilities and services of land use applications that potentially ffect transportation facilities;
- <i>r</i> e S.	sgulations assuring that amendments to land use applications, densities, and design standards are consistent with the Transportation ystem Plan.
Adopt land us and bicycle pc and bicycle tr	e or subdivision regulations for urban areas and rural communities to provide safe and convenient pedestrian and bicycle circulation urking, and to ensure that new development provides on-site streets and accessways that provide reasonably direct routes for pedestrian avel.
Establish stre	et standards that minimize pavement width and total right-of-way.
In addition to the develop	ment of a Transportation System Plan, local jurisdictions are required to create policies and ordinances that implement the Plan.

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PROPOSED AMENDMENTS TO THE COMPREHENSIVE PLAN AND IMPLEMENTING ORDINANCES

A. APPROVAL PROCESS FOR TRANSPORTATION FACILITIES

required land use and goal compliance findings, are permitted outright and subject only to the standards established by the TSP. A city only may allow outright an improvement that complies with the TSP. Therefore, it is recommended that the City of Prineville use the conditional use permit process to Pursuant to the TPR, projects that are specifically identified in the Prineville Transportation System Plan (TSP), which the City has made all the review those transportation projects not allowed outright within the Urban Growth Boundary. Adoption of the proposed code language will meet the requirements of OAR 660-12-045 (1).

Comprehensive Plan

Suggested Location	Proposed Language Change
Amend <u>Transportation</u> <u>Element</u> , Goals and Objectives, Section 2. New language is a subset to the existing Goal 2.	 A. The city shall coordinate with the Oregon Department of Transportation (ODOT) to implement the highway improvements listed in the Statewide Transportation Improvement Program (STIP) that are consistent with the Transportation System Plan and comprehensive plan. B. The city shall consider the findings of ODOT's draft Environmental Impact Statements and Environmental Assessments (if any) as integral parts of the land use decision-making procedures. Other actions required, such as a goal exception or plan amendment, will be combined with review of the draft EA or EIS and land use approval process.
Objectives, Section 2. New language is a subset to the existing Goal 2.	B. The city shall consider the findings of ODOT's draft Environmental Impact Statements and Environmental Assessments (if any) as integral parts of the land use decision-making procedures. Other actions required, such as a goal exception or plan amendment, will be combined with review of the draft EA or EIS and land use approval process.
<u>Element</u> , Goals and	Transportation System Plan and comprehensive plan.
Transportation	improvements listed in the Statewide Transportation Improvement Program (STIP) that are consistent with the
Amend	A. The city shall coordinate with the Oregon Department of Transportation (ODOT) to implement the highway
Suggested Location	Proposed Language Change

Implementing Ordinances

The Development Code currently permits transportation projects as either a permitted or conditional use, in accordance with OAR 660-12-045 (1).

The Transportation Planning Rule requires that jurisdictions develop regulations to assure that all development proposals, plan amendments, or zone changes conform to the Transportation System Plan. Adoption of the proposed code language will meet the requirements of OAR 660-12-045(2)(g).

Comprehensive Plan

Suggested Location	Proposed Language Change
Amend	A. All development proposals, plan amendments, or zone changes shall conform with the adopted Transportation
Transportation	System Plan.
<u>Element</u> , Goals and	
Objectives, Section 2.	
New language is a	
subset to the existing	
Goal 7.	

Implementing Ordinances

Recommended Chan	ges to Comprehensive Plan and Land Development Ordinance to Implement the Transportation System Plan
Suggested	
Location	Proposed Language Change
Insert in	Section 11.080 Conformance with the TSP
Development	A. A plan or land use regulation amendment significantly affects a transportation facility if it:
Ordinance,	1. Changes the functional classification of an existing or planned transportation facility;
Amendments, Article	2. Changes standards implementing a functional classification system;
11	3. Allows types or levels of land use that would result in levels of travel or access that are inconsistent with the
	functional classification of a transportation facility; or
	4. Would reduce the level of service (mobility standard) of the facility below the minimum acceptable level
	identified in the Transportation System Plan.
	B. Amendments to the comprehensive plan and land use regulations which significantly affect a transportation
	facility shall assure that allowed land uses are consistent with the function, capacity, and level of service of the
	facility identified in the Transportation System Plan. This shall be accomplished by one of the following:
	1. Limiting allowed land uses to be consistent with the planned function of the transportation facility;
	2. Amending the Transportation System Plan to ensure that existing, improved, or new transportation facilities
	are adequate to support the proposed land uses consistent with the requirement of the Transportation
	Planning Rule; or,
	3. Altering land use designations, densities, or design requirements to reduce demand for automobile travel
	and meet travel needs through other modes.
	C. A Traffic Impact Study, prepared pursuant to Section 9.005 of the Development Ordinance, may be required.
C. RECOMMENDE	D REGULATIONS TO PROVIDE NOTICE TO PUBLIC AGENCIES
Review of land use ac	ions is typically initiated by a Notice. A Procedures Ordinance or Notification Policy usually defines this process. The
TPR requires a city t	o provide notice to ODOT regarding any land use action on or adjacent to a State facility. All actions by the city
potentially affecting a	nother jurisdiction's road should include notification of that jurisdiction's public works department. In addition, the
notification policy shc	uld be to notify providers of public transit and recognized special interest transportation groups such as truckers, railroad,
bicyclists, pedestrians	, and the disabled on any roadway or other transportation project. Adoption of the proposed code language will meet the
requirements of UAK	660-12-045(2).

Comprehensive Plan

Suggested Location	Proposed Language Change
Amend	C.The city shall coordinate plan amendments, zone changes, and other land use decisions that affect
Transportation	transportation facilities and services with other providers of these services including ODOT and Crook
<u>Element</u> , Goals	County.
and Objectives,	
Section 2. New	
language is a	
subset to the	
existing Goal 2.	
mplementing Ordina	nces
Suggested	Proposed Language Change
Location	
Insert in the	Section 11.040 Public Notice Requirements
<u>Development</u>	(6) Any application that involves access to the State Highway System shall be provided to Oregon
Ordinance,	Department of Transportation for their review and comment regarding conformance with state access

Suggested Location	Proposed Language Change
Insert in the	Section 11.040 Public Notice Requirements
Development	(6) Any application that involves access to the State Highway System shall be provided to Oregon
Ordinance,	Department of Transportation for their review and comment regarding conformance with state access
Amendments,	management standards and requirements.
Article 11	
Insert in the	Section 12.070 Public Hearings and Notice
Development	(5) Contents of Public Notices
Ordinance,	(c)Set forth the street address or other easily understood geographical reference to the subject property,
Administration and	including the location of project access point(s)
Enforcement,	
Article 12	

D. STREET STANDARDS

Recommended Chang The Transportation Pla tended to establish stree streets. In many cases, the landscape is domin standards for local stree This reduces the costs vehicle access while di proposed code languag Comprehensive Plan	<i>ss to Comprehensive Plan and L and Development Ordinance to Implement the Transportation System Plan</i> ming Rule requires that cities balance mobility, access, and livability when specifying street standards. Historically, cities have it dimensions based on highway standards. Many cities have found it increasingly expensive to construct and maintain very wide livability has been diminished because excessively wide streets make it difficult to walk, and community aesthetics decline as ated by roads and motor vehicles. As understanding of roadway function has increased, local governments have established ats and accessways that minimize pavement width and total right-of-way, while maintaining the operational needs of the facility. of new construction and maintenance, and provides for more efficient use of urban land. The goal is to allow for emergency scouraging inappropriate traffic volumes and speeds, along with accommodating pedestrians and bicyclists. Adoption of the e will meet the requirements of Section 660-12-045(7).
Suggested Location	Proposed Language Change
Amend <u>Transportation</u> <u>Element</u> , Goals and Objectives, Section 2. New language is a subset to the existing Goal 6.	 A. Design standards for local streets and accessways should minimize pavement width and total right-of-way, while maintaining the operational needs of the facility to reduce the costs of new construction and maintenance, and provide for more efficient use of urban land. B. Existing streets that are to be widened or reconstructed should be designed to the adopted street design standards for the appropriate street classification. Adjustments to the design standards may be necessary to avoid existing topographical constraints, historic properties, schools, cemeteries, existing on-street parking, and significant cultural features. Whenever possible, the design of the street should be sensitive to the livability of the surrounding meighborhood.
Implementing Ordins	Inces
Suggested Location	Proposed Language Change

Insert in the	Section 9.020 Lots and Blocks
<u>Development</u> Ordinance Design	(1) <u>Blocks</u> . (a) No block shall be more than 1.000 feet in length between street corner lines unless it is adjacent to an arterial
and Improvement	street, or unless topography or the location of adjoining streets justifies an exception, and is so approved by the
Standards and Requirements,	reviewing authority.(b) The recommended minimum length of a block along an arterial is 1,800 feet. (a) Limit block length to 600 feet in length, except for 800 feet on arterials.
Article 9 Ibid.	(b) A DIOCK SHALL Section 9.0303 Easements
	(3) <u>Pedestrian Ways</u> . When desirable for public convenience, a pedestrian and/or bicycle way of not less than four (4) feet in width may be required connect to a cul-de-sac or to pass through an unusually long or oddly shaped block a block and share it hand for its land, or to choose a point of the same share it of the same share it long or oddly shaped
	onock a plock over six nunarea jeet in tengin, of to otherwise provide
lbid.	Section 9.050 Streets and Other Public Facilities (11) Cul-de-sacs. Limit the use of cul-de-sac designs and closed street systems to situations where topography,
	pre-existing development or environmental constraints prevent full street extensions. If cul-de-sacs are used, they shall be as short as possible and shall have maximum lengths of six hundred feet.
	A cul-de-sac shall terminate with a circular turn-a-round with a minimum radius of 45 feet of paved driving surface
Ibid.	Section 9.050 Streets and Other Public Facilities
	(6) Minimum Right-of-Way and Roadway Widths. Unless otherwise approved in the tentative development plan,
	street, sidewalk and bike right-of-ways and surfacing
	Supersede existing table with the following table

		Auto Amenities	Median / Cente	Bike Amenities	Curb-to-curb St On-Street Parki	estrian Pedestrian Am	Peferred Adjac (Intensity)	Ultimate Design	ent Traffic Calming	iffic Managed Speec	Traffic Through-traffic	Access Control	Maximum Grac	Right-of-Way (f
Street Fur		(lane widths) ¹	:r Turn Lane	2	reet Width ^s <u>ng</u> Two Sides One Side None	enities ³ Sidewalks Planter Strips	ent Land Use	n ADT		4 4	Connectivity		de	feet)
nctional (Arterial	2 lanes (12	14 ft.	2 Lanes (6 ft.)	66 ft. na 50 ft.	(2) 5 ft. Res 8 ft. Com	High	10,000+	Not Typical ⁶	35-55 mph	Primary	Yes	%2	85-105 ft.
Classifica	Collector	2 lanes (11 ft.)	12 ft.	2 Lanes (5 ft.)	60 ft. na 44 ft.	(2) 5 ft. Res8 ft. Com6-10 ft.	High to Medium	3 - 10,000	Permissible/ Not Typical	25-35 mph	Typical	Some	%2	75-100 ft.
ution Syster	Local Route	2 Lanes (11 ft)	None	Shared Surface	38 ft. 30 ft. 22 ft.	2 (5 ft.) 4 ft. (optional)	Medium to Low	1,200 - 3,000	Permissible/ Not Typical	25 mph	Not Typical	No	7%	50-60 ft.
u	Neigh. Street	2 Lanes (10 ft)	None	Shared Surface	36 ft. 28 ft.	2 (5 ft.) 4 ft. (optional)	Low	1,200 max	Typical	15-25 mph	Not Permissible	No	1 0%	48-58 ft.
	Alley	16 ft.	None	None	Not Apply	None None	Low	500 max	Not Typical	10 mph	Not	N	10%	24 ft.

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Notes:

- ¹ Lane widths shown are the preferred construction standards that apply to existing routes adjacent to areas of new development, and to newly constructed where existing development along an established sub-standard route or other severe physical constraints preclude construction of the preferred facility routes. On arterial and collector roadways, an absolute minimum for safety concerns is 10 ft. Such minimums are expected to occur only in locations width.
- occur only in locations where existing development along an established sub-standard route or other severe physical constraints preclude construction of Americans With Disabilities Act. Parallel multi-use paths in lieu of bike lanes are not appropriate along the arterial-collector system due to the multiple the preferred facility width. On 4ft sidewalks a minimum 4 ft. "clear width" should be constructed and maintained, to best meet the requirements of the An absolute minimum width for safety concerns is 5 ft. on arterial and 4 ft. on collectors, local routes and neighborhood streets, which is expected to conflicts created for bicycles at driveway and sidewalk intersections. In rare instances, separated (but not adjacent) facilities may provide a proper function. 0
- Sidewalks eight-feet in width are required in commercial areas unless otherwise provided for in the Prineville Land Development Ordinance. The *City of* furniture without compromising ADA requirements or business access. Designated Special Transportation Areas (STAs) in Prineville, including Third Prineville Downtown Enhancement Plan (1997) recommends wider sidewalks in downtown Prineville in order to accommodate street trees and street Street and a portion of Main Street, are to have 8-10 foot sidewalks, consistent with the Oregon Highway Plan. ŝ
- 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 Arterial speeds in the central business or other commercial districts in urban areas may be 20-25 mph. Traffic calming techniques, signal timing, and alignment will focus on providing an enhanced degree of safety for the managed speed. 4
- Street design for each development shall provide for emergency and fire vehicle access. Neighborhood 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.
- Pursuant to the City of Prineville Downtown Enhancement Plan (1997) pedestrian flares (extensions) or half-flares are proposed at downtown intersections of arterial or collectors. 9

E. SAFE AND CONVEN	ILENT PEDESTRIAN AND BICYCLE CIRCULATION
Bicycling and walking are can replace short auto trip bikeways and walkways ca rural communities plan foi	often the most appropriate mode for short trips. In smaller cities where the downtown area is compact, walking and bicycling is, and thus reduce the need for construction and maintenance of new roads. However, the lack of safe and convenient in discourage pedestrian and bicycle travel. The Transportation Planning Rule (660-12-045(3)) requires that urban areas and rebicycling and walking as part of the overall transportation system.
In order for walking and bi such as orienting commerc transportation and to existi along arterials and collecto minimize trips distances. A	cycling to be viable forms of transportation, the proper facilities must be supplied. In addition, certain development patterns, ial uses to the street and placing parking behind the building, make a commercial district more accessible to non-motorized ing or future transit. The Transportation Planning Rule specifies that, at a minimum, sidewalks and bikeways be provided rs in urban areas. Separate bicycle and pedestrian facilities should be provided, as they provide a "short cut" and could safely Adoption of the proposed code language will meet the requirements of OAR 660-12-045(3)(b), (c), and (d).
<u>Comprehensive Plan</u>	
Suggested Location	Proposed Language Change
Amend Transportation	8. Develop a network of streets, accessways, and other improvements, including bikeways, sidewalks, and safe street crossings to promote safe and convenient bicycle and pedestrian circulation within the community. This shall be done
<u>Element</u> , Goals and Objectives, Section 2.	through the implementation of the TSP and review of new development proposals.
Proposed language is a new coal – Goal	
8. Additional	
language is a subset to the new goal.	
Subset to Goal 8.	A) Require streets and, where appropriate, accessways to provide direct and convenient access to major activity centers, including downtown, schools, shopping areas, and community centers.
Ibid.	B) In areas of new development, the city should investigate the existing and future opportunities for pedestrian and hisvele accessways. Many existing accessways such as user trails established by school children distinguish areas of
	need and should be incorporated into the transportation system.
Ibid.	C) Maintenance and repair of pedestrian accessways (including sidewalks) and existing bikeways should be given equal priority to the maintenance and repair of motor vehicle facilities.
Ibid.	D Bikeways and pedestrian accessways shall connect to local and regional travel routes. Design and construction of
	such facilities should follow the guidelines established by the Oregon Bicycle and Pedestrian Plan.
Ibid.	E) buse tunes shall be included on all new unertains and contectors within the Orban Grown boundary. F)Arterial and collector streets shall include bike lanes except as otherwise specifically provided for in the TSP.
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Recommended Changes to Comprehensive Plan and Land Development Ordinance to Implement the Transportation System Plan E SAEF AND CONVENIENT DEDESTRIAN AND RECYCLE CIPCUL ATION

Local routes/neighborhood streets will accommodate bicycles by allowing for shared use of travel lanes or shoulder bikeways.

Implementing Ordinances

Suggested Location	Proposed Language Change
Insert in the <u>Development</u> Ordinance,	<u>Accessway.</u> A walkway that provides pedestrian and bicycle passage either between streets or from a street to a building or other destination such as a school, park, or transit stops. Accessways generally include a walkway and additional land on either side of the walkway, often in the form of an easement or right-of-way, to provide clearance and separation between
General Provisions, Article 1, Section	the walkway and adjacent uses. Accessways through parking lots are generally physically separated from adjacent vehicle parking or parallel vehicle traffic by curbs or similar devices and include landscaping, trees, and lighting. Where
1.040	accessways cross driveways, they are generally raised, paved, or marked in a manner that provides convenient access for pedestrians.
	<u>Bicycle Facilities.</u> A general term denoting improvements and provisions made to accommodate or encourage bicycling, including parking facilities and all bikeways.
	<u>Neighborhood Activity Center</u> . An attractor or destination for residents of surrounding residential areas. Includes, but is
	not timited to existing or plainted schools, parks, shopping areas, transit stops, employment areas. <u>Reasonably direct</u> . A route that does not deviate unnecessarily from a straight line or a route that does not involve a
	significant amount of out-of-direction travel for likely users.
	Safe and convenient bicycle and pedestrian routes are:
	a. Reasonably free from hazards, and b Drovides a reasonably direct route of travel between destinations considering that the ontimum travel distance is
	one-half mile for pedestrians and three miles for bicyclists.
	Walkway. A hard-surfaced area intended and suitable for pedestrians, including sidewalks and the surfaced portions of
	accessways.
Insert in the	Section 3.050 C-1 Zone
<u>Development</u>	(6) <u>Use Limitations</u> .
Commercial C-1	()) we commercial balances, particularly relation snopping and offices, shall be oriented to me sireel, near or at me setback line. A main entrance shall be oriented to the street.
Zone, Section	
Ibid.	(7) Off-Street Parking and Loading
	(e) Where feasible, off-street motor vehicle parking for new commercial developments shall be located at the side or beh the building(s).

Suggested Location	Prop	osed Language Change
Amend the	(23)	<u>Sidewalks</u> Sidewalks shall be required along arterials, collectors, connectors, local routes and neighborhood streets
Ordinance, Streets		en obechied in the Tot of the Contract of the
and Other Public		
9.0505		
Ibid.	(24)	<u>Bike Lanes</u> Bikeways and bike lanes shall be provided along arterial and collector streets as specified in the TSP

F. BICYCLE PARKING

The lack of safe and convenient bicycle parking can discourage bicycling as a transportation mode. The following are recommended to comply with Section 660-12-045 (3) of the TPR.

Comprehensive Plan

Suggested Location	Proposed Language Change
Amend	G) Bicycle parking facilities shall be provided at all new residential multifamily developments of four units or
Transportation	more, commercial, industrial, recreational, and institutional facilities.
<u>Element</u> , Goals and	
Objectives, Section 2.	
Proposed language	
is a subset to new	
Goal 8.	

Implementing Ordinances

Suggested	Proposed Language Change
Insert in the <u>Development</u> <u>Ordinance</u> , General Provisions: Off- Street Parking and Loading, Section 4.060	 (5) The number of vehicular spaces required in Section 4.070may be reduced by up to 10% if one of the following is demonstrated to the satisfaction of the Planning Director or Planning Commission: (a) Residential densities greater than units per gross acre (parking shall be no less than one space per unit for multifamily structures). (b) The Planning Director or the Planning Commission conclude that the proposed development is pedestrian oriented by virtue of a location which is in convenient walking distance of existing or planned neighborhood activities (such as schools, parks, shopping etc.) and the development provides additional pedestrian amenities not required by the code which when taken together significantly contribute to making walking convenient (e.g. wider sidewalks, pedestrian plazas, pedestrian scale lighting, benches, etc.)

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Prineville Transportation System Plan

The Transportation Plannin or through traffic should t acilities that small jurisdict vuilding orientation necess	g Rule requires that jurisdictions protect the future operation of transportation corridors. For example, an important arterial be protected from incompatible land uses in order to meet the community's identified needs. Other future transportation ions may wish to address include rights-of-way or other easements for accessways, paths, and trails. Additionally, space and ary to support future transit may also be an important issue.
Protection of existing and p und to the access managem 560-12-045(2).	lanned transportation systems can be provided by ongoing coordination with other agencies, adhering to the road standards, ent policies and ordinances suggested below. Adoption of the proposed code language will meet the requirements of OAR
Comprehensive Plan	
Suggested Location	Proposed Language Change
Amend <u>Transportation</u> <u>Element</u> , Goals and Objectives, Section 2. New language is a subset to the existing Goal 6.	C) The city should protect the function of existing and planned roadways as identified in the Transportation System Plan.
Amend <u>Transportation</u> <u>Element</u> , Goals and Objectives, Section 2. New language is a subset to the existing Goal 7.	B) The city should include consideration of the impact on existing or planned transportation facilities in all land use decisions.
-	

Recommended Changes to Comprehensive Plan and Land Development Ordinance to Implement the Transportation System Plan G. PROTECTING EXISTING AND FUTURE OPERATIONS OF FACILITIES

Recommended Ch	Changes to Comprehensive Plan and Land Development Ordinance to Implement the Transportation System Plan
Ibid.	C) The city should protect the function of existing or planned roadways or roadway corridors through
	the application of appropriate land use regulations.
Ibid.	D) The city should consider the potential to establish or maintain accessways, paths, or trails prior to the
	vacation of any public easement or right-of-way.
Ibid.	<i>E)</i> The city should preserve right-of-way for planned transportation facilities through exactions, voluntary
	dedication, or setbacks.

Recommended Changes to Comprehensive Plan and Land Development Ordinance to Implemen.	plement the I ransportation System Plan
mplementing Ordinances	

L

Suggested Location	Proposed Language Change
Insert in the <u>Development</u> <u>Ordinance</u> , Definitions, Section 1.040	<u>Access</u> . A way or means of approach to provide pedestrian, bicycle, or motor vehicular entrance or exit to a property.
	<u>Access Connection</u> . Any driveway, street, turnout or other means of providing for the movement of vehicles to or from the public roadway system.
	<u>Access Management</u> . The process of providing and managing access to land development while preserving the regional flow of traffic in terms of safety, capacity, and speed.
	<u>Cross Access.</u> A service drive providing vehicular access between two or more contiguous sites so the driver need not enter the public street system.
	<u>Joint Access</u> (or Shared Access). A driveway connecting two or more contiguous sites to the public street system. Lot Frontage That nortion of a lot extending along a street right-of-way line.
	<u>Nonconforming Access Features.</u> Features of the property access that existed prior to the date of ordinance adoption and do not conform with the requirements of this ordinance.
	<u>Reasonable Access</u> . 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 ordinance and any applicable plans and policies of the
	city/county).
	<u>Stub-out</u> (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.
Amend the	(D) <u>Site Development Plan</u>
<u>Development</u> Ordinance Site	7 Parking and circulation areas including their dimensions: and the number and type of hicycle parking facilities reagized
Plan and Review,	in Section 4.075.
Section 4.240	
Amend the	(D) <u>Site Development Plan</u>
<u>Development</u>	
Ordinance, Site	13. Pedestrian and bicycle circulation. Internal pedestrian circulation shall be provided in new commercial, office, and multi-family residential developments through the clustering of buildings construction of hard surface wallows.
Section 4.240	landscaping, accessways, or similar techniques. Pedestrian circulation through parking lots shall be provided in the form
	of accessways.

Decommended Cha	nges to Comprehensive Plan and Land Development Ordinance to Implement the Transportation System Plan
Suggested Location	Proposed Language Change
Ibid.	(D) Site Development Plan
	 20. On-site facilities shall be provided to accommodate safe and convenient pedestrian and bicycle access within new subdivisions, multi-family developments, planned development, shopping centers, and conmercial districts, and connecting to adjacent residential areas and neighborhood activity centers. Residential developments shall include streets with sidewalks and accessways. 21. For new office parks and commercial developments: (a) At least one walkway connection between the proposed development and each abutting property shall be provided. (b) walkways shall be provided to the street for every 300 feet of developed frontage. (c) walkways shall be linked to the internal circulation of the building. (e) walkways shall be at least five feet wide and shall be raised, have curbing, or have different paving material when crossing driveways.
Amend the <u>Development</u> <u>Ordinance</u> , Access Management, Section 9.060	(3) <u>General Access Management Guidelines</u> . In the review and approval of new developments, the reviewing authority shall consider the following guidelines. In the interest of promoting unified access and circulation systems, the number of access points 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 ordinance and both shall be cited for any violation.
	 For any new development, the following information shall be shown on the site plan. A. Driveways shall meet the following standards: I. If the driveway is a one-way in or one-way out drive, then the driveway shall be a minimum width of 12 feet and shall have appropriate signage designating the driveway as a one way connection. E. For two-way access, each lane shall have a minimum width of 12 feet. B. 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. C. 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.
	D. The number and spacing of accesses to City Streets shall be as specified in the table below (see Table H-1 for State

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Highways):

City of Prineville Access Management Guidelines and Suggested Design Standards for City Streets

Design / Monomod	Horizontol	Vartical	Traffic	Ctroot	-	Access Ma	nagement	
Align	ment	v erucai Alignment	Control	bureer Lighting	Min. Spacing	Residential Use	Commercial Uses	Industrial Uses
Minimu centerlir radius: 6	m le e g g 550 ft N 4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4	Aaximum rade: 7% Ainimum ight distance: 50 ft	 Placement/ design of traffic control devices as warranted by MUTCD MuntcD Minimum signal spacing: 1/4 mile 	1. Mounting height: 35-40 ft	300 ft	No direct access	 Shared access driveways are encouraged Left-hand turn lanes determined through review 	 Shared access driveways are encouraged encouraged 2. Left-hand turn lanes determined through review
Minimu centerlin radius: 5 radius: 5	а ее 60 Л У У У У У У У У У У У У У У У С О Н С С С С С С С С С С С С С С С С С	Aaximum rade: 7% Ainimum ight distance: 00 ft	Placement/design of traffic control devices as warranted by MUTCD	1. Mounting height: 30-35 ft	100 ft	1. Shared access driveways are encouraged	 Shared access driveways are encouraged Left-hand turn lanes determined through review 	 Shared access driveways are encouraged Left-hand turn lanes determined through review
Minimun centerlin radius: 3	00 th 3 s v v v	Aaximum rade: 7% Ainimum ight distance: 50 ft	Placement/design of traffic control devices as warranted by MUTCD	1. Mounting height: 25-30 ft	50 ft	1. Shared access driveways are encouraged	 Shared access driveways are encouraged Left-hand turn lanes determined through review 	 Shared access driveways are encouraged 2. Left-hand turn lanes determined through review

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	No direct	50 ft. access.	urn.			
,	Curb cut	minimum	to curb ret			
7	Curb cut	minimum 45	ft. to curb	return.		
	None					
	1. Mounting	height: 20 ft				
	Placement/design of	traffic control devices	as warranted by	MUTCD		
	Maximum	grade: 10%		Minimum	sight distance:	150 ft
	Minimum	centerline	radius: 150 ft			
	25\ 15-25					
	Min. 400 ft.	Max. 600 ft.				
	Neighborhood	Street				

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Suggested Location	Proposed Language Change
Insert in the	(5) Joint and Cross Access Guidelines.
<u>Development</u>	Any developments requiring site plan review that do not meet access spacing requirements are subject to these
Ordinance, Access	requirements. In these cases, the following information shall be shown on the site plan:
Management,	A. Adjacent commercial or office properties classified as major traffic generators (e.g. shopping plazas, office
Section 9.060	parks), shall provide a cross access drive and pedestrian access to allow circulation between sites.
	B. A system of joint use driveways and cross access easements shall be established wherever feasible and shall
	incorporate the following:
	1. 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.
	2. A design speed of 10 mph and a minimum width of 20 feet to accommodate tw -way travel aisles designated to
	accommodate automobiles, service vehicles, and loading vehicles;
	3. Stub-outs and other design features to make it visually obvious that the abutting properties may be tied in to provide
	cross-access via a service drive;
	4. A unified access and circulation system plan for coordinated or shared parking areas is encouraged.
	5. 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
	C. Shared parking areas may be permitted a reduction in required parking spaces if peak demands do not occur at
	the same time periods.
	D. Pursuant to this section, property owners shall:
	1. 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;
	2. Record an agreement with the deed that remaining access rights along the roadway will be dedicated to the city and
	pre-existing driveways will be closed and eliminated after construction of the joint-use driveway;
	3. Record a joint maintenance agreement with the deed defining maintenance responsibilities of property owners.
	E. The city may reduce required separation distance of access points where they prove impractical, provided all of
	the following requirements are met:
	1. Joint access driveways and cross access easements are provided in accordance with this section.
	2. The site plan incorporates a unified access and circulation system in accordance with this section.
	3. The property owner enters into a written agreement with the city, 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.
	F. The Planning 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.

Recommendea	Changes to Comprehensive Plan and Land Development Ordinance to Implement the Transportation System Plan
Suggested Location	Proposed Language Change
Insert in the <u>Development</u> <u>Ordinance</u> , Access Management, Section 9.060	 (6) <u>Standards for State Highways</u> In the review and approval of new developments, the reviewing authority shall consider the following guidelines. (1) Future developments abutting state highways (zone changes, comprehensive plan amendments, redevelopment, and/or new development) will be required to meet the 1999 Oregon Highway Plan Access Management policies and standards. (a) Special Access Management Guidelines - See Table H-1 at the end of this Appendix.
	 (2) Proposed land use actions that do not comply with the designated access spacing policy will be required to apply for an access variance from the City of Prineville and ODOT. Cases within the 1999 OHP Minor Deviation Limits require approval of the City and ODOT Region Access Management Engineer. Deviation beyond these limits will be permitted only if no other reasonable option (such as joint access) exists, and requires approval of the City Council and the ODOT Region Manager. (3) The 1999 Oregon Highway Plan also establishes Mobility Standards for all State Highways, including those within the Prineville Area. The transportation impact from proposed developments must be appropriately mitigated where necessary to meet these Mobility Standards. (4) The existing legal driveway connections, intersection spacings and other accesses to the state highway system are not required to meet the spacing standards of the assigned category immediately upon adoption of this
Ibid.	 access management plan. However, existing permitted connections not conforming to the design goals and objectives of the roadway classification will be upgraded as circumstances permit and during redevelopment. At any time, an approach road may need to be modified due to a safety problem or a capacity issue that exists or becomes apparent. By statute, ODOT is required to ensure that all safety and capacity issues are addressed. (5) If a property is landlocked (no reasonable alternative access exists), if an approach road cannot be safely constructed and operated, and if all other alternatives are explored and rejected, ODOT must purchase the property. (Note, if a hardship is self-inflicted, such as by partitioning or subdividing a property, ODOT has no responsibility for purchasing the property.) (6) New direct accesses to individual one and two family dwellings shall be prohibited on all but District-level State Highways, unless doing so would deny reasonable access to an existing legal lot of record.
Insert in the <u>Development</u> <u>Ordinance</u> , Access Management, Section 9.060 Ibid.	 (8) <u>Nonconforming Access Features</u> Legal access connections in place as of (date of adoption) that do not conform with the standards herein are considered nonconforming features and shall be brought into compliance with applicable standards under the following conditions: a. When new access connection permits are requested; b. Change in use or enlargements or improvements that will significantly increase trip generation.
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c. No exception shall be granted where such hardship is self-created.

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es to Comprehensive Plan and Land Development Ordinance to Implement the Transportation System Pla	 Section 9.055 Traffic Impact Study Any new development shall not impose an undue burden on the publi transportation system. For developments that are likely to impact the existing transportation system, the applicant shall provide adequate information, such as a traffic impact study, to demonstrate the level of impact to the surrounding street system (1) 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(where appropriate) if the proposed u (a) Directly accesses a state highway; or (b) Requires a comprehensive plan amendment; or 	(c) There is a recognized traffic safety or operations deficiency in the vicinity of the proposed land use action; action; <u>and</u> the proposed use exceeds the thresholds defined as:	(d) Generation Threshold: 50 newly generated vehicle trips (inbound and outbound) during the adjacen street peak hour; or	(e) Mutigation I hreshold: 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 exitin, the (state) highway; or	(f) Heavy Vehicle Trip Generation Threshold: 20 newly generated heavy vehicle trips (inbound and outbound) during the day.	(2) A traffic study will not be required if a proposed land use action is allowed outright or a conditional use and it does not exceed the thresholds defined above.	(3) Traffic Impact Studies will be prepared in accordance with the City of Prineville's Traffic Impact Analy. (TIA) - Development Requirements Policyy.	(4) Dedication of land for streets, transit facilities, sidewalks, bikeways, paths, or accessways shall be requ where the existing transportation system will be impacted by or is inadequate to handle the additional	burden caused by the proposed use.	(2) Improvements such as paving, curbing, installation or contribution to traffic signals, construction of sidewalks, bikeways, accessways, paths, or streets that serve the proposed use where the existing	rianspontation system, may be but dened by the proposed use. Section 9.050 Streets and Other Public Facilities	(1) It shall be the responsibility of the developer	a. If any tot would a street right-of-way man woes not conjoint to the wester specifications of this or annuce may be required to dedicate up to one-half of the total right-of-way width required by this ordinance. b. Dadication of land for streage transit facilities eidenvalue hilbourase works or accessions shall be word	the existing transportation system will be impacted by or is inadequate to handle the additional burder	the proposed use.	(28) Connectivity The street system of proposed subdivisions shall be designed to connect with existing, propo and planned streets outside of the subdivision as provided in this Section.	
Recommended Chang	Insert in the <u>Development</u> <u>Ordinance</u> , Design and Improvement Standards and Requirements, Article 9										Insert in the	Development	Streets and Other	Public Facilities, Section 9.050		Ibid.	

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Prineville Transportation System Plan

	 (a) 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. (e) 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. (c) All access must be internalized using the shared circulation system of the principal development or retail center. Drivewors shall be designed to avoid aneuing success surrounding access surrounding streets.
Insert in the Development Ordinance, Lots and Blocks, Section 9.020	 (2) <u>Lots</u> A. The resulting or proposed size, width, shape and orientation A. The resulting or proposed size, width, shape and orientation B. 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. C. Flag Lots or Panhandle-shaped Lots: a. Flag lots shall not be permitted when the result would be to increase the number of properties requiring direct and individual access connections to the State Highway System or other arterials. b. Flag lots may be permitted for residential development when necessary to achieve planning objectives, such as reducing direct access to roadways, providing one legal connection to a residential street, or preserving natural or historic resources, under the following conditions: i. The flag lot driveway shall have a minimum width of 10 feet and maximum width of 20 feet. ii. The lot area occupied by the flag driveway shall not be counted as part of the required minimum lot area of that zoning district.
Ibid.	(3) <u>Access</u> Each resulting or proposed lot or parcel shall abut upon a public street, Lots that front on more than one street shall be required to locate motor vehicle accesses on the street with the lower functional classification.
Amend the <u>Development</u> <u>Ordinance</u> , Site Plan and Review, Section 4.240	 (D) Site Development Plan 23. 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; 24. Number and direction of lanes to be constructed on the driveway plus striping plans; 25. All planned transportation features (such as sidewalks, bikeways, auxiliary lanes, signals, etc.);

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Highway Category	Posted Speed	Expressway	Other	STA
Statewide	55+mph	2640	1320	
	50 mph	2640	1100	
	40-45 mph	2640	066	
	30-35 mph		770	City Block ²
	25 mph or less		550	City Block
Regional	55+mph	2640	066	
	50 mph	2640	830	
	40-45 mph	2640	750	
	30-35 mph		600	City Block
	25 mph or less		450	City Block
District	55+ mph	2640	700	
	50 mph	2640	550	
	40-45 mph	2640	500	
	30-35 mph		400	City Block
	25 mph or less		400	City Block

 Table H-1: Urban Access Management Spacing Standards for State Highways¹

 (measurements in feet, center to center on same side of roadway)

Ninimum spacing for public road approaches is either the existing city block spacing or the city block spacing as identified in the local comprehensive plan. Public road connections are preferred over private driveways, and in STAs driveways are discouraged. However, where driveways are allowed and where land use permit, the minimum spacing for driveways is 175 feet or mid-block if the current city block spacing is less than 350 feet.

Highway Designation	Highway	From	To
Statewide / Expressway	OR 126	West UGB	O'Neil Hwy
Statewide / NHS	OR 126	O'Neil Hwy	Locust Street
Statewide / NHS / STA	OR 126	Locust Street	Knowledge Street
Statewide / NHS	OR 126	Knowledge Street	East UGB
Region	US 26	NW UGB	OR 126
District / STA	OR 27	OR 126	First Street
District	OR 27	First Street	South UGB
District	OR 370 (O'Neil)	NW UGB	OR 126
District	OR 380 (Paulina)	First Street	South UGB

Table H-1: Continued