



Department of Land Conservation and Development 635 Capitol Street NE, Suite 150 Salem, Oregon 97301-2524 Phone: (503) 373-0050 First Floor/Coastal Fax: (503) 378-6033 Second Floor/Director's Office: (503) 378-5518 Web Address: http://www.oregon.gov/LCD

# NOTICE OF ADOPTED AMENDMENT

May 3, 2006



TO: Subscribers to Notice of Adopted Plan or Land Use Regulation Amendments

FROM: Mara Ulloa, Plan Amendment Program Specialist

SUBJECT: City of Stayton Plan Amendment DLCD File Number 001-06

The Department of Land Conservation and Development (DLCD) received the attached notice of adoption. Due to the size of amended material submitted, a complete copy has not been attached. A copy of the adopted plan amendment is available for review at the DLCD office in Salem and the local government office.

Appeal Procedures\*

# **DLCD ACKNOWLEDGMENT or DEADLINE TO APPEAL: May 17, 2006**

This amendment was submitted to DLCD for review 45 days prior to adoption. Pursuant to ORS 197.830 (2)(b) only persons who participated in the local government proceedings leading to adoption of the amendment are eligible to appeal this decision to the Land Use Board of Appeals (LUBA).

If you wish to appeal, you must file a notice of intent to appeal with the Land Use Board of Appeals (LUBA) no later than 21 days from the date the decision was mailed to you by the local government. If you have questions, check with the local government to determine the appeal deadline. Copies of the notice of intent to appeal must be served upon the local government and others who received written notice of the final decision from the local government. The notice of intent to appeal must be served and filed in the form and manner prescribed by LUBA, (OAR Chapter 661, Division 10). Please call LUBA at 503-373-1265, if you have questions about appeal procedures.

# \*<u>NOTE:</u> THE APPEAL DEADLINE IS BASED UPON THE DATE THE DECISION WAS MAILED BY LOCAL GOVERNMENT. A DECISION MAY HAVE BEEN MAILED TO YOU ON A DIFFERENT DATE THAN IT WAS MAILED TO DLCD. AS A RESULT YOUR APPEAL DEADLINE MAY BE EARLIER THAN THE ABOVE DATE SPECIFIED.

Cc: Gloria Gardiner, DLCD Urban Planning Specialist Marguerite Nabeta, DLCD Regional Representative Matthew Crall, DLCD Transportation Planner Steve Goeckritz, City of Stayton

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HAND DELIVERED

FORM 2

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# **DLCD** NOTICE OF ADOPTION

This form <u>must be mailed</u> to DLCD <u>within 5 working days after the final decision</u> per ORS 197.610, OAR Chapter 660 - Division 18

(See reverse side for submittal requirements)

Jurisdiction:City of Stayton	_ Local File No.:02-01/06	
Date of Adoption:4/24/06(Must be filled in)	Date Mailed:4/26/06 (Date mailed or sent to DLCD)	
Date the Notice of Proposed Amendment was mailed to DLCD:4/26/06		
<b>_X</b> Comprehensive Plan Text Amendment	Comprehensive Plan Map Amendment	
Land Use Regulation Amendment	Zoning Map Amendment	
New Land Use Regulation	X Other: Adoption – Interchange Area	
	Management Plan	
	(Please Specify Type of Action)	

Summarize the adopted amendment. Do not use technical terms. Do not write [See Attached.]

\_\_\_\_\_The Sublimity Interchange will be undergoing modifications and improvements that are

anticipated to extend the life of the interchange for the next 20 years. The adopted interchange plan is

a required precursor for the improvement of the interchange.

Describe how the adopted amendment differs from the proposed amendment. If it is the same, write  $\Box$ Same. $\Box$  If you did not give notice for the proposed amendment, write  $\Box$ N/A. $\Box$ 

Same		
Plan Map Changed from :	to	
Zone Map Changed from:		
Location:	Acres Involved:	
Specify Density: Previous:		
Applicable Statewide Planning Goals:		
Was an Exception Adopted? Yes: No:x		
DLCD File No.: 001-06 (15002)	·	

APR 26 2006

DEPT OF

LAND CONSERVATION AND DEVELOPMENT

Did the Department of Land Conservation and	d Development <u>receive</u> a notice of Proposed Amendment
FORTY FIVE (45) days prior to the first e	widentiary hearing. Yes: _x No: If no, do
the Statewide Planning Goals apply.	Yes: _x No:
If no, did The Emergency Circumstan	ces Require immediate adoption. Yes: No:
Affected State or Federal Agencies, Local Go	overnments or Special Districts:
_City of Stayton, City of Sublimity, Marion C	County, Oregon Department of Transportation
Local Contact: _Steve Goeckritz	Area Code + Phone Number: 503.769.2998
Address:362 N 3 <sup>rd</sup> Ave	City: _Stayton
Zip Code+4:97383	Email Address: planner@stayton.org

# **ADOPTION SUBMITTAL REQUIREMENTS**

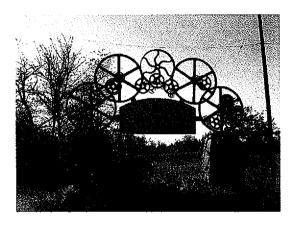
This form <u>must be mailed</u> to DLCD <u>within 5 working days after the final decision</u> per ORS 197.610, OAR Chapter 660 - Division 18.

1. Send this Form and TWO (2) Copies of the Adopted Amendment to:

# ATTENTION: PLAN AMENDMENT SPECIALIST DEPARTMENT OF LAND CONSERVATION AND DEVELOPMENT 635 CAPITOL STREET NE, SUITE 150 SALEM, OREGON 97301-2540

- 2. Submit TWO (2) copies the adopted material, if copies are bounded please submit TWO (2) complete copies of documents and maps.
- 3. <u>Please Note</u>: Adopted materials must be sent to DLCD not later than **FIVE (5) working days** following the date of the final decision on the amendment.
- 4. Submittal of this Notice of Adoption must include the text of the amendment plus adopted findings and supplementary information.
- 5. The deadline to appeal will not be extended if you submit this notice of adoption within five working days of the final decision. Appeals to LUBA may be filed within **TWENTY-ONE** (21) days of the date, the [Notice of Adoption] is sent to DLCD.
- 6. In addition to sending the [Notice of Adoption] to DLCD, you must notify persons who participated in the local hearing and requested notice of the final decision.
- 7. Need More Copies? You can copy this form on to <u>8-1/2x11 green paper only</u>; or call the DLCD Office at (503) 373-0050; or Fax your request to:(503) 378-5518; or Email your request to Larry.French@state.or.us ATTENTION: PLAN AMENDMENT SPECIALIST.

# **CITY OF STAYTON**



# INTERCHANGE AREA MANAGEMENT Plan

# **CITY OF STAYTON**

# **ADOPTION**

# AN ORDINANCE ADOPTING THE SUBLIMITY INTERCHANGE AREA MANAGEMENT PLAN (IAMP), ENABLING THE MODERNIZATION OF THE EXISTING INTERCHANGE, AND BRIDGE STRUCTRE AND ASSOCIATED LOCAL TRANSPORTATION SYSTEM IMPROVEMENTS.

**APRIL 26, 2006** 

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# **ORDINANCE NO. 888**

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AN ORDINANCE AMENDING THE CITY STAYTON TRANSPORTATION SYSTEM PLAN, AN ELEMENT OF THE STAYTON COMPREHENSIVE PLAN, TO INCLUDE THS SUBLIMITY INTERCHANGE AREA MANAGEMENT PLAN, ENABLING THE MODERINIZATION OF THE EXISTING INTERCHANGE AND BRIDGE STRUCTURE AND ASSOCIATED LOCAL TRANSPORTATION IMPROVEMENTS

# **RESOLUTION NO. 767**

AMENDMENT TO THE CITY OF STAYTON TRANSPORTATION SYSTEM PLAN

ORDER OF APPROVAL

Amends Chapter 3 of the Comprehensive Plan, Chapter 3 of the Transportation System Plan and adopts the Interchange Area Management Plan.

# AMENDMENTS

Stayton Comprehensive Plan, Chapter 3 Transportation (AMENDMENTS IN ITALICS)

Sublimity Interchange Area Management Plan (IAMP)

# PUBLIC HEARING MINUTES

Planning Commission Discussion - February 27, 2006

# Planning Commission Public Hearing - March 27, 2006

City Council Public Hearing – April 17, 2006 Minutes are being drafted at this time. Will be provided when they are signed by the Mayor.

# NOTICE OF PUBLIC HEARINGS

Before the Stayton Planning Commission March 27, 2006 Before the Stayton City Council April 17, 2006

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# ORDINANCE NO. 888

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#### ORDINANCE NO. 888

# AN ORDINANCE AMENDING THE CITY OF STAYTON TRANSPORTATION SYSTEM PLAN, AN ELEMENT OF THE STAYTON COMPREHENSIVE PLAN, TO INCLUDE THE SUBLIMITY INTERCHANGE AREA MANAGEMENT PLAN, ENABLING THE MODERNIZATION OF THE EXISTING INTERCHANGE, AND BRIDGE STRUCTURE AND ASSOCIATED LOCAL TRANSPORTATION SYSTEM IMPROVEMENTS.

WHEREAS, The City of Stayton is acting pursuant to the authority of OAR 734.051.055(5),

WHEREAS, the existing interchange that carries OR 22 over Cascade Highway is functionally obsolete; and

WHEREAS, the Oregon Transportation Commission (OTC) approved funding to reconstruct the existing interchange; and

WHEREAS, as a condition of funding construction for the project, the OTC required that an Interchange Area Management Plan (IAMP) be prepared in association with the design of the interchange and adopted by the City of Stayton, the City of Sublimity, and Marion County; and

WHEREAS, in the Autumn of 2004 ODOT contracted with the firm CH2MHILL to manage a project consultant team to develop the Sublimity IAMP; and

WHEREAS, the City appointed staff and elected officials worked closely with the Oregon Department of Transportation (ODOT) and project consultant team in planning for future improvements to the interchange, through participation with the Project Management Team (PMT) for the Sublimity IAMP project and the development of the IAMP; and

WHEREAS, small group meetings with affected property owners were held throughout the course of the project and were instrumental in guiding the development of the Sublimity IAMP; and

WHEREAS, the Sublimity IAMP documents the land use planning, transportation planning, access management and public involvement work that resulted in the Preferred Alternative Access Plan; and

WHEREAS, the City of Stayton has held public hearings on the Sublimity IAMP on March 27, 2006 before the Stayton Planning Commission and April 17,2006 before the Stayton City Council, and

WHEREAS, the City of Sublimity has held public hearing on the Sublimity IAMP on April 10, 2006; and

Ordinance No. 888 Interchange Area Management Plan (IAMP)

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WHEREAS, Marion County will hold a public hearing at a future date regarding the Sublimity IAMP; and

WHEREAS, the Stayton City Council approved an Order with Findings of Fact; and

WHEREAS, timely and proper notice of the proposed IAMP and Comprehensive Plan amendments were sent to the Department of Land Conservation and Development (DLCD) as required by law;

NOW THEREFORE, the Stayton City Council does ordain as follows:

SECTION 1. The Stayton City Council, based upon Findings of Fact incorporated in the Order, does hereby amend the Stayton Comprehensive Plan, (Exhibit A) to include, by reference, the Sublimity IAMP.

SECTION 2. The Stayton City Council hereby adopts and incorporates by reference the Findings of Fact contained in the Sublimity IAMP attached hereto as Exhibits "B".

SECTION 3. Transportation improvements detailed in Section 5 of the Sublimity IAMP are hereby amended into the Street Plan Capital Improvements List of the City of Stayton Transportation System Plan, the Facility Improvements Tables of the City of Sublimity Transportation System Plan, and the Rural Improvements Project List of the Marion County Rural Transportation System Plan, respectively.

SECTION 4. Upon adoption by Stayton's City Council and Mayor's signing, this Ordinance shall become effective thirty days after adoption.

Signed

Signed

APPROVED TO FORM:

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ADOPTED BY THE CITY COUNCIL this 17<sup>th</sup> BY GERR ABOUD, MAYOR BY ADMINISTRATOR CHR DAVID A. RHOTEN, CITY ATTORNEY

Ordinance No. 888 Interchange Area Management Plan (IAMP)

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# **RESOLUTION NO. 767**

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## **RESOLUTION NO. 767**

# AMENDMENT TO THE CITY OF STAYTON'S TRANSPORTATION SYSTEM PLAN

WHEREAS, the Stayton City Council, following public hearings conducted by the Stayton Planning Commission and the Council, deems it appropriate to amend Stayton's Transportation System Plan (TSP);

WHEREAS, Stayton City Council, concurrent with the adoption of this Resolution, is amending Stayton's Comprehensive Plan and adopting the Interchange Area Management Plan (IAMP) accordingly; and

WHEREAS, it is in the interest that the Transportation System Plan be amended to incorporate the following Goals:

- 3) Chapter 3, pg 3.5. G. Goal 7 Maintain Multi-Jurisdictional Coordination
  - 7.7 Adopt on Interchange Management Plan (IAMP), through City ordinance, as a refinement to the City's Transportation Systems Plan (TSP) and Comprehensive Plan through collaboration with affected jurisdictions and agencies.

4) Chapter 3, pg. 3.7 Goal 11 - Interchange Area Management Plan (IAMP)

It is the goal of the City to implement an IAMP that addresses access management, construction and land use measures that augments the effectiveness of the interchange modification design.

The policies to be used to implement Goal 11 – Interchange Area Management Plan (IAMP) are as follows:

- 11.1 Prolong the useful life of the state's investment in the Sublimity Interchange.
- 11.2 Control or decrees through access management measures, the number of conflict points on Cascade Highway in the vicinity of the Sublimity Interchange.
- 11.3 Provide feasible and equitable driveway relocation alternatives for property owners with current direct access to Cascade Highway in the vicinity of the Sublimity Interchange.
- 11.4 Balance the need for the interchange to support community development interests with the need for safe and efficient operation within the interchange area.

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- 11.5 Establish agreements with local governments on how to effectively manage the long-term function of the interchange.
- 11.6 Monitor how the interchange capacity is managed through the cooperation with local governments.
- 11.7 Provide certainty for property and business owners and local governments.

# NOW THEREFORE,

BE IT RESOLVED that the City of Stayton Transportation System Plan be and hereby is amended.

This Resolution shall become effective upon the adoption by the Stayton City Council.

ATTEST:

ADOPTED BY THE STAYTON CITY COUNCIL this 17<sup>th</sup> day of April 2006.

CITY OF STAYTON

Signed: \_, 2006

Signed: <u>4/24</u> \_, 2006

APPROVED AS TO FORM:

David A. Rhoten, City Attorney

By: Gerry Aboud, Mayor

Chris Childs, City Administrator

Resolution No. 767 Transportation System Plan

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# ORDER OF APPROVAL

# **BEFORE THE STAYTON PLANNING COMMISSION**

In the matter of the Amendment to Stayton's Comprehensive Plan, Adopting an IAMP and Amending the TSP )Comprehensive Plan Chapter 3 )Sublimity Interstate Area Management Plan (IAMP) )Transportation System Plan (TSP)

# ORDER

# **1. NATURE OF THE APPLICATION**

The matter comes before the Stayton Planning Commission to amend the City of Stayton's Comprehensive Plan and Transportation System Plan and adopt the Sublimity Interstate Area Management Plan.

Comprehensive Plan Amendments: Attachment I.

- 1. Amend Chapter 3, pg. 1, Transportation Systems Plan.
- 2. Amend Chapter 3, pg. 3, G. Interchange Improvements
- 3. Amend Chapter 3, pg. 9, Goal 11- Interchange Area Management Plan

4. Amend Chapter 3, pgs 3.5, 3.7 Transportation System Plan

# **II. PUBLIC HEARING**

## PLANNIG COMMISSION ACTION

A public hearing was duly held on this application before the Stayton Planning Commission on March 27, 2006. At that hearing regarding Land Use File #o2-01/06 Comprehensive Plan, Stayton Transportation System Plan (TSP), Sublimity Interchange Area Management Plan (IAMP) and supporting documents were made part of this record. Notice of the hearing was published in the Stayton Mail. Notification was also mailed to the Department of Land Conservation and Development and posted at City Hall, library and community center buildings. No objection was raised to notice, jurisdictions, conflicts of interest, nor to evidence nor testimony presented at that hearing.

At the conclusion of the hearing, the Planning Commission deliberated on the issues and recommended the City Council approve the amendments to the City of Stayton Comprehensive Plan, Chapter 3 and TSP and adopt the IAMP.

# **FINDINGS OF FACT**

The Stayton Planning Commission, after careful consideration of the testimony and evidence in the record, adopted the following general findings of fact:

Sublimity Interchange, Land Use File #02-01/06 Order for Comprehensive Plan, TSP, IAMP Page 1 of 5

# A. GENERAL FINDINGS OF FACT

1. The City of Stayton is acting pursuant to the authority 0AR 734.051.0035, regarding highway approaches, access control, spacing standards and medians.

2. To receive construction funding the Oregon Transportation Commission (OTC) requires an IAMP be prepared.

3. An IAMP was prepared with collaboration of the Oregon Department of Transportation, City of Stayton, the City of Sublimity and Marion County.

4. The draft of the Sublimity IAMP profiles the community, by providing details on the existing operation of the interchange and the facilities needs including recommendations based on a 20-year growth horizon.

5. The IAMP draft concludes the existing interchange that carries OR 22 over Cascade Highway is functionally obsolete.

6. Small group meetings with affected property owners were held throughout the course of the project and were instrumental in guiding the development of the Sublimity IAMP.

**Conclusion:** The amendments to the City of Stayton Comprehensive Plan are in keeping with the goals and policies incorporated in the draft Sublimity Interchange Area Management Plan and Stayton's Transportation System Plan.

# **B. APPROVAL CRITERIA**

The proposed amendment to Stayton's Comprehensive Plan are incorporated in this Order. Under Stayton Municipal Code (SMC) 17.12.405 5 E. an amendment is appropriate as measured by at least one of the following criteria.

1) Corrects identified error(s) in the provisions of the plan.

Finding: Presently Chapter 3 of the Transportation System Plan of the City of Stayton's Comprehensive Plan and Transportation System Plan does not address improvements to the Sublimity interchange.

2) It represents a logical implementation of the plan.

Finding: The City's Comprehensive Plan is a land use guide which requires that it be updated to meet the future growth demands of the city.

3) It is mandated by changes in federal, state or local law.

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Finding: State regulations (Oregon Revised Statutes 197.175) require incorporated cities to conduct long range planning and periodically update those plans.

4) It is otherwise deemed by the Council to be desirable, appropriate, and proper.

Finding: The City's Comprehensive Plan and Transportation Plan do not presently address the need to improve the Sublimity interchange. Language must be incorporated into these documents to provide justification and support for the implementation of an IAMP.

# C. AMENDMENTS TO THE CITY OF STAYTON COMPREHENSIVE PLAN

The City's Comprehensive Plan is to be amended to incorporate language that adequately addresses the objectives as described in the IAMP. The draft amendments to the City of Stayton's Comprehensive Plan are as follows:

1) Chapter 3 pg. 1 Paragraph 2, Transportation System Plan

Please refer to the 2004 Stayton Transportation System Plan (TSP) document for transportation – related information. The remainder of the chapter identifies transportation facilities and reiterates the transportation goals, and policies in the TSP *and the Interchange Area Management Plan.* 

Finding: Not necessary for this amendment.

2) Chapter 3, pg. 3. G. Interchange Improvements.

Currently, the Sublimity Interchange poses the safety and operational problems relating to Highway 22 access in addition to traffic circulation issues within the interchange influence area of Cascade Highway. To remedy this problem first requires the implementation of an Interchange Area Management Plan (IAMP) in accordance with state IAMP guidelines. Those guidelines require collaboration with all affected public jurisdictions and agencies to protect the state and local investment in the interchange facility. The IAMP establishes operational and physical improvements and access management techniques that will maximize the operation of the interchange for at least 20 years.

Finding: To substantiate the need for interchange improvements the OTC requires that an IAMP be adopted by all affected public jurisdictions and agencies

3) Chapter 3, pg 7. G. Goal 7 – Maintain Multi-Jurisdictional Coordination

7.7 Adopt on Interchange Management Plan (IAMP), through City ordinance,

Sublimity Interchange, Land Use File #02-01/06 Order for Comprehensive Plan, TSP, IAMP Page 3 of 5

as a refinement to the City's Transportation Systems Plan (TSP) and Comprehensive Plan through collaboration with affected jurisdictions and agencies.

Finding: Statewide Goals 1 – Citizen Involvement and 2 – Land Use Planning require participation by citizens and governmental agencies in the land use decision making process.

4) Chapter 3, pg. 9 Goal 11 – Interchange Area Management Plan (IAMP)

It is the goal of the City to implement an IAMP that addresses access management, construction and land use measures that augments the effectiveness of the interchange modification design.

The policies to be used to implement Goal 11 – Interchange Area Management Plan (IAMP) are as follows:

- 11.1 Prolong the useful life of the state's investment in the Sublimity Interchange.
- 11.2 Control or decrees through access management measures, the number of conflict points on Cascade Highway in the vicinity of the Sublimity Interchange.
- 11.3 Provide feasible and equitable driveway relocation alternatives for property owners with current direct access to Cascade Highway in the vicinity of the Sublimity Interchange.
- 11.4 Balance the need for the interchange to support community development interests with the need for safe and efficient operation within the interchange area.
- 11.5 Establish agreements with local governments on how to effectively manage the long-term function of the interchange.
- 11.6 Monitor how the interchange capacity is managed through the cooperation with local governments.
- 11.7 Provide certainty for property and business owners and local governments.

D. AMENMENTS TO THE CITY OF STAYTON TRANSPORTATION SYSTEM PLAN.

To insure continuity exists between the Comprehensive Plan and the Transportation Systems Plan amendments in the Comprehensive Plan will be incorporated in the TSP by way of resolution.

Sublimity Interchange, Land Use File #02-01/06 Order for Comprehensive Plan, TSP, IAMP Page 4 of 5

# E. AGENCY COMMENTS.

The public hearing of the IAMP resulted in comments from [insert names] and attach written comments as exhibits.

# F. PUBLIC COMMENTS

The public hearing of the IAMP, Comprehensive Plan, and TSP resulted in comments from [insert names] and attach written comments as exhibits.

### ORDER

It is hereby found the proposed amendments to the City of Stayton's Comprehensive Plan, Transportation System Plan, and Sublimity Interchange Area Management Plan meet Oregon Revised Statutes (OAR) 197 and OAR 734.051.0035.

APPROVED BY A 6- VOTE OF THE STAYTON PLANNING COMMISSION ON THIS  $27^{++}$  DAY OF MARCH 2006.

Dated at Stayton Oregon this \_\_\_\_\_ day of March, 2006.

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Chairperson, Carol Tower

ATTEST

Steve Goeckritz, Interim City Planner

<u>3-28-06</u> Date

3-29-06 Date

Sublimity Interchange, Land Use File #02-01/06 Order for Comprehensive Plan, TSP, IAMP

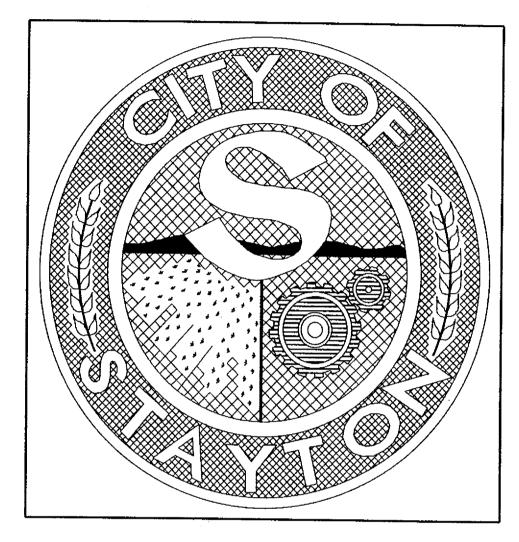
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# AMMENDMENTS

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# **CHAPTER 3**

# **TRANSPORTATION**

Exhibit "A"

Chapter 3 - Transportation

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# Chapter 3

# **Transportation System Plan**

The City of Stayton, Comprehensive Plan, Chapter 3, addresses the City of Stayton's anticipated transportation needs though 2025. It has been prepared to meet state and federal regulations that require urban areas to conduct long-range planning. Specifically, the TSP was developed in compliance with requirements of the Transportation Equity Act for the 21<sup>st</sup> Century (TEA-21), Statewide Planning Goal 12, the Transportation Planning Rule (TPR - Oregon Administrative Rule (OAR) Chapter 660, Division 12), and Oregon Highway Plan (1999). The long range planning is intended to serve as a guide for the City of Stayton in managing their existing transportation facilities and developing future transportation facilities.

Please refer to the 2004 Stayton Transportation System Plan (TSP) document for transportation - related information. The remainder of this chapter identifies transportation facilities and reiterates the transportation goals, and policies in the TSP and the Interchange Area Management Plan (LAMP).

The transportation element of the Stayton Comprehensive Plan considers ways to provide a safe, convenient, efficient, and economic system of moving people and goods in, around, and through the Stayton area. The modes of transportation to be considered under the transportation goal are: A) mass transit; B) rail; C) air; D) water; E) pipeline; and F) non-motorized improvements. The transportation element also considers the transportation disadvantaged. The streets and highways section address the items required in OAR 660, Div. 11, the public facilities rule.

# **Transportation Facilities**

## A. Mass Transit

Mass transit is passenger transportation which carries members of the public on a regular and continuing basis. Buses, taxis, shuttle trains, and car pools are forms of mass transit. As the cost of travel by private automobile increases, the alternative modes of mass transit, including rail and bus facilities, become more of an economic possibility.

Oregon Bus Lines (tickets through Greyhound Bus Lines) provides bus service from Salem to Bend via Highway 22. Stayton may benefit from a commuter system to and from the Salem area within the next decade. An intra-city bus system may also become feasible as growth continues and the cost of operating the private auto rises.

Taxi service is available from Salem; however, the cost to an individual is high. At present, there is no taxi service available in the Stayton area. This form of

transportation will not be readily available until the population of the Stayton area reaches a level that can support a taxi service.

The most practical form of mass transit is sharing of an automobile. This is becoming an attractive alternative for several reasons: cost of operation, reduced traffic, and less need for parking facilities at major employment centers. The Stayton park-and-ride lot is located on State Highway Division land on the southeast corner of the intersection of Cascade Highway and Highway 22. The Mid-Willamette Valley Council of Governments has developed a car pool program with the State of Oregon and the City of Salem. Individuals in the Stayton area can receive a list of persons interested in sharing a ride by contacting the car pool program. The telephone number is 585-POOL.

# **B.** Railroad

At present, there is a rail spur to Stayton from the Southern Pacific mainline in Salem. The spur terminates at NORPAC Foods, Inc., formerly the Stayton Cooperative Cannery. Wilco Farmers and Trus-Joist also maintain sidings to benefit from this spur. The other industrial areas along the spur could also become a major user of these rail facilities as the need for rapid and inexpensive movement of bulky items increases. An old railroad spur was removed that served Karsten and Philips Industries. The removal of this line allows the future extension of Locust Street to be constructed without a grade crossing.

# C. Air Transportation

The City of Stayton does not have an airport. There is not a sufficient need to support an airport at this time, nor is there a good airport site within the Stayton UGB. There is a full service commercial airport 15 miles away in Salem that provides needed service. Several small private air strips in Marion and Linn counties are within 20 miles of Stayton. A heliport at Santiam Hospital provides for recreational and medical emergencies.

#### **D.** Water Transportation

Stayton is located adjacent to the North Santiam River and has developed around the need and demands of water oriented industries. The river has not been utilized as a mode of transportation because it is fairly shallow and other modes have been more economical. It is possible to travel by water from Stayton to Jefferson and the Willamette River; however, there are more economical and timely methods of travel. The river will continue to be used for aesthetic and recreational values and protected as a source of drinking water. It is doubtful if other than small recreational craft will ever travel on the river.

### E. Pipeline Facilities

The only existing pipeline facilities are the city water system and the natural gas system. The water system is discussed in detail in the Public Facilities section of this plan. In addition to Stayton, the City of Salem transmits potable water from their supply facilities on Stayton (Geren) Island via two large transmission mains. The natural gas system is discussed in the Energy section of this plan.

An additional pipeline facility may, at some future date, be located in the Stayton area. The U.S. Forest Service is issuing exploratory permits for geothermal energy drilling in the Breitenbush Hot Springs area near Detroit. If and when sufficient geothermal resources are found and developed, Stayton will become a logical site for the receipt and use of this resource as an economical energy supply.

#### F. Bicycle Paths and Routes

See the Park and Recreation Master Plan and the City of Stayton Transportation Plan regarding specific details pertaining to bicycle paths and routes. (Ord. 875, Feb. 2004)

#### G. Interchange Improvements

Currently, the Sublimity Interchange poses safety and operational problems relating to Highway 22 access in addition to traffic circulation issues within the interchange influence area of Cascade Highway. To remedy this problem first requires the implementation of an Interchange Area Management Plan (IAMP) in accordance with state IAMP guidelines. Those guidelines require collaboration with all affected public jurisdictions and agencies to protect the state and local investment in that interchange facility. The IAMP establishes operational and physical improvements and access management techniques that will maximize the operation of the interchange for at least 20 years.

# **Transportation Goals and Policies**

This section establishes broad policy objectives that provide the context to make transportation investment decisions and to develop the existing and future transportation system within the City of Stayton urban growth boundary.

### A. GOAL 1 - MOBILITY

It is the goal of the City of Stayton to provide a multi-modal transportation system that maximizes the mobility of Stayton residents and businesses.

The policies to be used to implement Goal 1 - Mobility are as follows:

- 1.1. Establish a transportation system that can accommodate a wide variety of travel modes and minimizes the reliance on any one single mode of travel.
- 1.2. Properly plan transportation infrastructure to meet the level of service set for each type of facility.
- 1.3. Maintain a minimum level of service standard of LOS D for signalized intersections. Maintain a minimum level of service standard of LOS D for all

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way stop controlled intersections and roundabouts. Maintain a minimum level of service standard of LOS E or F with a volume to capacity of 0.95 or better for two-way stop controlled intersections.

For Oregon Department of Transportation (ODOT) facilities, the City of Stayton shall defer to ODOT mobility standards described in the most recent version of the Oregon Highway Plan.

- 1.4. Develop a local street plan to preserve future rights-of-way for future streets and to maintain adequate local circulation in a manner consistent with Stayton's existing street grid system.
- 1.5. Require developments to construct their accesses consistent with Stayton's existing street grid system.
- 1.6. Develop an access management policy for the local arterial system and direct commercial development access to local streets wherever possible.

# **B.** GOAL 2 – EFFICIENCY

It is the goal of the City of Stayton to create and maintain a multi-modal transportation system with the greatest efficiency of movement possible for Stayton residents and businesses in terms of travel time, travel distance, and efficient management of the transportation system.

The policies to be used to implement Goal 2 - efficiency are as follows:

- 2.1. Develop the City of Stayton's transportation system with alternative parallel corridors to reduce reliance on any one corridor and improve local access through a local street plan that preserves future rights-of-ways, consistent with a grid pattern.
- 2.2. Plan and improve routes to facilitate the movement of goods and services.
- 2.3. Manage the City of Stayton's resources to improve the transportation system through an up-to-date Capital improvement program reflecting the transportation needs of the city.
- 2.4 Encourage development to occur near existing community centers where services are presently available to minimize the need for expanding services and to more efficiently utilize existing resources.

# C. GOAL 3 - SAFETY

It is the goal of the City of Stayton to maintain and improve transportation system safety.

The policies to be used to implement Goal 3 - Safety are as follows:

- 3.1. Examine the need for speed reduction in specific areas such as adjacent to local schools.
- 3.2. Ensure that the multi-modal transportation system within Stayton is structurally and operationally safe.
- 3.3. Periodically review crash records in an effort to systematically identify and remedy unsafe intersection and roadway locations.
- 3.4. Develop a traffic calming program for implementation in areas with vehicle speeding issues.
- 3.5. Ensure adequate access for emergency services vehicles throughout the city's transportation system.

# D. GOAL 4 - EQUITY

It is the goal of the City of Stayton to ensure the cost of transportation infrastructure and services are borne by those who benefit from them. The policies to be used to implement Goal 4 - Equity are as follows:

- 4.1. System Development Charges (SDC) shall be updated periodically to accurately reflect a nexus between the traffic impact of development and the fees assessed to the development.
- 4.2. The City of Stayton shall seek equitable funding mechanisms to maintain transportation infrastructure and services at an acceptable level.
- 4.3. Developments shall be responsible for mitigating their direct traffic impacts. These impacts shall be determined through an approved traffic study submitted to the city by the developer.

## E. GOAL 5 - ENVIRONMENTAL

It is the goal of the City of Stayton to limit and mitigate adverse environmental impacts associated with traffic and transportation system development.

The policies to be used to implement Goal 5 - Environmental are as follows:

5.1. Transportation project related environmental impacts shall be identified at the earliest opportunity to ensure compliance with all federal and state environmental standards.

5.2. Transportation project environmental impacts shall be mitigated to state and federal standards as appropriate.

# F. GOAL 6 - ALTERNATIVE MODES OF TRANSPORTATION

Increase the use of alternative modes of transportation (walking, bicycling, rideshare/carpooling, and transit) through improved access, safety, and service. Increasing the use of alternative transportation modes includes maximizing the level of access to all social, work, and social resources for the transportation disadvantaged. The City of Stayton seeks for its transportation disadvantaged citizens the creation of customer-oriented regionally coordinated public transit system that is efficient, effective, and founded on present and future needs of the community.

The policies to be used to implement Goal 6 - Alternative Modes of Transportation are as follows:

- 6.1. Develop a citywide pedestrian and bicycle plan providing for sidewalks, bikeways, and safe crossings.
- 6.2. Promote alternative modes and rideshare/carpool programs through community awareness and education.
- 6.3. Coordinate with regional transit service efforts.
- 6.4. Seek Transportation and Growth Management (TGM) and other funding for projects evaluating and improving the environment for alternative modes of transportation.
- 6.5. Seek improvements of mass transit services to the City of Stayton.
- 6.6. Transportation Disadvantaged:
  - a. Continue to support programs for the transportation disadvantaged where such programs are needed and are economically feasible.
  - b. Increase all citizens' transportation disadvantaged where such programs are needed and are economically feasible.
  - c. Identify and retain community identity and autonomy.
  - d. Create a customer-oriented focus in the provision of transportation services.
  - e. Hold any regional system accountable for levels and quality of service.
  - f. Enhance public transportation sustainability.

#### Chapter 3 -Transportation

- g. Promote regional planning of transportation services.
- h. Use innovative technology to maximize efficiency of operation, planning, and administration of public transportation.
- i. Promote both inter-community and intra-community transportation services for the transportation disadvantaged.

# G. GOAL 7 - MAINTAIN MULTI-JURISDICTION COORDINATION

Maintain coordination between the City of Stayton, Marion County, and the Oregon Department of Transportation (ODOT).

The policies to be used to implement Goal 7 - Maintain Multi-Jurisdictional Coordination are as follows:

- 7.1. Cooperate with ODOT in the implementation of the State wide Transportation Improvement Program (STIP).
- 7.2. Encourage improvement of state highways, especially Highway 22 in the vicinity of Golf Club Road, Cascade Highway, Fern Ridge Road, and Stayton Road.
- 7.3. Work with Marion and Linn Counties ODOT, and the City of Sublimity in establishing cooperative road improvement programs and schedules.
- 7.4. Work to establish the right-of-way needed for new roads identified in the TSP.
- 7.5. Take advantage of federal and state highway funding programs.
- 7.6. Coordinate with ODOT to complete Phase 2 of the ORE 22, Joseph Street to Stayton project.
- 7.7 Adopt an Interchange Area Management Plan (IAMP), through City ordinance, as a refinement to the City's Transportation Systems Plan (TSP) and Comprehensive Plan.

# H. GOAL 8 - ROADWAY FUNCTIONAL CLASSIFICATION

It is the goal of the City of Stayton to properly plan and maintain its transportation system based on a roadway functional classification system. The street and access standards are based on this roadway functional classification system.

The policies to be used to implement Goal 8 - Roadway Functional Classification are as follows:

- 8.1. The transportation system plan (TSP) shall classify roadways throughout the city's transportation system. Both an arterial and local street classification shall be identified in the TSP.
- 8.2. The street and access standards shall employ the roadway functional classification system.
- 8.3. Encourage use of alternative methods, such as alleys, shared driveways, etc., i.e. smart development techniques, to provide property access.
- 8.4. The roadway functional classification system represents a continuum in which through traffic increases and access provisions decrease in the higher classification category. The street and access standards shall reflect this principal.

# I. GOAL 9 - TRUCK ROUTE

It is the goal of the City of Stayton to identify and designate a through truck route system utilizing arterial and major collector roads and to minimize impacts to residential areas.

The polices to be used to implement Goal 9 - Truck Route are as follows:

- 9.1. The City of Stayton shall designate a through truck route along its arterials and major collectors. The truck route shall be defined in the TSP.
- 9.2. Minimize use of other city roadways by truck traffic except by truck traffic for local deliveries and pickups.
- 9.3 The City of Stayton will follow the applicable state law as it relates to Oregon revised statutes 227.400 truck routes.

# J. GOAL 10 - TRANSPORTATION FINANCING

It is the goal of the City of Stayton to seek adequate financial revenues to fund its Capital Improvement Program and maintenance needs.

The policies to be used to implement Goal 10 - Transportation Financing are as follows:

- 10.1. The City of Stayton shall aggressively seek state and federal funding for relevant transportation projects.
- 10.2. The City of Stayton shall proactively seek new local and regional funding sources for its Capital Improvement Program.

Chapter 3 - Transportation

(ORD. 868, Sept. 2004)

# GOAL 11 – INTERCHANGE AREA MANAGEMENT PLAN (IAMP)

It is the goal of the City to implement an IAMP in order to address access management, construction and land use measures that improves the effectiveness of the interchange modification design.

The policies to be used to implement Goal 11 – Interchange Area Management Plan (IAMP) are as follows:

- 11.1 Prolong the useful life of the State's investment in the Sublimity Interchange.
- 11.2 Control or decrease, through access management measures, the number of conflict points on Cascade Highway in the vicinity of the Sublimity Interchange.
- 11.3 Provide feasible and equitable driveway relocation alternatives for property owners with current direct access to Cascade Highway.
- 11.4 Balance the need for the interchange to support community development interests with the need for safe and efficient operation within the interchange area.
- 11.5 Establish agreements with local governments on how to effectively manage the long-term function of the interchange.
- 11.6 Monitor how the interchange capacity is managed through cooperation with local governments.

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11.7 Provide certainty for property and business owners and local governments.

# **BEFORE THE STAYTON PLANNING COMMISSION**

In the matter of the Amendment to Stayton's Comprehensive Plan, Adopting an IAMP and Amending the TSP )Comprehensive Plan Chapter 3 )Sublimity Interstate Area Management Plan (IAMP) )Transportation System Plan (TSP)

### ORDER

# **1. NATURE OF THE APPLICATION**

The matter comes before the Stayton Planning Commission to amend the City of Stayton's Comprehensive Plan and Transportation System Plan and adopt the Sublimity Interstate Area Management Plan.

Comprehensive Plan Amendments: Attachment I.

1. Amend Chapter 3, pg. 1, Transportation Systems Plan.

2. Amend Chapter 3, pg. 3, G. Interchange Improvements

3. Amend Chapter 3, pg. 9, Goal 11- Interchange Area Management Plan

4. Amend Chapter 3, pgs 3.5, 3.7 Transportation System Plan

# II. PUBLIC HEARING

# PLANNIG COMMISSION ACTION

A public hearing was duly held on this application before the Stayton Planning Commission on March 27, 2006. At that hearing regarding Land Use File #o2-01/06 Comprehensive Plan, Stayton Transportation System Plan (TSP), Sublimity Interchange Area Management Plan (IAMP) and supporting documents were made part of this record. Notice of the hearing was published in the Stayton Mail. Notification was also mailed to the Department of Land Conservation and Development and posted at City Hall, library and community center buildings. No objection was raised to notice, jurisdictions, conflicts of interest, nor to evidence nor testimony presented at that hearing.

At the conclusion of the hearing, the Planning Commission deliberated on the issues and recommended the City Council approve the amendments to the City of Stayton Comprehensive Plan, Chapter 3 and TSP and adopt the IAMP.

## **FINDINGS OF FACT**

The Stayton Planning Commission, after careful consideration of the testimony and evidence in the record, adopted the following general findings of fact:

Sublimity Interchange, Land Use File #02-01/06Page 1 of 5Order for Comprehensive Plan, TSP, IAMPPage 1 of 5

# A. GENERAL FINDINGS OF FACT

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1. The City of Stayton is acting pursuant to the authority 0AR 734.051.0035, regarding highway approaches, access control, spacing standards and medians.

2. To receive construction funding the Oregon Transportation Commission (OTC) requires an IAMP be prepared.

3. An IAMP was prepared with collaboration of the Oregon Department of Transportation, City of Stayton, the City of Sublimity and Marion County.

4. The draft of the Sublimity IAMP profiles the community, by providing details on the existing operation of the interchange and the facilities needs including recommendations based on a 20-year growth horizon.

5. The IAMP draft concludes the existing interchange that carries OR 22 over Cascade Highway is functionally obsolete.

6. Small group meetings with affected property owners were held throughout the course of the project and were instrumental in guiding the development of the Sublimity IAMP.

**Conclusion:** The amendments to the City of Stayton Comprehensive Plan are in keeping with the goals and policies incorporated in the draft Sublimity Interchange Area Management Plan and Stayton's Transportation System Plan.

### **B. APPROVAL CRITERIA**

The proposed amendment to Stayton's Comprehensive Plan are incorporated in this Order. Under Stayton Municipal Code (SMC) 17.12.405 5 E. an amendment is appropriate as measured by at least one of the following criteria.

1) Corrects identified error(s) in the provisions of the plan.

Finding: Presently Chapter 3 of the Transportation System Plan of the City of Stayton's Comprehensive Plan and Transportation System Plan does not address improvements to the Sublimity interchange.

2) It represents a logical implementation of the plan.

Finding: The City's Comprehensive Plan is a land use guide which requires that it be updated to meet the future growth demands of the city.

3) It is mandated by changes in federal, state or local law.

Sublimity Interchange, Land Use File #02-01/06 Order for Comprehensive Plan, TSP, IAMP Page 2 of 5

Finding: State regulations (Oregon Revised Statutes 197.175) require incorporated cities to conduct long range planning and periodically update those plans.

4) It is otherwise deemed by the Council to be desirable, appropriate, and proper.

Finding: The City's Comprehensive Plan and Transportation Plan do not presently address the need to improve the Sublimity interchange. Language must be incorporated into these documents to provide justification and support for the implementation of an IAMP.

#### C. AMENDMENTS TO THE CITY OF STAYTON COMPREHENSIVE PLAN

The City's Comprehensive Plan is to be amended to incorporate language that adequately addresses the objectives as described in the IAMP. The draft amendments to the City of Stayton's Comprehensive Plan are as follows:

1) Chapter 3 pg. 1 Paragraph 2, Transportation System Plan

Please refer to the 2004 Stayton Transportation System Plan (TSP) document for transportation – related information. The remainder of the chapter identifies transportation facilities and reiterates the transportation goals, and policies in the TSP *and the Interchange Area Management Plan.* 

Finding: Not necessary for this amendment.

2) Chapter 3, pg. 3. G. Interchange Improvements.

Currently, the Sublimity Interchange poses the safety and operational problems relating to Highway 22 access in addition to traffic circulation issues within the interchange influence area of Cascade Highway. To remedy this problem first requires the implementation of an Interchange Area Management Plan (IAMP) in accordance with state IAMP guidelines. Those guidelines require collaboration with all affected public jurisdictions and agencies to protect the state and local investment in the interchange facility. The IAMP establishes operational and physical improvements and access management techniques that will maximize the operation of the interchange for at least 20 years.

Finding: To substantiate the need for interchange improvements the OTC requires that an IAMP be adopted by all affected public jurisdictions and agencies

3) Chapter 3, pg 7. G. Goal 7 – Maintain Multi-Jurisdictional Coordination

7.7 Adopt on Interchange Management Plan (IAMP), through City ordinance,

Sublimity Interchange, Land Use File #02-01/06 Order for Comprehensive Plan, TSP, IAMP Page 3 of 5

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as a refinement to the City's Transportation Systems Plan (TSP) and Comprehensive Plan through collaboration with affected jurisdictions and agencies.

Finding: Statewide Goals 1 – Citizen Involvement and 2 – Land Use Planning require participation by citizens and governmental agencies in the land use decision making process.

4) Chapter 3, pg. 9 Goal 11 – Interchange Area Management Plan (IAMP)

It is the goal of the City to implement an IAMP that addresses access management, construction and land use measures that augments the effectiveness of the interchange modification design.

The policies to be used to implement Goal 11 – Interchange Area Management Plan (IAMP) are as follows:

- 11.1 Prolong the useful life of the state's investment in the Sublimity Interchange.
- 11.2 Control or decrees through access management measures, the number of conflict points on Cascade Highway in the vicinity of the Sublimity Interchange.
- 11.3 Provide feasible and equitable driveway relocation alternatives for property owners with current direct access to Cascade Highway in the vicinity of the Sublimity Interchange.
- 11.4 Balance the need for the interchange to support community development interests with the need for safe and efficient operation within the interchange area.
- 11.5 Establish agreements with local governments on how to effectively manage the long-term function of the interchange.
- 11.6 Monitor how the interchange capacity is managed through the cooperation with local governments.
- 11.7 Provide certainty for property and business owners and local governments.

D. AMENMENTS TO THE CITY OF STAYTON TRANSPORTATION SYSTEM PLAN.

To insure continuity exists between the Comprehensive Plan and the Transportation Systems Plan amendments in the Comprehensive Plan will be incorporated in the TSP by way of resolution.



Sublimity Interchange, Land Use File #02-01/06 Order for Comprehensive Plan, TSP, IAMP Page 4 of 5

# E. AGENCY COMMENTS.

The public hearing of the IAMP resulted in comments from [insert names] and attach written comments as exhibits.

# F. PUBLIC COMMENTS

The public hearing of the IAMP, Comprehensive Plan, and TSP resulted in comments from [insert names] and attach written comments as exhibits.

# ORDER

It is hereby found the proposed amendments to the City of Stayton's Comprehensive Plan, Transportation System Plan, and Sublimity Interchange Area Management Plan meet Oregon Revised Statutes (OAR) 197 and OAR 734.051.0035.

APPROVED BY A 6- VOTE OF THE STAYTON PLANNING COMMISSION ON THIS  $27^{44}$  DAY OF MARCH 2006.

Dated at Stayton Oregon this \_\_\_\_\_ day of March, 2006.

Jouen

Chairperson, Carol Tower

ATTEST

Steve Goeckritz, Interim City Planner

<u>3-28-06</u> Date

3-29-06 Date

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Draft Report

# Sublimity Interchange Area Management Plan

Prepared for

# **Oregon Department of Transportation**

December 2005

Prepared by CH2MHILL

Exhibit "B"

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# **Abbreviations and Acronyms**

ADT	average daily traffic
ATR	automatic traffic recorder
CLOMR	Certified Letter of Map Revision (FEMA)
DEQ	Department of Environmental Quality
DLCD	Department of Land Conservation and Development
EA	Environmental Assessment
EFU	Exclusive Farm Use
ECSI	Environmental Cleanup Site Information (DEQ database)
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
HDM	Highway Design Manual
IAMP	Interchange Area Management Plan
LOS	level of service
LWI	Local Wetlands Inventory
MCBFHA	Mill Creek Basin Flood Hazard Area
Mou	Memorandum of Understanding
NHS	National Highway System
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
OAR	Oregon Administrative Rules
ODOT	Oregon Department of Transportation
OHP	Oregon Highway Plan
OSHPO	Oregon State Historic Preservation Office
OTC	Oregon Transportation Commission
OTIA	Oregon Transportation Investment Act
OTP	Oregon Transportation Plan
OWRD	Oregon Water Resources Department
PMT	Project Management Team
REA	Revised Environmental Assessment

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SPIS	Safety Priority Index System
STIP	State Transportation Improvement Program
TDM	transportation demand management
TMC	turning movement count
TPR	Transportation Planning Rule
TSP	Transportation System Plan
UGB	urban growth boundary
V/C	volume-to-capacity ratios
VMT	vehicle miles traveled

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## **Executive Summary**

The Sublimity Interchange, located at the junction of Oregon 22 and Cascade Highway in Marion County, Oregon, will be undergoing modifications and improvements. This Interchange Area Management Plan (IAMP) documents the land use and transportation strategies developed to protect the function of the Sublimity Interchange over the long-term (20-plus years) in light of these planned improvements, as directed by Oregon Administrative Rule (OAR) 734-051-0155(6).

Evaluation of interchange ramp and bridge alternatives occurred as a result of earlier planning and design efforts; the interchange ramp and bridge design was approved through an Environmental Assessment (EA) by the Federal Highway Administration (FHWA) in 1995. However, this study did evaluate the operational functioning of the ramp terminals, as proposed.

Operations analyses performed indicate that both interchange ramp terminals will require signalization by the year 2025. A signal was assumed at Whitney Drive in 2006, and the realignment of Golf Lane with Whitney Drive is assumed to take place within the 20-year timeframe of this project. Analysis indicates that some adjustments to the signalization at Cascade Highway and Shaff Road would be required in the future to synchronize signal operations along Cascade Highway.

Land use analysis conducted as part of the IAMP indicates the proposed facility would be adequate to handle proposed land uses as well as potential land uses that could arise from the conversion of land zoned for farm use subject to Measure 37. Future development of industrial and commercial properties would likely lead to the signalization of the new access for the backage road during the 20-year timeframe.

Alternatives analyzed for this IAMP were access-related in nature, and the preferred alternative package contains access management recommendations for Cascade Highway both north and south of the interchange within the 1,320-foot Interchange Area Management Area limits.

An effective access management strategy will help ensure compatibility between future transportation and land use needs (both local and regional) while optimizing mobility and safety conditions at the interchange and on Cascade Highway. This IAMP presents the following access management recommendations:

A backage access road should be built behind the properties located northeast of the interchange, extending from Cascade Highway (at a point approximately 1,580 feet north of the interchange ramp terminus) to Sublimity Boulevard (at a point approximately 470 feet west of the Sublimity Boulevard/Cascade Highway intersection). Upon redevelopment, the properties located in this section would need to access the backage road instead of Cascade Highway. All private approaches to Cascade Highway in the Interchange Access Management Area Limit would be closed and access relocated to the backage road. These access recommendations are illustrated on Figure 4-9 of this document.

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- The City of Sublimity should amend its Development Code to create an "Interchange Overlay Zone" that will prohibit future development on properties along Cascade Highway (northeast of the interchange) without the presence of an alternate access road.
- Access control should be purchased along the roadway property frontage of Tax Lot# 091W03A00100. The existing access serving this lot and Tax Lot# 091W03A0200 will be allowed to retain access to Cascade Highway.
- The existing approach serving Tax Lot# 091W03A00300 will be consolidated with the approach serving Tax Lots# 091W03A00200 and 091W03A00100.
- A frontage access road should be built from a point on Cascade Highway directly across from the proposed backage road (approximately 1,580 feet north of the interchange ramp terminus), to tie in with the existing driveway serving Tax Lots# 091W03A00300, 091W03A00200, and 091W03A00100. The existing access currently serving Tax Lots# 091W03A0200 and 091W03A00100 would be closed and access relocated to the frontage road.
- The Oregon Department of Transportation (ODOT) should grant deviations for several accesses south of the interchange, including Whitney Drive, Golf Lane (with proviso that it be realigned, as agreed, with Whitney Drive as warranted in the future), and access to the ODOT Park-and-Ride lot.
- ODOT should grant deviations for Sublimity Boulevard and several private driveway accesses north of the interchange, based on the City of Sublimity Development Code changes noted earlier.
- ODOT should grant a deviation for the intersection of Sublimity Boulevard and the westbound interchange ramp terminals, as the future project is designed.
- The Fern Ridge Road and Santiam Street at-grade intersections should be modified or eliminated to improve access management and safety conditions along Oregon 22.

In addition to access management recommendations, this IAMP also includes the following physical improvement and traffic management recommendations:

- Reconstruct the Oregon 22 entrance ramps to provide standard merge operations onto Oregon 22.
- Widen Cascade Highway from and including Sublimity Boulevard through the Shaff Road/Fern Ridge Road intersection.
- Realign Golf Lane across from Whitney Street.
- Signalize the Oregon 22 ramp termini Sublimity Boulevard/Cascade Highway intersection (north of interchange).
- Signalize the Oregon 22 ramp termini/Cascade Highway intersection (south of intersection).
- Signalize the Whitney Street Golf Lane/Cascade Highway intersection.

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- Coordinate traffic signal operations along Cascade Highway due to the close spacing of signalized intersections.
- When traffic demand requires, install a right-turn pocket on the eastbound Oregon 22 exit ramp approach to Cascade Highway.
- When traffic demand requires, install right-turn pockets on the Shaff Road/Fern Ridge Road approaches to Cascade Highway.
- Provide bus and carpool service to the existing park-and-ride facility. This facility is not CORRECT currently served by bus routes or formal carpool programs. Expansion of service to this facility would aide in managing traffic demand through the IAMP area.
  - The Fern Ridge Road and Santiam Street at-grade intersections should be modified or eliminated to both for access management and safety along Oregon 22.

This document includes a complete description of the IAMP development process, land use assumptions, existing conditions analysis, access-related alternative evaluation, and traffic operations analysis. Short-term, medium-term, and long-term transportation strategies for the Sublimity Interchange Area are provided.

This IAMP was prepared in collaboration with ODOT, Marion County, the City of Stayton, and the City of Sublimity.

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# Background

#### **Purpose and Intent**

Oregon Administrative Rule (OAR) 734-051-0155(6) states: "Interchange Area Management Plans are required for new interchanges and should be developed for significant modifications to existing interchanges..." This is a "project-based" IAMP, and is being prepared in accordance with the recommendation in the above OAR because of planned modifications and reconstruction of the Sublimity Interchange, located at the junction of Oregon 22 (North Santiam Highway) and Cascade Highway in Marion County, Oregon. The intent of the IAMP is to provide a consensus framework plan among all affected public jurisdictions and agencies to protect the state's investment in the Sublimity Interchange facility. Preparation of this document was conducted in accordance with state IAMP guidelines.<sup>1</sup>

This IAMP evaluates the transportation effects of the proposed interchange improvements and land use plans within the study area. Future commercial, industrial, and residential developments are expected to occur within the influence area of the interchange. The IAMP will recommend operational and physical improvements and access management techniques to maximize the operation of the interchange to accommodate future growth.

The purpose of this IAMP is to develop a strategy for the Sublimity Interchange that will protect the function of the interchange for at least 20 years. The Sublimity Interchange was proposed for modification and reconfiguration in the *Joseph Street Environmental Assessment*.<sup>2</sup> The original design was subsequently revised and there is currently an interchange design scheduled for construction in 2008-2009 that includes improvements to the entrance ramps, but not the exit ramps.

### **Problem Context**

The current Sublimity Interchange poses safety and operational issues in that both the east and westbound entrance ramps to Oregon 22 terminate in stop signs. As a result, motorists are forced to quickly accelerate to highway speed from a complete stop. Westbound travelers must enter Oregon 22 traffic from a stop and accelerate up-hill, as the interchange is located at the top of a knoll. Traffic on Oregon 22 is traveling at 55 miles per hour or more, and during peak periods offers few breaks. Eastbound traffic enters on the top of a knoll, but with limited sight distance. Significant numbers of Stayton and Sublimity area residents traveling to jobs in the Salem area use the Sublimity Interchange.

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<sup>&</sup>lt;sup>1</sup> Interchange Area Management Plan Guidelines (Final Draft) Prepared by: David Evans and Associates, Inc. with Angelo Eaton & Associates. October, 2005.

<sup>&</sup>lt;sup>2</sup> Joseph Street-Stayton North City Limits Environmental Assessment (prepared by ODOT, March, 1995); Joseph Street-Stayton North City Limits Revised Environmental Assessment (prepared by ODOT, May, 1995)

The primary traffic issue within the interchange influence area is the location and function of access points to Cascade Highway. The Golf Lane access is very near the south side interchange ramp terminus. Currently, Golf Lane serves only a few houses. However, existing zoning would allow for more residential development, creating a potential operational conflict. Sublimity Boulevard, which provides access to the business cluster in the northwest quadrant of the interchange, is slightly off-set from the existing interchange ramp terminals on the north side of the interchange. In the south-east quadrant, recent efforts have been made to improve traffic operations and control the access to Cascade Highway by prohibiting left turns to Martin Street. There is a traffic signal at the interchange, the roadway is a two lane road, with a paved shoulder on the west side. Bicycle lanes are provided from Division Street through Sublimity.

#### **Project History and Phasing**

The planned modification and reconstruction of the Sublimity Interchange is part of a much larger ODOT undertaking, the Joseph Street-North Stayton City Limits project (henceforth referred to as the "Joseph Street project"). The Joseph Street project was conceived in the late 1980s and the Environmental Analysis for the project was approved by the Federal Highway Administration in 1995.

The selected alternative of the Joseph Street project entailed the following transportation improvements:

- Conversion of approximately 8.5 miles of two-lane Oregon 22 to a four-lane divided highway. Includes a 100-foot separation between the centerline of the westbound and the centerline of the eastbound travel lanes (to permit future expansion to a six-lane roadway within the right-of-way required for this project.
- Construction of new interchanges at Aumsville-Shaw Highway and Golf Club Road;
- Reconstruction/modification of existing interchanges at Silver Creek Falls and Cascade Highways (Sublimity Interchange).
- Implementation of full access control.
- Construction of new frontage roads.

Joseph Street project improvements were designed to be constructed in two major phases.

- Phase 1, which has already been completed, included the widening of Oregon 22 to four lanes between Joseph Street to MP 12, the construction of new interchanges at Aumsville-Shaw Highway and Golf Club Road, and the construction of Golf Lane (to provide access for properties whose approaches to Oregon 22 were removed).
- Phase 2, yet to be completed, will occur in two stages: Stage 1 entails the reconstruction/modification of the Sublimity Interchange; Stage 2 entails the widening of Oregon 22 from two to four lanes from MP 12 to MP 14.1.

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- Stage 1 is currently underway, with physical improvements to the Sublimity Interchange programmed to begin in 2008. The proposed improvements will provide for standard merge entrance ramp operations. This IAMP is being prepared as part of Stage 1. Stage 1 improvements are shown on Figure 1-1.
- Stage 2 will be completed when necessary funding is available. Stage 2 improvements are shown on Figure 1-2.

The project area was identified as Oregon 22 between milepoint (MP) 5.16 and MP 14.1. The Joseph Street project entailed the following proposed improvements: widening Oregon 22 to four lanes in the project area; installing complete access control; and "Phase 1", already completed, entailed the segment of Oregon 22 from Joseph Street (MP 5.44) eastward to the MP 12.

## **Interchange Function**

Oregon 22 is an Oregon Transportation Commission (OTC) designated expressway, and is classified by the Oregon Highway Plan as a highway of statewide significance and a Statewide Freight Route. Oregon 22 is also part of the National Highway System (NHS). Oregon 22 serves as a major connector between the Mid-Willamette Valley and Central Oregon.

Functional classifications of roadways in the vicinity of the Sublimity Interchange are summarized in Table 1-1.

Roadway	Functional Classification
Dregon 22 (North Santiam Highway)	Rural Principal Arterial Other*
Cascade Highway (outside city limits)	Arterial**
l <sup>st</sup> Street (Cascade Highway south of Oregon 22)	Principal Arterial***
Center Street (Cascade Highway north of Oregon 22)	Arteriai****
Fern Ridge Road	Major Collector***
Shaff Road	Minor Arterial***
Martin Drive	Local***
Whitney Street	Local***
Golf Lane	Local***
Sublimity Boulevard	Local****
3th Street	Local****

#### TABLE 1-1

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SUBLIMITY INTERCHANGE AREA MANAGEMENT PLAN

#### TABLE 1-1

#### Roadway Functional Classifications

Functional Classification

Sources:

- \* Oregon Highway Design Manual (2003)
- \*\* Marion County Rural Transportation System Plan (1998)
- \*\*\* Stayton Transportation System Plan Final Draft (2004)

\*\*\*\* Sublimity Transportation System Plan (1998)

Roadway

The Sublimity Interchange is an important facility for the communities of Stayton and Sublimity, and serves the following functions:

- Commercial/Industrial: The interchange directly serves the downtowns of each community, and the businesses therein. As the commercial and industrial-zoned areas of these communities continue to develop, the Sublimity Interchange will increasingly function as an integral economic development asset.
- Residential Commuting: A significant number of Stayton and Sublimity residents utilize the interchange to access Oregon 22 for their daily commutes into the Salem-Keizer area.
- Agricultural: The interchange serves a farm-to-market function for the numerous agricultural operations in the area.

Sublimity Interchange modifications and associated local improvements must be planned and implemented to accommodate the multi-functional nature of the interchange.

#### **Goals and Objectives**

It is the goal of this IAMP to propose access management, construction and land use measures to interactively augment the effectiveness of the interchange modification design. This report documents the results of the project planning process used to achieve this stated goal for the Sublimity Interchange.

As stated in Policy 3C of the 1999 Oregon Highway Plan, "it is the policy of the State of Oregon to plan for and manage grade-separated interchange areas to ensure safe and efficient operation between connecting roadways". From this definition and a consideration of project-specific local transportation issues, the generalized objectives of the Sublimity IAMP are to:

- Prolong the useful life of the state's investment in the Sublimity Interchange
- Control or decrease, through access management measures, the number of conflict points on Cascade Highway in the vicinity of the Sublimity Interchange
- Provide feasible and equitable driveway relocation alternatives for property owners with current direct access to Cascade Highway
- Balance the need for the interchange to support community development interests with the need for safe and efficient operation within the interchange area

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- Establish agreements with local governments on how to effectively manage the longterm function of the interchange
- Monitor how the interchange capacity is managed through cooperation with local governments
- Provide certainty for property and business owners and local governments

#### IAMP Study Area

The Sublimity IAMP project study area is comprised of Oregon 22 between the Golf Club Road Interchange and the Mill Creek Bridge on Oregon 22, and Cascade Highway between SW 9th Street in Sublimity and Fern Ridge Road SE-Shaff Road in Stayton. The study area is shown on Figure 1-3.

Cascade Highway is alternatively called, respectively, Center Street inside Sublimity city limits and North 1st Avenue inside Stayton city limits. The study area encompasses the southern portion of the City of Sublimity, the northeastern portion of the City of Stayton, and portions of unincorporated Marion County.

The boundaries of the IAMP study area were developed based on a review of the surrounding roadway network and land use patterns as well as existing and future travel patterns. The parameters of the study area take into account:

- Required state IAMP regulations
- Required state access management regulations: the IAMP study area includes all land uses and roadways located within 1,320 feet of the existing Sublimity Interchange. This distance corresponds to the spacing standard outlined in the OAR 734-051 Division 51 rules for interchange ramps.
- Transportation facilities and traffic operations
- The mutual impact of existing natural and cultural resources
- The mutual impact of existing and planned land uses

#### **Related Work Products**

- The Oregon 22 Sublimity Interchange modernization project is an approved project in the 2006-2009 Draft STIP. The project is described in the STIP as a "Partial Interchange Reconstruction". This IAMP is part of the final planning for this project.
- Integral to the preparation of this IAMP is the Joseph Street North Stayton City Limits Environmental Assessment<sup>3</sup>. This EA and subsequent REA, which were approved by the Federal Highway Administration (FHWA), provide the rationale for Sublimity

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<sup>&</sup>lt;sup>3</sup> Both the Joseph Street – Stayton North City Limits Environmental Assessment and Revised Assessment were consulted in this IAMP planning process. Source information: Joseph Street – North Stayton City Limits Environmental Assessment (ODOT and FHWA) March, 1995; Joseph Street – North Stayton City Limits Revised Environmental Assessment (ODOT and FHWA) May, 1995.

Interchange area improvements and serves to document the determination that project actions will not have a significant impact on the human environment.

- The City of Stayton Transportation System Plan (TSP) lists two Capital Improvement Projects (aside from the Sublimity Interchange project) that are located in the Sublimity Interchange influence area. These are excerpted below:
  - Cascade Highway/1<sup>st</sup> Avenue Widening from Highway 22 to Regis Street widen to 5 lanes with sidewalks.
  - Cascade Highway/Whitney Street signalization with EB and WB Left Turn Lanes and Realign Golf Lane.<sup>4</sup>

Both of the above projects were factored into the operational analysis and alternatives decision-making process for this IAMP.

 The City of Sublimity Transportation System Plan lists the City's objectives for street network circulation and access management in the immediate vicinity north of the Sublimity Interchange.

#### **Public Involvement**

The purpose of the public involvement program is to build a planning process that (1) balances the needs and issues of residences and businesses in the Sublimity Interchange area, including those who depend on the highway, and (2) has the informed support and acceptance of these communities and interests. One key goal of the program is to elicit public discussion of the issues affecting the selection of access relocation alternatives to ensure future safe and efficient conditions in the vicinity of the Sublimity Interchange along Cascade Highway.

Detailed discussion and results of the public involvement process for the Sublimity IAMP project is given in Appendix A of this document.

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<sup>&</sup>lt;sup>4</sup> Source: *City of Stayton Transportation System Plan* (Final Draft 2004); Table 8-1 Capital Improvement Cost -- Street Improvements; p. 8-1

SUBLIMITY INTERCHANGE AREA MANAGEMENT PLAN

## Insert Figures 1-1 through 1-3 (11 x 17)

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# Existing Conditions Inventory and Data Analysis

#### **Regulatory Framework**

The Sublimity IAMP study area contains land from three jurisdictions: Marion County, the City of Sublimity, and the City of Stayton. IAMP improvements are therefore subject to applicable land use regulations for each jurisdiction, as well as state and federal regulations.

State, county, and local regulations pertaining to IAMP actions are addressed in the Plan and Policy Review, located in Appendix B.

#### **Existing Land Use**

The Sublimity IAMP study area contains a mixture of urban and agricultural land uses. The Sublimity Interchange lies between the communities of Stayton (population 7,360) and Sublimity (population 2,160)<sup>5</sup>. In the immediate vicinity the land is used primarily for agricultural purposes. A general description of land uses in the study area is as follows:

- NW Quadrant: commercial and light industrial uses along Sublimity Boulevard; lowdensity single-family residences along Cascade Highway.
- NE Quadrant: farm use.
- SW Quadrant: farm use; a few single-family residences.
- SW Quadrant: state-owned park-and-ride lot; medium-density single and multi-family residences; commercial establishments; elder-care residential facility.

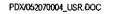
#### **Comprehensive Plan Designations**

Comprehensive Plan land use designations in Marion County, the City of Stayton, and the City of Sublimity are coincident with the zoning designations for these respective public agencies. Relevant zoning district designations are addressed below.

#### Zoning Designations

Planned interchange improvements will take place solely within unincorporated Marion County, and will therefore only be subject to applicable Marion County zoning code regulations. However, longer-term IAMP recommendations will involve utilizing land inside Sublimity and/or Stayton jurisdictional limits. Additionally, the potential for

<sup>&</sup>lt;sup>5</sup> Source: 2004 Oregon Population Report. Portland State University Population Research Center. Population numbers given are year 2004 estimates.



increased traffic in the interchange is tied to the type and intensity of development allowed in each of the zoning districts in the IAMP study area. For this reason, IAMP study area zoning regulations for Sublimity and Stayton are addressed here in addition to Marion County.

Zoning designations in the Sublimity IAMP study area are shown in Figure 2-1.

#### Marion County Zoning

Existing Marion County zoning districts in the study area are as follows:

- Exclusive Farm Use (EFU)
- Urban Transitional Farm (UTF)

#### Project Relevant Issues

• Public road improvements are permitted outright in all Marion County zones providing that such improvements are in conformance with the *"applicable comprehensive plan and the standards of the Department of Public Works"* [per Marion County Zoning Ordinance 25.10(b)]. The Marion County Comprehensive Plan does not contain any language constraining transportation improvements in an EFU zone. Therefore, Marion County zoning regulations do not constrain planned Sublimity Interchange improvements.

#### City of Stayton Zoning

Existing City of Stayton zoning districts in the Sublimity IAMP study area are as follows:

- Commercial-Retail (CR)
- Interchange Development (ID)
- High-Density Residential (HD)
- Multiple-Family Residential (MD)
- Single-Family Residential (LD)

#### **Project Relevant Issues**

- Public road improvements are permitted outright in the CR and ID zones [per Stayton Development Code 17.16.690.2(j) and 17.16.710.2(i), respectively].
- Public road improvements are conditionally permitted in the HD, MD, and LD zones [per Stayton Development Code 17.16.680.3(f), 17.16.670.3(b), and 17.16.660.3(b), respectively]. Although no IAMP improvements are planned to occur in any of these three zones, any change which results in transportation-related public improvements in these zones would be subject to site review by the City of Stayton.

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#### City of Sublimity Zoning

Existing City of Sublimity zoning districts in the Sublimity IAMP study area are as follows:

- Commercial (COM)
- Industrial (IND)
- Future Industrial
- Low-Density Residential (R-1)
- Medium-Density Residential (R-2)

#### Project Relevant Issues

• Public road improvements are permitted outright in all City of Sublimity zones [per Sublimity Development Code 2.403.01.D] provided that "the right of way is not expanded to more width than prescribed for the street in the Public Facilities segment of the Comprehensive Plan."

#### **Transportation Facilities and Traffic Operations**

This section summarizes the existing transportation conditions within the study area, provides assumptions and methodologies to be used in the traffic operational analyses, and catalogues existing transportation system facilities and services. To the extent possible, physical as well as operational characteristics of the roadways, intersections and transportation services are described.

#### **Existing Transportation Facilities**

#### Vehicular Facilities

The following section describes the existing physical characteristics of the study area roadways and the study intersections. Figure 2-2 shows traffic control and channelization in the study intersection.

Oregon 22 is the major east-west highway in Marion County. It is located between the cities of Stayton and Sublimity, and is connected to both cities via an interchange at Cascade Highway. In addition to the Cascade Highway interchange, two other interchange locations, Golf Club Road and Fern Ridge Road, provide access to and from Stayton and Sublimity. Santiam Street provides a fourth connection between Oregon 22 and the City of Stayton. Golf Club Road and Cascade Highway are full interchanges, while Fern Ridge Road and Santiam Street are stop controlled at-grade intersections located east of the study interchange.

Both the east- and westbound Oregon 22 entrance ramps terminate in stop signs. Drivers enter Oregon 22 traffic from a full stop (right-turn only), and are required to accelerate up-hill due to the topography of the highway. In the vicinity of the Sublimity Interchange, Oregon 22 is a two-lane undivided, access controlled highway. The posted speed limit is 55 mph.

The Oregon 22 eastbound exit ramp terminates in a shared left and right turn lane that is stop controlled at Cascade Highway. At this intersection, Cascade Highway has one

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through travel lane in each direction, with a shared through and right-turn lane for southbound travel and a shared through and left-turn lane for northbound travel.

The Oregon 22 westbound exit ramp forms the east leg of the Cascade Highway/Sublimity Boulevard intersection. It consists of a single lane with shared left, through and right-turn movements. The ramp is stop controlled at its approach to Cascade Highway. At this intersection, Cascade Highway has one travel lane in each direction, with a shared through and left-lane for northbound travel and a shared left, through and right-turn lane for southbound travel.

• Cascade Highway is a major north-south arterial that provides the primary access to the cities of Sublimity and Stayton from Oregon 22.

North of Oregon 22, Cascade Highway is a two lane roadway with paved asphalt shoulders on its west side. The posted speed limit on the minor arterial is 45 mph.

South of Oregon 22, Cascade Highway is generally a two lane roadway with paved asphalt shoulders. Left turn pockets are provided at the Whitney Street and Shaff Road-Fern Ridge Road intersections. As described in the Pedestrian Facilities section, a portion of Cascade Highway, from Whitney Street to the south, is served by a sidewalk. The posted speed limit on Cascade Highway is 45 mph.

Between the Oregon 22 eastbound ramps and Whitney Street, the width of Cascade Highway is less than the City of Stayton's standard street width of 40 feet for principal arterials. Two bridges are located on Cascade Highway within the City of Stayton project limits. Mill Creek Crossing occurs south of Golf Lane and Lucas Ditch crossing occurs south of Martin Drive.

- **9th Street** forms a T-intersection with Cascade Highway in the southern portion of Sublimity and provides access to a residential area. All approaches to the intersection are single lanes, with no dedicated turn pockets. The west approach to the intersection is stop controlled.
- **Sublimity Boulevard** is located just north of Oregon 22, and aligns with the interchange's westbound ramps. All approaches to the intersection are single lanes, with no dedicated turn pockets. The east leg is comprised of the Oregon 22 westbound ramps. The west leg is a two lane roadway providing access to the business cluster in the northwest quadrant of the interchange including an insurance agency, motorcycle/car dealerships, a tire shop, and a hotel. The east and west approaches to the intersection are stop controlled.
- Golf Lane, located just south of Oregon 22, is a two lane local roadway. At Cascade
  Highway, a shared right-left turn lane is stop controlled. Cascade Highway has a shared
  through-right lane for southbound travel and a shared through-left lane for northbound
  travel. Currently this road serves a small number of residences; however, the adjacent
  undeveloped parcels are zoned for additional housing development. Across Cascade
  Highway from this intersection is the access to an ODOT park-and-ride lot.
- Whitney Street consists of one travel lane in each direction. At Cascade Highway, a shared right-left turn lane is stop controlled. Cascade Highway has a shared through-

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right lane for northbound travel and a through lane with a left-turn pocket for southbound travel. Further to the east of Martin Drive, Whitney Street connects to a single family residential area. Adjacent to Cascade Highway, Whitney Street services commercial and retail properties. The Whitney Street intersection with Cascade Highway is scheduled to be signalized in 2006.

- Martin Drive is a right turn in, right turn out only connection to Cascade Highway with access to Whitney Street. The area served by Martin Drive and Whitney Street is primarily a small commercial/retail base area that includes a gas station with a minimart, fast-food restaurant, liquor store, and pharmacy.
- Shaff Road-Fern Ridge Road provides a key east-west route in northern Stayton and helps relieve traffic congestion through the City. It is a two lane roadway with left-turn pockets at the signalized intersection with Cascade Highway.

#### **Truck Routes**

Through the project area, Oregon 22 and Cascade Highway are designated as truck routes. Oregon 22 is also designated as a Freight Route in the 1999 Oregon Highway Plan. Truck routes designated by the City of Stayton serve the following areas: the industrial area on the west side of the city, NORPAC in central Stayton, and Morse Brothers south of Stayton. Shaff Road-Fern Ridge Road is a designated City of Stayton truck route.

#### **Bicycle Facilities**

Dedicated bicycle lanes are provided on Cascade Highway from the northern portion of the study area (vicinity of Division Street) through the City of Sublimity. Through the remainder of the IAMP study area, bicyclists must utilize the available roadway shoulders or share the vehicle travel lanes.

Bicycle lanes are also provided on a segment of Fern Ridge Road, east of Cascade Highway to Wildflower Drive.

#### **Pedestrian Facilities**

A sidewalk is provided on the east side of Cascade Highway from just north of Whitney Street continuing south through the City of Stayton. Throughout the remainder of the study area, pedestrians on Cascade Highway must utilize the available roadway shoulders.

Shaff Road-Fern Ridge Road and Whitney Street also have a sidewalk on the south side of the roadway, while Martin Drive has a sidewalk on the north side.

#### Public Transportation & Other Alternative Modes

Transit service in the Stayton/Sublimity area is provided by the Chemketa Area Regional Transit Service (CARTS) and the Wheels of Joy dial-a-ride system for disabled persons. Based on current and future ridership projections, neither would have a significant effect on area traffic patterns.

Laidlaw Transit provides bus service for the North Santiam School District. Within the study area, Cascade Highway and Shaff Road-Fern Ridge Road are designated as school bus routes.

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A Park-and-Ride facility with 94 stalls and semi-covered bicycle racks is located in the southeast quadrant of the Oregon 22/Cascade Highway interchange.

#### Rail/Pipelines/Others

Willamette Valley Railroad services the City of Stayton on a spur line originating in Woodburn. Two to three trips per week currently service the area. Two at-grade crossings, Washington Street at NORPAC and Locust Street/Wilco Road), are located south and west of the IAMP study area, respectively.

The City of Sublimity has no railroad service.

There are no airports in the direct vicinity of the study area. A full service commercial airport is located in Salem, approximately 15 miles to the east. Several small private airstrips and a heliport at the Santiam Hospital are within a 20 mile radius.

#### **Existing Facilities Deficiencies**

Deficiencies in the existing transportation network are outlined in the Marion County and City of Stayton **Draft** Transportation System Plans. These deficiencies are noted below:

Missing sidewalk links within the study area include:

- Shaff Road north side from Stayton Middle School to Cascade Highway
- Fern Ridge Road north side Cascade Highway to west of Summerview Way
- Cascade Highway west side from Oregon 22 to Shaff Road
- Cascade Highway east side from north of Whitney to Oregon 22

Arterials and Collectors with deficient pavement widths include:

- Shaff Road from western UGB to west of Cascade Highway
- Cascade Highway south of Oregon 22 Eastbound Ramps to Whitney Street

#### **Existing Traffic Conditions**

#### Traffic Operations Performance Measures

Operational performance measures are outlined below for the three jurisdictions within the study area: ODOT, City of Stayton and City of Sublimity.

#### ODOT

The intersections and approaches adjacent to the Oregon 22 interchange are under ODOT jurisdiction.

The Oregon Highway Plan outlines specific performance measures to be maintained along ODOT facilities as part of their Mobility Standards. These standards are intended to maintain mobility along important roadway sections and vary according to functional classification, location, and role within the National Highway System. Table 2-1 summarizes the mobility standards set by the Oregon Highway Plan.

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SUBLIMITY INTERCHANGE AREA MANAGEMENT PLAN

#### TABLE 2-1

Maximum Volume to Capacity Ratios for Peak Hour Operating Conditions Outside of the Portland Metropolitan Area

			Land Use	Type/Speed Li	nits	
		Insid	e Urban Growth Bour	Outside Urban Growth Boundary		
Highway	STAs	мро	Non-MPO outside of STAs where non-freeway speed limit <45 mph	Non-MPO where non freeway speed limit >=45 mph	Unincorporated Communities	Rural Lands
Interstate Highways and Statewide (NHS) Expressways	N/A	0.80	0.70	0.70	0.70	0.70
Statewide (NHS) Freight Routes	0.85	0.80	0.75	0.70	0.70	0.70
Statewide (NHS) Non- Freight Routes and Regional or District Expressways	0.90	0.85	0.80	0.75	0.75	0.70
Regional Highways	0.95	0.85	0.80	0.75	0.75	0.70
District/Local Interest Roads	0.95	0.90	0.85	0.80	0.80	0.75

Source: 1999 Oregon Highway Plan (OHP).

Interstates and Expressways shall not be identified as Special Transportation Areas (STAs). For the purpose of this mobility policy of volume-to-capacity ratio standards, the peak hour shall be the 30th highest annual hour. This approximates weekday peak hour traffic in larger urban areas.

- Oregon 22, North Santiam Highway is a Statewide Expressway and NHS Freight route, non-MPO within the UGB with a speed >45 mph. The maximum acceptable V/C ratio for this facility is 0.70.
- The interchange ramps with Oregon 22 at Cascade Highway have a maximum volumeto-capacity ratio of 0.85 given their categorization as District/Local Interest Roads and Inside Urban Growth Boundary, non-MPO where non-freeway speed limit <45 mph.
- Cascade Highway at the interchange ramps with Oregon 22 have a maximum volumeto-capacity ratio of 0.75 given its categorization as Regional Highway and Inside Urban Growth Boundary, non-MPO where non-freeway speed limit >=45 mph.

#### City of Stayton

The intersections south of the Oregon 22 interchange are within City of Stayton jurisdiction.

The City of Stayton TSP, Section 3 (Transportation Goals and Policies) establishes level of service standards for the City of Stayton as follows:

- Signalized Intersections Level-of-Service D
- Unsignalized Intersections Level-of-Service E

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#### City of Sublimity

The intersections north of the Sublimity Interchange are within the City of Sublimity jurisdiction. Marion County mobility standards were applied to these intersections.

- Signalized Intersections Level-of-Service D
- 4-way Stop Controlled Intersections Level-of-Service D
- 2-way Stop Controlled Intersections Level-of-Service E

#### Existing Traffic Volumes

Manual turning movement counts were collected at eight intersections along Cascade Highway on February 3, 2005. The duration of each intersection count is shown below:

- Cascade Highway and 9th Street: 4 hours from 6 AM to 10 AM.
- Cascade Highway and Sublimity Boulevard: 16 hours from 6 AM to 10 PM.
- Cascade Highway and Oregon 22 Eastbound ramps: 16 hours from 6 AM to 10 PM.
- Cascade Highway and Oregon 22 Westbound ramps: 16 hours from 6 AM to 10 PM.
- Cascade Highway and Golf Lane: 4 hours from 6 AM to 10 AM.
- Cascade Highway and Whitney Street: 16 hours from 6 AM to 10 PM.
- Cascade Highway and Martin Drive: 4 hours from 6 AM to 10 AM.
- Cascade Highway and Shaff Road-Fern Ridge Road: 16 hours from 6 AM to 10 PM.

These intersections were included in the IAMP scope of work to represent the influence area of the Sublimity Interchange. In addition to these intersections, the Oregon 22 operations at the interchange entrance ramps were analyzed utilizing the ODOT highway traffic data. The vehicle turning movement data is compiled in Appendix C.

Peak hour turning movement counts were seasonally adjusted to represent the 30th Highest Hour design volumes based on ODOT's permanent Automatic Traffic Recorder (ATR) at station # 22-010, which is located on a segment of highway that closely resembles the traffic operations and geometric characteristics of Oregon 22.

The seasonal factor for volumes on Oregon 22 and Cascade Highway was interpolated from values between February 1 and February 15, 2003. The average seasonal factor was calculated to be 1.19.

The derived 30th Highest Hour design volumes were then balanced along Cascade Highway between adjacent study intersections. The directional traffic volumes were adjusted until the difference between them was less than 10 percent. The derived traffic volumes at the study intersections are shown in Figure 2-3.

#### **Existing Intersection Operations**

Existing (2005) V/C ratios, level-of-service and vehicle queues were computed for the eight study intersections and Oregon 22 entrance ramps based on the 30th Highest Hour design volumes. Table 2-2 shows the results of the existing operations analyses. All locations that do not meet the applicable jurisdiction's standards are highlighted in the table. Appendix D includes the traffic operations worksheets for the existing 30th highest hour conditions.

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A Synchro model was constructed for the study area based on the collected traffic turning movement counts balanced to the 30th Highest Hour design volumes, peak hour factors, truck percentages and field observations.

The Synchro model uses the methodology in the 2000 Highway Capacity Manual to analyze both signalized and stop-controlled intersections. The model also computes the level-of-service (LOS) and volume-to-capacity (V/C) ratio necessary to determine whether the intersection meets the applicable mobility standards from the local municipalities and the Oregon Highway Plan.

#### TABLE 2-2

Existing Intersection Analysis Summary 2005 30th Highest Hour Design Volumes

Intersection	Mobility Standard <sup>1</sup>	V/C Ratio <sup>2</sup>	LOS <sup>2</sup>	Queue (veh) <sup>2,3</sup>	Mobility Standard <sup>1</sup>	V/C Ratio <sup>2</sup>	LO\$ <sup>2</sup>	Queue (veh) <sup>2,3</sup>
	Oreg	jon 22 Ap	proache	s	R	amp Appr	oaches	
Oregon 22 eastbound entrance ramp	0.70	0.30	-	-	0.85	0.40	-	4
Oregon 22 westbound entrance ramp	0.70	0.41	-	-	0.85	0.74	-	8
	Cascade	Highway	Арргоа	ches	Cros	s Street A	pproach	es
Cascade Highway at 9th Street	E	-	А	1	E	-	В	1
Cascade Highway at Sublimity Boulevard/ Oregon 22 westbound ramps	0.75	0.04	-	1	0.85	0.57	-	3
Cascade Highway at Oregon 22 westbound entrance ramp	0.75	0.46	-	-	-	-	-	-
Cascade Highway at Oregon 22 eastbound ramps	0.75	0.30	-	2	0.85	>1.0	-	15
Cascade Highway at Golf Lane	Ē	-	А	1	Е	-	D	1
Cascade Highway at Whitney Street	ε	-	в	2	E	-	F	19
Cascade Highway at Martin Drive	-	-	-	-	E.	-	В	1
Cascade Highway at Shaff Road-Fern Ridge Road	D	-	E	31	D	*-	D	17

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#### TABLE 2-2

Existing Intersection Analysis Summary 2005 30th Highest Hour Design Volumes

	Intersection	Mobility Standard <sup>1</sup>	V/C Ratio <sup>2</sup>	LOS <sup>2</sup>	Queue (veh) <sup>2,3</sup>	Mobility Standard <sup>1</sup>	V/C Ratio <sup>2</sup>	LOS <sup>2</sup>	Queue (veh) <sup>2,3</sup>
1	ODOT mobility standard on level of service.	s are based or	i volume-t	o-capaci	ty ratios. S	tayton and Su	blimity sta	ndards ai	re based

<sup>2</sup> Results are reported for approach with worst operational characteristics.

<sup>3</sup> ODOT intersections are calculated with the 2-minute rule. Stayton and Sublimity intersections show 95th percentile queues.

#### **Existing Operational Deficiencies**

The results of the existing operational analyses show that two stop-controlled intersection approaches to Cascade Highway, the Oregon 22 eastbound exit ramp and Whitney Street, operate below the required mobility standards. Both approaches are characterized by extensive vehicle queuing during the design hour. Additionally, although the overall intersection LOS of Cascade Highway at Shaff Road/Fern Ridge Road is at an acceptable LOS D, the Cascade Highway approaches operate at LOS E, with significant vehicle queuing.

#### Existing Safety Conditions

#### Accident and Safety Analysis

A summary of the accidents within the study area was prepared for the period between January 1, 1999 and December 31, 2003.

Table 2-3 summarizes the accidents along Oregon 22 between mileposts 12.00 and 14.50. For reference, the approximate locations of the existing Oregon 22 entrance and exit ramps are as follows:

- Eastbound Exit ramp MP 13.0
- Eastbound Entrance ramp MP 13.2
- Westbound Exit ramp MP 13.4
- Westbound Entrance ramp MP 13.5
- Fern Ridge Road intersection MP 14.3

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#### TABLE 2-3

Five-Year Accident History: January 1, 1999 through December 31, 2003 Oregon 22 Mainline Crash Rates and Severity of Accidents

Milepost			1999-2003		er of Accid ver 5 Years			Average Annual	Average Annual Crash Rate
From	То	Segment Features	Average Annual Daily Traffic (AADT)	Property Damage Only	Injury	Total / Fatal Crashes			(Crashes per (Crashes per Million Vehicle- Miles)
12.00	12.50	mainline section west of Sublimity Interchange	12,120	1	2	0	3	0.60	0.27
12.50	13.00	Eastbound exit ramp	11,880	1	0	1	2	0.40	0.18
13.00	13. <del>5</del> 0	Eastbound entrance ramp & westbound exit ramp	11,880	8	9	2	19	3.80	1.75
13.50	14.00	westbound entrance ramp	11,880	4	2	0	6	1.20	0.55
14.00	14.50	Fern Ridge Road intersection	11,060	3	8	0	11	2.20	1.09
12.00	14.50	-	11,764	17	21	3	41	8.20	0.76

A total of 41 crashes were reported along Oregon 22 between milepost 12.00 and 14.50 during the five year study period. Approximately half of the crashes occurred in the direct vicinity of the Sublimity Interchange and slightly over one-fourth occurred at the Fern Ridge Road intersection. Three fatality accidents occurred within the interchange vicinity during the study timeframe. The remainder of the accidents was roughly evenly split between property damage only and injury only.

The 2003 Crash Rates by Jurisdiction and Functional Classification table from the ODOT 2003 Crash Rate Tables indicates an average crash rate for "other freeways/expressways" as 0.87 crashes per million vehicle-miles. The half-mile segments immediately surrounding the Sublimity Interchange (between mileposts 13.00 and 13.50) and the Fern Ridge Road intersection (between mileposts 14.00 and 14.50) experience a higher than average crash rate (1.09.). However, the rate for the overall Oregon 22 area surrounding the Sublimity Interchange (0.76) remains below this average rate.

Tables 2-4 and 2-5 provide details of the conditions during the accidents as well as the type and severity.

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TABLE 2-4Five-Year Accident History: January 1, 1999 through December 31, 2003Oregon 22 Crash Conditions

	Oregon 22 Mainline				
Condition	Number of Accidents	Percentage of Total			
Weather	· · ·				
Clear	28	68.3%			
Cloudy	7	17.1%			
Rain	4	9.8%			
Snow	0	0.0%			
Unknown	2	4.9%			
Roadway Surface					
Dry	34	82.9%			
Wet	5	12.2%			
lce	0	0.0%			
Snow	0	0.0%			
Unknown	2	4.9%			
Light					
Day	28	68.3%			
Dimly Lit	3	7.3%			
Dark	6	14.6%			
Dusk	3	7.3%			
Dawn	1	2.4%			

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#### TABLE 2-5 Five-Year Accident His

Five-Year Accident History: January 1, 1999 through December 31, 2003 Oregon 22 Crash Descriptions

	Oregon 22 Mainline				
Condition	Number of Accidents	Percentage of Tota			
Collision Type					
Rear End	12	29.3%			
Turning	6	14.6%			
Fixed Object	8	19.5%			
Sideswipe	3	7.3%			
Struck at Angle	3	7.3%			
Pedestrian	1	2.4%			
Head On	3	7.3%			
Other	5	12.2%			
Severity					
PDO	17	41.5%			
Injury only	21	51.2%			
Fatality	3	7.3%			
Crash Cause					
Failed to yield right-of-way	8	19.5%			
Other - improper driving	1	2.4%			
Speed too fast for conditions	18	43.9%			
Followed too closely	5	12.2%			
Made improper turn	2	4.9%			
Alcohol or drugs involved	2	4.9%			
Mechanical defect	1	2.4%			
Drove on Wrong Side of 2- Way Rd	1	2.4%			
No Code	3	7.3%			

The majority of the accidents on Oregon 22 occurred during clear, dry, daylight conditions. A factor in many of the accidents involved speeding and failure to appropriately yield. The stop-controlled entrance ramp configuration is likely a large contributing factor to these accidents, as vehicles enter the highway from a complete stop.

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Table 2-6 summarizes the accidents along Cascade Highway between milepoints 0.61 and 1.59. Marion County utilizes milepoints to represent distances on county roads; therefore, each 0.01 milepoint is approximately 50 feet. For reference, the approximate milepoint locations of intersections along Cascade Highway are listed below:

- Shaff Road/Fern Ridge Road Milepoint 0.61
- Eastbound Entrance/Exit ramp Milepoint 1.09
- Sublimity Blvd Milepoint 1.20
- 9th Street Milepoint 1.59

#### TABLE 2-6

Five-Year Accident History: January 1, 1999 through December 31, 2003 Cascade Highway Mainline Crash Rates and Severity of Accidents

Milepost			1999-2003	Number of Accidents (Over 5 Years)				Average Annual	
From	То	- Segment Features	Average Annual Daily Traffic (AADT)	Property Damage Only	injury	Fatal	Total Crashes	Average Annuai	Crash Rate (Crashes per Million Vehicle- Miles)
0.60	0.85	Shaff Road/ Fern Ridge Road	12,020	7	3	0	10	2.00	1.82
0.85	1.10	Eastbound entrance/ex it ramp	11,780	2	1	0	3	0.60	0.56
1.10	1.35	Sublimity Bivd/westb ound ramps	9,310	10	6	O	16	3.20	3.77
1.35	1.60	9th Street	7,920	2	2	0	4	0.80	1.11
0,6D	1.60		10,260	21	12	0	33	6.60	1.76

A total of 33 crashes were reported along Cascade Highway between Shaff Road/Fern Ridge Road and 9th Street during the five year study period. Half of the accidents occurred near the intersection of Cascade Highway and Sublimity Boulevard/Oregon 22 Westbound exit ramp, and just under one-third of the total accidents occurred in the vicinity of the Shaff Road/Fern Ridge Road intersection. No fatality accidents occurred along the one mile study corridor within the study timeframe. Of the 33 crashes, approximately two thirds resulted in property damage only while the remaining one third resulted in injuries.

Cascade Highway north of Oregon 22 is categorized as an arterial. The average crash rate for Suburban Non-Freeway Arterials is 0.60 crashes per million vehicle-miles. Both quartermile segments north of the interchange experience accidents at a rate higher than average 2003 Oregon crash rates. The segment immediately north of the interchange (including the intersection with Sublimity Boulevard/Oregon 22 Westbound exit ramp) is over five times as great as this average. Cascade Highway south of Oregon 22 is categorized as a principal arterial. The average crash rate for this type of segment is 1.34 crashes per million vehiclemiles. The quarter-mile segment that includes the intersection of Shaff Road/Fern Ridge

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Road experiences a higher than average crash rate, but overall, the southern portion of Cascade Highway remains below the average rate.

Tables 2-7 and 2-8 provide details of the conditions during the accidents as well as the type and severity of accidents along Cascade Highway.

#### TABLE 2-7

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Five-Year Accident History: January 1, 1999 through December 31, 2003 Cascade Highway Crash Conditions

	Cascade Hwy Mainline			
Condition	Number of Accidents	Percentage of Tota		
Weather	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			
Clear	22	66.7%		
Cloudy	6	18.2%		
Rain	3	9.1%		
Snow	0	0.0%		
Unknown	2	6.1%		
Roadway Surface				
Dry	27	81.8%		
Wet	6	18.2%		
ice	0	0.0%		
Snow	0	0.0%		
Unknown	0	0.0%		
Light	·····			
Day	31	93.9%		
Dimly Lit	1	3.0%		
Dark	1	3.0%		
Dusk	0	0.0%		
Dawn	0	0.0%		

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#### SUBLIMITY INTERCHANGE AREA MANAGEMENT PLAN

TABLE 2-8 Five-Year Accident History: January 1, 1999 through December 31, 2003 Cascade Highway Crash Descriptions

	Cascade Hwy Mainline			
Condition	Number of Accidents	Number of Accidents		
Collision Type				
Rear End	17	51.5%		
Turning	8	24.2%		
Fixed Object	0	0.0%		
Sideswipe	1	3.0%		
Struck at Angle	6	18.2%		
Pedestrian	D	0.0%		
Head On	1	3.0%		
Other	0	0.0%		
Severity				
Property damage only	21	63.6%		
Injury only	12	36.4%		
Fatality	0	0.0%		
Crash Cause				
Failed to yield right-of-way	13	39.4%		
Other - improper driving	0	0.0%		
Speed too fast for conditions	15	45.5%		
Followed too closely	4	12.1%		
Made improper turn	0	0.0%		
Alcohol or drugs involved	0	0.0%		
Mechanical defect	1	3.0%		
Drove on Wrong Side of 2- Way Rd	0	0.0%		
No Code	0	0.0%		

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Similar to Oregon 22, the majority of the accidents on Cascade Highway occurred during clear, dry, daylight conditions. Over half of the accidents on Cascade Highway involved rear end collisions. Speed and failure to yield to the right-of-way were factors in almost eighty-five percent of the accidents.

Access management requirements and deficiencies for the Sublimity Interchange are described in Section 4 of this report.

#### **Natural and Cultural Resources**

The Sublimity IAMP study area contains land from three local jurisdictions: Marion County, the City of Sublimity, and the City of Stayton. Project improvements could therefore potentially trigger environmental protection regulations of any or all of these jurisdictions, as well as State and Federal regulations. This section examines the existence of natural and cultural resources in the study area and related potential project constraints presented.

The existence of any Goal 5 resources are addressed in this section. Goal 5 is a broad Oregon statewide planning goal that covers a variety of environmental and other resources. Goal 5 and related Oregon Administrative Rules (Chapter 660, divisions 16 and 23) describe how cities and counties are to plan and zone land to conserve resources listed in the goal.

#### Topography

\* 3 40 - X

The topography of the study area contains both flat and low rolling terrain. The main feature of the landscape is Mill Creek, which runs primarily east-west through the study area. Low ridges step up from the flatlands adjacent to the creek. Topography in the immediate vicinity of the Sublimity Interchange is described by quadrant below.

#### NE Quadrant of Interchange

From the point where it passes under Oregon 22 northward, Cascade Highway SE ascends approximately 50 feet in less than a quarter-mile, dips slightly, then rises again as it intersects with 9<sup>th</sup> Street in Sublimity.

#### SE Quadrant of Interchange

The southeast quadrant of the interchange contains the flat floodplain and wetland area adjacent to Mill Creek. A subdivision with new homes on fill materials is located in the floodplain depression. Moving southward toward the center of Stayton, a low ridge exists with an elevation gain of approximately 50 feet.

#### SW Quadrant of Interchange

The ridge that described in the NE Quadrant is present to the southwest of the interchange and presents a relatively steep grade. The existing two-way highway interchange ramp in this quadrant cuts through this ridge, with a resulting slight hill to the north of the ramp and a steeper hill to the south of the ramp.

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#### NW Quadrant Interchange

The terrain to the northwest of the intersection of Oregon 22 and Cascade Highway SE rises approximately 30-40 feet. Sublimity Boulevard SE drops from this ridge to its intersection with Cascade Highway SE.

#### Project Relevant Issues

The northbound grade on Cascade Highway SE and adjacent ridges present sightdistance issues for motorists at the two-way highway ramp intersections as well as the intersections of Sublimity Boulevard and Golf Lane. Closely-spaced slope changes have an adverse effect on safety in the interchange area. Interchange rehabilitation efforts will require more earthwork during construction and may require additional stabilization, which will have budget and schedule implications.

#### Hydrology

The project study area lies within the Willamette River Subbasin, in the Middle Willamette Subbasin, in the Mill Creek Watershed. Mill Creek, after passing through the study area, flows northwestward to its convergence with the Willamette River in the City of Salem. Within the study area for this IAMP, Mill Creek runs south of Oregon 22 from the west end of the study area. The creek passes through a culvert under Cascade Highway SE just south of Golf Lane and then traverses under Oregon 22 approximately a quarter-mile east of Cascade Highway.

#### Project Relevant Issues

 There are hydrologic features contained in the study area that are classified as Goal 5 Resources (as defined in Oregon Administrative Rules Division 23). Sublimity IAMP actions may be subject to State and/or local regulations that are in place to protect Goal 5 resources, as will be discussed in greater detail in the next section.

#### **Riparian Corridors**

The Mill Creek riparian corridor located inside the study area includes the perennially flowing Mill Creek, several intermittent streams, and a wetland area measuring just over one acre.

The section of Mill Creek running through the study area is included on the Department of Environmental Quality's (DEQ's) 303(d) list of water quality-limited streams. The DEQ 2003 303(d) list identifies the section of Mill Creek in the study area as water quality limited for Fecal Coliform.

According to the Oregon Department of Fish and Wildlife, the study area section of Mill Creek is spawning and rearing habitat for winter steelhead and fall Chinook, and is rearing and migration habitat for spring Chinook.

#### Project Relevant Issues

 Sublimity IAMP actions are subject to State Department of Land Conservation and Development (DLCD) Goal 5 ordinance regulations concerning land use actions inside the Mill Creek riparian corridor. Proposed Sublimity IAMP use actions are allowed in riparian corridors [per OAR 660-023-0090(8)(a)], provided that these actions "are designed and constructed to minimize intrusion into the riparian area."

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 Highway runoff can be a source of Fecal Coliform. Improvements related to the Sublimity IAMP Project would need to avoid or mitigate stormwater impacts to Mill Creek to meet the requirements of DEQ National Pollutant Discharge Elimination System (NPDES) 1200-CA.

#### Floodplains

Portions of a river or stream channel and adjacent lands that are subject to floods with a one percent chance of being exceeded in any given year area identified as 100-year floodplains or Special Flood Hazard Areas (SFHA's). 100-Year floodplains are indicated on Flood Insurance Rate Maps (FIRMs), which are prepared by the Federal Emergency Management Agency (FEMA).

A large portion of the study area is located within the 100-year floodplain of Mill Creek. Only the northwest quadrant of the interchange is outside the FEMA floodplain boundaries. FEMA 100-year floodplain boundaries in the Sublimity IAMP study area are shown on Figure 2-4.

The portion of the floodplain area within the jurisdiction of Marion County is covered by Marion County's Floodplain Overlay District, with associated development restrictions.

The portion of the floodplain area within the jurisdiction of the City of Stayton is covered by Stayton's Floodplain Overlay District, with associated development restrictions.

#### Project Relevant Issues

- If the Sublimity IAMP project improvements enter the footprint of the 100-Year Floodplain, and if a NEPA process is followed, environmental documentation would be required to explain specific impacts of the project and the resources within the floodplain.
- In the event that Sublimity IAMP project improvements result in any increase in the 100year flood water level, FEMA must review and comment on the project. This involves applying for a Certified Letter of Map Revision (CLOMR) from FEMA. All requests for CLOMRs must be supported by detailed flood hazard analyses prepared by a qualified professional engineer.
- Any project-related improvement development (i.e. placement of fill) in the Marion County Floodplain Overlay Zone is subject to conditional use review by the county via the submission of a Floodplain Development Permit.
- Per Marion County Rural Zoning Ordinance 178.050(E), any project related filling, grading, paving or excavation within the 500-year floodplain of the Mill Creek Basin Flood Hazard Area (MCBFHA) is subject to conditional use review by the county via the submission of a Floodplain Development Permit.
- Any project-related improvement development (i.e. placement of fill) in the City of Sublimity Floodplain Overlay Zone is subject to conditional use review by the county via the submission of a Floodplain Development Permit per Sublimity Code 17.16.190.

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## Floodway

The area of the 100-year floodplain is divided into floodway and floodway fringe. The floodway is the channel of a stream, plus any adjacent floodplain areas, that must be kept free of encroachment in order that the 100-year flood is carried without substantial increase in flood heights. As a minimum standard, the Federal Insurance Administration limits increases in flood heights to 1.0 foot, provided that hazardous velocities are not produced.<sup>6</sup>

A FEMA-designated floodway exists along Mill Creek in the Sublimity IAMP study area. This floodway lies within the jurisdictions of Marion County and the City of Stayton. The location of this floodway can be seen on the FEMA Flood Insurance Rate map, included in this report as Appendix E.

## Project Relevant Issues

 Any project-related development improvements (including fill, new construction, and substantial improvements) in the floodway are prohibited unless a certified technical evaluation is submitted to FEMA demonstrating that such improvements will not result in an increase in flood levels during the occurrence of the base flood discharge. Upon FEMA approval, such improvements are then subject to applicable flood hazard reduction provisions of Marion County Rural Zoning Ordinance 178.060 and City of Stayton Code 17.16.190.

## Wetlands

A number of National Wetland Inventory (NWI) wetland areas are present in the study area. A Local Wetland Inventory (LWI) commissioned by the City of Stayton delineated additional wetland areas in the study area. The boundaries of the delineated wetland area are seen in Figure 4-3. A portion of land delineated as wetland in the LWI, located in Stayton east of Cascade Highway, has since been filled to allow for the construction of a residential development (the aerial photo in Figure 2-4 predates the construction of the residential subdivision).

## Project Relevant Issues

 The Sublimity IAMP will attempt to avoid actions that would impact identified wetlands. If impacts are unavoidable, ODOT will need to identify mitigation opportunities. Mitigation will need to be performed per the land development application requirements of the jurisdiction within which the wetland alteration is occurring. A wetland delineation and functional assessment need to be performed to determine the type and full extent of the potential wetland impacts.

## Wildlife Habitat

The Sublimity IAMP does not impact a documented wildlife habitat area, as defined by OAR 660-023-0110.

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<sup>&</sup>lt;sup>6</sup> Source: City of Stayton Comprehensive Plan (1995), p.15

## Federal Wild and Scenic Rivers

Mill Creek, the only river flowing through the study area, is not a designated Federal Wild and Scenic river.

## Oregon Scenic Waterways

Mill Creek, the only waterway flowing through the project study area, is not listed on the Oregon Department of State Lands list of designated scenic waterways.

## Groundwater Resources

The entire study area lies within an area designated as a "groundwater restricted" zone by the Oregon Water Resources Department (OWRD). The entire study area also lies within Marion County's Sensitive Groundwater Overlay Zone. OAR 660-023-0030(5) states that local governments with jurisdiction in OWRD groundwater restricted areas must declare those areas Significant Natural Resource Areas. Per OAR requirements, these local governments must subsequently develop programs to protect the designated significant groundwater resources.

## Project Relevant Issues

 Sublimity IAMP project actions must comply with existing Marion County, City of Sublimity, or City of Stayton local ordinances regulating development in a groundwater restricted area.

## Approved Oregon Recreation Trails

The Sublimity IAMP does not impact an Oregon State Parks Department-designated recreational trail.

## **Natural Areas**

The Sublimity IAMP does not impact an area listed on the Bureau of Land Management's Established Natural Areas of Oregon.

## Wilderness Areas

The Sublimity IAMP does not take place in a designated Federal or local wilderness area.

## Mineral and Aggregate Resources

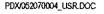
There are no existing quarries or gravel sites located in the study area.

## Energy Sources

There are no existing energy sources, as defined by OAR 660-023-0190(1)(a), in the study area.

## Open Space

There are no existing open spaces, as defined by OAR 660-023-0220(1), in the study area.



## Scenic Views and Sites

There are no publicly designated scenic views or sites in the study area.

## Threatened or Endangered Species

According to the Joseph Street EA, a query of the Oregon Natural Heritage Database returned no specific listings for rare, threatened, or endangered plants and animals in the Joseph Street EA project area (which encompasses the Sublimity IAMP study area). The following Willamette Valley native grassland plant species were reported as possible in the general area of the project: Aster curtis, Erigeron decumberns, Sidalcea nelsoniana, sidalcea campestris, Lomatium bradshawii, and Lathyrus holochlorus.

## Natural Hazards

According to the Oregon Department of Geology and Mineral Industries Relative Earthquake Hazard Map, much of the study area is classified as a "Zone C" (low/intermediate earthquake hazard risk) with pockets of "Zone D" (low earthquake hazard risk) and "Zone B" (intermediate/high earthquake hazard risk). The immediate Oregon 22/Cascade Highway SE interchange is classified as a "Zone C" low risk. The ridge which curves through the memo study area is where "Zone B" earthquake hazard conditions exist. The location of "Zone B" areas can be seen in Figure 2-4.

According to Marion County's Slide Hazards map, there are no Landslide Hazard Areas within the study area. However, there are existing areas with slopes greater than 20 percent. These "excessive slope areas" are shown in Figure 2-4.

## Project Relevant Issues

 Project improvements will include earthwork. Cuts and fills located in areas of landslide or earthquake hazards can be unstable. Further analysis of natural hazards would need to be conducted during project design, as would the development of applicable avoidance and mitigation techniques.

## Hazardous Substances

According to the Department of Environmental Quality's (DEQ) Environmental Cleanup Site Information (ECSI) database, there are no sites within the study area with known contamination from hazardous substances.

## Air Quality

The study area is located in an area that is consistently in attainment with clean air levels set by the U.S. Environmental Protection Agency in the National Ambient Air Quality Standards.

## Historic and Cultural Resources

- Within the study area there are no properties listed on the National Register of Historic Places (NRHP).
- The study area is not part of a National Historic District.

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- Within the study area there are no properties listed on the National Register of Historic Places (NRHP), nor are there properties listed on the Oregon State Historic Preservation Office (OSHPO) Historic Inventory list.
- There is a Century Farm located in the northeast quadrant of the study area, but the farm was found to be ineligible for Historic Registry listing, per the Joseph Street/Stayton North City Limits Revised Environmental Assessment.<sup>7</sup>

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<sup>&</sup>lt;sup>7</sup> Joseph Street/Stayton North City Limits Revised Environmental Assessment (p. 14). Prepared by Oregon Department of Transportation (1995)

# Future Conditions Analysis

## Land Use Analysis

## **Planned Land Development**

According to the City of Sublimity and the City of Stayton, there are currently no known large-scale planned land developments in the Sublimity IAMP study area. The Santiam Station development in the southeast quadrant of the interchange has a few developable lots remaining, which are expected to be developed within the project timeframe.

## Land Development Forecast

The potential for future land development varies among the four quadrants of the Sublimity Interchange study area. Although it is difficult to predict when and how intensively land will be developed in the vicinity of the interchange, a general picture of development constraints and/or potential in the immediate area surrounding the interchange is as follows.

## NW Quadrant

No significant development constraints. Full build-out development scenarios under current zoning were integrated into traffic operations forecasts in the Forecasted Traffic Operations section.

## **NE Quadrant**

Land use development potential is severely constrained by the following factors:

- A portion of this quadrant is within the boundaries of the 100-year floodplain, and therefore subject to applicable governmental regulations.
- A portion of this quadrant is within the boundaries of a delineated wetland, and therefore subject to applicable governmental regulations.
- The entire quadrant is outside the Sublimity UGB and is zoned Exclusive Farm Use (EFU). Oregon law does not allow new development in this zoning district, apart from a single dwelling unit and farm facility structures. However, the century-farm property in this quadrant is eligible to make a claim for development under Measure 37, given that the property was in the current owner's family prior to the enactment of Oregon land use laws (which established the EFU zone). The intensity of development that would be allowed to occur on this property under a successful Measure 37 claim is uncertain at this time.

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## SE Quadrant

Land use development potential is constrained by the following factors:

- A substantial portion of this quadrant is within the boundaries of the 100-year floodplain, and therefore subject to applicable governmental regulations (this is discussed in detail in the next section).
- A significant portion of this quadrant is within the boundaries of a delineated wetland, and therefore subject to applicable governmental regulations (this is discussed in detail in the next section).
- A portion of this quadrant is zoned Exclusive Farm Use (EFU). This land is not believed to be eligible for a development claim under Measure 37.
- Most of the quadrant is owned by ODOT (park and ride lot, future interchange ramp, wetland mitigation site).

## Southwest Quadrant

 No significant development constraints. Full build-out development scenarios under current zoning were integrated into traffic operations forecasts in the Forecast Traffic Operations section.

## **Forecasted Traffic Operations**

## Traffic Forecasting Methodology

Land use and associated traffic generation for the forecast year 2025 were estimated based on the City of Stayton's Transportation Demand Model prepared for the Transportation System Plan (April 2004).

The household and employment data projections used in the model are shown in Tables 3-1 and 3-2. Overall population and employment are projected to increase by approximately 1.8 percent per year between 2000 and 2025.

TABLE 3-1

Population/Household Forecast				
Агеа	2000 Population	2025 Population	2000 Households	2025 Households
Stayton UGB	6,816	10,213	2,654	3,977
Sublimity	2,148	4,082	711	1,351
Other Surrounding Area	836	1,080	269	348
Total	9,800	15,375	3,634	5,676

Source: City of Stayton Transportation System Plan, April 2004.

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## TABLE 3-2 Employment Forecast

Агеа	2000 Employment	2025 Employment
Agriculture	33	33
Industrial	873	1,370
Retail	516	810
Service	769	1,206
Education	358	562
Government	47	74
Other	820	1,286
Total	3,416	5,341

Source: City of Stayton Transportation System Plan, April 2004.

The resultant traffic volume growth rate between the existing and Year 2025 No Build peak hour traffic volumes was calculated along the study corridor. An average growth rate for the entire area of 1.5 percent was calculated.

This growth rate was applied to the 2005 turning movement counts and compounded annually to derive the Year 2025 traffic volumes for the 30th highest hour. Figure 2-3 depicts the design hour traffic volumes for Year 2025.

## Future No Build (2025) Operations

The No Build operations scenario assumes that the existing roadway lane configurations and traffic control are maintained, with one exception. Golf Lane would be realigned so that it forms a four-leg intersection with Whitney Street and Cascade Highway. The new intersection would be signalized and have left-turn pockets on all legs. Figure 3-1 depicts both existing and Year 2025 no build lane geometry and traffic control.

The forecast Year 2025 V/C ratios, level-of-service and vehicle queues were computed for the eight study intersections and Oregon 22 entrance ramps based on the 30th Highest Hour design volumes. Table 3-3 shows the results of the operations analyses. Locations that do not meet the applicable mobility standards are highlighted. Figure 3-2 depicts the Year 2025 turning movement volumes at the study intersections.

Appendix F includes the traffic operations worksheets for the Year 2025 No Build 30th highest hour conditions.

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## TABLE 3-3

No Build Intersection Analysis Summary 2025 30th Highest Hour Design Volumes

Intersection	Mobility Standard <sup>1</sup>	V/C Ratio <sup>2</sup>	LOS <sup>2</sup>	Queue (veh) <sup>2,3</sup>	Mobility Standard <sup>1</sup>	V/C Ratio <sup>2</sup>	LOS <sup>2</sup>	Queue (veħ) <sup>2,3</sup>
	Ore	gon 22 A	pproache	es	R	атр Арр	roaches	· · · · · · · · · · · · · · · · · · ·
Oregon 22 eastbound entrance ramp	0.70	0.40	-	-	0.85	0.75	-	5
Oregon 22 westbound entrance ramp	0.70	0.55	-	-	0.85	>1.0	-	11
	Cascad	e Highwa	у Арргоа	ches	Cros	s Street A	pproach	es
Cascade Highway at 9th Street	E	~	Α	1	E	-	С	2
Cascade Highway at Sublimity Boulevard/ Oregon 22 westbound ramps	0.75	0.06	-	1	0.85	>1.0	-	5
Cascade Highway at Oregon 22 westbound entrance ramp	0.75	0.62	-	-	-	-	-	-
Cascade Highway at Oregon 22 eastbound ramps	0.75	0.41	-	3	0.85	>1.0	-	20
Cascade Highway at Golf Lane/Whitney Street	D	-	с	19	D	-	E	8
Cascade Highway at Martin Drive	-	-	-	-	E	-	С	1
Cascade Highway at Shaff Road-Fem Ridge Road	D	-	F S	51	D	-	F	30

<sup>1</sup> ODOT mobility standards are based on volume-to-capacity ratios. Stayton and Sublimity standards are based on level of service.

<sup>2</sup> Results are reported for approach with worst operational characteristics.

<sup>3</sup> ODOT intersections are calculated with the 2-minute rule. Stayton and Sublimity intersections show 95th percentile queues.

## Year 2025 No Build Deficiencies

The results of the No Build operational analysis show that all of the cross streets south of and including the interchange will operate beyond the required mobility standards. The only intersection approach that will operate at an adequate level of service is the rightin/right-out movement of Martin Drive. Additionally, the westbound entrance ramp to Oregon 22 will decline below the applicable mobility standards by the forecast year 2025.

An area with growth potential within the study area is located in the northeast quadrant of the interchange. The area is designated as Exclusive Farm Use (EFU). There are no known plans for development on the EFU properties, and they were not included in the land use

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forecasts. If, however, these lands are developed under a Measure 37-type claim, the study area intersection operations will be further deteriorated. The extent of impacts resulting from the properties would depend on the type and level of use. Development of the EFU lands would likely result in an increase of heavy vehicles at the interchange. Thus, accident rates could also increase due to heavy vehicles utilizing the stop-controlled access to Oregon 22.

## Future Build (2025) Operations

The Build scenario assumes that the ODOT Phase 1 improvements for the Sublimity Interchange are constructed. Phase 1 includes construction of a new loop ramp in the northeast quadrant of the interchange for the westbound entrance ramp. It also includes a new ramp in the southeast quadrant for the eastbound entrance ramp. Both of the reconstructed entrance ramps would have acceleration lanes to allow a merge movement for entering the Oregon 22 traffic stream. In addition, Cascade Highway will be widened to five lanes from the Sublimity Boulevard intersection to the south. As with the No Build scenario, Golf Lane will also be realigned to create a four-leg intersection with Whitney Street and Cascade Highway. The new Golf Lane/Whitney Street intersection will be signalized, as well as both of the ramp termini. The revised roadway configuration, traffic control and channelization are shown in Figure 3-3.

The ultimate configuration for Oregon 22 is a four-lane divided highway. Completion of the ultimate configuration has been assumed to be beyond the limits of this study timeframe.

Table 3-4 summarizes the Build intersection analysis. Figure 3-4 depicts the turning movement volumes for the Year 2025 Build scenario. It is identical to the No Build conditions, except at the new eastbound entrance ramp movement. Appendix G includes the traffic operations worksheets for the 30th highest hour conditions.

## TABLE 3-4

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## Build Intersection Analysis Summary 2025 30th Highest Hour Design Volumes

Intersection	Mobility Standard <sup>1</sup>	V/C Ratio <sup>2</sup>	LOS <sup>2</sup>	Queue (veh) <sup>2,3</sup>	Mobility Standard <sup>1</sup>	V/C Ratio <sup>2</sup>	LOS <sup>2</sup>	Queue (veh) <sup>2,3</sup>
		jon 22 Ap				amp App		(
Oregon 22 eastbound entrance ramp	0.70	0.40		-	0.85	0.19	-	-
Oregon 22 westbound entrance ramp	0.70	0.55	-	-	0.85	0.28	-	-
	Cascade	e Highway	Approa	ches	Cros	s Street A	pproach	25
Cascade Highway at 9th Street	E		A	1	E	-	С	2
Cascade Highway at Sublimity Boulevard/Oregon 22 westbound ramps	0.75	0.40	-	7	0.85	0.35	-	3
Cascade Highway at Oregon 22 westbound ramps	0.75	0.33	-	-	-	-	-	-
Cascade Highway at Oregon 22 eastbound ramps	0.75	0.64	2	12	0.85	0.91	-	8
Cascade Highway at Whitney Street/Golf Lane	D	-	С	13	D	-	D	5
Cascade Highway at Martin Drive	-	-	-	-	E	-	в	1
Cascade Highway 30 at Shaff Road-Fern Ridge Road	D	-	D	16	D	<b>15</b>	E	24

1 ODOT mobility standards are based on volume-to-capacity ratios. Stayton and Sublimity standards are based on level of service.

2 Results are reported for approach with worst operational characteristics.

3 ODOT intersections are calculated with the 2-minute rule. Stayton and Sublimity intersections show 95th percentile queues.

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## Year 2025 Build Deficiencies

The results of the Build operational analysis show improved operations for the Oregon 22 entrance ramps with the construction of acceleration lanes to access the highway's stream of traffic. Both ramps will operate well within the mobility standard thresholds.

Operations along Cascade Highway will remain within all jurisdictional mobility standards. The queue analyses depict that vehicle queuing from adjacent intersections will not interfere with the operations of the interchange.

Intersection approaches to Cascade Highway also operate better under the Build conditions. However, two of the cross streets (the eastbound exit ramp and Shaff Road/Fern Ridge Road) would not meet the required mobility standards.

The interchange area traffic operations would likely remain similar to the Build scenario even if the EFU properties were developed. However, as discussed previously, the type and level of development would need to be considered. At the time of development, trip generation, operation and traffic mitigation, should be analyzed. The revised entrance ramp configuration would allow for safer access onto the freeway, especially for any heavy vehicles generated by the EFU properties in the future.

## Conclusions

Current operating conditions along Oregon 22 meet ODOT's applicable mobility standards. However, accidents along the highway exceed the state's average rate in the vicinity of the interchange. The geometry of the roadway and the stop sign-controlled access likely contributed to the accidents, as the majority of incidents occurred during clear, dry, daylight conditions.

Along Cascade Highway, the stop sign-controlled Oregon 22 eastbound exit ramp and Whitney Street fall below the recommended operating standards. Additionally, the Cascade Highway /Shaff Road-Fern Ridge Road intersection operates poorly with extensive vehicle queuing. Accidents along the highway generally occur at a higher rate than the statewide average for similar facilities. Similar to the Oregon 22 crashes, most incidents on Cascade Highway occurred during clear, dry, daylight conditions.

By the year 2025, the Sublimity Interchange area would largely be operating beyond the required mobility standards set for the study intersections under current geometric and traffic control measures. With higher levels of congestion, accident rates are also likely to increase.

Various projects are planned to address the geometric and operational deficiencies. The Oregon Department of Transportation's plans for the Sublimity Interchange include revision of the Oregon 22 entrance ramps to a standard merge configuration. In conjunction with the ODOT improvements, the preferred transportation system improvements for Cascade Highway, outlined in the Stayton Transportation System Plan assumes the widening of Cascade Highway from Sublimity Boulevard to Regis Street (five lane section).

Implementation of these improvements results in improved operations during the 2025 forecast year. Both Oregon 22 entrance ramps would operate within ODOT's requirements.

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Accidents along Oregon 22 will likely decrease in the vicinity of the interchange as a result of installing the standard merge configuration.

Operations along Cascade Highway will also meet all mobility standards and will not result in interchange impacts due to queuing on the highway.

The Oregon 22 eastbound exit ramp operates slightly over the v/c standard of 0.85. It can likely be accommodated by monitoring of the traffic signal timing through most of the study timeframe. If full buildout volumes are achieved, an additional right-turn lane would accommodate the traffic demand at the intersection.

Overall the Cascade Highway/Shaff Road-Fern Ridge Road intersection operates at LOS D, meeting the mobility requirements of the City of Stayton. However, the Shaff Road approach to Cascade Highway operates at LOS E during the design year. Construction of right-turn pockets on Shaff Road and Fern Ridge Road would allow all of the approaches to the intersection to operate at the required mobility standard.

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SUBLIMITY INTERCHANGE AREA MANAGEMENT PLAN

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## **SECTION 4**

## **Alternatives Development and Analysis**

## Introduction

## Sublimity Interchange Improvements

The Sublimity Interchange is programmed for improvements in the 2006-2009 STIP. As proposed, this STIP project will involve partially reconstructing the interchange. Figure 4-1 shows programmed Sublimity Interchange improvements.

The entrance ramps in both directions will be rebuilt to a standard merge configuration, replacing the existing stop-sign controlled ramps. The ramp termini intersections with Cascade Highway will be aligned with their current locations. Both ramp terminals at Cascade Highway are proposed to be signalized. Figure 4-1 depicts the Sublimity Interchange Phase 1 improvements.

In preparation for this project, a frontage road (Golf Lane Road) has already been constructed that eliminated all private access to the Oregon 22 between Golf Club Road and Cascade Highway.

The ultimate configuration of the highway and interchange will include two lanes in each direction of travel on Oregon 22. This improvement is expected to occur beyond the timeframe of this IAMP.

## **Access Management Requirements**

The purpose of the ODOT access management and spacing standards is to provide a safe and efficient transportation system by protecting highway traffic from the hazards of unrestricted and unregulated entry from adjacent properties. ODOT standards are outlined in the OAR (OAR 734-051). The applicable standards are summarized in Table 4-1.

## TABLE 4-1

Cascade Highway Configuration	Spacing Dimension								
	A	x	Y	Z					
Two-lane	1 mile	1,320 feet	1,320 feet	990 feet					
Multi-lane	1 mile	1,320 feet	1,320 feet	1,320 feet					

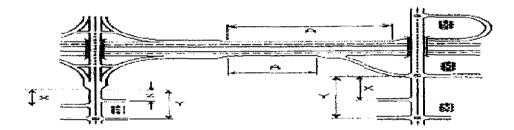
Source: Tables 5 and 6 in OAR 734-051-0125.

A = The distance between the start and end of tapers of adjacent interchanges along Oregon 22.

X = The distance to the first approach on the right; right in/right out only.

Y = The distance to the first intersections where left-turns are allowed.

Z = The distance between the last right in/right out approach road and the start of the taper for the entrance ramp.



In terms of access management, the goal of any interchange modernization project is to improve spacing and safety either by meeting or moving in the direction of applicable standards. The existing ramp configurations on Oregon 22 meet the ODOT access management spacing standards shown in Table 4-1. This is because the Golf Club Road Interchange to the west and the Fern Ridge Road intersection to the east are more than one mile apart.

Currently there are both public and private approaches onto Cascade Highway that violate the minimum access spacing requirements of the Oregon 22 ramp terminals. Cascade Highway is currently a two-lane facility. The City of Stayton TSP, however, recommends widening the highway to five lanes from Sublimity Boulevard to Regis Street (south of Shaff Road-Fern Ridge Road) in its Year 2025 Preferred Alternative. Therefore, a 1320-foot spacing (multi-lane) requirement between the ramp termini and adjacent access points was assumed for Cascade Highway.

Table 4-2 lists existing approaches along Cascade Highway within the IAMP study area. Figure 4-2 depicts the corresponding locations of these approaches.

The following sections discuss access management alternatives for the IAMP area including spacing deficiencies, queuing and traffic operations.

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## SUBLIMITY INTERCHANGE AREA MANAGEMENT PLAN

Figure 4-2 Approach #	Mile Point*	Tax Lot(s) Served	Approach Type
West Side of C	ascade Highway	(North of Oregon 22)	
1	1.32	091W03BA03300	Single-Family Residence/ Commercial Use
2	1.30	091W03BA03400	Single-Family Residence/ Commercial Use
3	1.26	091W038A03700	Business
4	1.21	091W03B00500	Single-Family Residence/ Commercial U <del>s</del> e
5	1.20	091W03B00700	Single-Family Residence/ Commercial Use
6	1.10	Sublimity Blvd.	Public Road
West Side of C	ascade Highway	(South of Oregon 22)	· · · · · · · · · · · · · · · · · · ·
7	0.89	OR-22 Ramp Terminal	Public Road
8	0.83	Golf Lane	Public Road
East Side of Ca	iscade Highway (	(South of Oregon 22)	
9	0.74	Whitney Street	Public Road
10	0.83	091W03DB00300; 091W03DB00200	Park and Ride lot; Wetfand Site
East Side of Ca	iscade Highway (	(North of Oregon 22)	
11	1.03	OR-22 Ramp Terminal	Public Road
12	1.09	OR-22 Ramp Terminal	Public Road
13	1.23	091W03A00300	Single-Family Residence/ Commercial Farm
14	1.30	091W03A00200; 091W03A00100	Single-Family Residence; Commercial Farm

\*Milepoint given represents approximate midpoint of approach



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## Alternatives

This section describes how alternative solutions were developed and analyzed to remedy IAMP-identified deficiencies, which were predominantly access-related in nature. Sublimity Interchange modernization plans and ODOT access management standards for freeway interchanges are outlined here as part of this description.

Alternatives for the IAMP study area were considered in three parts:

- 1) Along Oregon 22
- 2) Cascade Highway Stayton (south of the interchange)
- 3) Cascade Highway Sublimity (north of the interchange)

## Along Oregon 22

The ODOT Sublimity Interchange Phase 1 design was assumed as the preferred alternative for the Oregon 22 Mainline.

## **Oregon 22 Preferred Alternative**

The recommendation for mainline Oregon 22 in the IAMP study area is for ODOT to consider closing the Fern Ridge Road at-grade intersection access to Oregon 22. Further analysis should be conducted to evaluate the demand and/or need for the Fern Ridge Road access, due to the applicable spacing requirements of the Sublimity Interchange and because at-grade intersections are not typically utilized along freeway segments. The Fern Ridge Road at-grade intersection with Oregon 22 is located at approximately MP 14.30. The revised eastbound entrance ramp merge places this intersection within the minimum (1 mile) spacing requirement of the Sublimity Interchange improvements. The distance measured from the acceleration lane to the intersection is approximately 0.5 miles (2,550 feet).

Otherwise, proposed Sublimity Interchange improvements<sup>8</sup> achieve the operational mobility standards for both the Oregon 22 mainline and the new entrance ramps. Table 4-3 summarizes the forecast year 2025 operations on Oregon 22.

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<sup>&</sup>lt;sup>8</sup> Interchange physical improvements were proposed in the Joseph Street-Stayton North City Limits Environmental Assessment (prepared by ODOT, March, 1995)

SUBLIMITY INTERCHANGE AREA MANAGEMENT PLAN

## TABLE 4-3 Oregon 22 Traffic Operations Analysis Summary 2025 30th Highest Hour Design Volumes

Mobility Mobility V/C Ratio Intersection Standard Standard<sup>1</sup> V/C Ratio **Oregon 22 Approaches** Entrance ramp Merge Oregon 22 eastbound entrance 0.70 0.40 0.85 0.19 ramp Oregon 22 westbound entrance 0.70 0.55 0.85 0.28 ramp

ODOT mobility standards are based on volume-to-capacity ratios.

## Cascade Highway – Stayton (South of Interchange)

The ODOT Sublimity Interchange Phase 1 design was assumed as the preferred alternative for the Oregon 22 Mainline.

The City of Stayton's preferred alternative roadway network concept (*City of Stayton Transportation System Plan*, April 2004) was analyzed for Cascade Highway south of Oregon 22.

## Stayton Preferred Alternative

The 2004 Stayton TSP roadway concept incorporates ODOT's plans for improving the Oregon 22 Sublimity Interchange in its preferred Year 2025 alternative. The supporting local street network improvements for the preferred alternative include the following:

- Widen Cascade Highway to five lanes (two lanes in each direction with left-turn pockets) between and including the Sublimity Boulevard and Regis Street intersections.
- Realign Golf Lane to form a four-legged intersection with Whitney Street (City of Stayton has entered into a memorandum of understanding for this improvement with Marion County).
- Install traffic signal and eastbound/westbound left turn lanes at the Golf Lane/Whitney Street intersection.

Figure 4-3 shows proposed access management south of Oregon 22, representing the preferred alternative from the Stayton TSP.

The City of Stayton has also provided a \$50,000 match in conjunction with work recently completed for the interchange modernization project, further emphasizing their commitment to the project.

The City of Stayton's TSP supports improvements to the Golf Club Road corridor (west of the study area) by widening Golf Club Road to five lanes from Oregon 22 to Shaff Road, and signalizing the major intersections along the roadway. These improvements have the potential to relieve a portion of the travel demand on the Cascade Highway corridor.

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However, as a conservative analysis approach, such vehicle diversions were not assumed in the analysis.

The three existing access deficiencies listed in Table 4-2 (Golf Lane, Park-and-Ride lot and Whitney Street) would all remain deficient with the proposed configuration.

The realignment of Golf Lane, across from Whitney Street, would increase the spacing of the roadway from the Oregon 22 eastbound ramps by approximately 500 feet, but still would not meet the access management spacing standards of 1320 feet. The new, signalized, four-legged intersection is expected to operate at an overall V/C ratio of 0.66. The critical movement in regards to the Sublimity Interchange operations is the southbound direction of travel. It is projected to produce queues of up to 315 feet. Queues of this magnitude would not interfere with the interchange's eastbound ramp operations. Potential queue conflicts with the eastbound ramps can be further minimized by incorporating timing and phasing coordination between the new traffic signals along the Cascade Highway corridor. Figure 4-4 shows the anticipated vehicle queuing along Cascade Highway, south of the interchange, during the Year 2025 design hour. All traffic signals are assumed to be coordinated and optimized.

Neither the horizontal nor vertical alignment of Cascade Highway south of the interchange result in sight distance restrictions. The reconfigured intersection will have adequate stopping and decision time for drivers.

The Park-and-Ride lot access would remain at its current location, approximately 600 feet south of the eastbound ramp terminal. Relocation of this driveway would impact adjacent wetlands and Mill Creek, which would be both undesirable and costly. The demand/usage of the park-n-ride was observed to be between 10-20 parked vehicles. The current low usage is due to the limited transit opportunities in the Stayton and Sublimity area. Trip generation rates for park-n-rides with bus service were researched to estimate the potential trips emanating from this access if transit service were made available. Slightly over 50 trips would be generated at the access during the peak traffic hour.

A potential area for relocation of the park-n-ride lot is adjacent to the re-aligned Golf Lane Road. If substantial improvements to transit and park-and-ride services are envisioned, relocation of the lot may be an alternative. Alteration of the access to a right-in/right-out only driveway may also lessen access impacts within the interchange access management area but could limit the transit service into and out of the lot.

Table 4-4 shows the study intersection operations south of Oregon 22 under the preferred Stayton alternative.

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## TABLE 4-4

Stayton Traffic Operations Analysis Summary—Four-Lane Cascade Highway 2025 30th Highest Hour Design Volumes

	Mobility Standard <sup>1</sup>	V/C Ratio <sup>2</sup>	LO\$ <sup>2</sup>	Queue (veh) <sup>2,3</sup>	Mobility Standard <sup>1</sup>	V/C Ratio <sup>2</sup>	LOS <sup>2</sup>	Queue (veh) <sup>2,3</sup>	
Intersection	Cascade	Highway	/ Approa	iches	Cross Street Approaches				
Cascade Highway at Oregon 22 eastbound ramps <sup>4</sup>	0.75	0.64	-	12	0.85	0.91	-	8	
Cascade Highway at Park- n-Ride Access	Ε	-	A	1	E	-	С	1	
Cascade Highway at Golf Lane Road/ Whitney Street <sup>4</sup>	D	-	С	13	D	-	D	5	
Cascade Highway at Martin Drive	_	-	-	-	E	-	В	1	
Cascade Highway 30 at Shaff Road-Fem Ridge Road <sup>4</sup>	D	~	D	16	D	-	Ξ	24	

ODOT mobility standards are based on volume-to-capacity ratios. Stayton and Sublimity standards are based on level of service (see Sublimity Interchange Area Management Plan: Oregon 22 with Cascade Highway Data Collection and Operational Analyses for Mobility Standard definitions).

<sup>2</sup> Results are reported for approach with worst operational characteristics.

<sup>3</sup> Vehicle queue results at ODOT intersections are calculated with the 2-minute rule. Stayton and Sublimity intersections show 95th percentile queues.

<sup>4</sup> Signalized intersection.

An interim condition for Cascade Highway in which the Oregon 22 overpass of Cascade Highway will not be extended due to funding constraints was also examined. If the overpass is not extended, the section of Cascade Highway between the Oregon 22 ramp intersections would not be widened to five lanes. Under this constrained condition, left-turn pockets are still recommended to be constructed at the Oregon 22 entrance ramps. The turn lane and taper at the east bound entrance ramp will be limited to approximately 200 feet by the Oregon 22 overpass. Operations along Cascade Highway would exceed the ODOT mobility standards at the eastbound ramp intersection. Vehicle queues will not impede operations through the adjacent westbound ramp/Sublimity Boulevard intersection. However, the northbound queue may impede turn movements at the Park-and-Ride lot access. Table 4-5 summarizes conditions without the Cascade Highway widening, and Figure 4-5 depicts the estimated queue length.

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#### TABLE 4-5

Stayton Traffic Operations Analysis Summary – Two Lane Cascade Highway 2025 30th Highest Hour Design Volumes

	Mobility Standard <sup>1</sup>	V/C Ratio <sup>2</sup>	LOS <sup>2</sup>	Queue (veh) <sup>2,3</sup>	Mobility Standard <sup>1</sup>	V/C Ratio <sup>2</sup>	LOS <sup>2</sup>	Queue (veh) <sup>2,3</sup>
Intersection	Cascade Highway Approaches				Cross Street Approaches			
Cascade Highway at Oregon 22/Sublimity Boulevard/ westbound ramps <sup>4</sup>	0.75	0.65	-	18	0.85	0.62	-	3
Cascade Highway at Oregon 22 eastbound ramps⁴	0.75	0.92	-	24	0.85	0.96	-	14

ODOT mobility standards are based on volume-to-capacity ratios. Stayton and Sublimity standards are based on level of service (see *Sublimity Interchange Area Management Plan: Oregon 22 with Cascade Highway Data Collection and Operational Analyses* for Mobility Standard definitions).

<sup>2</sup> Results are reported for approach with worst operational characteristics.

<sup>3</sup> Vehicle queue results at ODOT intersections are calculated with the 2-minute rule. Stayton and Sublimity intersections show 95th percentile queues.

<sup>4</sup> Signalized intersection.

## Cascade Highway – Sublimity (North of Interchange)

The PMT developed a preferred alternative for Cascade Highway north of Oregon 22 based on preliminary access management layouts.

Access management alternatives for the north side of the interchange were compiled based upon input from the affected residents, project management and consultant teams as well as local government officials. All proposed alternatives were evaluated by the consultant team. A previous plan to realign Sublimity Boulevard was rejected by the City of Sublimity; thus, none of the alternatives considered that plan as an option. An access deviation will be needed for the Sublimity Boulevard approach, as all of the interchange designs maintain the connection to this approach (opposite from the westbound interchange ramps).

The widening of Cascade Highway to a five lane section through the Sublimity Boulevard/Oregon 22 ramp intersection is assumed in all alternatives. The intersection is also assumed to be signalized in all alternatives.

## Sublimity Alternative 1

The elements of Sublimity Alternative 1 are shown in Figure 4-6. The long-term strategy removes all private approach access points along Cascade Highway within the management area. It creates a new intersection 1,320 feet north of the Oregon 22 westbound ramps. The existing properties in the northwest quadrant of the interchange will be served from an internal roadway connecting to the new intersection and to Sublimity Boulevard (300 feet west of Cascade Highway). The new roadway will be located near the western property line of the affected parcels. To further enhance circulation alternatives, an additional connection could also be constructed to the west when Sublimity Boulevard is extended.

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The two properties in the northeast quadrant of the interchange will also access Cascade Highway at the new intersection. The existing access points for these properties will be closed. A frontage road, top be built adjacent to Cascade Highway, will connect the existing driveways to the new intersection.

The new intersection on Cascade Highway is located along a crest vertical curve, with sight distance half the required 610 feet. In order to provide adequate sight distance at this location, it would be necessary to modify the vertical profile of Cascade Highway. This modification would be at substantial cost and would adversely impact the access to the properties fronting on Cascade Highway.

The new access along Sublimity Boulevard may be affected by queuing from the Cascade Highway signalized intersection. However, this would occur infrequently. The vehicle queue estimates for the Year 2025 design year are approximately 60 feet for the westbound Sublimity Boulevard traffic.

Currently, all properties within the access management area are residential (one residence contains a home occupation and parking lot) and/or farm use. Trip generation is and will remain low with these land uses. The parcels, however, are zoned for commercial use on the west side of the highway. Table 4-6 summarizes operations north of Oregon 22 assuming build-out of the properties as commercial businesses. (Note: Further analyses should be performed upon redevelopment of properties, when detailed information is available) The new access along Cascade Highway is projected to operate poorly at LOS F. The stop controlled approaches could be improved to meet the mobility standards by providing left-turn pockets for both the north and eastbound vehicles.

The new roadway would provide safer access to/from Cascade Highway, good circulation and access options. The roadway will be more suitable to serve the commercial land use upon re-development of the properties.

#### TABLE 4-6

Sublimity Traffic Operations Analysis Summary – Alternative 1 2025 30th Highest Hour Design Volumes

	Mobility Standard <sup>1</sup>	V/C Ratio <sup>2</sup>	LOS <sup>2</sup>	Queue (veh) <sup>2,3</sup>	Mobility Standard <sup>1</sup>	V/C Ratio <sup>2</sup>	LOS <sup>2</sup>	Queue (veh) <sup>2,3</sup>
Intersection	Cascad	e Highway	у Арргоа	aches	Cross Street Approaches			
Cascade Highway at 9th Street	E		А	1	E	-	С	2
Cascade Highway at new intersection 1320' north of Westbound ramps	Е	-	A	1	Е	-	F	3
Cascade Highway at Sublimity Boulevard/Oregon 22 Westbound ramps⁴	0.75	0.40	-	7	0.85	0.35	-	3

ODOT mobility standards are based on volume-to-capacity ratios. Stayton and Sublimity standards are based on level of service (see Sublimity Interchange Area Management Plan: Oregon 22 with Cascade Highway Data Collection and Operational Analyses for Mobility Standard definitions).

<sup>2</sup> Results are reported for approach with worst operational characteristics.

<sup>3</sup> Vehicle queue results at ODOT intersections are calculated with the 2-minute rule. Stayton and Sublimity intersections show 95th percentile queues.

<sup>4</sup> Signalized intersection.

## Sublimity Alternative 2

This alternative includes an internal connection between the properties fronting Cascade Highway in the northwest quadrant of the interchange. This alternative would connect the properties served by Approaches #5 to #2 listed in Table 4-2 and shown in Figure 4-2. Figure 4-7 depicts the proposed alignment of this alternative. Full access is proposed to occur at two locations; on Cascade highway at the north end of Tax Lot #091W03BA03400 (1100 feet north of the interchange), and on Sublimity Boulevard through the south side of Tax Lot #091W03BA03400 (300 feet west of the interchange). An additional right-in/right-out only access on Cascade Highway is proposed between Tax Lots #091W03B00500 and #091W03B00900 (550 feet north of the interchange). The consolidated access points remain within the access management area of the interchange. The internal roadway severely impacts the property served by Approach #5. However, this roadway would provide an alternative route for drivers when the Sublimity Boulevard/Cascade Highway intersection is operating at congested levels.

The new intersection on Cascade Highway is located along a crest vertical curve, with sight distance of slightly less than the required 610 feet.

The new access along Sublimity Boulevard may be affected by queuing from the Cascade Highway signalized intersection. However, this would not occur frequently. Queue estimates for the Year 2025 design year are approximately 60 feet for the westbound Sublimity Boulevard traffic.

The two private driveways in the northeast quadrant of the interchange are proposed to remain in their current locations, within the 1,320 feet access management area. The

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residential/farm trip generation is expected to remain low, thus should not create operational problems. Mitigation for the accesses on the east side of Cascade Highway could include construction of a large radius driveway approach or widened shoulder to allow vehicles to slow down out of the travel lane.

Table 4-7 summarizes operations north of Oregon 22 assuming build-out of the commercial properties (Note: Further analyses should be performed upon redevelopment of properties, when detailed information is available). All of the access points along Cascade Highway are projected to operate within the required mobility standards and are characterized by minimal queuing.

### TABLE 4-7

Sublimity Traffic Operations Analysis Summary – Alternative 2 2025 30th Highest Hour Design Volumes

	Mobility Standard <sup>1</sup>	V/C Ratio <sup>2</sup>	LOS <sup>2</sup>	Queue (veh) <sup>2,3</sup>	Mobility Standard <sup>1</sup>	V/C Ratio <sup>2</sup>	LOS <sup>2</sup>	Queue (veh) <sup>2,3</sup>
Intersection	Cascade	e Highway	y Approa	iches	Cros	s Street	<b>\pproach</b>	e\$
Cascade Highway at 9th Street	E	-	A	1	E	-	С	2
Cascade Highway @ Private Driveway 5	E	-	A	0	E	-	D	1
Cascade Highway @ Private Driveway 7	E	-	Α	0	E	-	D	1
Cascade Highway at consolidated Driveways #1 through #4	E	-	A	ο	E	-	В	1
Cascade Highway @ Private Driveway 6	E	-	Α	0	E	-	в	1
Cascade Highway at Sublimity Boulevard/Oregon 22 Westbound ramps <sup>4</sup>	0.75	0.40		7	0.85	0.35	-	3

<sup>1</sup> ODOT mobility standards are based on volume-to-capacity ratios. Stayton and Sublimity standards are based on level of service (see Sublimity Interchange Area Management Plan: Oregon 22 with Cescade Highway Data Collection and Operational Analyses for Mobility Standard definitions).

Results are reported for approach with worst operational characteristics.

<sup>3</sup> Vehicle queue results at ODOT intersections are calculated with the 2-minute rule. Stayton and Sublimity intersections show 95th percentile queues.

Signalized intersection.

2

## Sublimity Alternative 3

This alternative combines aspects of the previous alternatives. Driveway consolidation is incorporated into the scenario, while minimizing impacts to the affected properties. The elements of Sublimity Alternative 1 are shown in Figure 4-8.

In the northeast quadrant of the interchange, Approaches #13 and #14 are proposed to be consolidated, with access at the existing #14 location (1100 feet north of the interchange).

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Although within the access management area, travel demand for these two properties is expected to remain low. Sight distance at this location meets the 610 foot requirement. Mitigation could include construction of a large radius driveway approach or widened shoulder to allow vehicles to slow down out of the travel lane.

In the northwest quadrant, the southern properties would be served by a common access easement connecting to Sublimity Boulevard, approximately 300 feet west of Cascade Highway. The new access on Sublimity should not be affected by vehicle queues at the Cascade Highway traffic signal. Ninety-fifth percentile queues are estimated to be 60 feet. The northern properties are served by an access road connecting to a new intersection 1320 feet north of the interchange. This configuration will decrease the amount of right-of-way acquisition and roadway construction needed to service the properties. This alternative will also maintain lower traffic volumes behind the residential properties, and reduce safety conflicts.

Table 4-8 summarizes operations north of Oregon 22 assuming build-out of the commercial properties. (Note: Further analyses should be performed upon redevelopment of properties, when detailed information is available). Although characterized by short vehicle queues, the consolidated driveway access points would operate poorly at LOS F.

#### TABLE 4-8

Sublimity Traffic Operations Analysis Summary – Alternative 3 2025 30th Highest Hour Design Volumes

	Mobility Standard <sup>1</sup>	V/C Ratio <sup>2</sup>	LOS <sup>2</sup>	Queue (veh) <sup>2,3</sup>	Mobility Standard <sup>1</sup>	V/C Ratio <sup>2</sup>	LOS <sup>2</sup>	Queue (veh) <sup>2,3</sup>
Intersection	Cascad	e Highwa	у Арргоа	iches	Сго	ss Street	Approach	es
Cascade Highway at 9th Street	E	· <u>-</u>	A	1	E	-	С	2
Cascade Highway @ Consolidated Driveway 1320' north of Westbound ramps	E	-	А	0	E	-	F	1
Cascade Highway @ Private Driveway 6/7	E	-	Α	0	E	-	F	1
Cascade Highway at Sublimity Boulevard/Oregon 22 Westbound ramps <sup>4</sup>	0.75	0.40	-	7	0.85	0.35	-	3

<sup>1</sup> ODOT mobility standards are based on volume-to-capacity ratios. Stayton and Sublimity standards are based on level of service (see Sublimity Interchange Area Management Plan: Oregon 22 with Cascade Highway Data Collection and Operational Analyses for Mobility Standard definitions).

<sup>2</sup> Results are reported for approach with worst operational characteristics.

<sup>3</sup> Vehicle queue results at ODOT intersections are calculated with the 2-minute rule. Stayton and Sublimity intersections show 95th percentile queues.

<sup>4</sup> Signalized intersection.

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## Sublimity Preferred Alternative

The three Sublimity alternatives were presented at a June 2005 PMT meeting. The benefits and impacts of each were discussed, and a preferred alternative was derived. Figure 4-9 shows the preferred alternative.

Two new access roadways will be created, respectively serving properties on the east and west side of Cascade Highway. Both roadways will access Cascade Highway at a new intersection, located approximately 1,580 feet from the interchange. The intersection will be established according to AASHTO standards and located to meet access management spacing requirements, provide adequate sight distance and maximize safety. This new intersection will be unsignalized and allow for full movement.

A technical memo describing the rationale for IAMP-recommended intersection placement is included in Appendix H.

On the west side of Cascade Highway, a backage road will extend behind the existing properties (served by Approaches 1 through 5) and through a currently unimproved lot (ID #091W03B00900) to an unsignalized, full movement intersection with Sublimity Boulevard. This intersection would be located approximately 470 feet west of the Sublimity Boulevard/Cascade Highway intersection. On the east side, a frontage road will connect the new intersection to the two existing driveways.

This alternative removes all private driveways along Cascade Highway within the Interchange Access Management Limit area, and places the new highway access at a location with the maximum sight distance. This alternative also minimizes potential impacts along Sublimity Boulevard in the vicinity of the intersection with Cascade Highway and the Oregon 22 ramp termini.

Currently, all properties within the access management area are residential (one residence contains a home occupation) and/or farm use. Trip generation is and will remain low with these land uses. The parcels, however, are zoned for commercial use on the west side of the highway. Table 4-9 summarizes operations north of Oregon 22 assuming build-out of the properties as commercial businesses. (Note: Further analyses should be performed upon redevelopment of properties, when detailed information is available).

The new access along Cascade Highway is projected to operate poorly at LOS F. The stop controlled approaches could be improved to meet the mobility standards by providing left-turn pockets for both the north and eastbound vehicles.

#### TABLE 4-9

Sublimity Traffic Operations Analysis Summary – Preferred Alternative 2025 30th Highest Hour Design Volumes

	Mobility Standard <sup>1</sup>	V/C Ratio <sup>2</sup>	LOS <sup>2</sup>	Queue (veh) <sup>2,3</sup>	Mobiliity Standard <sup>1</sup>	V/C Ratio <sup>2</sup>	LOS <sup>2</sup>	Queue (veh) <sup>2,3</sup>	
Intersection	Cascade	e Highwa	y Approa	aches	Cross Street Approaches				
Cascade Highway at 9th Street	·E	-	Α	1	E	-	С	2	
Cascade Highway at new intersection 1320' north of WB ramps	E	-	A	1	E	-	F	3	
Cascade Highway at Sublimity Boulevard/Oregon 22 Westbound ramps <sup>4</sup>	0.75	<b>0.4</b> 0	-	7	0.85	0.35	-	3	

<sup>1</sup> ODOT mobility standards are based on volume-to-capacity ratios. Stayton and Sublimity standards are based on level of service (see *Sublimity Interchange Area Management Plan: Oregon 22 with Cascade Highway Data Collection and Operational Analyses* for Mobility Standard definitions).

<sup>2</sup> Results are reported for approach with worst operational characteristics.

<sup>3</sup> Vehicle queue results at ODOT intersections are calculated with the 2-minute rule. Stayton and Sublimity intersections show 95th percentile queues.

<sup>4</sup> Signalized intersection.

## Summary

A summary of the preferred access management alternatives detailed in this section is as follows:

- Along Oregon 22, proposed ODOT interchange improvements will situate the Fern Ridge intersection within the minimum spacing requirements of the new eastbound Oregon 22 eastbound entrance ramp. An evaluation of the need for this at-grade intersection along an expressway should be made.
- The preferred Stayton alternative does not meet all access management requirements. However, existing deficiencies are being mitigated by realigning Golf Lane Road across from Whitney Street. Additionally, the intersection is proposed to be signalized to accommodate the forecast traffic demand. Adequate sight distance is provided at this modified intersection. The Park-and-Ride lot driveway will also remain within the access management area. Sight distance is also adequate at this location, and due to the limited transit opportunities, traffic demand remains low.
- The preferred Sublimity alternative, with the exception of the Sublimity Boulevard intersection, meets access management requirements along Cascade Highway. In addition adequate sight distance at the new Cascade Highway intersection is provided. The new access point along Sublimity Boulevard is also situated with the furthest distance from the interchange, minimizing impacts at the westbound ramp intersection.

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Table 4-10 summarizes all of the alternatives in tabular form. See Figure 4-2 for corresponding access locations.

## TABLE 4-10

Access Management Alternatives Summary

Alternative	Description	Access Standard (feet)	Deficient Access	Distance (feet)	IAMP Figure
Along Oregon 22					
Existing Sublimity Interchange Configuration	Stop controlled Oregon 22 entrance ramps.	5,280	Fern Ridge Road.	-	2-2
Proposed Sublimity Interchange Configuration	Entrance ramps with merge configuration.	5,280	Fern Ridge Road	3,300	4-1
South of Intercha	nge – Stayton (South of Interchange)				
Existing Stayton	Unsignalized, full movement intersections at Golf Lane Road, Park-and-Ride driveway and Whitney Street.	1,320	Golf Lane Road	600	2-2
		1,320	Park-and-Ride lot	600	
		1,320	Whitney Street	1, <b>10</b> 0	
Preferred Stayton Alternative	Realignment of Golf Lane Road, across from Whitney Street.	1,320	Park-and-Ride lot	600	4-3
		1,320	Golf Lane Road/Whitney Street	1,100	
North of Intercha	nge – Sublimity (North of Interchange)				
Existing	Sublimity Boulevard across from westbound ramp intersection & numerous private driveway access on Cascade Highway	1,320	Approach #5 (private)	500	2-2
Sublimity		1,320	Approach #4 (private)	600	
		1,320	Approach #3 (private)	900	
		1,320	Approach #2 (private)	1,100	
		1,320	Approach #1 (private)	1,250	
		1,320	Approach #13 (private)	700	
		1,320	Approach #14 (private)	1,100	
Sublimity Alternative 1	Sublimity Boulevard across from westbound ramp intersection & new intersection 1320 feet from interchange servicing all property	1,320	Sublimity Boulevard	0	4-6

access.

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## SUBLIMITY INTERCHANGE AREA MANAGEMENT PLAN

## TABLE 4-10

## Access Management Alternatives Summary

Alternative	Description	Access Standard (feet)	Deficient Access	Distance (feet)	iAMP Figure
Sublimity Alternative 2	Sublimity Boulevard across from westbound ramp intersection & private driveway access consolidated onto an internal road for driveways within 1000 feet of the interchange.	1,320	Sublimity Boulevard	0	4-7
		1,320	New right-in/right-out approach	550	
		1,320	Approach #13 (private)	700	
		1,320	New consolidated approach	1,000	
		1,320	Approach #14 (private)	1,100	
		1,320	Approach #1 (private)	1,250	
Sublimity Alternative 3	Sublimity Boulevard across from westbound ramp intersection, east parcels combined access, west parcels split into two combined accesses (one on Cascade, one on Sublimity).	1,320	Sublimity Boulevard	0	4-8
		1,320	New consolidated approach	1,100	
Preferred Sublimity Alternative	Sublimity Boulevard across from westbound ramp intersection, new intersection ~1620 feet north of interchange servicing all properties. Internal roadway connection to the existing Sublimity Boulevard termini.	1,320	Sublimity Boulevard	0	4-9

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## Insert Figures 4-1 through 4-9 (11x17)

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# Interchange Area Management Plan

## **Selected Alternative and Findings**

The preferred alternative package consists of a recommended access management plan as well as transportation improvement and traffic management recommendations.

Recommendations and associated findings are presented in this section.

## **Access Management Plan**

As part of the Sublimity IAMP, future access locations and public street connections were evaluated for properties along Cascade Highway. The intent of the Access Management Plan is to identify the location of driveways and internal circulation routes for properties whose accesses will need to be relocated to achieve the safety and mobility objectives of the Access Management Standards. The plan, as described in the following paragraphs, shall be applied by ODOT, Marion County, the City of Sublimity, and the City of Stayton in future land use decisions involving the properties located within the IAMP study area.

It should be noted that the strategies below mostly apply to areas of new development or redevelopment; existing accesses are allowed to remain as long as the land use does not change. As a result, access management is a long-term process in which the desired access spacing to a street slowly evolves over time as redevelopment occurs. It should also be kept in mind that parcels cannot be land-locked, and must have some way of accessing the public street system. This may mean allowing shorter access spacing then would otherwise be allowed.

Access management strategies for approaches located within the Interchange Access Management Limit are described in this section.

Figure 5-1 contains a detailed inventory of all properties and approaches in the Access Management Plan impact area, with short and medium/long-term actions described for each. Figure 5-2 depicts corresponding approaches and properties.

## Cascade Highway (West Side of Roadway, North of Oregon 22)

## Short-Term Access Actions

Existing private driveway approaches will continue to be allowed individual access to Cascade Highway. Access deviations will be requested for all of these private approaches.

Sublimity Boulevard will continue to access Cascade Highway. An access deviation will be requested. As part of IAMP physical improvements, a traffic signal will be installed at the Sublimity Boulevard/Cascade Highway intersection, directly across from the realigned Oregon 22 termini.

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The City of Sublimity will adopt an Interchange Overlay zoning district in its Development Code and amend sections of Code language. The new overlay zone will prohibit development from occurring at the properties on this part of Cascade Highway without the presence of an alternate roadway to access. Proposed changes to the City of Sublimity's Development Code are provided as Appendix I.

#### Medium/Long-Term Access Management

Under the guidance of this IAMP, properties located on this part of Cascade Highway will take future access via the access backage road described in Section 4 of this report and illustrated on Figure 4-9. During the IAMP planning process, the Project Management Team (PMT) strongly considered whether this backage road should be constructed as a short-term improvement. The PMT concluded that the timing and precise route of this access road should be guided by the future commercial development of the properties.

The backage access road (and new driveways necessary to connect to this access road) will most likely be constructed as a condition of one or more commercial developments in the medium-to-long-term future.

## Cascade Highway (West Side of Roadway, South of Oregon 22)

## Short-Term Access Actions

Golf Lane will continue to access Cascade Highway. An access deviation will be requested.

## Medium/Long-Term Access Management

Under an existing Memorandum of Understanding (MOU) between the City of Stayton and Marion County, Golf Lane will be realigned at such time that the existing Golf Lane/Cascade Highway intersection warrants signalization or fails to meet Marion County standards for safety and/or operations. The realigned Golf Lane approach would intersect with Cascade Highway directly across from Whitney Street, approximately 470 feet south of its existing location.

The aforementioned MOU is provided as Appendix J.

## Cascade Highway (East Side of Roadway, South of Oregon 22)

## Short-Term Access Actions

Whitney Street will continue to access Cascade Highway. An access deviation will be requested.

The Park-and-Ride lot will continue to be allowed access to Cascade Highway. An access deviation will be requested.

## Medium/Long-Term Access Management

As part of Stayton TSP physical improvements, a traffic signal will be installed at the Whitney Street/Cascade Highway intersection.

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## Cascade Highway (East Side of Roadway, North of Oregon 22)

## Short-Term Access Actions

1

Approach #13 (see Figure 4-2) will be closed and alternate access will be provided via Approach #14. ODOT will construct a frontage road extending from the driveway at Approach #13 to the driveway at Approach #14 to allow for this consolidation of driveways.

Approach #14 will continue to be allowed access to Cascade Highway. An access deviation will be requested.

ODOT will purchase access control along entire property road frontage of Tax Lot# 091W03A00100. This proposed line of access control purchase is depicted on Figure 5-2.

## Medium/Long-Term Access Management

Approach #14 will be closed and alternate access will be provided via a frontage road that will access Cascade Highway at a new intersection located directly across from the new backage access road described earlier.

## Access Management Deviations

In the short-term, IAMP actions reduce by one the number of approaches to Cascade Highway within the Interchange Access Management Limits. In the medium-to long-term, however, the actions performed as part of this IAMP will reduce the number of approaches by six. Under OAR 734-051-0135(5) the ODOT Region Access Management Engineer "shall require any deviation for an approach located in an interchange access management area as defined in the Oregon Highway Plan, to be evaluated over a 20-year horizon from the date of application and may approve a deviation for an approach located in an interchange access management area if:... (b) The approach is consistent with an access management plan for an interchange that includes plans to combine or remove approaches resulting in a net reduction of approaches to the highway". Deviations identified in this IAMP are consistent with this statute.

Table 5-1 addresses all approach locations where access deviations will be required and provides a rationale for why the deviations should be granted. See Figure 4-2 for corresponding depiction of approach locations.

Approach # Tax Lot(s) Serve		Deviation Request Rationale	
1	091W03BA03300	As part of this IAMP, the City of Sublimity will be establishing an "Interchange Overlay" zone, encompassing all of these properties. This zone will prohibit development that increases vehicle trip generation onto Cascade Highway and	
2	091W03BA03400	<ul> <li>will require future development of any of these properties to access onto a local backage road in the rear of the property. This action moves in the direction of ODOT Access Management Standards.</li> </ul>	
3	091W03BA03700	The aforementioned future backage road was considered as a potential physical improvement to be created as part of this IAMP. However, it was concluded that the precise route and construction timing of this future backage road should be guided by the development of these properties. Therefore, a deviation should be	

### TABLE 5-1 IAMP Access Deviations

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Approach #	Tax Lot(s) Served	Deviation Request Rationale	
4	091W03B00500	approved per OAR 734-051-0080(2), since these private accesses have no reasonable alternate access to their properties.	
5	091W03B00700	These properties currently produce very few vehicle trips. Analysis performed for this IAMP concluded that the presence of these approaches is consistent with the safety factors listed under OAR 734-051-0080(9). These approaches have only a slight effect on Cascade Highway safety and a negligible effect on mobility. Therefore, a deviation should be approved per OAR 734-051-0135(1).	
6	Sublimity Blvd.	The intersection of Sublimity Boulevard and Cascade Highway was aligned with the westbound ramp terminal in the original design of the interchange. This location was selected after a review of alternatives, all of which were determined to be infeasible. The location was consistent with the access management rules in effect at the time and the layout was approved by ODOT and FHWA through the adoption of the Environmental Assessment and Finding of No Significant Impact (FONSI).	
8	Golf Lane	An existing Memorandum of Understanding (MOU) between the City of Stayton and Marion County calls for the realignment of Golf Lane at such time that Golf Lane warrants signalization or fails to meet Marion County standards for safety and/or operations. The realigned Golf Lane approach would intersect with Cascade Highway directly across from Whitney Street, approximately 470 feet south of its existing location. By relocating an existing access point further from the interchange ramp terminal, this action moves in the direction of ODOT Access Management Standards.	
		Analysis performed for this IAMP concluded that the presence of this approach is consistent with the safety factors listed under OAR 734-051-0080(9). Therefore, deviation should be approved per OAR 734-051-0135(1).	
9	Whitney Street	The 2004 traffic study done for the City of Stayton TSP revealed that this intersection operates at LOS A and LOS C, respectively, for the southbound left and westbound approach. Whitney Street is identified in an integral part of Stayton's circulation system.	
10	091W03DB00300; 091W03DB00200	This park and ride access provides a carpool alternative, helping to decrease the number of vehicles using the interchange at peak periods, thereby improving operational and safety conditions - the overall objective of Access Management Standards. Park and Ride lots serve the multi-modal objectives of Goal 12. Alternate access to the park and ride lot is infeasible due to the existence of wetlands adjoining the lot.	
14	091W03A00200; 091W03A00100	As part of this IAMP, Approach #13 will be closed and consolidated with Approat #14. Therefore, a deviation should be approved per OAR 734-051-0135(3)(b). Additionally, access control will be purchased along entire property road frontage of Tax Lot# 091W03A00100.	

## **Physical Improvement Recommendations**

Based on the level of traffic demand associated with the proposed development in Stayton and Sublimity, specific improvements are required by the design year, 2025. In its current configuration, the interchange exit ramps and westbound entrance ramp would operate beyond capacity. In addition, all of the approaches to Cascade Highway would operate beyond their applicable mobility standards with the exception of Martin Drive which is restricted to a right-turn-in-right-turn-out access.

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Implementing the proposed ODOT interchange improvements and the City of Stayton's preferred transportation plan would entail the following improvements within the interchange management area:

- Reconstruct the Oregon 22 entrance ramps to provide standard merge operations onto Oregon 22.
- Widen Cascade Highway from and including Sublimity Boulevard through the Shaff Road/Fern Ridge Road intersection.
- Realign Golf Lane across from Whitney Street.
- Signalize the Oregon 22 ramp termini Sublimity Boulevard/Cascade Highway intersection (north of interchange).
- Signalize the Oregon 22 ramp termini/Cascade Highway intersection (south of intersection).
- Signalize the Whitney Street Golf Lane/Cascade Highway intersection.

In addition to these improvements the following are recommended to accommodate the forecasted travel demand through the design year:

- 1. Coordinate traffic signal operations along Cascade Highway due to the close spacing of signalized intersections.
- 2. When traffic demand requires, install a right-turn pocket on the eastbound Oregon 22 exit ramp approach to Cascade Highway.
- 3. When traffic demand requires, install right-turn pockets on the Shaff Road/Fern Ridge Road approaches to Cascade Highway.

The incorporation of these infrastructure improvements would result in acceptable operations within the Sublimity IAMP area.

## **Traffic Management Recommendations**

A park-and-ride facility is located within the IAMP area. Currently the facility is not served by bus routes or formal carpool programs. Expansion of service to this facility is not currently planned, but could aide in managing traffic demand through the IAMP area.

Another inherent traffic management mechanism is the availability of alternate access to Stayton and Sublimity. An additional access point to the Cities of Stayton and Sublimity is provided at the Golf Club Road interchange to the west. Improvements to Golf Club Road are also programmed into the City of Stayton's TSP, thus providing an attractive alternative route to Stayton.

To a lesser extent, Fern Ridge Road and Santiam Street provide alternative access points at at-grade intersections along Oregon 22 to the east of the Sublimity Interchange. These locations, however, should be modified or eliminated both for access management and safety improvement along Oregon 22.

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## **Adoption and Implementation Process**

Adoption and implementation of the Sublimity IAMP will occur at several levels of government. It is necessary for the City of Sublimity, the City of Stayton, and Marion County to amend their respective Transportation System Plans to incorporate the elements of the Sublimity IAMP. This amendment process will include Planning Commission/City Council hearings at the City level and Planning Commission/County Commission hearings at the County level. Following successful adoption at the City and County levels, the Sublimity IAMP will be presented to the OTC for review and approval.

ODOT IAMP adoption occurs when the OTC formally adopts the plan as an ODOT facility plan. Notwithstanding consultation with the OTC on preliminary recommendations, local government adoption should precede OTC adoption. Formal approval of the IAMP is required by the OTC prior to starting project construction.

## Implementation Authority

Development, adoption, and implementation of this IAMP are determined by regulatory authority. Local agency authority comes through state statutes, and city and county comprehensive plans and development codes. State of Oregon authority comes in the form of policy and administrative rules governing authority over federal and state systems, as granted through the following:

- State Agency Coordination Rule and Agreement (SAC 1990—OAR 731-015) The purpose of this rule is to define what ODOT actions are land use actions and how ODOT will meet its responsibilities for coordinating these activities with the statewide land use planning program, other state agencies, and local government.
- Transportation Planning Rule (OAR 660-012) This rule is one of several statewide planning rules that provides protection of the long-term livability of Oregon's communities for future generations. The rule requires multi-modal transportation plans to be coordinated with land use plans. In satisfying the goal, state and local governments must satisfy requirements that lead to implementation of a transportation system that functions consistent with the planned land uses.
- Access Management Rule (OAR 734-051) This rule applies to the location, construction, maintenance and use of approaches onto the state highway rights-of-way and properties under the jurisdiction of ODOT. These rules also govern closure of existing approaches, spacing standards, medians, deviations, appeal process, grants of access, and indentures of access.

## Implementation Steps and Responsibilities

## City of Sublimity Actions:

- Adopt IAMP, through City ordinance, as a refinement element to City's TSP and Comprehensive Plan. This ordinance is provided as Appendix K.
- Amend Development Code Chapter 2.103.05, through City ordinance, to support the creation of an Interchange Management Area Overlay Zone and IAMP access recommendations. This ordinance is provided as Appendix L.

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- Amend Development Code, through City ordinance, to include a new chapter Chapter
   2.106. Chapter 2.106 will establish the creation of an Interchange Management Area
   Overlay Zone. This ordinance is provided as Appendix M.
- Amend Development Code Chapter 2.202.03, through City ordinance, to support the creation of an Interchange Management Area Overlay Zone and IAMP access recommendations. This ordinance is provided as Appendix N.
- Amend City's Zoning Map, through new City ordinance, to include the boundaries of the Interchange Management Area Overlay zone. This ordinance is provided as Appendix O. The proposed boundary of the Interchange Management Overlay zone is shown in Appendix P.

#### City of Stayton Actions:

 Adopt IAMP, through City ordinance, as a refinement element to City's TSP and Comprehensive Plan. This ordinance is provided as Appendix Q.

#### Marion County Actions:

Adopt IAMP, through new County ordinance, as a refinement element to County's TSP and Comprehensive Plan. This ordinance is provided as Appendix R.

#### Mid-Willamette Valley Council of Governments (MVCOG) Actions:

Provide comments and technical support as relevant.

#### State/ODOT Actions:

- OTC adoption of IAMP as a facility plan
- Develop and fund IAMP-identified transportation system improvements
- Close identified approaches as described in the IAMP
- Consolidate identified approaches as described in the IAMP
- Construct IAMP-identified transportation system improvements including installation of traffic signal and control devices
- Purchase access control along east side of Cascade Highway (north of interchange) from current point of access control northwards to encompass entirety of Interchange Access Management Limit area. This entails purchasing access rights from one private property owner (Tax Lot# 091 W03A00100).
- Participate and comment on local land development actions with the potential to affect the interchange

#### Department of Land Conservation and Development Actions:

- Acknowledge any TSP refinements made as part of IAMP implementation
- Review IAMP

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# Insert Figures 5-1 and 5-2 (11x17)

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# APPENDIX A Public Involvement

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# **Public Involvement**

#### Roles and Responsibilities of Key Jurisdictions and Groups

Decision making for the Oregon Highway 22/Cascade Highway Interchange Area Management Plan was shared among the Cities of Sublimity and Stayton, Marion County, the Federal Highway Administration and ODOT through a Project Management Team (PMT). The PMT had responsibility for oversight of the public process and for ensuring that any alternatives considered the policies and needs of the jurisdictions. Ultimately, the city councils were responsible for adopting the Interchange Area Management Plan as part of their transportation system plans. The PMT liaisons from each jurisdiction briefed the elected officials during work sessions at key decision points in the project. At these meetings, the PMT presented information generated by the PMT and the community.

ODOT was responsible for managing and funding the project, soliciting and receiving public comment, and ensuring that the alternatives generated by the public and PMT were technically sound and consistent with state policies. ODOT developed the draft plan for presentation and adoption by the city councils. Following action by the city councils, ODOT presented the plan to the OTC for formal approval. ODOT and city councils approval are necessary before ODOT will adopt a project plan.

#### **Project Management Team**

The PMT responsibilities included the following:

- Definition of project scope and applicable standards
- Management of project scope, schedule and budget
- Receive public comment
- Informal briefing with the Stayton and Sublimity City Councils at major milestones.
- Direction, production and quality assurance of technical and public/agency involvement work

The PMT members are:

- Dan Fricke, ODOT
- Lisa Ansell, ODOT
- Mike Faught, City of Stayton
- Gene Ditter, City of Sublimity
- Mike McCarthy, Marion County
- Anthony Boesen, FHWA

The PMT met in person to review deliverables and to plan upcoming activities. Other technical resource people were included in these meetings, as needed.

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# Public Involvement Program

The PMT conducted a public involvement program targeted to affected property owners and businesses. The purpose of the program was to:

- Elicit and facilitate *public discussion* of the needs and issues affecting the land uses and access changes in the four quadrants of the Oregon Highway 22 and Cascade Highway interchange.
- Generate a *collaborative problem solving process* to help identify solutions that address access issues.
- Build broad public understanding of the project needs, access requirements, and other issues.
- Nurture and strengthen the *credibility of the partners* (ODOT and the Cities of Stayton and Sublimity) and the legitimacy of the process.

#### **Program Elements**

The public involvement program incorporated the following major elements:

- Research to identify affected property owners and business
- One-on-one and small group meetings with affected property owners, businesses and community services (i.e. police, fire, EMS, School transport.)
- Mailing list
- City council briefings
- Phone calls and mailings
- Fact Sheet

#### **TA8LE 4-1**

Table Public Involvement Activity Summary

Date	Event or Activity	Purpose	Outcome
May 12, 2005	Three Small Group Meetings with Affected Property Owners (8 people attending.)	Introduction of the project; solicitation of input on problems and issues related to access and land use; opportunity to suggest alternatives	Identification of issues and concerns; suggestions for alternatives to consider
May 16, 2005	Two Small Group Meetings with Affected Property Owners (16 people attending.)	Introduction of the project; solicitation of input on problems and issues related to access and land use; opportunity to suggest alternatives	Identification of issues and concerns; suggestions for alternatives to consider
July 25, 2005	Small Group Meeting with Northwest and Northeast property owners (16 people attending.)	Presentation of access requirements; updated interchange concept; discussion of access alternatives.	Agreement on an access alternative for the north west quadrant.

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 TABLE 4-1

 Table Public Involvement Activity Summary

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Date	Event or Activity	Purpose	Outcome
August 2005	Mailing to mailing list	Summarize information gathered-to-date and outline next steps. Inform of public hearing dates.	
Throughout	Single point-of-contact	Answer questions and provide information for the public.	
Throughout	Mailing list (property owners, business owners and meeting attendees)	To be notified of meetings and city council hearings. Information will be given to project leader for the interchange project.	
Throughout	City Council briefings for the cities of Stayton and Sublimity		

# APPENDIX B Compliance with State and Local Plans, Policies and Regulations

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# Compliance with State and Local Plans, Policies, and Regulations

## **Documents Reviewed**

The following state and local plans, policies and regulations were reviewed as part of the Sublimity IAMP process. The remainder of this section summarizes the objectives of each of these documents and identifies sections relevant to the Sublimity IAMP.

- Statewide Planning Goals
- Oregon Transportation Plan
- Oregon Highway Plan
- Transportation Planning Rule
- Oregon Administrative Rule 734-051 (Access Management)
- Marion County Comprehensive Plan
- Marion County Rural Transportation System Plan
- Marion County Urban and Rural Zoning Ordinance
- City of Stayton Comprehensive Plan
- City of Stayton Transportation System Plan
- City of Stayton Land Use and Development Code
- City of Sublimity Comprehensive Plan
- City of Sublimity Transportation System Plan
- City of Sublimity Development Code
- Joseph Street Stayton North City Limits Environmental Assessment / Revised Environmental Assessment

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## **State Plans and Policies**

#### **Oregon's Statewide Planning Goals**

The State of Oregon has established 19 statewide planning goals to guide local and regional land use planning. The goals express the state's policies on land use and related topics. Goals expressly relevant to the Sublimity IAMP are as follows:

- Goal 2 Land Use Planning: Establish a land use planning process and policy framework as a basis for all decisions and actions related to use of land to assure an adequate factual base for such decisions and actions.
- Goal 11 Public Facilities and Services: Plan and develop a timely, orderly and efficient arrangement of public facilities and services to serve as a framework for urban and rural development.
- Goal 12- Transportation: Provide and encourage a safe, convenient and economic transportation system.
- Goal 14—Urbanization: Provide for an orderly and efficient transition from rural to urban land use.

The Oregon Department of Land Conservation and Development has acknowledged that the Marion County Comprehensive Plan, Stayton Comprehensive Plan, and the Sublimity Comprehensive Plan are in compliance with the statewide planning goals. Each of these three comprehensive plans are reviewed in this section.

#### Oregon Transportation Plan

The Oregon Transportation Plan (OTP) is a long-range policy document to address federal and state mandates for systematic statewide transportation system planning. It is developed by the Oregon Department of Transportation. The goal of the OTP is to promote a safe, efficient, and convenient transportation system over the next 40 years that improves livability and facilitates economic development for residents of the state. The OTP's goals, policies and actions integrate all modes of transportation with the intention of encouraging the most appropriate mode for each type of travel. The Plan's System Element identifies a coordinated multimodal transportation system, to be developed over the next 20 years, which is intended to implement the goals and policies of the Plan. The goals and policies of the OTP cover a broad range of issues. Those goals and policies most directly applicable to the Sublimity IAMP and its associated actions are as follows:

#### Goal 1: Characteristics of the System

#### Policy 1B – Efficiency

- Action 1B.1 -calls for the consideration of economic, social, energy and environmental impacts in transportation planning and design processes.
- Action 1B.4 corridors should be preserved for transportation development.

#### Policy 1G – Safety

- Action 1G.4 resources should be targeted to dangerous routes and locations in cooperation with local and state agencies.
- Action 1G.9 calls for the transportation system to be built, operated, and regulated so that users feel safe and secure as they travel.

#### Goal 2: Livability

#### Policy 2A – Land Use

 Action 2A.1 – supports local land use planning as part of system planning to minimize automobile trips per capita and automobile miles traveled.

#### Policy 2C – Relationship of Interurban and Urban Mobility

• Action 2C.1 – interurban corridors in and near urban areas should be planned and designed to preserve their utility for interurban travel.

#### **Goal 3: Economic Development**

#### Policy 3B – Linkages to Markets

• Action 3B.3 – the highway system should be maintained, preserved, and improved in order to provide infrastructure for the efficient movement of goods by truck and bus.

#### **Goal 4: Implementation**

#### Policy 4G – Management Practices

- Action 4G.1 calls for preserving, maintaining, and improving transportation infrastructure and services that are of statewide significance.
- Action 4G.2 access control be a part of transportation system projects to achieve reasonable levels of service.
- Action 4G.4 calls for controlled accesses to statewide transportation corridors and facilities.

#### **Oregon Highway Plan**

The 1999 Oregon Highway Plan is a modal element of the 1992 OTP and defines policies and investment strategies for Oregon's state highway system over the next 20 years. The plan contains three elements — a vision element that describes the broad goal for how the highway system should look in 20 years; a policy element that contains goals, policies, and actions to be followed by state, regional, and local jurisdictions; and a system element that includes an analysis of needs, revenues, and performance measures.

The policy element contains several policies and actions, described below, that are relevant to the Sublimity IAMP and its associated recommended actions.

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#### Policy 1A: State Highway Classification System

Policy 1A develops a state highway classification system to guide ODOT priorities for system investment and management.

Action 1A.1 defines five categories of state highway facilities – interstate highways, statewide highways, regional highways, district highways, and local interest roads. Two of these (interstate and statewide highways) are part of the national highway system.

Interstate highways provide connections to major cities and regions within the state and facilitate movement to and from other states. The management objective for interstate highways is to provide safe and efficient high-speed travel in urban and rural areas.

Statewide highways provide inter-urban and inter-regional mobility and connections to larger urban areas, ports, and major recreation areas not directly served by Interstate Highways. Statewide highways also provide connections for intra-urban and intra-regional trips. The management objective for statewide highways is to provide safe and efficient, high-speed, continuous-flow operation along the corridor, with minimal interruptions to flow in constrained or urban areas.

Action 1A.2 defines and classifies expressways as a subset of statewide, regional, and district highways. The function of expressways is to provide safe and efficient high speed and high volume traffic movements with minimal interruptions, for interurban travel and connections to ports and major recreation areas. Along expressways, private access is discouraged, connections to public roads are highly controlled, traffic signals (rural areas only) are discouraged, and nontraversable medians are encouraged.

#### Policy 1B: Land Use and Transportation

Policy 1B directs the state to work with regional agencies and local jurisdictions to consider land use when planning transportation systems and projects. Action 1B.7 gives special designations for certain land use patterns off the freeway to foster compact development patterns in communities. The three designations provided are special transportation area, commercial center, and urban business area.

#### Policy 1C: State Highway Freight System

Policy 1C states that the timeliness of freight movements should be considered when developing and implementing plans and projects on freight routes.

#### Policy 1F: Highway Mobility Standards

Action 1F.1 requires that highways operate at a certain level of mobility, depending on their location and classification. Part of this action requires that freeway interchanges be managed to maintain safe and efficient operation of the freeway through the interchange area.

#### Policy 1G: Major Improvements

Action 1G.1 directs agencies to make the fewest number of structural changes to a roadway system to address its identified needs and deficiencies, and to protect the existing highway system before adding new facilities to it. The action ranks four priorities of projects, as follows:

- 1. Preserving the functionality of the existing system
- 2. Making minor improvements to improve the efficiency and capacity of the existing system

- 3. Adding capacity to the existing system
- 4. Building new transportation systems

#### Policy 2F: Traffic Safety

Policy 2F identifies the need for projects in the state to improve safety for all users of the state highway system.

#### Policy 3A: Classification and Spacing Standards

Policy 3A addresses the location, spacing and type of road and street intersections and approach roads on state highways. It includes spacing standards for each highway classification. Appendix C of the OHP provides tables of access management spacing standards.

#### Policy 3B: Medians

This policy establishes the state's criteria for the placement of medians. Action 3B.2 calls for the construction of nontraversible medians to be considered as part of modernization projects for urban, multi-lane Statewide Highways when certain factors related to traffic volume, topography, and crash rate are present.

#### Policy 3C: Interchange Access Management Areas

Policy 3C calls for the planning and management of grade-separated interchange areas to ensure safe and efficient operation between connecting roadways. Action 3C.1 requires agencies to develop Interchange Area Management Plans to protect the function of interchanges over the long-term. The intention of an Interchange Area Management Plan is to minimize the need for major interchange improvements.

#### **Transportation Planning Rule**

The Transportation Planning Rule (TPR) implements Oregon Statewide Planning Goal 12, which encourages construction of transportation facilities that are safe and efficient and designed to reduce automobile reliance. The objective of the TPR is to reduce air pollution, congestion, and other livability problems found in urban areas.

The TPR requires the preparation of regional transportation systems plans (TSP's) by MPO's or counties and local TSP's by counties and cities. Through TSP's, the TPR provides a means for regional and local jurisdictions to identify long-range (20-year) strategies for the development of local transportation facilities and services for all modes, to integrate transportation and land use, to provide a basis for land use and transportation decision-making, and to identify projects for the State Transportation Improvement Program. TSP's need to be consistent with the State Transportation Plan and its modal and multimodal elements. The TSP's of the three jurisdictions inside the Sublimity IAMP area are reviewed in this document (Marion County, Stayton, and Sublimity).

#### Access Management Rules OAR 734-051

The intention of the Access Management Rules is to balance the safety and mobility needs of travelers along state highways with the access needs of property and business owners.

ODOT's rules manage access to the state's highway facilities to the degree necessary to maintain functional use, highway safety, and the preservation of public investment consistent with the 1999 OHP and local comprehensive plans. Access management is the most pivotal transportation planning tool being utilized in this IAMP to ensure safe and operationally efficient conditions in the vicinity of the interchange.

Sections of the Access Management Rules that are particularly relevant to the Sublimity IAMP are addressed below.

#### 734-051-0125, Access Management Spacing Standards for Approaches in an Interchange Area

1) Access management spacing standards for approaches in an interchange area:

(a) Are based on classification of highway and highway segment designation, type of area, and posted speed;

**Project Relevance:** Based on the Oregon Highway Plan, the applicable access spacing standard for the Sublimity Interchange is 1,320 feet. Correspondingly, it is a primary objective of this IAMP to remove a number of approaches along Cascade Highway within 1,320 feet of the interchange ramp terminals.

(c) Do not apply to approaches in existence prior to April 1, 2000 except where any of the following occur:

(A) These standards will apply to private approaches at the time of a change of use.

(B) If infill development or redevelopment occurs, spacing and safety factors will improve by moving in the direction of the access management spacing standards, with the goal of meeting or improving compliance with the access management spacing standards.

(C) For a highway or interchange construction or modernization project or other roadway or interchange project determined by the Region Manager, the project will improve spacing and safety factors by moving in the direction of the access management spacing standards, with the goal of meeting or improving compliance with the access management spacing standards.

**Project Relevance:** The preparation of this IAMP was necessitated by planned modernization improvements to the Sublimity Interchange. It is a main objective of this plan to provide implementable recommendations that will reduce the number of approaches to Cascade Highway in the interchange area. Recommendations include the provision of a backage road for properties along the west side of Cascade Highway (north of the interchange) to connect driveways to and local land use ordinances that will disallow access to Cascade Highway when one of these properties is redeveloped.

(2) Spacing standards in Tables 5, 6, 7, and 8 and Figures 1, 2, 3, and 4, adopted and made a part of this rule, identify the spacing standards for approaches in an interchange area.

**Project Relevance:** As noted earlier, based on the Oregon Highway Plan, the applicable access spacing standard for the Sublimity Interchange is 1,320 feet.

(4) Deviations must meet the criteria in OAR 734-051-0135.

**Project Relevance:** This IAMP is recommending deviations for two approaches in the project area (Sublimity Boulevard and the driveway to state-owned park-and-ride), as will be discussed in the review of OAR 734-051-0135.

(5) Location of traffic signals within an interchange management area must meet the criteria of OAR 734-020-0400 through 734-020-0500.

**Project Relevance:** This IAMP is recommending the installation of two traffic signals (at Cascade Highway and Sublimity Boulevard, and at the proposed intersection of Cascade Highway and Whitney Boulevard). The installation of these traffic signals will be in accordance with the criteria in OAR 734-020-0400 through 734-020-0500.

(6) The Department should acquire access control on crossroads around interchanges for a distance of 1320 feet. In some cases it may be appropriate to acquire access control beyond 1320 feet.

**Project Relevance:** This IAMP is recommending the long-term acquisition of access control along all sides of Cascade Highway for at least 1,320 feet, except at Sublimity Boulevard, where an access deviation is expected to be permanent.

#### 734-051-0135, Deviations from Access Management Spacing Standards

1) A deviation will be considered when an approach does not meet spacing standards and the approach is consistent with safety factors in OAR 734-051-0080(9).

Project Relevance: As noted earlier, this IAMP is recommending access management standard deviations for two approaches in the project area. These two approaches have been deemed to be consistent with the safety factors in OAR 734-051-0080(9), which are as follows: roadway character; traffic character; geometric character; environmental character; and operational character.

# 734-051-0155, Access Management Plans, Access Management Plans for Interchanges, and Interchange Area Management Plans

- (1) The Department encourages the development of Access Management Plans, Access Management Plans for Interchanges, and Interchange Area Management Plans to maintain highway performance and improve safety by improving system efficiency and management before adding capacity consistent with the 1999 Oregon Highway Plan.
- (5) The Department encourages the development of Interchange Area Management Plans to plan for and manage grade-separated interchange areas to ensure safe and efficient operation between connecting roadways:
  - (a) Interchange Area Management Plans are developed by the Department and local governmental agencies to protect the function of interchanges by maximizing the capacity of the interchanges for safe movement from the mainline facility, to provide safe and efficient operations between connecting roadways, and to minimize the need for major improvements of existing interchanges;
  - (c) Priority should be placed on those facilities on the Interstate system with cross roads carrying high volumes or providing important statewide or regional connectivity.

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- (6) Interchange Area Management Plans are required for new interchanges and should be developed for significant modifications to existing interchanges consistent with the following:
  - (a) Should be developed no later than the time an interchange is designed or is being redesigned;
  - (b) Should identify opportunities to improve operations and safety in conjunction with roadway projects and property development or redevelopment and adopt strategies and development standards to capture those opportunities;
  - (c) Should include short, medium, and long-range actions to improve operations and safety in the interchange area;
  - (d) Should consider current and future traffic volumes and flows, roadway geometry, traffic control devices, current and planned land uses and zoning, and the location of all current and planned approaches;
  - (e) Should provide adequate assurance of the safe operation of the facility through the design traffic forecast period, typically 20 years;
  - (f) Should consider existing and proposed uses of the all property in the interchange area consistent with its comprehensive plan designations and zoning;
  - (g) Are consistent with any adopted Transportation System Plan, Corridor Plan, Local Comprehensive Plan, or Special Transportation Area or Urban Business Area designation, or amendments to the Transportation System Plan unless the jurisdiction is exempt from transportation system planning requirements under OAR 660-012-0055;
  - (h) Are consistent with the 1999 Oregon Highway Plan; and
  - (i) Are approved by the Department through an intergovernmental agreement and adopted by the local government, and adopted into a Transportation System Plan unless the jurisdiction is exempt from transportation system planning requirements under OAR 660-012-0055.

**Project Relevance:** This IAMP was prepared in accordance with the most current guidance offered by ODOT for the creation of IAMP's<sup>1</sup>. By following this guidance, which encapsulates the requirements of 734-051-0155, this IAMP will be in conformance with the entirety of the rule.

<sup>&</sup>lt;sup>1</sup> Transportation Planning Guidance for Interchange Area Management Plans Revised Draft Working Paper #2 (David Evans and Associates. May, 2005)

# **Marion County Plans and Policies**

## Marion County Comprehensive Plan (1994)

The Sublimity IAMP has been found to be compliant with applicable sections of the Marion County Comprehensive Plan as provided in the following table:

Marion County Comprehensive Plan Element	Relevant Goals/Policies/Comments
Agricultural Lands	To preserve and maintain agricultural lands for farm use consistent with the present and future need for agricultural products, forest and open space.
	Preserve lands designated as Primary Agriculture by zoning them EFU. Lands designated as Special Agriculture should be protected by the corresponding SA zone and farmland in the Farm/Timber designation should be protected by the Farm/Timber zone.
Economic Development	Provision of increased employment opportunities for all residents of the County.
	Provision of sufficient areas for future industrial land use.
	Development of a transportation system for the safe and efficient movement of persons and goods for present needs.
	Coordination of planning and development of public facilities.
Urbanization	Basic planning goal is the conservation and intelligent use of land and related resources.
(Urban Land Use)	To provide an orderly transition from rural to urban land use.
(Urban Area Planning)	Orderly and economic provision for public facilities and services.
	Maximum efficiency of land uses within and on the fringe of the existing urban area.
	Compatibility of the proposed urban uses with nearby agricultural activities.
(Urban Growth)	The type and manner of development of the urbanizable land shall be based upon each community's land use proposals and development standards that are jointly agreed upon by each city and Marion County and are consistent with the LCDC goals.
	The provision of urban services and facilities should be in an orderly economic basis according to a phased growth plan.
	The majority of the projected population increases in Marion County should be directed to the urban areas.
(Urban Growth Management Framework)	Provide transportation corridors and options that connect and improve accessibility and mobility for residents along with the movement of goods and services throughout the County.
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•	Marion County Comprehensive Plan Element	Relevant Goals/Policies/Comments
	(Transportation)	Address transportation needs appropriate to both urban and rural areas throughout the County.
		Marion County shall jointly plan with communities to meet the transportation needs in the future.
		Allow for complementary mix of land uses and transportation systems.
		Encourage coordination of traffic calming methods.
	(Environmental)	Preserve and protect agricultural and forest lands, wetland, wildlife habitat, riparian corridors and natural areas through wise stewardship.
		Promote conservation, recycling and the efficient use of energy and resources.
		To protect rural farm and forest lands, identify land use efficiency standards that should be met before a city can amend its UGB.
		Development should retain vegetation buffers along streams, lakes, and reservoirs to provide shelter, shade, food and nesting for wildlife resources.
	(Economic Development)	Encourage a sustainable local and regional economy.
	Transportation	Development of a transportation system for the safe, economical, reliable, and efficient movement of persons and goods to meet the present and future needs.
		Provision of a balanced approach to transportation system development, giving due consideration to all modes of travel.
		Development of a transportation system consistent with area-wide goals and policies and the land use plans.
		To ensure a minimization of interruption of traffic flow and to promote safety, the number of access points on a collector and arterial roads shall be kept to a minimum.
		Highway facilities should be developed in such a manner that valuable soil, timber, water, scenic, or cultural resources are not damaged or impaired.

## Marion County Rural Transportation System Plan (1998)

The Sublimity IAMP has been found to be compliant with applicable sections of the Marion County Rural TSP as provided in the following table:

Marion County TSP Element	Relevant Goals/Policies/Comments	
4.0 Goals and Objectives		
Goal 1	Improve transportation system safety.	
Goal 2	Provide an accessible, efficient and practical transportation system.	
Goal 3	Provide sufficient and uniform design standards.	
Goal 4	Provide sufficient transportation capacity.	
Goal 5	Work in partnership with communities to address community needs and values.	
Goal 6	Promote alternative modes of transportation.	
Goal 7	Consider land use and transportation relationships.	
Goal 8	Address transportation policy issues and intergovernmental coordination	
7.2.4 Roadway Design Standards	Balance between transportation and land use.	
9.7.5 Development, Land Use, and Access Policies		
Policy 3	County shall consider and strive to minimize the negative impacts to surrounding land uses and communities in selection and implementation of transportation projects.	
Policy 4	Development proposals and changes in land use designations shall conform to any sub-area management plans created or adopted by Marion County	
Policy 8	New transportation facilities of all types should use existing rights-of-way to the extent possible to minimize disruption to existing land use.	
Policy 12	To prevent exceeding the expected capacity of any component of the transportation system, the County will consider roadway functional classification, capacity, and current conditions as primary criteria for proposed changes in land use designations and proposed land use developments.	
Policy 13	The County shall review land use actions, development proposals, and large transportation projects in the region for impacts to the transpiration system and facilities. If impacts are deemed significant and can not be mitigated, the action shall be denied or altered.	

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Marion County TSP Element	Relevant Goals/Policies/Comments
Policy 14	Number of access points on arterial and major collector roadways shall be kept to a minimum to minimize the interruption to traffic flow and to promote safety.

#### Marion County Zoning Ordinances (2004 - Revised)

The entire range of transportation improvements discussed in this IAMP are permitted outright in all zones in Marion County. Relevant sections are described in the following table:

Provision	Relevant Requirements
25.10 Uses Permitted in all Zones	(b) Except as provided in (d), expansion and realignment of existing right of way and easements, including improvement and construction of streets, roads and utilities in conformance with the applicable comprehensive plan and standards of the Department of Public Works.
	(d) In the UTF zone, in addition to existing uses and facilities, the following uses and facilities within street rights-of-way are permitted without approval: (1) climbing and passing lanes within the right-of-way existing as of July 1, 1987; (2) Reconstruction or modification of streets. Additional travel lanes, removal or displacement of buildings, or creation of new lots are not included.

# **City of Stayton Plans and Policies**

## Stayton Comprehensive Plan (1995 - Revised)

The Sublimity IAMP has been found to be compliant with applicable sections of the Stayton Comprehensive Plan as provided in the following table:

Stayton Comprehensive Plan Element	Relevant Goals/Policies/Comments	
Section 2	TSP has been prepared to meet state and federal regulations that require urban areas to conduct long-range planning. The long-range planning is intended to serve as a guide for the City of Stayton in managing their existing transportation facilities and developing future transportation facilities.	
2.2.1 Land Uses	Four major types: commercial, industrial, residential, and public uses.	

Stayton Comprehensive Plan Element	Relevant Goals/Policies/Comments
Section 4	
4.3.2 Arterials	Cascade Hwy/1st Ave is north/south arterial providing primary access to Stayton from Hwy 22 and Linn County. Conflicts with through traffic, local traffic, and pedestrians.
4.4.2 Pavement Width	Deficiencies at Golf Club Road from Mill Creek Road to Shaff Road; Fern Ridge Road from west of 10th Ave to Hwy 22; Cascade Hwy south of Hwy 22 eastbound ramps to Whitney Street.
	Required widths for arterials are 100 feet for right-of-way and 40 feet for pavement.
Section 7	
7.1.2 Functional Classification	Golf Club Road upgraded to minor arterial; Cascade Highway fro Hwy 22 upgraded to primary arterial.
7 1 5 Troffin Colming	Installed on a case by case basis
7.1.5 Traffic Calming 7.1.6 Street Improvements	Installed on a case-by-case basis. Highway 22 Joseph Street project (\$50,000); Widen Golf Club Road between Hwy 22 and Shaff Road (\$4,000,000); Signalize Golf Club Road/Hwy 22 eastbound ramps and install eastbound right-turn lane (\$250,000).
7.2 Ped/Bike Improvements	Fern Ridge Road, north side, sections between 1st Ave and Hwy 22 (\$72,000)

## Stayton Transportation System Plan (2004 - Final Draft)

The Sublimity IAMP has been found to be compliant with applicable sections of the Stayton TSP as provided in the following table:

Stayton TSP Element		IAMP-Relevant Goals and Policies	
Natural Resources			
	NR-11	Vegetation along streams and rivers should be maintained in a natural state. A buffer between urban development and fish habitat a strip of riparian vegetation should be retained along the North Santiam River and Mill Creek.	
	NR-12	Flood plain areas along Mill Creek and the North Santiam River that remain after flood protection measures, such as dikes or fill, are used, shall be retained as areas for open space and fish and wildlife habitat.	
Transportation		Plan considers ways to provide a safe, convenient, efficient, and economic system of moving people and goods in, around, and through the Stayton area.	

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	Stayton TSP Element	IAMP-Relevant Goals and Policies
	Street Improvements	Long-term improvements include more safe and convenient access to and from Highway 22; and adequate provision for increased traffic to an from industrial areas.
	Highway 22	Two lanes will eventually be needed from the intersection of Highway 214 and Highway 22 to Mehama.
	Financing	Additional funding is needed to do any street construction. The city relies heavily on the Marion County Road Department and the State Highway Division for construction and maintenance of major streets and bridges.
	Transportation Policies	
	T-2	The City of Stayton, Marion County, and the Oregon State Highway Division are the primary providers of bikeways, streets, and highways within the Stayton urban growth area and shall also maintain the streets for which they are responsible.
	T-3	Future arterial streets shall have a minimum 80-foot right-of-way. Existing arterials should be improved to an 80-foot right-of-way.
	T-4	All designated arterials shall have a 50-foot center line setback to allow for improvements and widening.
	T-12	The City of Stayton encourages the State Highway Division to include a overpass at Golf Club Road and Highway 22 in its 6-year plan.
	Land Use Policies	
λ., 	LU-2	Zoning shall follow property lines and include entire rights-of-way as much as practicable.
	LU-8	Land for medium density residential development shall be designated o the periphery of the central business area and in each sector of the city and urban growth area.
	LU-11	The central business area of Stayton shall continue to be the primary retail business area of the community.
	LU-12	The development regulations shall contain specific requirements for off- street parking needed for commercial, industrial, public, and residential development.
	LU-14	Strip-type commercial development along major streets (arterials and collectors) shall be discouraged.
	LU-20	The development regulations shall allow utility facilities necessary for public service to all zones. Utility facilities shall include, but not be limited to, water lines, sewer lines, storm drains, streets, power lines, telephone lines, natural gas lines, and the like.
	Economy	This element indicates Stayton's capability to provide for economic development.
	E-3	Commercial development at Highway 22 shall be discouraged.

Stayton TSP Element	IAMP-Relevant Goals and Policies	
En-4	Vacant lands within the corporate city limits shall be developed rather than leap-frogging to areas outside the city.	
En-7	Transportation facilities shall be developed in such a manner as to encourage the use of alternative modes.	

# Stayton Land Use and Development Code (2004 - Revised)

The Sublimity IAMP has been found to be compliant with applicable sections of the Stayton Code as provided in the following table:

Stayton Code Provision		Relevant Requirements
17.12.420 Plan Amendments		
×.	5c.	The proposed amendment complies with all applicable Statewide Planning Goals and administrative rule requirements, including Goal 14 and the urban growth policies of Stayton if a change to the urban growth boundary is requested.
17.12.430 Zone Changes		
	5a.	Proposed change and intended use is compatible with existing land use patterns and traffic generation and circulation.
	5d.	Proposed change is compatible with applicable provisions of Staytor Comp Plan.
	5e.	Proposed zone change satisfies applicable provisions of Oregon Statewide Planning Goals and Administrative Rules.
17.12.470 Site Plan Review		
	6b.	Provisions for safe and efficient internal traffic circulation, including both pedestrian and motor vehicle traffic, and provision for safe access to and from the property to those public streets and roads which serve the property.
Chapter 17.16 Zoning		
17.16.630 General Requireme	nts	
2. Minimum Street W	/idth	All street rights-of-way shall conform to requirements in Chapter 17.20 of this code.

Stayton Code Provision	Relevant Requirements
17.16.710 Interchange Development District	
1. Purpose	To provide for the location of needed highway service commercial facilities at the intersections of controlled access highways and arterial roads. All land zoned ID shall have frontage (not necessarily access) on Highway 22 or an arterial.
8. Parking	All uses are subject to parking and loading requirements of chapter 17.20 of this title.
17.16.780 Floodplain Overlay District	
3. Floodway	Except as permitted in SMC Section 17.16.790.16, no development shall be allowed in the floodway.
Chapter 17.20 Development and Improvement Standards	
17.20.860 Off Street Parking	
6. Auto Parking	Number of spaces determined by use, i.e. Retail store is one space per 400 square feet plus one space per 2 employees.
17.20.880 Special Street and Riparian Setbacks	
1. Special Street Setbacks	Minimum building setback of 50-feet, measured at right angles from centerline for First Avenue, Golf Club Road from Highway 22 to Sha Road.
2. Riparian Setbacks	b. Shall be 15-feet from ordinary high water mark along Salem ditch and 35-feet along Mill Creek and the North Santiam River.
Chapter 17.26 Transportation	
17.26.1020 Access Management	
1. Access Permits	a. Required for all projects requiring any type of permitting from the City that result in additional trip generation or change in use.
	c. Permits for access onto State highways shall be subject to review and approval by ODOT except when responsibility has been delegated to City or Marion County.
	g. City has authority to change accesses for all uses if it is constructing a capital improvement project along that section of the public street.
3. Location of Access	h. Access spacing standards per table 17.26.1020-3h.

Stayton Code Provision	Relevant Requirements
	i. Highway 22 - adopts the 1999 OHP for access management spacing for Highway 22 at Golf Club Road and Cascade Highway
6. Development Review Procedures	b.3. The access shall be consistent with the access management standards adopted in the TSP and contained in 17.26.1010.

# **City of Sublimity Plans and Policies**

# Sublimity Comprehensive Plan (1973)

The Sublimity IAMP has been found to be compliant with applicable sections of the Sublimity Comprehensive Plan as provided in the following table:

Sublimity Comprehensive Plan Element	Relevant Goals and Policies
Air Quality	All development within the City shall adhere to applicable federal and state air quality standards.
Noise Control	Future development activities that generate a significant amount of noise will be required to meet all noise regulations of the State of Oregon.
Open Space	The City shall encourage development plans that provide for preservation of open space.
	Discourage the premature, unnecessary and wasteful conversion of valuable agricultural land to city uses.
Economics	Increase local employment opportunities to meet the needs of the residents of the area.
	Foster commercial and/or industrial activities to meet the expressed needs of the residents.
	Create a favorable climate to attract new commercial uses which will benefit the community.
Land Use	Preserve the rural quality of existing residential development.
	Assure that commercial activities are compatible with adjacent land uses and consistent with the environmental and economic goals of the community.
	Designate an area appropriate for industrial development which would be retained in agricultural use during the interim period through zoning.

17

Sublimity Comprehensive Plan Element	Relevant Goals and Policies						
Transportation	Establish a street system which is consistent with orderly growth and minimizes conflicts with adjacent land uses.						
	Provide a circulation system which is safe and efficient for both vehicle users and pedestrians.						
	Bike paths and sidewalks should be provided to connect schools, parks and shopping facilities with residential areas.						
	Future streets should seek to facilitate access by residents to major transportation routes.						
	Give priority to street improvements which are necessary to achieve safety, lower maintenance costs and increase efficiency.						
Amendment, 1997	TSP replaces Transportation Element; TSP in full compliance with requirements of TPR.						

# Sublimity Transportation System Plan (1998 – Final Draft)

The Sublimity IAMP has been found to be compliant with applicable sections of the Sublimity TSP as provided in the following table:

Sublimity TSP Element	Relevant Goals and Policies
Overall Guidance	Provide a circulation system which is consistent with orderly growth and minimizes conflicts with adjacent land uses.
	The City shall establish a system of transportation facilities and services adequate to meet identified local transportation needs and shall be consistent with regional and state TSP's.
	Bicycle and Pedestrian facilities should be developed that provide safe and convenient access within and from new subdivisions, planned developments, shopping centers and industrial arks to nearby residential areas, transit stops, and neighborhood activity centers, such as schools, parks and shopping.
	The City shall establish a system of transportation facilities and services adequate to meet identified local transportation needs and shall be consistent with regional and state TSP's.
	The City shall consider the adoption of the State Highway Compatibility Guidelines and Model Ordinance when completed by ODOT.
	Future streets should seek to facilitate access by residents to major transportation routes.
	Traffic movement on arterials shall be facilitated by controlling access wherever possible. Access control shall include restrictions on the number and location of individual encroachments and street intersections.
Street Design	Design standards for arterials, collectors, local streets.

Sublimity TSP Element	Relevant Goals and Policies
Access Management	Maintain acceptable level of service (good mobility).
	Minimize capital costs. Improve safety by minimizing potential conflict points.
	Improve bicycle/pedestrian mobility

# Sublimity Land Use and Development Code (2002 - Revised)

The entire range of transportation improvements discussed in this IAMP are permitted outright in all zones in the City of Sublimity. Relevant sections are described in the following table:

Sublimity Code Provision	Relevant Requirements
2.202 Street Standards	2.202.04 General Right-of-Way and Improvement Width, Standards for new and existing streets
2.403 Uses Permitted in All Zones	2.403.01 C. Surfaced travel lanes, curbs, gutters, drainage ditches, sidewalks, bikeways, transit stops, landscaping and related structures and facilities located within rights-of-way controlled by a public agency.
	2.403.01 D. Expansion of public right-of-way and widening or adding improvements within the right-of-way, provided the right-of-way is not expanded to more width than prescribed for the street in the Public Facilities segment of the Comprehensive Plan. A non-conforming use may be continued although not in conformity with the regulations for the zone in which the use is located.

# **Other Documents**

# Joseph Street – North Stayton City Limits Environmental Assessment / Revised Environmental Assessment (1995)

Findings from the Joseph Street EA, relevant to the Sublimity IAMP, are described in the following table:

Element	Relevant Findings
Purpose and Need	Project consistent with OHP.
	OR 22 is one of 15 Access Oregon Highway (AOH) routes.
	Major safety concerns in the corridor.
	Increasing traffic, unsatisfactory LOS, accident history, and importance of this highway are the need for the project.
Transportation	LOS D east of Golf Club Road as well as east of Cascade Highway.
	All private access to OR 22 would be terminated.
Utilities	Northwest Natural Gas line on the east side of Sublimity Interchange.
	Waterline and sewer lift stations in the NW quadrant of Sublimity Interchange.
Economics	Insurance office in NW quadrant of Sublimity Interchange would lose a small amount of ROW.
Community Facilities	Small amount of ROW to be taken from golf course at Golf Club Road.
Land Use/Zoning	Sublimity Comp Plan does not specifically mention this project yet does mention the need to improve Sublimity Interchange.
	Stayton Plan recommends an overpass at Golf Creek Road.
Natural Resources	Mill Creek to pass under new westbound lanes in Phase 2.
Wetlands	Cascade Highway option to impact 0.01 acre.
Wetland Mitigation	Land in Mill Creek floodplain as mitigation site.
Historic Properties	Century Farm (Miller property) northeast of Sublimity Interchange.
Compliance w/ Comp Plans, Statewide Planning Goals, Transportation Planning Rule	County Plan calls for widening Highway 22 from Joseph St to Mehama.
	Modification of Sublimity Interchange would require conditional use permits from Marion County.

# APPENDIX C Existing 2005 Turning Movement Counts

PDX/052070004\_USR.DOC

#### HCM Signalized Intersection Capacity Analysis 1: Fern Ridge Rd & Cascade Hwy

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Movement.		EBI	çor SR	NE AVE DE		. Mar	N N N N N N	S.NET.	<b>ANBR</b>	SBI (	Set	SBR
Lane Configurations	ኻ	4		7	<b>F</b>		ኻ	12		ĥ	4	
Ideal Flow (vphpl)	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	0.93		1.00	0.95		1.00	0.98		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)	1660	1622		1660	1668		1660	1704		1644	1684	
Fit Permitted	0.31	1.00		0.21	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	545	1622		359	1668		1660	1704		1644	1684	,
Volume (vph)	120	175	160	85	160	70	130	425	85	80	505	110
Peak-hour factor, PHF	0.92	0.92	0.92	0.84	0.84	0.84	0.83	0.83	0.83	0.92	0.92	0.92
Adj. Flow (vph)	130	190	174	101	190	83	157	512	102	87	549	120
RTOR Reduction (vph)	0	26	0	0	13	0	0	6	0	0	6	
Lane Group Flow (vph)	-	338	Ō	101	260	0	157	609	0	87	663	ō
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	4%	4%	4%
Turn Type	pm+pt			pm+pt	nan Kaler		Prot			Prot		
Protected Phases	7	4		3	8	an tait air	5	2		1	6	
Permitted Phases	4			8		1991 - 1994 1997 - 1997			da e terra	Martin -		
Actuated Green, G (s)	41.4	29.5	ta bate te anat	38.4	28.0	Charles (C. 177	14.6	54.0	an generation and de	10.1	49.5	
Effective Green, g (s)	41.4	29.5	1945 - 1947	38.4	28.0	24 - C - L	14.6	54.0	agen Mer	10.1	49.5	
Actuated g/C Ratio	0.34	0.25	teater an a ran a	0.32	0.23		0.12	0.45		0.08	0.41	
Clearance Time (s)	4.0	4.0	Norde	4.0		<b>8</b> 80	4.0	4.0	496-00-09	4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	ana esten (rel de las	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	299	399	8400.00	228	389	2650 - P. P.	202	767		138	695	
v/s Ratio Prot	c0.04	c0.21	NAME AND	0.04	0.16	i di 10 man	c0.09	0.36	gi lehedi dela	0.05	c0.39	
v/s Ratio Perm	0.11		Ale Last -	0.10		en daya a ji	00.00		م ماريد اريک	0.00	00.00	
v/c Ratio	0.43	0.85	it guraeur d'	0.44	0.67	sa pagaja - m	0.78	0.79		0.63	0.95	
Uniform Delay, d1	28.9	43.1		31.0	41.8	Geografie to a	51.1	28.2	and the second	53.1	34.1	
Progression Factor	1.00	1.00	nanu yerda	1.00	1.00		1.00	1.00	ana ang sang sang sang sang sang sang sa	1.00	1.00	
Incremental Delay, d2	1.00	15.1	1.13 (4.51)	1.4		san a Ma	17.0	8.3	enter de la	9.0	23.1	
Delay (s)	29.9	58.2	provil over.	32.3	46.1	V4-1	68.1	36.5	All Million	62.2	57.3	
Level of Service	29.9 C	50.2 E			D	5 - A 18	E	D	liti tere	E	E	
Approach Delay (s)	e debi le Me	50.8	osh (Marid	an janjan 🕶 (	42.4		11 <b></b>	42.9	i i i i i i i i i i i i i i i i i i i		57.8	
Approach LOS		00.0 D			 D		ad Dere	-т <u>г</u> .э D.		Den 1975	E	
Intersection Summary HCM Average Control I HCM Volume to Capac			49.2 0.82	1	HCM Le	vel of S	ervice		D			
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c Critical Lane Group

Stayton/Sublimity IAMP 04/12/2005 Existing 2005 CH2M HILL

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## Queues 1: Fern Ridge Rd & Cascade Hwy

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Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
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Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50	574 (d.	50	50	el seg h	50	50	
Trailing Detector (ft)	0	0	- 0 <sup>-1</sup> - 1	0	0		0	0		0	0	
Turning Speed (mph)	15	841.44 1	9	15	hada. D	9	15	and the second	9	15	φ	9
Satd. Flow (prot)	1660	1622	0	1660	1667	0	1660	1704	0	1644	1684	0
Fit Permitted	0.300	생승 감소 .		0.154		With Alth	0.950		$M_{\rm e}^{\rm (S_{\rm e})} M_{\rm e}^{\rm (S_{\rm e})} = 0$	0.950		1. T
Satd. Flow (perm)	524	1622	0	269	1667	0	1660	1704	0	1644	1684	0
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Satd. Flow (RTOR)	1977 - E	35		18 - 12 <sup>1</sup> 1	17	रः । : । मः अवस्थिति ≱		10	, inter		11	
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Volume (vph)	120	175	160	85	160	70	130	425	85	80	505	110
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Peak Hour Factor	0.92	0.92	0.92	0.84	0.84	0.84	0.83	0.83	0.83	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	4%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)	woles -			see ta Fr	2282. B	86.11. Š	werk.	- Adda -	. Londos .	Ĭ		Ŭ
Mid-Block Traffic (%)	9 18 6 <b>8</b> 9 1 1 8	0%	0.1901-019	ent a tra 1.1	0%	<u>2</u> 84-60-00 oo	8800 N.H.	0%	이었다. 아니 생각		0%	
Lane Group Flow (vph	) 130	364	0	101	273	0	157	614	0	87	669	0
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Total Split (%)		25.0%				0.0%				16.7%		0.0%
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All-Red Time (s)	0.0	0.0	15 AN 18 A	0.0	0.0	36. N. 1944	0.0		a secondaria.	4.0 0.0	0.0	
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Lead-Lag Optimize?	Yes	Yes	M. Alete	Yes	Yes	an she	Yes			Yes	Yes	
Recall Mode	None	None	angegu i ling	None	None	2 Y . 19		C-Max		None	None	
Act Effct Green (s)	41.4	29.5	da base	38.4	28.0	sta pokod	14.6		The second s	11,4	49.5	
Actuated g/C Ratio	0.34	0.25	when having the	0.32	0.23	99.997 (j.)	0.12	0.46	1999 - M. 1981 1997 - M. 1987	0.10	49.5	
v/c Ratio	0.34	0.25		0.32	0.23		0.72	0.48	Maria da Sara	0.10	0.41	
Control Delay	29.0	58.4		28.9	48.4	anton di.	68.9	38.2	at a fair	56.4		
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		50 G	n na shekar ya sh		D 43.2		E		것 이 것 유수	er e E		
Approach Delay		50.6			43.2			44.4			59.3	

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#### Queues 1: Fern Ridge Rd & Cascade Hwy

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Approach LOS		D		Ð		D		S E	
90th %ile Green (s)	16.0	28.0	14.0	26.0	16.0	46.0	16.0	46.0	
90th %ile Term Code	Max	Max	Gap	Max	Max	Coord	Max	Coord	w ji li
70th %ile Green (s)	13.5	30.3	11.7	28.5	16.0	48.6	13.4	46.0	
70th %ile Term Code	Gap	Max	Gap	Hold	Max	Coord	Gap	Coord	
50th %ile Green (s)	11.7	31.8	10.2	30.3	16.0	50.5	11.5	46.0	
50th %ile Term Code	Gap	Max	Gap	Hold	Max	Coord	Gap	Coord	der en
30th %ile Green (s)	10.1	32.2	8.9	31.0	14.3	53.3	9.6	48.6	
30th %ile Term Code	Gap	Gap	Gap	Hold	Gap	Coord	Gap	Coord	
10th %ile Green (s)	8.0	25.3	7.0	24.3	10.6	75.7	0.0	61.1	
10th %ile Term Code	Gap	Gap	Gap	Hold	Gap	Coord	Skip	Coord	
Queue Length 50th (ft)	67	240	51	177	118	416	65	~547	
Queue Length 95th (ft)	114	#430	84	261	#179	#585	116	#782	
Internal Link Dist (ft)		736		746		807		866	
Tum Bay Length (ft)	200	de Meri	200		200		200	gaine de la com	
Base Capacity (vph)	341	427	282	407	221	784	219	702	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	<b>0</b>		D.	0	0	0	<b>0</b>	Sept Ma
Reduced v/c Ratio	0.38	0.85	0.36	0.67	0.71	0.78	0.40	0.95	
									<b>685-6996-6</b> 566

Intersection Common providence and a second s Other Area Type:

Cycle Length: 120 Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2 NBT, Start of Green Natural Cycle: 120

Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.95

Intersection Signal Delay: 50.2 Intersection LOS: D Intersection Capacity Utilization 81.1% ICU Level of Service D Analysis Period (min) 15

Volume exceeds capacity, queue is theoretically infinite. ~

Queue shown is maximum after two cycles. 95th percentile volume exceeds capacity, queue may be longer. #

Queue shown is maximum after two cycles.

Splits and Phase	es: 1: Fern Ridge Rd & Cascade Hwy		
ø	<b>↑</b> <sub>ø2</sub>	<b>√</b> <sup>′</sup> ø3	<b>→</b> <sub>∅</sub> 4
<b>√</b> 25	<b>↓</b> ø6	<b>●</b> Ø7	<b>4</b> −−− ø8
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HCM Unsignalized Intersection Capacity Analysis 2: Martin & Cascade Hwy

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Movement is a Marshe	SATE S	11 3 38	NET	SNBP 2	SER					
Lane Configurations		<u>í</u>	ţ,		<u></u>	<b>^</b>	CONTRACT CONTRACTOR AND FOR			
Sign Control	Stop	di <sup>1</sup> di	Free	jî de saki		Free		Startista (	and the second second	A Carlos
Grade	0%		0%		at the second	0%	a and a contract of	a secondaria de la		
Volume (veh/h)	0	15	595	20		695	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	에 관계하는 Market		
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Pedestrians	lar (begægg)		047	an 2 <b>44</b> 93		090	an tait at a faile		e distriction (1997) The	A NO ME
Lane Width (ft)		the the	1991. AN		States and			de la como	Andrea to be	
Walking Speed (ft/s)	and and the second	2013 1.117	a anna ann	al official		nation although a	yaka jita matuk ny		nger van die oore	
Percent Blockage	lege pro-		$\alpha_{g}\mathcal{B}_{1}\otimes\mathbb{N}$	<sup>el</sup> skyge	1), series			per segui	eg glader an ei	
Right turn flare (veh)										
	None	la se		lar Shek						1997 - A. T.
Median storage veh) Upstream signal (ft)	(18ann 15		946	a de la companya	ter all tea		ti a diferenza da	A secondaria da		
pX, platoon unblocked	0.70	0.70	340	3 - 12 - 14 - 14 - 14 1	0.70	Ner is is de la c	n in the first states		artista a subs	
vC, conflicting volume	1516	658	ya ta sa	Qui de Ma	668	ge Arthur	dage et ing	Alex part		
vC1, stage 1 conf vol					1.1.4004-1.1.1	10 - 14 C				
vC2, stage 2 conf vol						ge to de la		한다.	al film of a	
vCu, unblocked vol	1742	508	a terra da	and the second	523					
tC, single (s) tC, 2 stage (s)	6.4	6.2		나는 가지	4.1	ana Arri		영상 소리가		
tF (s)	3.5	3.3			2.2	aa taisu	t forul dese	an at the second		
p0 queue free %	100	96	n se	nu ojnjeku obrikj	100	inin Arten.	1997 - 24 STANDER BU	easteanne in suith	a da Martin (* 1	
cM capacity (veh/h)	66	390			722				요즘 것은 소리.	
Dinection all ane 4. Strength			SBA							
Volume Total	16	668	858							
Volume Left	0	0	0	resserent rendets	AGEN AND DON	id fragmenter (never	eessaa seen coor	erwistin i Posesee		
Volume Right	16	22	0		de Farel					y el el de
cSH	390	1700	1700	New York Control New York	turku urupatan ur	n to an Aria		enter all all an and a	ere warna in soor in e	
Volume to Capacity	0.04	0.39	0.50 0						en an	Mag (Ag
Queue Length 95th (ft) Control Delay (s)	3 14.6	0 0.0	0.0	ali she and	Bile di Austrifia -	an in		attale Parte	enstan	
Lane LOS	B	- Y HANNA AND I C	8708 <b>849</b> .25	en con services All con services	nkoursen nou	an indiana.	: 11월23일 - 19일 - 19일 - 19일 - 19일 - 19일 - 19일	, 40년 일이 2월 1일(1일) 	ng nggggang (ilinan).	en i digle
Approach Delay (s)	14.6	0.0	0.0	Michilian (						ventru v v
Approach LOS	В	n nan norsenation	en i viktoren (	• • •520 - 7800-980	a a lawa 1986 arrit	anata di Ningi da		en an 1963 en 1949 Alberto. A	en el la eltre pagaga encle	
Intersection Summary 1.										
Average Delay			0.2							COLUMN AND A COLUMN AND A COLUMN
Intersection Capacity Uti	lization	19 a 19 <b>a</b>	44.3%	िः	U Leve	of Serv	rice	A		
Analysis Period (min)	the sets of the		15							
(2) 「たた」の「「よな」は、熱心の時間が下す。	gar di 1 L									

Stayton/Sublimity IAMP 04/12/2005 Existing 2005 CH2M HILL

### HCM Unsignalized Intersection Capacity Analysis 3: Whitney & Cascade Hwy

Q	7/	0	71	2	0	υ	5

	1	. 🔨 🖓	1 /	·≻-↓				
Movement		WERMAN	da nere		t.			
Lane Configurations	¥		\$	۲	<u>†</u>			
Sign Control	Stop	Fre	<b>;e</b>	Fre	e		2월 2월 20일 4일 - 1	
Grade	0%		%	09				
Volume (veh/h)	75	100 55		175 62		a baran dari baran dari dari dari dari dari dari dari dari	ferral da factoria de la ser- el cumula este a comenciale	
Peak Hour Factor	0.93	0.93 D.8 108 68		0.91 0.9		nen en versenne.	n distantin o disso isto n	an trat
Hourly flow rate (vph) Pedestrians	81	108 68	35 68	192 68	에 많은 이상 같은 것을 가지?	가 무엇이 있는 것이 있는 것		
Lane Width (ft)	tikizik ezi		NACE AND THE	1983 - Andrew State		2.56796720.5587A	A BARRA AND S	
Walking Speed (ft/s)	an ann an stàitean an stàiteach.	1994-000 06905-000 000 000 000 000 000 000 000 000 0	en o sector de la sur-	رئۇتىرىكە ئەتلەرلىكە ئەتلەرلىكە يەتلەرلەر 1991	n an tha an	ar e ny ar faith a grain is gr	Selenski vista Silense (s	
Percent Blockage	949 - O. 1993			na an as an		성장 것 같다.		
Right turn flare (veh)								
Median type	None			elen Mariatea	e parte de la contra de la contra Esta de la contra de	방법이 아이들을 가		
Median storage veh)			ntas da X.A.M	August - the start	N. L. CANARA	e de la Maria de		
Upstream signal (ft) pX, platoon unblocked	0.74	0.74 130	<b>)</b> 0	0.74		n de la sec		
vC, conflicting volume	1785	719		753		alan na sanari k	<u>arendera al casa e de</u>	
vC1, stage 1 conf vol	na na saara san			and <b>Constantia</b> (Const	a an	alah seri keri dari se		
vC2, stage 2 conf vol	di kana saka				r deurrich.			
vCu, unblocked vol	2060	621		667	a ga shekar kar da sa aka			
tC, single (s)	6.4	6.2		41		a da batan daga baran ba Batan Batan da batan da batan	ja dan kata mangan terden. Kata mangan dari dari dari dari dari dari dari dari	11
tC, 2 stage (s)	an an t <b>air an t</b> hat	an earle an an la	. Se inener - Deedd	wheeling and the day	a shi ta ƙasar ƙwallon ƙasar ƙwa	n a Namerica e analos	and an an an and the second second	
tF (s)	3.5 0	3.3 70		2.2 72		방법에 승규가 관망하는 것	비용, 비용하철 가격되는	
p0 queue free % cM capacity (veh/h)	32	360		677		SAN SARAWA DA	·····································	
· · · · · · · · · · · · · · · · · · ·						na an a	CONTRACTOR CONTRACTOR	000000000
enterente nu santa enterente de la constante de		NE TRASE	<u>11 (2582)</u>					
Volume Total Volume Left	188 81		92 681 92 0					
Volume Right	108	68	o 0 0		ender Schradingen.	Assaldarabilitikiitta	Strategic and a	
cSH	66	1700 67	nalisti data nalakaratika ki	and the subsection of the sector of the sect	a, and the second as a		몇 만만한 방송된 NUCE 와 관계 전 :	g hi na s
Volume to Capacity	2.83	0.44 0.2		de l'heter t				
Queue Length 95th (ft)	474		29 0	adaga ng Wasi ng Kasi P	ere in de vroenvere in evit soor	- 200 101 - 1202 - 1721 1. M.L. 1711	n en sakar kartak sekan di si siya karta di s	
Control Delay (s)	960.9	0.0 12	.4 0.0		的复数动物的		264년 202 Hours	
Lane LOS	F	non anna - r- r- rai	B	and the state of the state of the		e sester en entres	was a second as a second	
Approach Delay (s)	960.9	0.0 2	<b>T</b> alia (1986)			23년 일험 영화님 :		
Approach LOS	F							
nie section Summary's		1. S. S.					******	
Average Delay		100	.9					

Intersection Capacity Utilization 65.5% ICU Level of Service C Analysis Period (min) 15

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HCM Unsignalized Intersection Capacity Analysis 4: Golf Lane & Cascade Hwy

07/07/2005

	٦	$\mathbf{i}$	1	1	Ļ	1					
Movement	E Bio	er:	NEL			SPE					
Lane Configurations	۲f	Concernation of the second	a angle has the set	र्भ	4			and the second second			
Sign Control	Stop		84. AN	Free	Free		al sector a p		e tetter.	as bit tit.	e da serie
Grade	0%			0%	0%	29 <u>29</u> 200				9 - 1 - 1 - 1 - 1 	
Volume (veh/h)	10	15	5	650	780	10				o Sale inseri	
Peak Hour Factor	0.92	0.92	0.91	0.91	0.84	0.84					
Hourly flow rate (vph) Pedestrians	11	16	5	714	929	12		sastas i ne j	n tik tahun T	i tempi v	al a n
Lane Width (ft)			arika Manada			an airte	an Septima.			and a state	NA LAN
Walking Speed (ft/s)	ndan da ing ang	548520	e de la ferre de la ferre La ferre de la ferre	nga yan kasa	uniteresterni § 1	eri rejonĝi sine	n an taon i Afrika di Afrika. A	1980 - A. G. (1997 - A.	n je stani	a serta a c	
Percent Blockage		ay, waa				11. JAN 8	and the		The second second		
Right turn flare (veh)											
Median type	None	na nyi		hiji she		a ta Mit	11 A.C		$1.54 \pm 81$	and second	
Median storage veh)						· · ·					
Upstream signal (ft)			staroja)		CAREAR		이 집 가 가				
pX, platoon unblocked	NUMBER OF STREET	e salat ti sa cili con					A 1 1				
vC, conflicting volume	1660	935	940			황요가 말				영상 가슴 옷이	
vC1, stage 1 conf vol	A FRANK MALESSAN		anna setar	Difference (0.1)	er antitus ana			dian a t			
vC2, stage 2 conf vol								성명의 소문법	k ( all s	. (영화) (A. M.	
vCu, unblocked vol	1660	935	940	sitakka last	toresien wher	Water i see det			antine tran		
tC, single (s)	6.4	6.2	4.1				음 (요구) APA A		April 24	atan papaté M	
tC, 2 stage (s) tF (s)	3.5	3.3	2.2	M. ANDRES II	9.55° (1994) (1995) (1995)	an Maria (1926)	tes de la com	R RASA ST -	A STAN AND AND	e na servici e	
p0 queue free %	90 90	95	 99				in Carlor Carlor C	학생님 승규는 다	요즘 연락하려는		a fa kaya
cM capacity (veh/h)	105	319	721				arte de la composition Alternation	arnese e	Alessa R	e de la compañía de l	ogny nation
<ol> <li>The second state of the second st</li></ol>			n na seren ne e de la						y lào 29 9 Albertin	a dana baseler	
Directional article and			SB 1	riste it							
Volume Total	27	720	940								
Volume Left	11	- 5	0	ann - said	Libror Al-Level	an ta barte in iste	an a	an a statut e serve			
Volume Right	16	0	12			신간한 것 관련	en finsk se		San Na san	성 있는 것이 있는 것이 없다.	
cSH Volume to Capacity	176 0, <b>1</b> 5	721 0.01	1700 0.55	to and a state	7 - 08/085.495.	an na Luda.	de local administ.	N. S. M. S. Sanaka	ar bilan tikana i	oltana ele t	
Queue Length 95th (ft)	0,13 13	ा <u>स्ट</u> ास्ट 1	v.əə 0		한 동안 안 남편한	81.988. OBS	아님아라아와??	아니라 이번 영법을	다가 가난 것이 아니다.	24월 24일 문	
Control Delay (s)	29.2	-	0.0	e esta en de la	h den and the	r 1997 - State State († 1997) 1997 - State State († 1997)	n Kasalanta	talio de la com	edetur 3-10 opa	Gibleren om v	line en
Lane LOS	osenne os D	A	en de la constant de La constant de la cons	이 없는 것으로 통신	n været etter	1997 - 1997 - 1997 - 199 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 19	19 11월 11일 11일 11일 11일 11일 11일 11일 11일 11일	아파라이었던 것이다.	enter en	en mette er	
Approach Delay (s)	29.2	0.2	0.0	di Malaka (			Lothilic di a	Reiseria			da series
Approach LOS	D D	219 <b>8</b> 0 09 1907-203	ender förförige	0988868939399	a na sangga ng galangan ng sangga ng san Sangga ng sangga ng sa	1998 - ANGER 1993 ANGER 1993	ardonaren elarak	una secentia. T		NATURA DA LA L	ndi koʻrti ilgali. Mari
			10000000000000000000000000000000000000		States and an and a state of the						0000000000
Intersection Stammary											
Average Delay	onesse se se	Station and the	0.6	t skort Beterlaha	<b></b>		<u>a 201</u> 1.000.0000	tina na amin'	ai Madhi aan a	eredos estructors foi	
Intersection Capacity U	uiization	1941 - 1873 1941 - 1943	54.0%	영국과 문장	CU Leve	el of Servi	1 <b>CE</b>	원장 관소 사람	ANNE	요리는 물건을	
Analysis Period (min)	angaziako, er vi	Red House	15	la ha na shi shi a	n Ann anvitati	na interactione	tuas esti erae	den de la C	5 - <u>5 - 5 - 5</u> - 5 - 5 - 5	المراجع والمراجع	
				es status (1)			NY TRACK		11149 AMU	n i Africa e	•

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### HCM Unsignalized Intersection Capacity Analysis 5: EB Ramp & Cascade Hwy

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و	• 😽	<ul><li>▲ 1</li></ul>	↓	1		
Movement & Accessed E	CAREBRA	NELSANE	I SBIR	SERVICE		
	<b>A</b>		1 î>			
Sign Control Sto		Fre	e Free		가 있었다. 그 바람 것이다.	
Grade 09		09				
	5 390	45 61		60	사이가 있는 것이 가려는 것이 있는 것이다. 같은 것이 같은 것이 있는 것이 같은 것이 있는 것이 있는 같은 것이 같은 것이 같은 것이 같은 것이 있는 것이 있는 것이 있는 것이 있는 것이 있는 것이 없는 것이 있는 것이 있는 것이 없는 것이 없는 것이 없는 것이 없는 것이 없는 것이 없는 것이 있는 것	
Peak Hour Factor 0.8 Hourly flow rate (vph) 5	7 0.87 2 448	0.84 0.8		0.90 67	An when had the second	1
Pedestrians		54 15	<u></u>	en <b>97</b> se transformations est te	alah di di karafati di dut	
Lane Width (ft)	ata de ci			it e gerebiat (M	at in Andra Sa	
Walking Speed (ft/s)	•			n a star a star a star a st	na an a	
Percent Blockage	en gebereten.				ten fils definition	
Right turn flare (veh)				an an an ar an ar an ar	a a star transformation da ag	to data
Median type Non Median storage veh)	e	at i China Alfredia.		그 지수는 것 같은 친구의 가능했다.	References solar de	
Upstream signal (ft)	taya na sa sa sa	ana shi cashirean.	akinda turuni	an geland in the second	الاستنار وأسواك محادوا مسوطور	
pX, platoon unblocked		ada di sara.	e the star deput	na de la sua de la tractione. La companya de la comp	an an Arraightean an Arraightean Airte	
vC, conflicting volume 131	7 478	511	가 가지 말을	한 옷 눈소를 확실해 물을	가는 영국 관람이다.	
vC1, stage 1 conf vol		a characteria	ala saasa liika	اوهو با افرا الروب و و الرو		
vC2, stage 2 conf vol	7 470	lati (China a'	ste fitteritike		가는 사람이 있는 것은 가장을 가장할 수 있는 것이다. 사람은 것은 것이 같은 것은 것이 있는 것이 같이 있는 것이 있는 것이 있는 것이 있는 것이 있는 것이 있는 것이 있는	
vCu, unblocked vol 131 tC, single (s) *7.		511 <b>4</b> .1	da in tradita	بالمعالي المراجع والأطلال المراجع	and the second	
tC, 2 stage (s)				a e refuida ferrira (C. 1.1986).	th church church à church church.	
tF (s) *4	5 *4.3	2.2				
p0 queue free % 5	i0 0	95			preven pro inverse de la company.	
cM capacity (veh/h) 10	423	1044				
Direction with the SPECTOR REPORT		SBASSA				
Volume Total 50	C	511				
	54	0	and a second of the state	<ul> <li>The second se</li></ul>		
Volume Right 44 cSH 32		67			(1996년 2019년 1997년 - 1997년 1997년 1997년 1997년 1997	
cSH 32 Volume to Capacity 1.5		1700 0.30	led de Merri	an da hadadilan da karanti		g adda y i ga sa
Queue Length 95th (ft) 72		0	in Matrix I in Book de	n de la filmetada de la constante de la consta La constante de la constante de	en de academica de ser a cara a	
Control Delay (s) 297		0.0		tin an		
Lane LOS	FΑ	en an ann an an an an Anna Mail an 1947 an a	an an ann an Anna an An	··· ··································	an a second provident and a second	
Approach Delay (s) 297. Approach LOS	2 1.3 F	0.0	de le artill	e de relation de la composition de la c		\$P\$***********************************
Intersection Sommary						
Average Delay		83.3		a a ser a		arananan da ang ang ang ang ang ang ang ang ang an

Intersection Capacity Utilization 100.9% ICU Level of Service G Analysis Period (min) 15

방법적은 현실 이상을 통하는 것이 없다. 방법적 방법적 것이 하는 것이 것 \* User Entered Value

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HCM Unsignalized Intersection Capacity Analysis 6: WB Ramp & Cascade Hwy

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Movement Souther Rol		MERSEN		SECON				5
Lane Configurations	a na ana ang ang ang ang ang ang ang ang	¢	and the second secon		<b>^</b>			i
Sign Control	Stop	Free		Fre				
Grade	0%	0%		0%	%			
Volume (veh/h)	୍ତି	0 470		0 46			· 한 바람만 바람 같 같	
Peak Hour Factor	0.92	0.92 0.85		0.88 0.8		والمتعادين والمعالية والمعروف		
Hourly flow rate (vph) Pedestrians		0 553	224	0 52	야할 소리가 다니 것 모습이	일 시설 및 기억왕은 1971 		
Lane Width (ft)		E. S. BERNE	ing an	ana indonesi		a and an large	andre stragen i de en en	
Walking Speed (ft/s)	9.000 M 30 M 10 M	n na service e se service.	n an airte an a'	se vijastræ riyaka in	an an the second at the Report of			
Percent Blockage	949 - 4 <u>1</u> -	나라 집에 감독하				2909 Barris		
Right turn flare (veh)	Jack Marine							
	None		an a			한 이와 이가로		
Median storage veh) Upstream signal (ft)	Nglana dale a	An at Nutrie Alberton	Asian di tari	station of	une en PORCE en la Saca	ele - satelate e b		
pX, platoon unblocked	49 - E 1997) E	<ul> <li>Charles Charles</li> </ul>	Caaboo - Abbey	meneter (* 1917) de	n Markovini a Solo (M.). S	ાર ગોય જુરહે તેવે.		
vC, conflicting volume	1187	665	4. T. 19	776	sector de la sector	en en tyd	States and the second sec	
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	1187	665	nan Al-Artefal	776	koval an kale alama	4. 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997		
tC, single (s) tC, 2 stage (s)	6.4	6.2	4월 1898년 1819년 1819년 1919년 1월 1919년 1819년 1819년 1919년 1819년 181	41	방법을 가 가도 가 관련하였다.	se contra de la		
tF (s)	3,5	3.3		2.2	leise kund die Allie	a sa na kata na sa	alastissi (k. 1976).	
p0 queue free %	100	100	AN AGREED (NALL ANALOL AL	100	Reconstruction of Applementation	1999 - C.S.M.S. 995 11 - 400 .	earna a shara e sen u sues sa a	
cM capacity (veh/h)	208	460		827	ya dan ka	N ANAL AN		
Direction Lene # 2000	<b>DIFINI</b>	SB4						
Volume Total	776	523						1
Volume Left	0	0				an a		
Volume Right	224	0				한 2012년 1월 18일		
cSH Volume to Capacity	1700 0.46	1700 0.31	a degra i Norwana	uwani sekeratio	udu ar to even o toto za ve	an an an an an tarta an tar	naar salaa sa sa sa sa sa sa sa sa sa	
Queue Length 95th (ft)	0.40 0	<b>0.9</b> 1	化化验验 计一次问题	333230월 프로그램은 * *	an bha ann ann an tarbhann ann ann ann ann ann ann ann ann ann	그는 말 아이지 않는 것 같아.		
Control Delay (s)	0.0	0.0	Addition of the for	kien oktober	alah dari dal	Menindian di	ang tanàn amin'	
Lane LOS	and concerning the state of the second	and we can an an a	n an			nana o con bezañ e se jer	en alexed, the second second	
Approach Delay (s) Approach LOS	0.0	0.0	MARCE ANN				<b>ur na</b> litetta en 1993. A	
Intersection/Summary								i.
Average Delay		0.0	)					2

Intersection Capacity Utilization 41.7% ICU Level of Service A Analysis Period (min) 15

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#### HCM Unsignalized Intersection Capacity Analysis 7: Sublimity Blvd & Cascade Hwy

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	٦	74	$\mathbf{r}$	1	1	۴	_ اير	Ļ	-	F	•	•
Advement &	on EBI.	-EDR-	EB\$\$2	NBL	NEI	DER	SBI	<b>6</b> 81	SBR	NN 2	NWL	(NUM
ane Configurations	M				Ł			4			M	
Sign Control	Stop			38 S M	Free			Free	38 QQ-		Stop	de la co
Grade	0%				0%			0%			0%	
/olume (veh/h)	15	25	55	35	435	0	15	395	15	10	5	4
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.94	0.94	0.94	0.77	0.77	0.7
lourly flow rate (vph)	17	28	62	40	494	0	16	420	16	13	6	5
Pedestrians												
ane Width (ft)		유민생태	물란 영향이					소란관관				
Valking Speed (ft/s)												
Percent Blockage					i ing party		n fa fa fa sa	Vê ê reş	신문 것이다.	공리 화품관		
Right turn flare (veh)	10120 J 11 - 2 7 - 1	and a comp									and the second second	
Nedian type	None	김 옷은 물건		KSSA A	것가 안 전						None	
ledian storage veh)	alador dan i	the states of the		e Maria de La	50.015 B. 6.	1						
Jpstream signal (ff)		승규가 가장		13 연안 2	tan kal	이 같은 것이 ?	se di di					
X, platoon unblocked	en e			Marti kasaranti		1	And a submitted of the	a waxaa wa	a la la servició	. Kawawat arew	e vatatta arcor	
C, conflicting volume	1096	1034	428	436			494	gel hat here		1111	1042	49
C1, stage 1 conf vol	ALCONTRACTORS	1.45 . 1923		and the second	. Sector de la		a an a sa	2014 A			and the state	
C2, stage 2 conf vol	4000	4004		방법에 있는	i san sin sin sin sin sin sin sin sin sin si	승규는 성격이 가장	67 O. D	40.3500		말했다.		
Cu, unblocked vol	1096	1034	428	436	a Nation		494		a ha a ta	1111	1042	49
C, single (s)	*8.6	*8.0	*7.7	<b>4</b> 4		이상 같다. 3	4.1	an guile		*8.7	*8.1	*7.
C, 2 stage (s)			an a	Na katalan kata	ke san Senders	ada tulu da ca	ംകം	andre de la	un thuis as b		a la s <b>e e ca</b> l a	
F. (s)	* <b>4</b> :5 80	*5.0 78	* <b>4</b> .3 85	2.2 96		લાજે એક કે માટે છે.	2.2 98	geroere e	안전 하였다.	*4.6	* <b>5</b> .1 95	*4
0 queue free %	80 83	129		90 1108	edebarate d		90 1054	19.0000 (S.19.4	Masta Alaas	81 68	95 123	8 37
M capacity (veh/h)		129	420	1400			1004			00 EEEEE	123	37
inections Labe 4/5555 /olume Total	108	534	452	78						<u></u>		
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/olume Right	62	-+0	16	58	a. Anar	inter di Lattra del	ense laundra	elozaki, et itere	aren terdisiek		te elemente.	
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olume to Capacity		0.04	0.02	0.40		ર પંચ કુલ્લા છે.	alik di wak	delater. H.	Geologia de la	a Andrea		N. S. S.
Queue Length 95th (ft)	<b>9.91</b> 76	3	્રે પ્રસ્ટ 1	ν.π <u>ν</u> 44		station (1948), 18	area e e se	8.33.338.4.4.	8000 (CCC)	E BRANK		NG L H
Control Delay (s)	- 46.5	1.ŏ	0.5	35.2	و مرود وليشار في	Nadate da k	11. la la bada	an an the second se	and shi tu	SAURADA		
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Approach Delay (s)	46.5	1.0	ିର୍ଚ୍ଚ	35.2	(na sa	(Mana a Ka	Grandaria	ત્રા કેલી છે. જિલ્લાન	kali je je postali se ta se	k. kalikuna	e det here e de	9.9
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ntersection Capacity L	Itilization	19일() 전 19 (1)	59.5%		CU Lev	el of Se	rvice		1996 ( <b>B</b> S)			•

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Stayton/Sublimity IAMP 04/12/2005 Existing 2005 CH2M HILL

Synchro 6 Report Page 1

07/07/2005

HCM Unsignalized Intersection Capacity Analysis 8: 9th Street & Cascade Hwy

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07/07/2005

Lane Configurations       Y       4       p         Sign Control       Stop       Free       Free       Free         Grade       0%       0%       0%       0%         Volume (veh/h)       15       50       20       475       375       15         Peak Hour Factor       0.92       0.92       0.94       0.92       0.92       0.92         Pedestrians       16       54       21       505       408       16         Pedestrians       Eane Width (ft)       Widking Speed (ft/s)       Percent Blockage       Right turn flare (veh)         Median type       None       Median storage veh)       Upstream signal (ft)       PX, platoon unblocked         vC1, stage 1 conf vol       vC2, stage 2 conf vol       964       416       424       VC1, stage 1 conf vol         vC2, stage (s)       6.4       6.2       4.1       Volume Left       6       633       119         Volume Total       71       527       424       Volume Left       6       21       0         Volume Total       71       527       424       Volume Left       54       0       16         CSH       457       119       100       10		٨	* *	<b>†</b>	Ļ	4			
Sign Control         Stop         Free         Free         Free           Grade         0%<	Movementesso	E BOS	ecer ne	AND BUS	Si S	SBR & SM			
Grade     0%     0%     0%     0%       Volume (veh/h)     15     50     20     475     375     15       Peak Hour Factor     0.92     0.92     0.94     0.92     0.92       Hourly flow rate (vph)     16     54     21     505     408     16       Pedestrians     Eane Width (ft)     Walking Speed (ft/s)     Percent Blockage     Right turn flare (veh)       Median type     None     Median storage veh)     Upstream signal (ft)     Py Alaton unblocked       VC, conflicting volume     964     416     424     424       vC1, stage 1 conf vol     964     416     424       vC1, stage 1 conf vol     VC, unblocked vol     964     416       V2, stage 2 conf vol     VC, unblocked vol     964     416       vC1, stage 1 conf vol     VC, stage 1     98     416       vC2, stage (s)     6.4     6.2     4.1       If (s)     3.5     3.3     2.2       p0 queue free %     94     91     98       volume Total     71     527     424       Volume Total     71     527     424       Volume Right     54     0     16       cSH     487     119     1700									
Volume (veh/h)       15       50       20       4475       375       15         Peak Hour Factor       0.92       0.92       0.92       0.92       0.92         Houry flow rate (vph)       16       54       21       505       408       16         Pedestrians       Lane Width (ft)       Walking Speed (ft/s)       Percent Blockage       8       16         Right turn flare (veh)       Median storage veh)       Upstream signal (ft)       px (c. conflicting volume       964       416       424         vC1, stage 1 conf vol       vC2, stage 2 conf vol       vC4       416       424         vC1, stage 1 conf vol       964       416       424       424         vC1, stage 1 conf vol       964       416       424			n an chéann an Thài Ngi Manan tra					영광 관계	1996년 1월 1997년 1월 19 1월 1997년 1월 1
Peak Hour Factor       0.92       0.92       0.94       0.94       0.92       0.92         Hourly flow rate (vph)       16       54       21       505       408       16         Pedestrians       Lane Width (ft)       Walking Speed (ft/s)       Percent Blockage       Right turn flare (veh)         Median storage veh)       Upstream signal (ft)       PA       416       424         vC, conflicting volume       964       416       424         vC1, stage 1 conf vol       964       416       424         vC2, stage 2 conf vol       964       416       424         vC1, stage 1 conf vol       964       416       424         vC1, stage 1 conf vol       964       416       424         vC2, stage 2 conf vol       VC2       416       424         vC1, stage 1 conf vol       964       416       424         vC1, stage 1 conf vol       964       416       424         vC1, stage 1 conf vol       964       416       424         vC2, stage 2 conf vol       964       91       98         cM capacity (veh/h)       276       633       1119         Drochostant (the flow flow flow flow flow flow flow flow			and the second second second			1 cause of a		. Milan .	
Hourly flow rate (vph) 16 54 21 505 408 16 Pedestrians Lane Width (ft) Walking Speed (ft/s) Percent Blockage Right turn flare (veh) Median storage veh) Upstream signal (ft) pX, platoon unblocked vC, conflicting volume 964 416 424 vC1, stage 1 conf vol vC2, stage 2 conf vol vC2, stage 3 ft f (a) 3.5 3.3 2.2 p0 queue free % 94 91 98 cM capacity (veh/h) 276 633 1319									
Pedestrians Lane Width (ft) Walking Speed (ft/s) Percent Blockage Right turn flare (veh) Median type None Median t							an an ann an tha		the second second second
Lane Width (ft) Walking Speed (ft/s) Percent Blockage Right turn flare (veh) Median storage veh) Upstream signal (ft) pX, platoon unblocked vC, conflicting volume 964 416 424 vC1, stage 1 conf vol vC2, stage 2 conf vol vC2, stage 2 conf vol vC2, stage 2 conf vol vC2, stage 2 conf vol vC2, stage 3 conf vol vC2, stage 3 conf vol vC2, stage 3 conf vol vC2, stage 4 conf vol vC2, stage 5 conf vol vC2, stage 5 conf vol vC2, stage 6 conf ref (s) 3.5 3.3 2.2 p0 queue free % 94 91 98 cM capacity (veh/h) 276 633 1119 Disconse of the 10 conf volume Total 71 527 424 Volume Total 71 527 424 Volume Left 16 21 0 Volume Right 54 0 16 cSH 487 1119 1700 Volume C2pacity 0.15 0.02 0.25 Queue Length 95th (ft) 13 1 0 Control Delay (s) 13.6 0.5 0.0 Lane LOS B A Approach LOS B		10	<b>3</b> 4 21	505	408	10	~ 이번 것 ~ 20	이야 한 것은 것	
Walking Speed (ft/s)         Percent Blockage         Right turn flare (veh)         Median storage veh)         Upstream signal (ft)         pX, platoon unblocked         vC, conflicting volume         964       416         vC1, stage 1 conf vol         vC2, stage 2 conf vol         vC2, stage 2 conf vol         vC2, stage 2 conf vol         vC2, stage (s)         IF (s)       3.5         3.5       3.3         2.2         p0 queue free %       94         94       91         Mcabacity (ver/m)       276         633       1119         Molume Total       71         52       424         Volume Total       71         54       0         16       21         0       0         Volume Right       54         50       0.2         0.202       0.25 </th <th></th> <th>ant and</th> <th></th> <th></th> <th></th> <th>eada leada</th> <th>a seguera Ville</th> <th>n en sen de la sen d</th> <th>and a state of the state of the</th>		ant and				eada leada	a seguera Ville	n en sen de la sen d	and a state of the
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Right turn flare (veh)       None         Median type       None         Median storage veh)       Upstream signal (ff)         pX, platoon unblocked       964       416       424         vC1, stage 1 conf vol       964       416       424         vC1, stage 2 conf vol       964       416       424         vC1, stage 2 conf vol       964       416       424         vC1, stage 2 conf vol       964       416       424         vC1, unblocked vol       964       416       424         tC, single (s)       6.4       6.2       4.1         tC, 2 stage (s)       5       3.3       2.2         p0 queue free %       94       91       98         cM capacity (veh/h)       276       633       1119         Discovery of 4       15       3.7       424         Volume Ent       16       21       0         Volume Left       16       21       0         Volume Right       54       0       16         cSH       487       119       1700         Volume to Capacity       0.15       0.02       0.25         Queue Length 95th (ft)       13       1		u the state	- NG-BRAN, ST	an tan Ma	Naginara	the Association	a da falar e	- Dest Adas	ta da ser a compositiones de la
Median type       None         Median storage veh)       Upstream signal (ft)         pX, platoon unblocked       vC, conflicting volume         vC, conflicting volume       964       416       424         vC1, stage 1 conf vol       vC2, stage 2 conf vol       vC4       416       424         vC1, stage 1 conf vol       vC4       416       424       416       424         tC, single (s)       6.4       6.2       4.1       4.1       4.1         tC, single (s)       6.4       6.2       4.1       4.1       4.1         tC, single (s)       6.4       6.2       4.1       4.1       4.1         tC, single (s)       5.5       3.3       2.2       90       91       98         cdr capacity (veh/h)       276       633       1119       91       98         cdr capacity (veh/h)       276       633       1119       91       90         Volume Total       71       527       424       424       424       424         Volume Left       16       21       0       0       40       40       40       40       40       40       40       40       40       40       40       40 <th></th> <th>alle dae end of</th> <th>instanti tu - tumur aster trans-</th> <th>e e e se e e se se se se se se se se se</th> <th>er nælvelje i der i e</th> <th>n Wieler (1997)</th> <th></th> <th>and the first state</th> <th></th>		alle dae end of	instanti tu - tumur aster trans-	e e e se e e se se se se se se se se se	er nælvelje i der i e	n Wieler (1997)		and the first state	
Upstream signal (ft)       pX, platoon unblocked         vC, conflicting volume       964       416       424         vC1, stage 1 conf vol       vc2, stage 2 conf vol       vc2, stage 2 conf vol         vC2, stage 2 conf vol       964       416       424         tC, single (s)       6.4       6.2       4.1         tC, single (s)       6.4       6.2       4.1         tC, single (s)       6.4       6.2       4.1         tC, stage (s)       15       3.3       2.2         p0 queue free %       94       91       98         cdM capacity (vert/h)       276       633       1119         Dischall (set 4       416       424         Volume Total       71       527       424         Volume Total       71       527       424         Volume Left       16       2.1       0         Volume Right       54       0       16         cSH       487       1119       1700         Volume to Capacity       0.15       0.02       0.25         Queue Length 95th (ft)       13       1       0         Control Delay (s)       13.6       0.5       0.0         Lan		None		angan (199		2월 1일일, 14 19 19 19 19 19 19 19 19 19 19 19 19 19			Sterre Alter Al
pX, platoon unblocked       964       416       424         vC1, stage 1 conf vol       vC2, stage 2 conf vol       964       416       424         vC1, stage 1 conf vol       964       416       424         vC1, unblocked vol       964       416       424         tC, single (s)       6.4       6.2       4.1         tC, single (s)       6.4       6.2       4.1         tC, astage (s)       155       3.3       2.2         p0 queue free %       94       91       98         cM capacity (veh/h)       276       633       119         Direction form       110       514       514         Volume Total       71       527       424         Volume Left       16       21       0         vOlume Right       54       0       16         cSH       487       1119       1700         Volume to Capacity       0.15       0.02       0.25         Queue Length 95th (ft)       13       1       0         Control Delay (s)       13.6       0.5       0.0         Lane LOS       B       A       A         Approach LOS       B       A       A<	Median storage veh)							1.1 1. <u>1</u> 1.	
vC, conflicting volume       964       416       424         vC1, stage 1 conf vol       964       416       424         vC2, stage 2 conf vol       964       416       424         vC1, unblocked vol       964       416       424         tC, single (s)       6.4       6.2       4.1         tC, 2 stage (s)       3.5       3.3       2.2         p0 queue free %       94       91       98         cM capacity (weh/h)       276       633       119         De choose and       31       91       98         cM capacity (weh/h)       276       633       119         De choose and       31       91       98         cM capacity (weh/h)       276       633       119         De choose and       31       91       98         cM capacity (weh/h)       276       633       119         Volume Total       71       527       424         Volume Left       16       21       0         cSH       487       119       1700         Volume to Capacity       0.15       0.02       0.25         Queue Length 95th (ft)       13       1       0 <th>Upstream signal (ft)</th> <th></th> <th>[27] 한 영요 공입</th> <th></th> <th></th> <th>홍수 문서 문문에 가장</th> <th></th> <th></th> <th>States 1</th>	Upstream signal (ft)		[27] 한 영요 공입			홍수 문서 문문에 가장			States 1
vC1, stage 1 conf vol       vC2, stage 2 conf vol         vCu, unblocked vol       964       416       424         tC, single (s)       6.4       6.2       4.1         tC, single (s)       6.4       6.2       4.1         tC, single (s)       6.4       6.2       4.1         tC, single (s) $6.4$ 6.2       4.1         tC, single (s) $3.5$ $3.3$ $2.2$ p0 queue free %       94       91       98         cM capacity (web/h) $276$ $633$ $1119$ Difference from price $412$ $843$ $843$ Volume Total       71 $527$ $424$ Volume Left       16 $21$ $0$ Volume Right $54$ $0$ $16$ cSH       487       1119       1700         Volume to Capacity $0.15$ $0.02$ $0.25$ Queue Length 95th (ft)       13       1 $0$ Control Delay (s)       13.6 $0.5$ $0.0$ Lane LOS       B       A       A         Approach LOS       B       H       A		et Brance	A sub-sector of Alleria as				·		
vC2, stage 2 conf vol         vCu, unblocked vol       964       416       424         tC, single (s)       6.4       6.2       4.1         tC, 2 stage (s)       3.5       3.3       2.2         p0 queue free %       94       91       98         cM capacity (veh/h)       276       633       1119         UC stocks or ,       3.5       3.3       2.2         v0 queue free %       94       91       98         cM capacity (veh/h)       276       633       1119         UC stocks or ,       3.5       3.3       2.2         v0 queue free %       94       91       98         cM capacity (veh/h)       276       633       1119         UC stocks or ,       3.5       13.1       0         Volume Total       71       527       424         Volume Left       16       21       0         Volume Right       54       0       16         cSH       487       1119       1700         Volume Length 95th (ft)       13       1       0         Control Delay (s)       13.6       0.5       0.0         Lane LOS       B       A		964	416 424	1860 p. 14	영소 관련	동안 관련되는 것은	한 글 문 문 한	~ 영향 성상감	평양이 좋아 있는 것
vCu, unblocked vol       964       416       424         tC, single (s)       6.4       6.2       4.1         tC, 2 stage (s)       1       3.5       3.3       2.2         p0 queue free %       94       91       98         cM capacity (veh/h)       276       633       1119         Dueue free %       94       91       98         cM capacity (veh/h)       276       633       1119         Dueue free %       94       91       98         volume Total       71       527       424         Volume Left       16       21       0         Volume Right       54       0       16         cSH       487       1119       1700         Volume to Capacity       0.15       0.02       0.25         Queue Length 95th (ft)       13       1       0         Control Delay (s)       13.6       0.5       0.0         Lane LOS       B       A         Approach Delay (s)       13.6       0.5         B       H       4       45         Herse Hore Semmany       B       0		e o havior	umusedni stera i kusteruk tustet i tu	winfraction tributation	s unternation des	e neurolado analo atoriente.	second the Newson	and which the second	a subset of the second second
tC, single (s) 6.4 6.2 4.1 tC, 2 stage (s) tF (s) 3.5 3.3 2.2 p0 queue free % 94 91 98 cM capacity (vert/h) 276 633 1119 Difference free % 94 91 98 cM capacity (vert/h) 276 633 1119 Difference free % 94 91 98 cM capacity (vert/h) 276 633 1119 Difference free % 94 91 98 cM capacity (vert/h) 276 633 1119 Difference free % 94 91 98 cM capacity (vert/h) 276 633 1119 Difference free % 94 91 98 cM capacity (vert/h) 276 633 1119 Difference free % 94 91 98 cM capacity (vert/h) 276 633 1119 Difference free % 94 91 98 cM capacity (vert/h) 276 633 1119 Difference free % 94 91 98 cm							网络动物运行	ेन्द्रे क्षेत्र केंद्रे व	t de la secola
tC, 2 stage (s)       3.5       3.3       2.2         p0 queue free %       94       91       98         cM capacity (veh/h)       276       633       1119         bit chool (att 4       14.1       89         Volume Total       71       527       424         Volume Left       16       21       0         Volume Right       54       0       16         cSH       487       1119       1700         Volume to Capacity       0.15       0.02       0.25         Queue Length 95th (ft)       13       1       0         Control Delay (s)       13.6       0.5       0.0         Lane LOS       B       A       Approach Delay (s)       13.6       0.5       0.0         Approach LOS       B       H       Approach LOS       B       H				and a second of the second	r	e de Albacher et 4 dat	4 Factor A.S.	ta Batata 1	an an an an an an
If (s)       3.5       3.3       2.2 $p0$ queue free %       94       91       98         cM capacity (veh/h)       276       633       1119         Inconstruction of fill       71       527       424         Volume Total       71       527       424         Volume Left       16       21       0         Volume Right       54       0       16         cSH       487       1119       1700         Volume to Capacity       0.15       0.02       0.25         Queue Length 95th (ft)       13       1       0         Control Delay (s)       13.6       0.5       0.0         Lane LOS       B       A       Approach Delay (s)       13.6       0.5         Approach LOS       B       A       A       Approach LOS       B		is <b>o</b> <del>a</del> r	0.2 4.1			한 참여 관련 같이 있는 것같	화가 물건 가장은 가지가 가지?		ala ndu dhe de
p0 queue free %       94       91       98         cM capacity (veh/h)       276       633       1119         Director and and anotal       21       0         Volume Total       71       527       424         Volume Left       16       21       0         Volume Right       54       0       16         cSH       487       1119       1700         Volume to Capacity       0.15       0.02       0.25         Queue Length 95th (ft)       13       1       0         Control Delay (s)       13.6       0.5       0.0         Lane LOS       B       A         Approach LOS       B       A         Mapproach LOS       B       H		35	23 99			willing of the state of the	Historia da com	an de la state	Man Henrican di
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Volume Total       71       527       424         Volume Left       16       21       0         Volume Right       54       0       16         cSH       487       1119       1700         Volume to Capacity       0.15       0.02       0.25         Queue Length 95th (ft)       13       1       0         Control Delay (s)       13.6       0.5       0.0         Lane LOS       B       A         Approach Delay (s)       13.6       0.5       0.0         Approach LOS       B       H       0.5       0.0	The state of the s				en de secondanio En de secondanio				
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Volume Right       54       0       16         cSH       487       1119       1700         Volume to Capacity       0.15       0.02       0.25         Queue Length 95th (ft)       13       1       0         Control Delay (s)       13.6       0.5       0.0         Lane LOS       B       A         Approach Delay (s)       13.6       0.5       0.0         Approach LOS       B       A		AME 1 100 12 12 12 12 12 12	THE REPORT OF A DESCRIPTION OF A DESCRIP	ertifianhaesen 643 affer - ora-					1997년 25 AP 25 P []
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Volume to Capacity         0.15         0.02         0.25           Queue Length 95th (ft)         13         1         0           Control Delay (s)         13.6         0.5         0           Lane LOS         B         A           Approach Delay (s)         13.6         0.5         0           Approach LOS         B         A				in the second	gar teacht	語目的人名马利斯尔阿尔利尔	중지간연방가라 는 단락	한국 것 한감 것이가 이	병원 승규는 것 같아.
Queue Length 95th (ft) 13 1 0 Control Delay (s) 13.6 0.5 0.0 Lane LOS B A Approach Delay (s) 13.6 0.5 0.0 Approach LOS B INTERSECTION Sommany						kilita (Alward A		(E. S. Carton (1995), e. e. (1	Enversion of the state
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Intersections. Sommany and	Approach Delay (s)	13.6	0.5 0.0						
	Approach LOS	₿	<ul> <li>The manufacture science is a second science of the se</li></ul>	a anna actractive	n na managang sama sing sa		a an	n en	and a state of the state of the
Average Delay 12	Intersection Sommary a								
	Average Delay		1.2	,					
Intersection Capacity Utilization 54.3% ICU Level of Service A		lization	54.3%		CU Leve	l of Service		A	教育社会 化合合合
Analysis Period (min) 15	Analysis Period (min)		15		and a second state			and a second second	
에 비사가 제시간한 역약한 한 한 일이 전 약한 1000년 한 일반 것 이가는 물질 통한 가지 않는 것을 수 있다. 가 있는 것은 이상 가지 않는 것이 있는 것이 있는 것이 있는 것이 있는 것이 있는	이는 이가 가지 않는 것은 것을 알았다. 이가 이가 가지 않는 것은 것을 같아요. 이가 이가 있는 것을 같아요.		al el al gibbon en la se el la companya de la c	se de la prisión de la constant	$\frac{1}{100} + \frac{1}{100} \frac{1}{100} + \frac{1}{100} + \frac{1}{100} \frac{1}{100$	in yn by 'n ei nyr Weby. Yn 1917 - Ersterne Stere		$= \sum_{i=1}^{N} \sum_{j=1}^{N} \sum_{j=1}^{N} \sum_{i=1}^{N} \sum_{j=1}^{N} \sum_{j=1}^{N} \sum_{i=1}^{N} \sum_{j=1}^{N} \sum_$	

Stayton/Sublimity IAMP 04/12/2005 Existing 2005 CH2M HILL

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#### HCM Unsignalized Intersection Capacity Analysis 9: ORE 22 & EB On Ramp

07/07/2005	

$\rightarrow$ $\rightarrow$ $\checkmark$ $\checkmark$ $\checkmark$	
Movement a set of a set BT as EBRA WARLS, AMBL, SAIBL, AMBR / SAIA	7, 1
Lane Configurations 🛉 🛉	
Sign Control Free Free Stop Grade 0% 0% 0%	
Volume (veh/h) 465 0 0 875 0 105	
Peak Hour Factor 0.92 0.92 0.92 0.92 0.87 0.87	
Hourly flow rate (vph) 505 0 0 951 0 121	
Pedestrians	
Lane Width (ft)	
Walking Speed (ft/s)	
Percent Blockage Right turn flare (veh)	
Median type	
Median storage veh)	
Upstream signal (ft)	
pX, platoon unblocked	
vC, conflicting volume 505 1457 505	
vC1, stage 1 conf vol vC2 stage 2 conf vol	
vC2, stage 2 conf vol vCu, unblocked vol 505 1457 505	
tC, single (s) 4.1 6.4 *8.2	
tC, 2 stage (s)	
tF (s) 2.2 3.5 *5.3	
p0 queue free % 100 100 60	
cM capacity (veh/h) 1059 141 305	
Volume Total 505 951 121	
Volume Left 0 0 0	
Volume Right 0 0 121	
cSH 1700 1700 305	
Volume to Capacity 0.30 0.56 0.40 Queue Length 95th (ft) 0 0 46	
Control Delay (s) 0.0 24.4	
Lane LOS C	
Approach Delay (s) 0.0 0.0 24.4	
Approach LOS C	
Average Delay 1.9	
Intersection Capacity Utilization 57.2% ICU Level of Service B	
Analysis Period (min) 15	

Analysis Period (min)
 10
 \* User Entered Value

Stayton/Sublimity IAMP 04/12/2005 Existing 2005 CH2M HILL Synchro 6 Report Page 1

Sec. 27

HCM Unsignalized Intersection Capacity Analysis 10: ORE 22 & WB On Ramp

07/07/2005
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$\mathcal{F} \rightarrow \leftarrow \mathcal{K} \rightarrow \checkmark$
Movements and a set of the set of the MER SET of SBR
Lane Configurations
Sign Control Free Free Stop
Grade 0% 0% 0%
Volume (veh/h) 0 570 645 0 0 230
Peak Hour Factor 0.92 0.92 0.92 0.92 0.85 0.85
Hourly flow rate (vph) 0 620 701 0 0 271
Pedestrians
Lane Width (ff)
Walking Speed (ft/s)
Percent Blockage
Right turn flare (veh)
Median type Median storage veh)
Upstream signal (ff)
pX, platoon unblocked
vC, conflicting volume 701 1321 701
vC1, stage 1 conf vol
vC2, stage 2 conf vol
vCu, unblocked vol 701 1321 701
tC, single (s) 4.1 6.4 *6.7
tC, 2 stage (s)
tF (s)
p0 queue free % 100 100 26
cM capacity (veh/h) 896 171 364
Due Cixer Lone # 1908 Bull Double SEA
Volume Total 620 701 271
Volume Left 0 0 0
Volume Right 0 271
cSH 1700 1700 364
Volume to Capacity 0.36 0.41 0.74
Queue Length 95th (ft) 0 0 145
Control Delay (s) 0.0 0.0 38.7
Approach Delay (s) 0.0 0.0 38.7 Approach LOS E
Intersection Summary classes medicate statistics and the second second second second second second second second
Average Delay 6.6
Intersection Capacity Utilization 57.5% ICU Level of Service B
Analysis Period (min) 15
그는 그는 말한 사람은 성향을 통합했다. 같은 것은 것은 것은 말할 수 없는 것 같아. 것은 것 같아. 것은 것 같아. 것은 것 같아. 것은 것 같아. 것을 것 같아. 것을 것 같아.
* User Entered Value

Stayton/Sublimity IAMP 04/12/2005 Existing 2005 CH2M HILL

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# APPENDIX D **Existing 2005 Traffic Operations** Worksheets

PDX/052070004\_USR.DOC

3209 S.E. 147th PL. #97 Vancouver, WA. 98683 **Ph. 503-833-2740** 

File Name : Cascade&FernRidge Site Code : 00000000 Start Date : 2/3/2005 Page No : 1

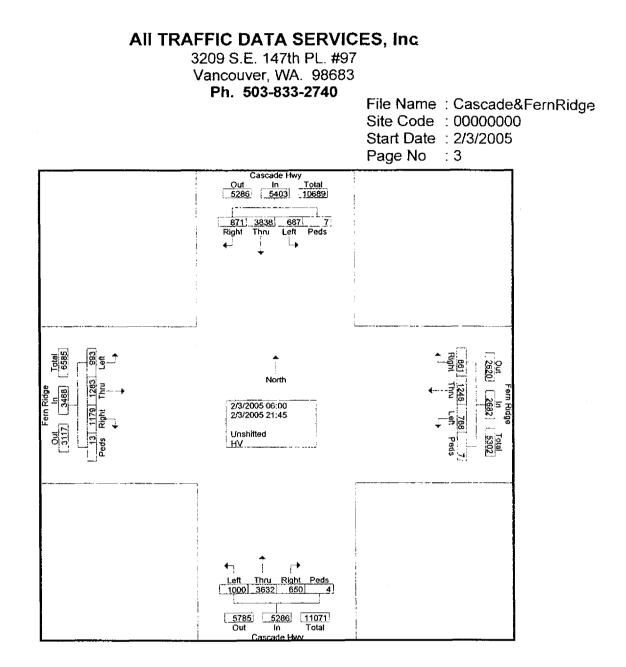
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06:15	5	31	2	ō	38	6	26	9	Ő	41	1	40	3	õ	44	4	12	6	D	22	34
06:30	13	22	1	õ	36	6	20	4	õ	30	1	69	7	Ď	77	1	8	10	ō	19	16
06:45	9	37	9	ŏ	55	11	31	10	ō	52	: 5	57	6	õ	68	6	10	10	2	28	20
Total	33	111	13	Ő	157	28	92	27	Ō	147		206	18	0	233	11	37	31	2	81	61
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07:15	11	67	6	ō	84	10	26	7	D	43	3	79	10	õ	92	11	15	17	ŏ	43	26
07:30	12	81	15	ō	1D8	17	30	23	Ď	70	3	87	14	ŏ	104	9	16	17	õ	42	
07:45	16	126	19	ŏ	161	18	49	54	õ	121	10	98	19	ŏ	127	18	57	27	-		
Total	47	320	45	0	412	59	128	94	0	281	18	318	48	- 0	384	42	95	74	0	<u>102</u> 211	<u>5</u> 128
08:00	15	74	15	1	105	16	43	14	0	73	9	77	32	о	118	21	32	14	D	67	36
08:15	6	41	6	Ō	53	14	20	5	D	39	15	46	10	ŏ	71	18	13	14	ŏ	45	
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08:45	7	52	6	ō	65	8	15	12	õ	35	2	59	6	ŏ	67	8	11	5	õ	24	15
Total	40	215	34	2	291	53	95	52	0	200	35	253	56	- 0	344	58	73	42	0	173	10
09:00	9	56	4	0	69	; 7	20	9	Ð	36	4	53	9	o	66	5	9	9	1	24 :	1
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10:45	13	48	15	ō	76	11	15	13	0	39	18	91	15	õ	124	26	17	14	ő	57	29
Total	52	182	41	1	276	49	63	59	0	171	45	242	74	0	361	85	65	53	0	203	10
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11:30	18	52	9	0	79	12	19	18	1	50	10	60	14	Ð	84	25	16	15	6	62	2
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Total	61	236	40	0	337	51	76	58	1	186	36	267	81	0	384	94	72	57	6	229	11
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12:15	26	55	14	0	95	8	13	8	0	29	14	43	17	0	74	20	8	14	0	42	2
12:30	19	62	10	0	91	14	20	11	0	45	8	50	16	Û	74	32	30	17	D	79	2
12.45	18	73	12	0	103	10	24	12	0	46	13	56	21	0	90	27	29	25	0	81	3
Total	78	256	40	0	374	44	78	43	Ð	165	44	215	70	0	329	101	89	78	1	269	11
13:DD	24	65	23	0	112	3	5	2	0	10	5	68	15	0	88	18	2	10	0	30	2
13:15	22	75	11	0	108	18	12	5	Ð	35	15	52	20	0	87	25	15	20	0	60	2
13:30	11	79	12	0	102	10	15	17	0	42	9	42	23	0	74	31	21	23	ō	75	29
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Total	74	298	65	0	437	46	47	37	0	130	46	214	75	0	335	103	61	74	0	238	114
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14:15	20	81	25	0	126	13	7	7	0	27	3	68	10	1	82	9	6	13	0	28	2
14:30	20	60	15	0	95	16	25	13	0	54	19	73	24	0	116	32	38	22	0	92	3
14:45	32	105	27	0	164	17	39	23	0	79	7	89	29	0	125	35	32	24	Ō	91	4
	81	316	81	0	478	52	88	59	1	200	44	297	84	2	427		100	89		290	

3209 S.E. 147th PL. #97 Vancouver, WA. 98683 Ph. 503-833-2740

File Name : Cascade&FernRidge Site Code : 00000000 Start Date : 2/3/2005 Page No : 2

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16:45	16	92	15	0	123	15	30	14	0	59	17	85	25_	0	127	36	36	21	D	93	402
Total	76	380	71	1	528	54	107	66	0	227	59	297	94	0	450	117	138	94	0	349	1554
17:00	26	93	20	0	139	20	33	24	0	77	16	96	25	Ð	137	36	25	42	0	103	456
17:15	31	113	9	0	153		24	19	0	55	18	106	35	1	160	28	36	24	1	89	457
17:30	11	120	19	0	150	10	44	14	1	69	17	67	24	ò	108	31	46	18	ò	95	422
17:45	19	101	15	O	135	18	20	22	Ó	60	17	77	22	Ō	116	25	36	23	ŏ	84	395
Total	87	427	63	0	577	60	121	79	1	261	68	346	106	1	521	120	143	107	1	371	1730
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Total		338	54	0	462	37	82	37	0	156	56	185	69	0	310	76	100	<u>8</u>	0	<u>48</u> 241	<u>247</u> 1169
10.00	1 10	6.0		•																	
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19:15	14		10	0	84	5	12	9	0	26	14	28	16	0	58	12	17	18	0	47	215
	14	34	15	0	63	5	16	2	0	23	8	37	12	0	57	10	18	16	0	44	187
<u>19:45</u>	10	34	4	0	48	6	6	7_	<u>.</u>		11	40	15	0	66	9	19	13	0	41	174
Total	50	196	33	0	279	25	47	29	0	101	52	155	70	0	277	56	81	68	0	205	862
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20:15	7	29	7	0	43	5	8	6	0	19	8	23	4	0	35	4	18	1	0	23	120
20:30	9	33	5	0	47	5	10	7	0	22	6	19	5	0	30	13	7	6	Ð	26	125
20:45	4	19		0	27	2	13	5_	0	20	4			0	27	13	12	11	0	36	110
Totai	23	111	22	0	156	15	37	20	0	72	29	102	21	0	152	38	51	33	0	122	502
21:00	8	29	9	0	46	2	6	1	0	9	4	21	6	0	31	13	12	5	0	30	116
21:15	5	19	5	0	29	4	7	1	O	12	3	24	5	D	32	5	11	4	ŏ	20	
21:30	5	20	6	0	31	4	8	9	0	21	2	27	4	Ď	33	4	5	3	ő	12	97
21:45	2	13	5	0	20	4	5	4	0	13	6	48	4	D	58	6	5	8	ō	19	110
Total	20	81	25	0	126	14	26	15	0	55	15	120	19	0	154	28	33	20	0	81	416
Grand Total	919	4005	698	7	5629	676	1295	799	7	2777	674	3766		4	EARE					0575	
Apprch %		71.1	12.4	0.1	0020	24.3	46.6	28.8	0.3	2111	12.3	3766 68,9	1021 18.7	0.1	5465	1210 33.8	1326 37.1	1025 28.7	14	3575	17440
Total %	5.3	23	4	0.1	32.3	3.9	7.4	4.6	0.3	15.9	3.9	21.6	5.9	0.1	31.3	-			0.4	20 E	
Unshifted	871	3838	687	7	5403	661	1246	768		2682	650	3632	1000	4	5286		7.6	5.9	0.1	20.5	22620
% Unshifted	94.8	95.8	98.4	100	96	97.8	96.2	96.1	100	96.6	96.4	3632 96.4	97.9	100	96.7		1283 DG P	993	13	3468	33678
HV	48	167	11	100	226	15	49	31	0	95	24	134	21	- 100	<u>90.7</u> 179	31	96.8	96.9	<u>92.9</u> 1	97	96.5
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# All TRAFFIC DATA SERVICES, Inc 3209 S.E. 147th PL. #97 Vancouver, WA. 98683 Ph. 503-833-2740 File Nam

File Name : Cascade&FernRidge Site Code : 00000000 Start Date : 2/3/2005 Page No : 4

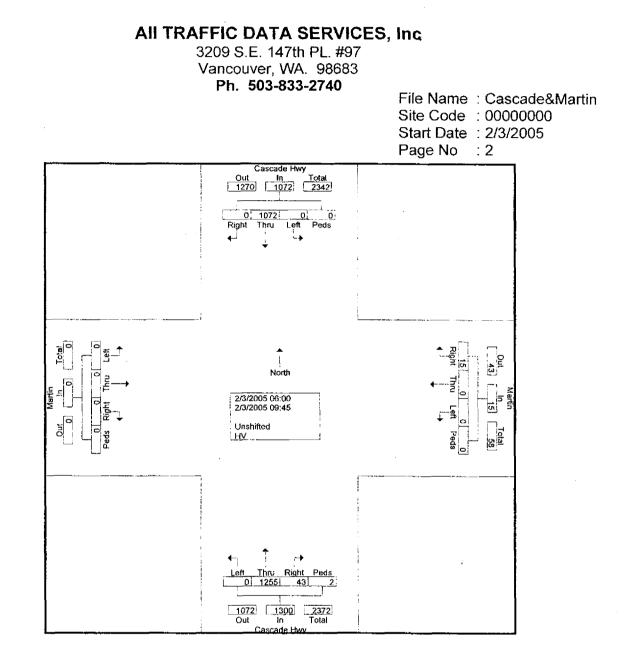
		So	scade uthbo					ern Ri estbo	und				scade orthbo					em Ri astboi			
Start Time	Right	Thru	Left	Peds	App Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App Tatal	Int Total
Peak Hour A							of 1														
Peak Hour f																					
16:45	16	92	15	0	123	15	30	14	0	59	17	85	25	0	127	36	36	21	0	93	402
17:00	26	93	20	0	139	20	33	24	0	77	16	96	25	0	137	36	25	42	0	103	459
17:15	31	113	9	0	153	12	24	19	0	55	18	106	35	1	160	28	36	24	1	89	457
17:30	11	120	19	<u>D</u>	150	10	44	14	1	69	17	67	24	0	108	31	46	18	0	95	422
Total Volume	84	418	63	0	565	57	131	71	1	260		354	109	1	532	131	143	105	1	380	1737
% App. Total	14. 9	74	11. 2	0		21. 9	50. 4	27. 3	0.4		12.	66. 5	20. 5	0.2		34. 5	37. 6	27. 6	0.3		
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FUL	7	1	8	0	.923	3	4	0	D	.844	4	5	9	0	.831	0	7	5	0	.922	.950
Peak Hour A	∿nalys	IS Fron																			
Peak Hour f		h App										h									
	17:1	sh Appi 5	roach	Begin	s at;	14:45	5				16:4	-				14:3			,		
+D mins.	17:1 31	<u>ch App</u> 5 113	roach 9	Begin: 0	s at; 153	14:45 17	39	23	0	79	17	85	25	0	127	32	38	22	· O	92	
+15 mins.	17:1 31 11	5 113 <b>120</b>	9 19	Begin 0 0	s at; <b>153</b> 150	14:45 17 <b>19</b>	<b>39</b> 31	32	0	82	17 16	85 96	25	0 0	137	32 35	38 32	24	ō	91	
+0 mins. +15 mins. +30 mins.	17:1 31 11 19	<u>sh App</u> 5 113 <b>120</b> 101	9 19 15	Begin: 0 0 0	s at; <b>153</b> 150 135	14:45 17 19 9	<b>39</b> 31 35	<b>32</b> 26	03	82 74	17 16 <b>18</b>	85 96 <b>106</b>	25 35	0 1	137 160	32 35 <b>40</b>	38 32 38	24 29	0	91 107	
+0 mins. +15 mins. +30 mins. +45 mins.	17:1 31 11 19 23	h App 5 113 <b>120</b> 101 109	9 19 15 17	Begin: 0 0 0	s at; 153 150 135 149	14:45 17 19 9 19	<b>39</b> 31 36 34	<b>32</b> 26 20	0 3 0	82 74 73	17 16 <b>18</b> 17	85 96 <b>106</b> 67	25 35 24	-	137 160 108	32 35 <b>40</b> 33	38 32 38 <b>43</b>	24 <b>29</b> 29	0 0 <b>3</b>	91 107 <b>108</b>	
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+0 mins. +15 mins. +30 mins. +45 mins.	17:1 31 11 19 23	h App 5 113 <b>120</b> 101 109	9 19 15 17	Begin: 0 0 0	s at; 153 150 135 149	14:45 17 19 9 19	<b>39</b> 31 36 34 140 45.	<b>32</b> 26 20	0 3 0	82 74 73	17 16 18 17 68 12.	85 96 <b>106</b> 67 354 66.	25 35 24 109 20.	0 1	137 160 108	32 35 <b>40</b> 33 140 35.	38 32 38 <b>43</b> 151 37.	24 <b>29</b> 29	0 0 <b>3</b>	91 107 <b>108</b>	
+0 mins. +15 mins. +30 mins. +45 mins. Total Volume	17:1 31 11 19 23 84 14	h Appi 5 113 120 101 109 443 75.	9 19 15 17 60 10.	Begin: 0 0 0 0	s at; 153 150 135 149	14:45 17 19 9 19 64 20.	<b>39</b> 31 36 <u>34</u> 140	32 26 20 101 32.	0 3 0	82 74 73	17 16 18 17 68	85 96 1 <b>06</b> 67 354	25 35 24 109	0 1 0 1	137 160 108	32 35 <b>40</b> 33 140	38 32 38 <b>43</b> 151	24 29 29 104	0 0 <b>3</b> 3	91 107 <b>108</b>	

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3209 S.E. 147th PL. #97 Vancouver, WA. 98683 Ph. 503-833-2740

File Name : Cascade&Martin Site Code : 00000000 Start Date : 2/3/2005 Page No : 1

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			scade					Marti			i		scade					Marti	n		]
			uthbo					estbo			ļ		orthbo					astbou			
Start Time	Right	Thru		Peds	App. Yotal	Right		Left		App. Total	Right	Thru	Left		App. Total	Right			Peds		Int. Total
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06:00	0	28	0	0	28	0	0	0	0	0	0	51	0	0	51	0	0	Q	0	0	. 79
06:15	0	38	¢	0	38	0	0	0	0	0	0	53	0	Û	53	Q	0	0	0	0	
06:30	0	36	0	0	36	0	0	0	0	0	4	80	0	0	84	0	0	0	0	0	120
06:45	0	55	0	0	55	0	0	0	0_	0	1	76	0	0		0	0	0	0	0	132
Total	0	157	0	0	157	0	0	0	0	0	5	260	Ð	0	265	0	0	0	0	0	422
		_																			
07:00	0	59	0	0	59	0	D	0	D	0	j З	77	0	0	80	0	0	0	0	0	139
07:15	0	84	0	0	84	0	0	0	0	0	1	103	D	0	104	0	0	Ó	D	0	188
07:30	0	108	0	Q	108	0	0	0	0	0	3	118	0	0	121	Q	0	0	0	0	229
07:45	0	161	0	0	161	2	0	0	0	2	4	137	0	1_	142	0	0		0	0	305
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	_																				
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08:30	0	68	0	0	68	1	0	0	0	1	3	93	Q	0	96	0	0	0	0	0	165
08:45	0	65	0	0	65	_ 3	Ð	0	0	3	3	69	0	0	72	0	0	0	0	0	140
Total	0	291	0	D	291	6	0	0	0	6	11	338	0	Ó	349	Q	0	0	0	0	646
09:00	0	69	0	D	69	2	D	0	D	2	2	68	0	0	70	0	0	0	0	0	141
09:15	0	54	0	0	54	2	D	0	D	2	3	68	0	0	71	0	0	0	0	0	127
09:30	0	58	0	Ď	58	0	D	0	Û	0	7	82	0	1	90	0	0	0	D	0	
09:45	0	78	0	0	78	3	0	0	0	3	4	67	0	0	71	0	0	0	0	0	152
Total	D	259	0	0	259	7	0	0	0	7	16	285	O	1	302	0	0	0	0	0	568
Grand Total	0	1119	0	D	1119	15	٥	Ð	0	15	43	1318	Q	2	1363	0	0	0	0	0	2497
Apprch %	0	100	0	0		100	0	Ð	0		3.2	96.7	0	0.1		0	0	Q	0		
Total %	0	44.8	0	0	44.8	0.6	0	0	0	_0.6	1.7	52.8	0	0.1	54.6	0	0	0	0	0	
Unshifted	O	1072	0	0	1072	15	0	0	0	15	43	1255	O,	2	1300	0	0	0	0	0	4774
% Unshifted	0	95.8	0	Û	95.8	100	D	Ð	0	100	100	95.2	0	100	<u>95.4</u>	0	0	0	0	0	95.6
HV	D	47	0	0	47	0	D	D	0	0	0	63	0	0	63	0	0	0	0	0	220
% HV	0	4.2	0	D	4.2	0	D	Ð	0	0	0	4.8	0	0	4.6	0	0	Ö	0	0	
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# 3209 S.E. 147th PL. #97 Vancouver, WA. 98683 Ph. 503-833-2740

File Name	: Cascade&Martin
Site Code	: 0000000
Start Date	: 2/3/2005
Page No	: 3

		So	scade uthbo	und				Martii estbo	und			N	scade orthbo	und			<u>E</u>	Martir astbou			
Start Time		Thru			App. Total		Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App Total	Right	Thru	Left	Peds	App Total	int, Totar
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Peak Hour f			rsectio	on Beg		7:15															
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07:30	0	108	0	0	108	0	0	0	0	D	3	118	0	0	121	0	0	0	Ð	0	229
07:45	0	161	0	0	161	2	0	0	0	2	4	137	0	1	142	0	0	0	0	0	305
08:00	0	105	0	0	105	0	0	0	0	0	2	103	0	0	105	0	0	ō	ō	ō	210
Total Volume	0	458	0	0	458	2	0	0	Ó	2	10	461	ō	1	472	0	0	0	Û	0	932
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Peak Hour A Peak Hour f	0 nalys or Eac 07:15 0	1 is Fron th Appr 5 84	0 0 06:04 roach 1 0	D to 09 Begins 0	9:45 - P s at: 84	0 eak 1 08:15	0 of 1 5 0	0	0		5 07:15 1	1 5 103	0	0	104 121	06:00	0 ) 0	0	0 0 0	0	.764
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3209 S.E. 147th PL. #97 Vancouver, WA. 98683 **Ph. 503-833-2740** 

File Name	: Cascade&Whitney
Site Code	: 00000000
Start Date	: 2/3/2005
Page No	: 1

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i		r,	puthbo					Vestbo			;	<u>N</u>	orthbo	und				astbou			
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13:15	0	91	17	0	108	26	0	16	0	42	18	69	0	D	87	0	0	0	0	0	: 2
13:30	0	88	17	0	105	17	0	11	0	28	10	66	0	D	76	0	0	0	0	0	
13:45 Total	0	94	18	0	112	14	0	22	2	38	9	78	0_	0	87	<u> </u>	0	<u> </u>	0	0	. <u>2</u>
Total	0	371	75	Q	446	73	0	65	2	140	51	282	0	D	333	0	0	0	0	0	9
14:00	0	84	20	0	104	23	0	8	1	32	5	94	o	D	99	0	0	0	0	0	2
14:15	ō	110	19	õ	129	18	ō	17	0	35	11	87	ő	Ď	98	ŏ	ă	ŏ	0	0	
14:30	Ō	83	25	ŏ	108		ŏ	10	ŏ	31	13	97	ŏ	õ	110	ő	ő	õ	0	0	
14:45	0	144	23	ŏ	167	23	c	21	ŏ	44	20	108	ŏ	ŏ	128	ō	ő	ō	0	0	
Total	0	421	87	0	508		0	56	1	142	49	386	0	0	435	ō	ő	0	0	0	

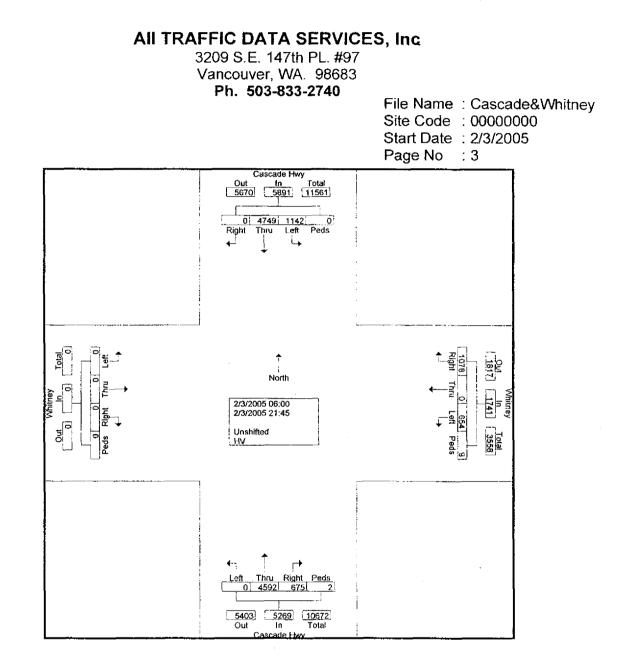
3209 S.E. 147th PL. #97 Vancouver, WA. 98683 **Ph. 503-833-2740** 

File Name : Cascade&Whitney Site Code : 00000000 Start Date : 2/3/2005 Page No : 2

										rinted-	Unshit	ted - H	IV		-3-						
			iscade outhbo					Whitn lestbo					scade orthbo					Whitne			
Start Time	Right		Left		App. Total	Right				App. Total	Right		Left		App. Total	Diable		stor		App. Total	
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0			1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	App, Total	Int. Total
15:00	Ū.	107	20	0	127	17	0	11	0	28	13	114	0	D	127	0	0	0	0	0	282
15:15	0	114	23	0	137	24	0	10	1	35	19	94	0	D	113	0	0	0	0	0	285
15:30	0	100	33	0	133	27	0	20	0	47	13	109	0	0	122	0	0	0	0	0	302
15:45	0	108	28	0	136	20		17	<u>0</u>	37	1	97	0	0	118	0	0	0	0	0	291
Total	0	429	104	0	533	88	O	58	1	147	66	414	0	0	480	0	0	0	0	0	1160
16:00	0	112	33	Ð	145	20	0	18	D	38	15	113	0	0	128	0	0	0	0	0	311
16:15	0	127	22	0	149	24	0	11	1	36	11	83	0	0	94	0	0	Ó	Ō	0	279
16:30	D	116	35	Ð	151	26	0	16	0	42	13	90	0	0	103	0	0	0	0	0	296
16:45	0	_115	32	D	147	16	0	10	0	26	20	100	0	0	120	0	0	0	0	0	293
Total	0	470	122	D	592	86	0	55	1	142	59	386	0	0	445	0	0	0	0	0	1179
17:00	D	124	34	0	158	15	0	15	Ð	30	13	145	0	0	158	0	0	0	0	0	346
17:15	0	134	43	0	177	17	0	19	D	36	12	130	0	0	142	0	0	0	0	0	355
17:30	D	14D	42	0	182	24	D	13	0	37	12	83	0	0	95	0	0	0	0	0	314
<u>. 17:45</u> Total	0	<u>122</u> 520	<u>26</u> 145	0 0	<u>148</u> 665	20 76	0 D	<u>14</u> 61	1	<u>35</u> 138	12 49	106	0	0	<u>118</u> 513	0	0	<u> </u>	0	0	301
Iotai		520	145	U	600	; 70	U	Ø1	1	130	49	404	U	0	513	U	U	0	0	0	1316
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18:15	0	88	23	0	111	17	0	13	0	30	16	65	0	D	81	0	0	0	0	0	222
18:30	0	84	22	0	106	23	0	14	0	37	18	52	0	0	70	0	0	0	0	0	
18:45	0	99	19	0	118	11		<u>15</u>	0	26	10	36		0	46	<u>0</u>	0	<u> </u>	0	0	190
Total	0	403	107	0	510	79	0	58	0	137	56	232	0	0	288	0	0	0	0	0	935
19:00	0	71	27	0	98	15	0	11	0	26	9	71	0	0	80	0	0	0	0	0	204
19:15	0	69	19	0	88	17	0	14	0	31	9	41	0	1	51	Ó	0	0	0	0	170
19:30	0	49	7	0	56	9	0	15	0	24	10	49	0	0	59	0	0	0	0	0	139
19:45	0	42	12	0	54	17	0	6	0	23	11	48	0	0	59	0	0	0	0	0	136
Total	0	231	65	0	296	58	0	46	0	104	39	209	0	1	249	0	0	0	0	0	649
20:00	0	33	11	0	44	14	0	5	0	19	6	54	0	0	60	0	0	0	0	0	123
20:15	0	40	12	0	52	9	0	4	Ð	13	7	22	0	0	29	• 0	0	0	0	0	94
20:30 20:45	0	34 22	10 9	0	44 31	8	0 0	13 5	0 0	21	4	26 27	0	0	30	0	0	0	0	0	95
Total	0	129	42	0	171	40	<u>0</u>	27	- <u>u</u> 0		22	129	0	0	<u>32</u> 151	0	0	0	0	00	77 389
			44	-			U		Ū	0,	. 22	125	0	0	131	U	U	U	0	U	269
21:00		39	11	D	50	5	Ð	7	D	12	5	23	0	0	28	0	D	0	0	0	90
21:15	0	23	7	0	30	11	0	4	D	15	6	25	0	0	31	0	0	0	0	0	76
21:30	0	27	9	0	36	9	0	5	1	15	4	30	0	0	34	0	0	0	0	0	
21:45 Total	0	<u>19</u> 108	5 32	<u>0</u>	<u>24</u> 140	7	0	<u>1</u> 17	0_1	<u>8</u> 50	8 23	52 130	0 0	0	60 153	0 Ö	0	0	0	00	92 343
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Total %	0	37.1	8.7	0	45.8	8.3	0	37.3 5	0.0	13.4	5.1	35.7	0	0	40.8	0	0	0	0	0	1
Unshifted	0	4749	1142		5891	1078	0	654	9	1741	675	4592	<del>0</del>	2	5269		<u>v</u>		0	0	25802
% Unshifted	ŏ	95.9	98	ŏ	96.3	96.7	õ	97.5	81.8	96.9	99.4	96.3	ő	100	96.7	ŏ	Ď	ŏ	ŏ	0	96.5
HV	0	205	23	0	228	37	0	17	2	56	4	176	0	0	180	ŏ	0	0	0	<u>0</u>	928
% HV	0	4.1	2	Ō	3.7	3.3	ō	2.5	18.2	3.1	<b>3</b> ,0	3.7	ō	ō	3,3	ō	ŏ	ŏ	ŏ	ō	3.5
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3209 S.E. 147th PL. #97 Vancouver, WA. 98683 **Ph. 503-833-2740** 

		Ca	scade	Hwy			1	Mhitne	ey 🛛			Ca	scade	Hwy				Mhitne	У		
		<u>Sc</u>	uthbo	und			W	estbo	und			N	orthbo	und			E	astbou	nd		
Start Time	Right				App. Total			Left	Peds	App Yotar	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Tutal	Int Total
Peak Hour A	nalysi	s Fron	n 06:0	0 to 21	:45 - P	eak 1	of 1														
eak Hour fo	x Enti	re Inte	rsectio	on Beg	ins at 1	7:00															
17:00	0	124	34	0	158	15	0	15	D	30	13	145	0	0	158	0	0	0	0	0	346
17:15	0	134	43	0	177	17	0	19	0	36	12	130	0	0	142	0	0	0	0	0	355
17:30	0	140	42	0	182	24	0	13	0	37	12	83	0	0	95	0	0	0	0	0	314
17:45	0	122	26	0	148	20	0	14	1	35	12	106	0	0	118	0	0	0	0	0	301
Total Volume	0	520	145	D	665	76	0	61	1	138	49	464	0	0	513	0	0	0	0	0	1316
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eak Hour A						2 eak 1	<u>0</u>	3	0		2	0	0	0		0_	0	0_	0		
eak Hour fo			roach	Begins	s at:																
	17:15					15:30					16:3					06:00	)				
+0 mins.	0	134	43	Ð	177	27	0	20	0	47	13	90	0	0	103	0	o	o	C	0	
+15 mins. j	0	140	42	0	182	20	0	17	0	37	20	100	0	0	120	0	0	0	0	0	

	D 182	20	0	4 7												
00				17	0	37	20	100	0	0	120	0	0	a	0	0
26	D 148	20	0	18	0	38	13	145	0	0	158	0	0	σ	0	0
43	D 175	24	0	11	1	36	12	130	0	0	142	0	0	0	0	o
154	0 682	91	0	66	1	158	58	465	0	0	523	0	0	0	D	0
22. 6	D	57. 6	0	41. 8	0.6		11. 1	88. 9	0	0		0	0	0	Ð	
.89 .0 5	0 0937	.84 3	.00. 0	.82 5	.25 0	.840	.72 5	.80 2	.00 0	.00 0	.828	.00 0	.00. 0	.00	.00. 0	.000
	154 22. 6	43 0 175 154 0 682 22. 0 6 89 00	43         0         175         24           154         0         682         91           22.         0         57.         6           .89         .00         937         .84	43         0         175         24         0           154         0         682         91         0           22.         0         57.         0           6         6         0         6           .89         .00         937         .84         .00	43         0         175         24         0         11           154         0         682         91         0         66           22.         0         57.         0         41.           6         0         8         .00         .84         .00         .82	43         0         175         24         0         11         1           154         0         682         91         0         66         1           22.         0         57.         0         41.         0.6           6         0         6         0         8         0.6           .89         .00         937         .84         .00         .82         .25	43         0         175         24         0         11         1         36           154         0         682         91         0         66         1         158           22.         0         57.         0         41.         0.6           6         0         8         0.6         8         0.6           .89         .00         937         .84         .00         .82         .25         840	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	43         0         175         24         0         11         1         36         12         130           154         0         682         91         0         66         1         158         58         465           22.         0         57.         0         41.         0.6         1         19           .69         .00         937         .84         .00         .82         .25         840         .72         .80	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$

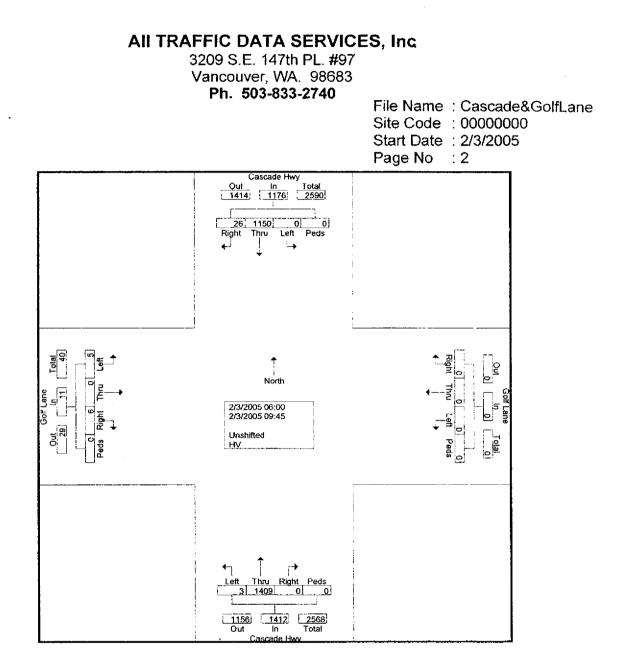
3209 S.E. 147th PL. #97 Vancouver, WA. 98683 **Ph. 503-833-2740** 

File Name : Cascade&GolfLane Site Code : 00000000 Start Date : 2/3/2005

Page No : 1

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			scade				-	Solf La					scade			1		iolf La			
Charles Times			outhbo					estbo					orthbo					astoou			
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07:30	3	113	0	0	116	0	0	0	0	0	0	136	1	0	137	0	0	0	0	0	253
07:45	3	169	0	0	172	0	0	D	0	0	0	146	0	0	146	1	0	3	0 0	4	322
Total	12	452	0	0	464	0	0	0	0	0	0	510	1	0	511	4	0	3	0	7	982
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08:45	1	73	0	Ō	74	0	Ď	ō	0	ō	ŏ	70	ō	Ő	70	ŏ	õ	õ	ŏ	ŏ	144
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3209 S.E. 147th PL. #97 Vancouver, WA. 98683 Ph. 503-833-2740

File Name : Cascade&GolfLane Site Code : 00000000 Start Date : 2/3/2005 Page No : 3

		So	scade uthboi	und			N	Folf La	und			N	scade orthbo	und			-	olf La			
Start Time		Thru						Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour A							of 1														
Peak Hour f	or Ent		rsectio	оп Вер		17:15															
07:15	4	97	0	Ð	101	0	0	0	D	0	0	135	0	D	135	2	D	0	0	2	238
07:30	3	113	0	Ð	116	0	0	0	Ð	D	0	136	1	0	137	0	0	٥	0	0	253
07:45	3	169	0	0	172	0	0	0	0	0	0	146	0	0	146	1	0	3	0	4 :	322
08:00	1	82	0	0	83	0	0	0	0	0	Ð	103	1	0	104	0	0	0	0	0	187
Total Volume	11	461	0	0	472	0	D	0	0	0	0	520	2	0	522	3	0	3	0	6	1000
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PHF	.68 8	.68 2	.00. 0	00. 0	.686	.00. 0	.00. 0	.00. 0	.00 0	,000	. DO 0	.89 0	.50 0	.00. 0	.894	.37 5	.00 0	.25 0	.00. 0	.375	.776
Peak Hour A		is From																			
<u>Peak Hour f</u>	or Eac					eak 1	of 1														
Peak Ho <u>ur f</u>	or Eac 07:1	h Appr				eak 1 06:00					07:1	5			( <b>_</b>	07:00	)				
+0 mins.		h Appr						0	0	0	07:1: 0	5 135	0	0	135	07:00 1	) 0	0		1	
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	07:1: <b>4</b>	h Appr 5 97	roach I 0	Begin: 0	sat: 101	05:00 0	) D	~	-	-	0	135	0 1 0	-		1	0	-	-	1 2 0	
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+0 mins. +15 mins. +30 mins.	07:13 4 3	h Appr 5 97 113 <b>169</b>	0 0 D 0	Begin: 0 0 0	t01 116 <b>172</b>	06:00 0 0 0	) D 0 0	0 0	0	0	0 0 0	135 136 <b>146</b>	1	0	137 <b>146</b>	1 2	0 0 0	0	0 Q	1 2 0 <b>4</b> 7	
+0 mins. +15 mins. +30 mins. +45 mins.	07:1 4 3 3 1	h Appr 5 97 113 <b>169</b> 82	0 0 0 0 0	Begin: 0 0 0	t01 116 <b>172</b> 83	06:00 0 0 0 0	) 0 0 0	0 0 0	0 0 0	0 0 0	0 0 0 0	135 136 <b>146</b> 103	1 0 1	0 0 0	137 <b>146</b> 104	1 2 0 1	0 0 0 0	0 0 3	0 0 0		

3209 S.E. 147th PL. #97 Vancouver, WA. 98683 **Ph. 503-833-2740** 

File Name : Cascade&EBRamp Site Code : 00000000 Start Date : 2/3/2005

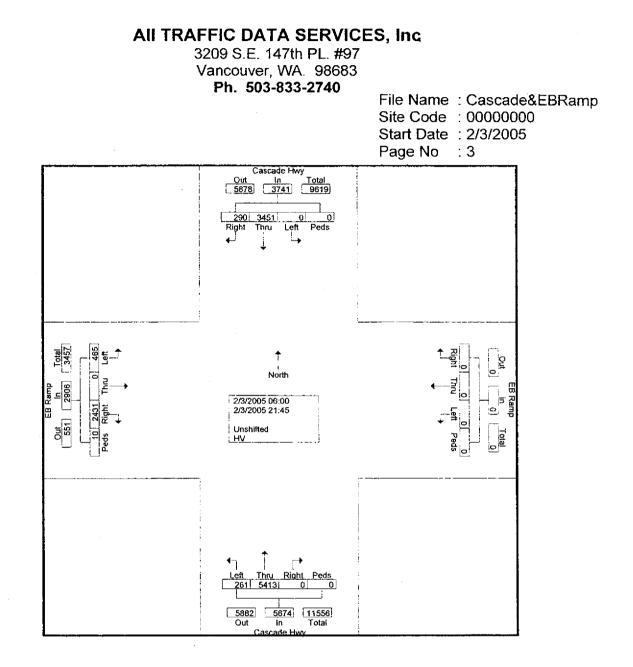
Page No : 1

06:15       4       23       0       0       27       0       0       0       0       62       3       0       65       12         06:30       6       33       0       39       0       0       0       0       0       96       2       0       98       14         06:45       8       39       0       0       0       0       0       0       86       3       0       89       20         Total       18       119       0       0       137       0       0       0       0       298       10       0       308       46         07:00       3       41       0       0       0       0       0       0       99       32         07:15       5       50       0       0       0       0       0       121       5       126       43         07:30       3       75       0       78       0       0       0       0       121       4       125       37         07:45       6       140       0       146       0       0       0       0       121       4       1	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Total         Int. Total.           0         80           14         106           14         151           25         161           53         498           37         180           48         229
Start Time         Right         Thru         Left         Peds         Arec Total         Right<	Left         Peds         App           0         1.0         1.0         App           0         0         0         0           0         2         0         0           0         0         0         0           0         5         0         0           0         7         0         0           0         4         1         0           0         5         0         0           0         3         1	0 80 14 106 14 151 <u>25 161</u> 53 498 37 180
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File Name: Cascade&EBRampSite Code: 00000000Start Date: 2/3/2005Page No: 2

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			outhbo					/estbo			1		orthbo			Ì		astbo			
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15:15	8	86	0	D	94	0	0	0	0	Q	D	114	5	0	119	55	0	9	0	64	277
15:3D	8	83	· 0	0	91	0	0	0	0	0	0	129	5	0	134	49	0	14	0	63	288
15:45	<u>11</u> 37	<u>84</u> 336	0-	0	95	0	0	0	0	0	0	111	6	0	117		0	18	0	69	28
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16:00	6	75	Ð	0	81	0	0	0	D	0	0	126	8	D	134	69	Ð	7	0	76	29
16:15	7	70	0	0	77	0	0	0	0	0	0	105	2	D	107	84	0	10	0	94	
16:30 j	10	77	0	0	87	0	0	0	0	0	0	102	12	0	114	67	υ	13	D	80	28
16:45	. 8	80	0	D	88	0	0	0	0	0	0	108	7	0	115	71	. 0	7	0	78	28
Total	31	302	0	0	333	0	0	0	0	0	0	441	29	0	470	291	0	37	0	328	113
17:00	9	93	D	0	102	o	0	Ð	0	D	0	154	5	0	159	72	0	11	0	83	34
17:15	11	86	D	D	97	0	0	0	0	0	0	139	6	0	145	96	0	13	0	109	35
17:30	6	81	0	0	87	0	0	0	0	0	0	97	9	0	106	97	0	8	0	105	29
17:45	8	73	0	0	. 81	D	0	0	0	0		123		Ð	126	71	0	12	0	83	29
Total	34	333	0	D	367	0	0	0	0	0	0	513	23	0	536	336	0	44	0	380	128
18:00	4	109	D	0	113	0	0	0	0	0	0	98	7	0	105	59	ο	7	1	67	28
18:15	7	64	0	0	71	0	0	0	0	0	0	76	7	0	83	48	0	5	D	53	20
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19:15	1	36	D	0	37	0	0	0	0	0	0	53	5	0	58	43	0	8	2	53	14
19:30	1	32	D	0	33	0	0	0	0	0	0	55	2	0	57	26	O	1	0	27	11
19:45 Total	<u>1</u> 5	<u>30</u> 149	0	0 D	<u>31</u> 154	0	0	0	0	0	0	<u>60</u> 252	<u>3</u> 11	0	63 263	17 130	0	4 17	. <u>0</u> . 2	21	11
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20:30	3	18	0	Q	21	C	D	0	0	0	0	32	2	0	34	20	0	6	0	26	8
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Total	9	78	D	0	87	0	0	0	0	0	0	185	8	0	193	92	0	20	0	112	39
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21:15	3	14	0	D	17	0	0	0	0	0	0	32	4	0	36	17	0	5	0	22	7
21:30	3	12	0	0	15	0	0	0	0	0	0	28	1	0	29	22	0	6	0	28	7
21:45	3	12	0	0	15	0	0	0	0_	0	0	_ <u>57</u>	2	0	59	15	0	6	0	21	. 9
Total	10	60	0	0	70	0	0	0	0	0	0	143	9	0	152	80	Û	17	0	97	31
Grand Tolal	342	3594	0	0	3936	O	D	0	0	D	0	5619	265	0	5884	2511	0	493	10	3014	1283
Apprch %	8.7	91.3	0	0		0	D	0	Û		0	95.5	4.5	0		83.3	0	16.4	0.3		
Total %	2.7	28	0	0	30.7	0	0	0	0	0	0	43.8	2.1	0	45.8	19.6	0	3.8	0.1	23.5	
Unshifted	290	3451	0	D	3741	0	0	0	Û	0	0	5413	261	0	5674	2431	Û	465	10	2906	2464
% Unshifted	84.8	96	0	0	95	0	0	0	0	0	0	96.3	98.5	0	96.4	96.8	0	94.3	100	96.4	9
HV	52	143	Û	0	195	0	0	0	0	0	0	206	4	0	210	80	0	28	0	108	102
% HV	15.2	4	D	0	5	0	0	0	0	0	0	3.7	1.5	0	3.6	3.2	0	5.7	D	3.6	



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File Name : Cascade&EBRamp Site Code : 00000000 Start Date : 2/3/2005 Page No : 4

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Start Time					App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int Tat
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Peak Hour f			rsectio	on Beg		7:00															
17:00	9	93	D	0	102	D	0	0	0	0	0	154	5	0	159	72	0	11	0	83	34
17:15	11	86	0	0	97	D	0	0	0	0	0	139	6	0	145	96	0	13	0	109	35
17:30	6	81	0	0	87	0	0	o	0	0	0	97	9	0	106	97	0	8	0	105	29
17:45	8	73	D	0	B1	0	0	0	0	0	0	123	3	0	126	71	0	12	Ő	83	29
Total Volume	34	333	D	0	367	0	0	0	D	0	0	513	23	0	536	336	0	44		380	128
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	3	<u>5</u>	0	0	· <u> </u>	0 ook 1	0	0	0	.000	0	3	9.	0	.843	6	0	6	0	.872	.9
Peak Hour A	Analysi or Eac	h Appi	n 06:0	0 to 2'	1:45 - P	eak 1	of 1	0	0	.000			9.	0	.643	6		6	0	.872	.91
<sup>9</sup> eak Hour A <sup>9</sup> eak Hour f	Analys or Eac 14:45	h Appi 5	n 06:0 roach	0 to 2' Begins	1:45 - P s at:	eak 1 06:00	of 1				17:00	) )				6 17:00					.91
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File Name : Cascade&WBRamp Site Code : 00000000 Start Date : 2/3/2005 Page No : 1

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	t Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
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	08:15	0	44	0	0	44	0	0	3	0	3	42	51	0	0	93	0	0	0	0	0	
	08:30	0	44	0	0	44	1	0	3	0	4	51	56	0	0	107	0	0	0	0	0	155
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3209 S.E. 147th PL. #97 Vancouver, WA. 98683 **Ph. 503-833-2740** 

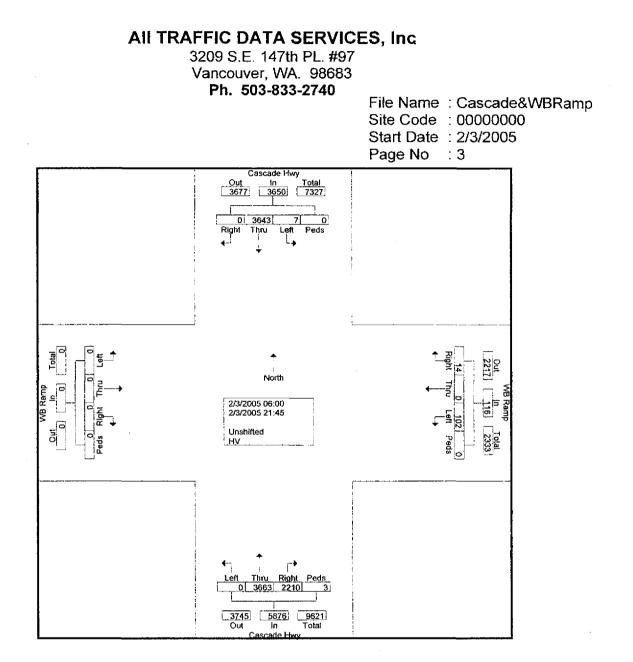
File Name : Cascade&WBRamp Site Code : 00000000 Start Date : 2/3/2005 Page No : 2

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File Name : Cascade&WBRamp Site Code : 00000000 Start Date : 2/3/2005

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17:30	0	85	0	0	85	0	0	1	0	1	18	87	0	0	105	0	0	0	0	0	19
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File Name : Cascade&Sublimity Site Code : 00000000 Start Date : 2/3/2005

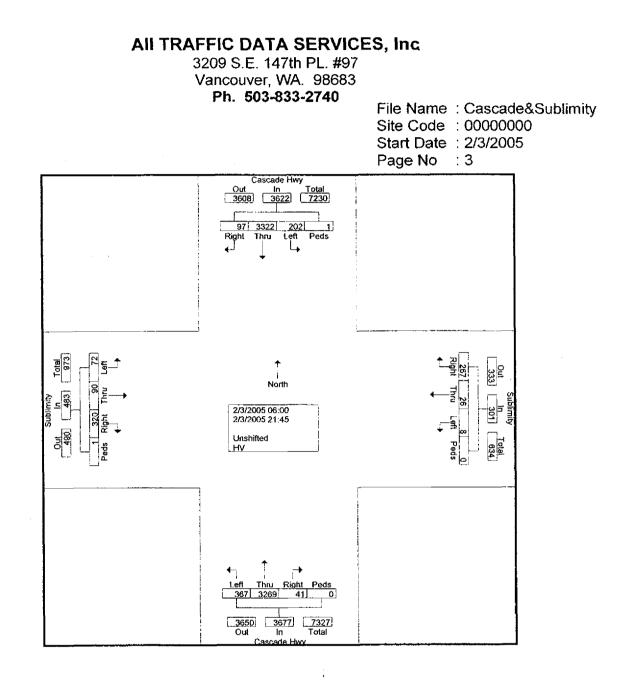
Page No : 1

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File Name : Cascade&Sublimity Site Code : 00000000 Start Date : 2/3/2005 Page No : 2

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All TRAFFIC DATA SERVICES, Inc 3209 S.E. 147th PL. #97 Vancouver, WA. 98683 Ph. 503-833-2740

File Name: Cascade&SublimitySite Code: 00000000Start Date: 2/3/2005Page No: 4

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	nalysi or Eac 17:15 3 0 0 3 0.8	So           Right         Thru           nalysis         From           or         Each Appr           17:15         3           0         79           0         74           0         119           3         357           0.8         96.           7         7	Southbox           Right         Thru         Left           nalysis         From 06:00           or         Each Approach 1           17:15         3         85           0         79         0           0         74         0           0         119         3           3         357         9           0.8         96.         2	nalysis From 06:00 to 21 r Each Approach Begins 17:15 3 85 6 0 0 79 0 0 0 74 0 0 0 119 3 0 3 357 9 0 0.8 96. 24 0	Southbound           Right         Thru         Left         Peds         Age Test           nalysis         From 06:00 to 21:45 - Portect         Portect         Portect         Portect           17:15         3         85         6         0         94      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4.7           26         75         37         00         44         25</td><td>Southbound         Westbound           Right         Thru         Left         Peds         Aup tell         Right         Thru         Left           nalysis         From 06:00 to 21:45 - Peak 1 of 1         r         r         r         r         r         r         16:00         16:00         16:00         0         0         0         79:00         79:50         0         0         0         0         0         74:00         74:60         0         0         0         0         0         119:30         0         122:14         0         0         0         0         0         3:65         9:00         3:69         41:20         0         0         0         0         0:00</td><td>Southbound         Westbound           Right         Thru         Left         Peds         Are Total         Right         Thru         Left         Peds           nalysis         From 06:00 to 21:45 - Peak 1 of 1         r         Form 06:00 to 21:45 - Peak 1 of 1         r           r         Each Approach Begins at:         16:00         3         3         6         0         94         16         2         0         0           0         79         0         79         5         0</td><td>Southbound         Westbound           Right         Thru         Left         Peds         Ave Total           Right         Thru         Left         Peds         Ave Total         Right         Thru         Left         Peds         Ave Total           nalysis From 06:00 to 21:45 - Peak 1 of 1         r         r         r         Thru         Left         Peds         Ave Total           r         Each Approach Begins at:         16:00         3         85         6         94         16         2         0         18           0         79         0         0         74         6         0         0         6           0         119         3         0         122         14         0         0         14          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      Thru         Left</td><td>Southbound         Westbound         Northbound           Right         Thru         Left         Peds         Age Total         No         Total         No         Total         No         Right         Thru         Left         Peds         Age Total         No         Total         No         Total         No         Total         No         Total         No         <td< td=""><td>Southbound         Westbound         Northbound           Right         Thru         Left         Peds         Age res         Right         Thru         Left         Peds         Age res&lt;</td><td>Southbound         Westbound         Northbound           Right         Thru         Left         Peds         Age Total         Northbound         Total         Northbound         Right         Thru         Left         Peds         Age Total         No         Right         Thru         Left         Peds         Age Total         No         Total         No         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- Peak 1 of 1         r         r         r         r         r         r         16:00         16:00         16:00         0         0         0         79:00         79:50         0         0         0         0         0         74:00         74:60         0         0         0         0         0         119:30         0         122:14         0         0         0         0         0         3:65         9:00         3:69         41:20         0         0         0         0         0:00	Southbound         Westbound           Right         Thru         Left         Peds         Are Total         Right         Thru         Left         Peds           nalysis         From 06:00 to 21:45 - Peak 1 of 1         r         Form 06:00 to 21:45 - Peak 1 of 1         r           r         Each Approach Begins at:         16:00         3         3         6         0         94         16         2         0         0           0         79         0         79         5         0	Southbound 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Total         Right         Thru         R</td><td>Southbound         Westbound         Northbound         Eastbound           Right         Thru         Left         Peds         Age row         Right         Thru         Left         Left         Age row         Right         Thru         Left         Left         Age row         Right         Thru         Left         Age row         Right         Thru         Left         Age row         Right         Thru         Left         Age row         Right         <td< td=""><td>Southbound         Westbound         Northbound         Eastbound           Right         Thru         Left         Peds         Age row         Right         Thru         Left         Ped</td><td><math display="block"> \begin{array}{c c c c c c c c c c c c c c c c c c c </math></td></td<></td></t<></td></td<>	Southbound         Westbound         Northbound           Right         Thru         Left         Peds         Age res         Right         Thru         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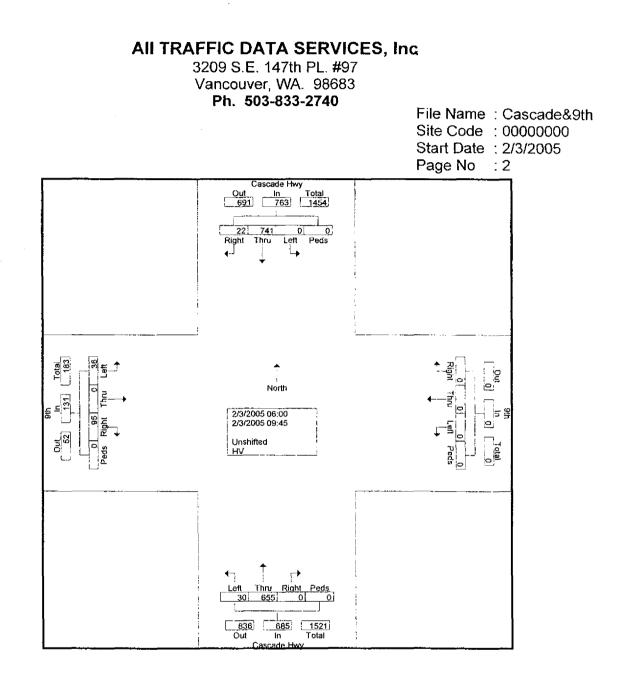
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3209 S.E. 147th PL. #97 Vancouver, WA. 98683 **Ph. 503-833-2740** 

File Name: Cascade&9thSite Code: 00000000Start Date: 2/3/2005Page No: 1

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06:30	0	34	0	0	34	0	0	0	0	0	0	24	1	0	25	13	0	2	0	15	74
06:45	0	38	0	0	38	0	0	0	0	0	0	42	5	0	47	11	0	3	0	14	99
Total	1	95	0	0	96	0	0	0	0	0	0	108	8	0	116	30	0	7	0	37	249
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09:30	ō	44	õ	Ď	44	ŏ	ő	ŏ	อ้	ŏ	Ö	45	1	ŏ	46	3	õ	1	0	4	. 94
09:45	4	53	ŏ	ō	57	ä	ŏ	õ	ŏ	Ö	ō	40	3	ŏ	43	6	ŏ	0	0	6	106
Total	8	185	0	0	193	0	Ō	Ŏ	0	0	Č	169	8	0	177	13		8	0	21	391
Grand Total	25	779	0	0	804	0	0	o	D	0	i o	718	31	0	749	99	o	38	~	107	
Appreh %	3.1	96.9	ő	0	604	0	ő	ă	0	U U		95.9	4.1	0	749	72.3	ŏ	38 27.7	0	137	1690
Total %	1.5	46.1	Ö	0	47.6	0	0	ŏ	ŏ	o	0	95.9 42.5	1.8	Ď	44.3	5.9	ŏ	21.1	0	8.1	
Unshifted	22	741	<u>0</u>	0	763	0			0		0	655	30	0	685	95	0	2.2	0	131	3158
% Unshifted	88	95.1	0	0	94.9	ŏ	õ	ŏ	ŏ	o	0	91.2	96.8	ŏ	91.5	96	ō	94.7	D	95.6	93.4
HV	3	38	0	0	41	0	0	0	- <u>-</u>	0	0	63	<u>====</u> 1	0	64	4	0	2	<u>0</u>	- 93.0	222
% HV	12	4.9	õ	ŏ	5.1	i n	Ď	ŏ	ŏ	0	0	8.8	3.2	ŏ	8.5	4	ŏ	5.3	0	4.4	6.6
/ · · · · ·		1.0			0.1			5				0.0	0.2		0.0		•	0.0	0	7.4	. 0.0

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#### 3209 S.E. 147th PL. #97 Vancouver, WA. 98683 Ph. 503-833-2740

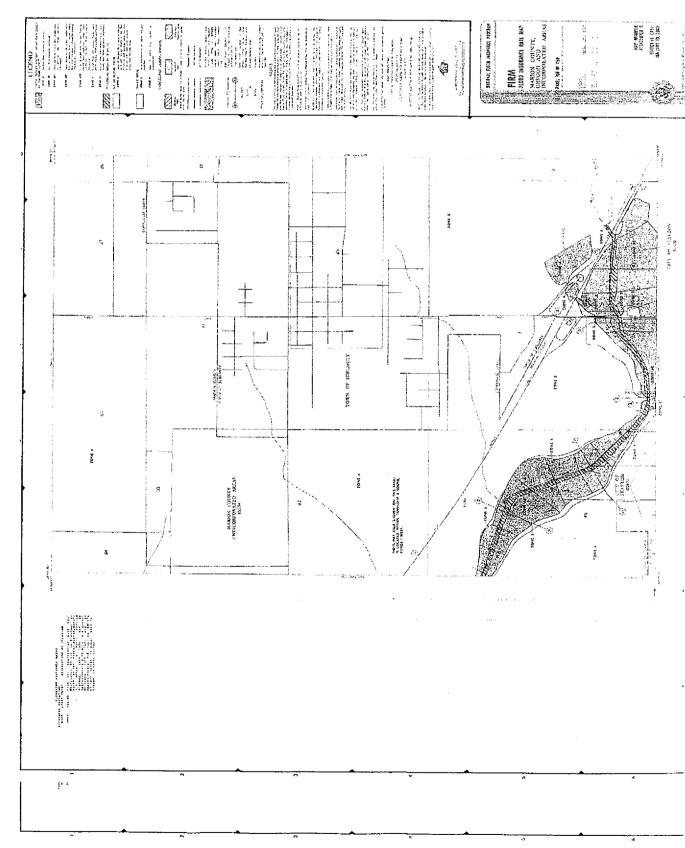
									n. U	03-0		2740	,			Site	Coo t Da	de : ite :	000	scad 0000 /200	00
		Cas	scade	Hwy				9th			1	Ca	scade	Hwy				9th			
		So	uthbo	und			W	estbo	ind				orthbo				F	astbou	ind		
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App Yetal	Right			Peds	App Total	Right				App. Total	lat Total
'eak Hour A	halys	is Fron	n 06:0	0 to 09	):45 - P	eak 1	of 1										, initia		(Leas)	- total	tist. Total
eak Hour fe	or Ent	ire Inte	rsectio	on Bec	ins at (	07:15															
07:15	0	51	0	0.	51	0	0	0	0	D	0	49	з	0	52	5	0	1	0	6	109
07:30	4	67	Ð	0	71	0	0	0	Ó	Ū	Ō	49	1	ō	50	9	ŏ	5	ŏ	14	135
07:45	5	126	Û	0	131	ΙD	Ð	0	Ō	D	Ō	89	1	õ	90	13	ŏ	š	ŏ	16	237
08:00	4	66	D	0	70	0	0	0	0	ō	l o	64	4	ō	68	10	ŏ	4	õ	14	152
Total Volume	13	310	Ď	0	323	0	0	0	0	0	D	251	9		260	37	n n	13	<u> </u>	50	633
W Ass Total	4	96	Û	0			0	0	~	-		96.		-						00	. 000
% App. Total		30				0	0	Û	0		0	5	3.5	0		74	0	26	0		
PHF	.65	.61	.00	.00	.616	.00	.00	.00	.00	.000	.00	.70	.56	.00	.722	.71	.00	.65	.00		
	0	5	0	0	.010	. 0	.0	0	0	.000	0	5	3	0	.122	2	D	0	0	.781	.668
eak Hour A ea <u>k Hour f</u> e		h Appr				eak 1 06:00					07:1	5				07:15					
+0 mins.	0	51	0	0	51	0	0	0	0	0	0	49	3	0	52	5	Ð	1	0	6	
+15 mins.	4	67	o	o	71	0	0	0	0	0	0	49	1	O	50	9	ō	5	õ	14	
+30 mins.	5	126	0	Ð	131	0	0	0	0	0	0	89	1	0	90	13	ō	3	ō	16	
+45 mins.	4	66	0	D	70	0	0	0	0	0	0	64	4	Ō	68	10	ō	4	ŏ	14	
Total Volume	13	31D	Ð	D	323	0	0	0	D	0	0	251	9	0	260	37	0	13	<u>0</u>	50	
% App. Total	4	96	0	O		0	0	0	0		0	96. 5	3.5	0		74	0	26	0		
	,65	.61	.00	.00	.616	.00	.00	.00	.00	.000	.00	.70	.56	.00	.722	.71	.00	.65	.00	.781	
PHF																					

# **APPENDIX E** FEMA Flood Insurance Rate Map

PDX/052070004\_USR.DOC

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APPENDIX F No Build 2025 Traffic Operations Worksheets

PDX/052070004\_USR.DOC

## HCM Signalized Intersection Capacity Analysis 1: Fern Ridge Rd & Cascade Hwy

	هر		$\rightarrow$	¥	<b>4</b>	•	•	t	-	~	. 1	
Movementar seators of				a anna					( 1727/1704-0000	*****	*	•
Lane Configurations		4 1		*	<u></u>				<u> </u>		SET	SBI
Ideal Flow (vphpl)	1800		1800	1800	<del>4</del> 1800	-1000	্র জনসংগ্র			7		
Total Lost time (s)	4.0			4.0	4.0	1800	we have assert	and the second se	1800	1800		180
Lane Util. Factor	1.00			1.00		ester .	4.0			4.0		
Frt	1.00	0.93		1.00	0.95	ही कि ज	1.00	والتهاو تلغي والالاجات		1.00		
Fit Protected	0.95	1.00	si sejuji	0.95	1.00	je sta sourt	1.00			1.00		
Satd. Flow (prot)	1660	1624		1660	1667	i e rice	0.95			0.95		
Fit Permitted	0.17		and the	0.12	1.00	ant post	1660	1704	. No	1644		
Satd. Flow (perm)	293	1624		203			0.95	1.00		0.95	1.00	
Volume (vph)	165	240	04E		1667		1660	1704		1644	1684	
Peak-hour factor, PHF	0.92	0.92	215	115	215	95	175	575	115	110	680	150
Adj. Flow (vph)	179	261	0.92	0.84	0.84	0.84	0.83	0.83	0.83	0.92	0.92	0.9
RTOR Reduction (vph)	0		234	137	256	113	211	693	139	120	739	16:
ane Group Flow (vph)	179	22	0	0	11	0	0	5	0	0	6	(
Heavy Vehicles (%)	3%	473	0	137	358	0	211	827	0	120	896	Ċ
Furn Type		3%		3%		3%	3%	3%	3%	4%	4%	4%
Protected Phases	pm+pt	Ni sente de la composición de la compos		pm+pt		an the Tarin National Angle	Prot			Prot		
Permitted Phases		4		3	8		5	2		1	6	
ctuated Green, G (s)	<u>.</u> 4			8	ilan di	Malatar			010833.0	X49 - 15	U U	
fortive Creen, G (S)	50.7	36.1		47.3	34.4		16.0	59.0	a i striktigi og	16.0	59.0	
ffective Green, g (s)	50.7	36,1	e la tradi	47.3	34.4		16.0	59.0		16.0	59.0	
ctuated g/C Ratio	0.36	0.26		0.34	0.25		0.11	0.42	11 - 1 <b>2</b> - 1 - 1 - 1	0.11	0.42	
Hearance Time (s)	4.0	4.0		4.0	4.0	- in Sergie	4,0	4.0	9 ay 198 P	4.0	4.0	
/ehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	n en esta de la componia de la compo La componia de la comp	3.0	3.0	
ane Grp Cap (vph)	249	419		203	410		190	718	9. 1. <b>.</b>	188		
/s Ratio Prot	c0.08	c0.29		0.06	0.21	39121-19399	c0.13	0.49	8 - 1 - 1 G P (3)		710	
/s Ratio Perm	0.19		de la trad	0.17	<u>i di setter</u> e	teen Neer		0.40 	na sala	0.07	c0.53	
/c Ratio	0.72	1.13		0.67	0.87	11 A 11 PA	1.11	1.15		0.04	1.00	
Iniform Delay, d1	34.7	52.0	ide des	37.6	50.7	d data	62.0	40.5	A. A. A.A.	0.64	1.26	
rogression Factor	1.00	1.00	e ne ge de rege	1.00	1.00	an wan ya	1.00	1.00	St North St	59.2	40.5	
cremental Delay, d2	9.5	83.8	9-11-253	8.6	18.1	4 9.149°N.	98.0		9	0.94	0.89	
elay (s)	44.2	135.7	an a	46.1	68.8	n Steward	160.0	83.7	11.42.53		127.3	
evel of Service	D	a stike da	e te A su C		Ē			124.2		61.5	163.4	
pproach Delay (s)		111.4		an a <b>m</b> agri	62.6	an fairte f	ः ह	F		E	F	
pproach LOS	2. 明·秋云:	F	i Alexandra	and seam	E E	Murster	n ar i So	131.5	eachailean		151.4	
		SNA WCOPROMEN	es de lesses	43949.500 <b>49</b> 80 	h was <del>in </del> inisia		나는 것 같은 것 같	as sti <b>r</b> te i s	en e	Self-reff	ing <b>F</b> age	1.15
(FIGEORIAN SEMIDEARY SE					e se en este este este este este este es							
CM Average Control D	elay		22.9	H	CM Leve	of Sei	vice		F			
CM Volume to Capacit	y ratio		1.16		•	Cooleanaig	এই কল্ট আনি ক	· 전문 전문 전 관람	상 <u>위원</u> 위험 가장의	bu shi jing	CARA - E	
ctuated Cycle Length (	<b>i)</b>		40.0	Su	m of los	time (	s)	a et a d	16.0			
tersection Capacity Util	lization	104	.9%	IC	U Level (	of Serv	ice		G			
alysis Period (min) Critical Lane Group	S. 187 - • 1		15						G			

Stayton/Sublimity IAMP 04/12/2005 No Build 2025 CH2M HILL

Synchro 6 Report Page 1

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### Queues 1: Fern Ridge Rd & Cascade Hwy

07/07/2005

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Lane Giologia Statist			E BR	M.L	<u>.</u> MET	States.	NBL	NBT	NBR.	SBL	SBT	SBR
Lane Configurations	7	1+		ሻ	1+		3	14		۲,	<u></u>	
Ideal Flow (vphpl)	1800	1800	1800	1800		1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%		nin Maharatan	0%			0%			0%	
Storage Length (ft)	200		0	200		0	200		0	200		0
Storage Lanes	366 <b>1</b> .	Ngar N	0	1	indi. It	0	1	lista en	Ø	Stand R		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	s (selection) -	50	50		50	50		50	50	
Trailing Detector (ft)	0	Ó		0	0		0	0		0	0	
Turning Speed (mph)	15	지 말했다.	9	15		9	15		9	15	81) - C.	9
Satd. Flow (prot)	1660	1623	0	1660	1667	0	1660	1704	0	1644	1684	0
Fit Permitted	0.154	a gagada a sena s Sena sena sena sena sena sena sena sena s		0.121			0.950			0.950	·	
Satd. Flow (perm)	269	1623	0	211	1667	Ó	1660	1704	0	1644	1684	0
Right Turn on Red	ferende a Ma	e yn gere	Yes		운영은 것	Yes	14 D L		Yes			Yes
Satd. Flow (RTOR)		30			15			9			10	
Link Speed (mph)		30	tan sa		30	in de		55		1911 (J.)	55	
Link Distance (ft)		816			826			887			946	
Travel Time (s)	승규는 다 4	18.5	an sa k		18.8			11.0			11.7	
Volume (vph)	165	240	215	115	215	95	175	575	115	110	680	150
Confl. Peds. (#/hr)		inter el				Ner Sid	fan en se	i en san en en Strennske set ist	1.18.19			
Confl. Bikes (#/hr)								and service and services	an na shara			
Peak Hour Factor	0.92	0.92	0.92	0.84	0.64	0.84	0.83	0.83	0.83	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	4%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)					) (. <b>1</b> 48)	的新生物	ay ing		가는 동물			
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	179	495	0	137	369	° <b>0</b>	211	832	0	120	902	0
Turn Type	pm+pt			pm+pt			Prot			Prot		
Protected Phases	7	<b>4</b> ~_		3	8		5	2		<b>1</b> ;	6	
Permitted Phases	4			8								
Detector Phases	7	4		3	8		5	2		1	6	
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	20.0	30.0		20.0	30.0		20.0	40.0	24. – Andrias Statistica	20.0	40.0	•
Total Split (s)	20.0	37.0	0.0	20.0	37.0	0.0	20.0	63.0	0.0	20.0	63.0	00
Total Split (%)	14.3%	26.4%	0.0%	14.3%	26.4%	0.0%	14.3%	45.0%	0.0%	14.3%	45.0%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	0.0		0.0	0.0		0.0	0.0	Sei seu i	0.0	0.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lead		Lag	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes			Yes	Yes	<u>ા</u>	Yes	Yes	
Recall Mode	None	None	i na kana	None	None	20012-2012-2011		C-Max		None	None	
Act Effct Green (s)	50.6	36:1		47.4		gelateri d	16.0		2013 Car	16.0		
Actuated g/C Ratio	0.36	0.26	1997 (MAR) 19	0.34	0.25		0.11	0.42	e e e grande	0.11	0.42	
v/c Ratio	0.74	1.12	ng ja	0.67		her an the	1.11	1.15		0.64	1.26	5.
Control Delay	46.1	125.4		40.8	71.0		153.1	120.3		69.4	159.2	
Queue Delay	0.0	0.0		0.0	0.0	A A	0.0	0.0	g the tag	0.0	0.0	
Total Delay	46.1	125.4		40.8	71.0	A. 4	153.1	120.3		69.4	159.2	
LOS		F	in a c	D			F	F	ang sy s		F	
Approach Delay	<del>.</del>	104.3			62.8	wat ta	-	126.9		—	148.6	

Stayton/Sublimity IAMP 04/12/2005 No Build 2025 CH2M HILL

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#### Queues 1: Fern Ridge Rd & Cascade Hwy

#### 07/07/2005

	٠	-	$\rightarrow$	<b>4</b>	•	1	<b>†</b>	1	<b>&gt;</b>	Ļ	1
Sence control and the second	TEL		ees ange			NEL	NEO	NER	SBC	SBT	Ser
Approach LOS		ें ह		·			F			È	
90th %ile Green (s)	16.0	33.0	16.0	33.0		16.0	59.0		16.0	59.0	
90th %ile Term Code	Max	Max	Max	Max		Max	Coord		Max	Coord	
70th %ile Green (s)	16.0	33.8	15.2	33.0		16.0	59.0		16.0	59.0	
70th %ile Term Code	Max	Max	Gap	Max		Max	Coord	a ga sa	Max	Coord	
50th %ile Green (s)	16.0	35.7	13.3	33.0		16.0	59.0		16.0	59.0	
50th %ile Term Code	Max	Max	Gap	Max		Max	Coord	an se de la Antoine de la companya	Hold	Coord	
30th %ile Green (s)	14.0	37.6	11.4	35.0		16.0	59.0		16.0	59.0	
30th %ile Term Code	Gap	Max	Gap	Hold	영문 소장	Max	Coord		Hold	Coord	- E
10th %ile Green (s)	10.8	40.2	8.8	38.2		16.0	59.0		16.0	59.0	
10th %ile Term Code	Gap	Max	Gap	Hold		Max	Coord	t fagese.	Hold	Coord	4
Queue Length 50th (ft)	113	~503	84	318	•	~220	~887		107	~1030	
Queue Length 95th (ft)	#194	#759	128	#447		#342	#1000	월 23일	m168	#1278	
nternal Link Dist (ft)		736		746			807			866	
Furn Bay Length (ft)	200		200			200		a statu	200		
Base Capacity (vph)	258	440	241	421		190	723		188	715	
Starvation Cap Reductn	0	0	0	0	en, en en Referènsie	. 0	0		0	0	
Spillback Cap Reductn	0	0	0	0		0	0		0	0	
Storage Cap Reductn	0			0		0	0		0	0	en tradi
Reduced v/c Ratio	0.69	1.13	0.57	0.88		1.11	1.15		0.64	1.26	
nersectorissandariyas									1998-		
Area Type: C	Other										
Cycle Length: 140		an the agent	ad segretado e	UARA SA	문가운영이						digt gel
Actuated Cycle Length:											
Offset: 4 (3%), Reference	ed to p	hase 2:N	BT, Start of (	Sreen	1.1.1.1	lite (in j	u de de la de				
Natural Cycle: 150			A 10.111								
Control Type: Actuated-		nated	요즘 옷 좋옷 옷을			d tog d	엄마가 관계에	약품 가슴?		an start i	
Maximum v/c Ratio: 1.20				the states							
ntersection Signal Dela	y: 119.1		[20] 20 (20) 20 (20) 20 (20) 20 (20) 20 (20) 20 (20) 20 (20) 20 (20) 20 (20) 20 (20) 20 (20) 20 (20) 20 (20) 20	Intersecti	on LOS:	F		ing paraha ja		Service of A	

Intersection Capacity Utilization 104.9% ICU Level of Service G

人物的調味的なな評判的なないがです。 Analysis Period (min) 15 ~

Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles. 95th percentile volume exceeds capacity, queue may be longer. #

Queue shown is maximum after two cycles. m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Fern Ridge Rd & Cascade Hwy

<b>1</b> ø2	ø1	<b>√</b> ø3	<b>─▶</b> ø4
<b>↓</b> ø6	σ5	ø7	<b>←</b> ø8
	- 1		

Stayton/Sublimity IAMP 04/12/2005 No Build 2025 CH2M HILL

## HCM Unsignalized Intersection Capacity Analysis 2: Martin & Cascade Hwy

ALC: NO.

07/07/2005

·	4	Ł	1	1	1	+					
Movement		WER	NBT	NER	e de Hales	SBL					
Lane Configurations		₹	<b>F</b>			+					
Sign Control	Stop		Free	n in the second s	전영동법	Free					
Grade	0%		0%			0%					
Volume (veh/h)	0	20	805	30	0	940	n na Ca			d e unterfe	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.81	0.81					
Hourly flow rate (vph)	0	22	875	33	<b>0</b>	1160		가운다는 것이 가지? 같은 것이 있는 것이 가지?		a Alexan	
Pedestrians	setera de sete	entra de la com	en in	r sat to see	atta (1644), tra	and the second	antan 10			1. A. 1. M. 1.	
Lane Width (ft)		ar se si		2 <sup>4</sup> 3년 1월 일				atter i si	a statute	na de la com	
Walking Speed (ft/s)	-alberet - starte	A Marchaeller	en e	the second second	oudd de en ou	n e esta a caractera	a an a w	V. S. Santa and	ant a ser		
Percent Blockage Right turn flare (veh)	464 S. H. H.		1.00			이 사람 환자에					
Median type	None	Ha tata		ulita da	An tao amin'	eta era a seco	- 18 Jan - 18 J	dia ini	1	e de la Maria	
Median storage veh)	NONE	die Traa		Na Vena di Sa		사람 같은 목	phone de	1. S. 1. S. 1.	Estern Source	- E. 19	
Upstream signal (ft)	adiation in del	en e	946	stand 15	States Les	354	e sur and s	te da la	n et de de de		
pX, platoon unblocked	0.68	0.53	990 C.	agan gan turi	0.53	304		an a			
vC, conflicting volume	2052	891		an ya	908	entre la	a galeri				
vC1, stage 1 conf vol	- 9 <b>42 A 2</b> 67 (9)								a dhe linan	1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 -	
vC2, stage 2 conf vol	网络拉拉	an Sau	t with h	ng di ka	N. M.	See See	onia (M	$(1,1,1) \in \{1,2\}$	a da seria da seria Esta da seria		S
vCu, unblocked vol	1870	796			826	erene.			a di tangén ta		
tC, single (s)	6.4	6.2	Sec.		4 1	la de la compaña de la comp	رو آخر ا	adol i ta	di seren di s	1.1	
tC, 2 stage (s)					No. Y				ANI LA LANA	and a star	
tF (s)	35	3.3	i pue de	li de la citad	2.2	hinderse in	d di Beacer	والمواد المراجع في المواجع	et en de la de	k. Soly -	
p0 queue free %	100	89			100						
cM capacity (veh/h)	54	204			426						
Direction Marie # 19452			9) <b>-</b>								
Volume Total	22	908	1160				<u></u>				******
Volume Left	0	0	0	ases en trij	2879.200777	9-1320-379	Sectores tradi	a de la competencia.	(1881) 꽃 및 SA (1) S 	성가지 않으니?	be the provide
Volume Right	22	33	ŏ,	alaisea nna	rinia nativita	la ana da inter	la Babaratar	- Alacharana	s destrative tr	e an	e la facilitada de la c
cSH	204	a design of the second results of	1700	986 () n. n. n. n. j.	ver o sta.	Marana di Ka	(Refer Detter 199	patraster o	SHIGHE ELLI	iye si i	
Volume to Capacity	0.11		0.68	8.4. A.4.	Niki ka	્ર હોયુન	a. Sata			والهريون وو	er spelle
Queue Length 95th (ft)	9 9	0	0	13 1 610	9789 C.S. 198 C.J.S	and a state of the			n na mana sa		
Control Delay (s)	24.7	0.0	0.0		Nilling South A	and a second	ang ing t	Astrice (	1 - Albahati	a Joha e	
Lane LOS	С	a ayar taran 1999, ayar 199	- TY27325	areas second as	1997 - 1998 - 1998 - 1997 - 1998 - 1997 - 19	awaa insin 240	ga shini can	sa nanan amin'ny	ang alah ting di anadi si kara	arren e sente la	a shi
Approach Delay (s)	24.7	0.0	0.0	(a) establish		Najal da				di Maria	en a se fes
Approach LOS	С	e nage beingen de	e in oron frad ""	a se da da da da	1.46 I. 1000 (101.2	an generation, et	are an		denner ber diene	a shukun a a sa	an a
Intersection Summary.											
and the second			0.3			105313					
Average Delay			Ų.3								

 Average Delay
 0.3

 Intersection Capacity Utilization
 56.6%

 Analysis Period (min)
 15

Stayton/Sublimity IAMP 04/12/2005 No Build 2025 CH2M HILL

## HCM Signalized Intersection Capacity Analysis 3: Whitney & Cascade Hwy

3: Whitney & Casca											07/0	7/200
		-+	$\rightarrow$	×	<b>∢</b>	•	1	<b>†</b>	1	1	Ţ	
Movementarias	Soleten,	<b>EB</b> T	TEBIR	<b>A</b> MBIS			-		- A ITERS			
Lane Configurations	ή	4		ጙ	4				<u> </u>		Secolo I	<u> </u>
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	า 1800	₽ 1900	And exercises	7	4	
Total Lost time (s)	4.0	4.0	un nen munge	4.0	4.0	1000	4.0		1800	1800	1800	180
Lane Util. Factor	1.00	1.00	1984 - M	1.00	1.00	ana an	1.00	4.0	de la com	4.0	4.0	
Frt	1.00	0.85	in an	1.00	0.85	84 (383) - La C		1.00		1.00	1.00	
Fit Protected	0.95	1.00	h dha an	0.95	1.00	Walton i sa	1.00	0.99	le rover	1.00	1.00	
Satd. Flow (prot)	1676	1500	ter el se le de	1660	1485	2014년 11년 11년 19	0.95	· · · · · · · · · · · · · · · · · · ·		0.95	1.00	y in a sin Vertea
Fit Permitted	0.33	1.00	aan do	0.74	1.00	eren en en	1660	1723	Second and the	1644	1726	
Satd. Flow (perm)	583	1500	1890 S. S. S. W	1298	1485		0.95	1,00	영광 ( 영광)	0.95	1.00	4 C .
Volume (vph)	15	0	20	105			1660	1723		1644	1726	
Peak-hour factor, PHF	0.92	0.92	0.92		0	140	10	740	75	240	815	15
Adj. Flow (vph)	16	0.92		0.93	0.92	0.93	0.92	0.81	0.81	0.91	0.91	0.92
RTOR Reduction (vph)	19 0	<ul> <li>A 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1</li></ul>	22	113	0	151	11	914	93	264	896	16
Lane Group Flow (vph)	16	20	0	0	135	0	0	3	0	0	0	G
Heavy Vehicles (%)	2%	2	0	113	16	0	11	1004	0	264	912	õ
Tum Type		2%	_2%	3%	3%	3%	3%	3%	3%	4%	4%	4%
Protected Phases	Perm	성격 같은		Perm			Prot			Prot		+ 70
Permitted Phases	alar an inc	4			8		5	2	81.281.2013 	ा • अ <b>ल्ड</b> ा 1	6	
Actuated Cases	<b>. 4</b>			8.			کی کی اور اور ایر کی اور		in sanah	dila an		
Actuated Green, G (s)	14.9	14.9		14.9	14.9		1.6	86.5	an statisticker	26.6	111.5	
Effective Green, g (s)	14.9	14.9		14.9	14.9		1.6	86.5	server se		111.5	
Actuated g/C Ratio	0.11	0.11		0.11	0.11	en en langeringe F	0.01	0.62	uter and the second	0.19	0.80	
Clearance Time (s)	4:0	4.0		4.0	4.0	ens i Mi	4.0	4.0	hi na an is	4.0		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	an ann an Prise i	3.0	3.0	n Codegener	<ul> <li>INVESTIGATION</li> </ul>	4.0	6 ( <sup>1</sup> )
Lane Grp Cap (vph)	62	160		138	158		19	1065		3.0	3.0	
v/s Ratio Prot		0.00	ne ne territeri	দ। ওপর বছরের প্রেয়	0.01	ada Nakitha	0.01	c0.58		312	1375	
//s Ratio Perm	0.03	A Starting of South Startes	t de la cal	c0.09	<u></u>	s in cutter	0.01	CU.30	. Constant e d	c0.16	0.53	
//c Ratio	0.26	0.01	o Mersiegeres	0.82	0.10	e desta de tileta	0 F 0		alle falle falle falle		nte historia	$\sim 10$
Jniform Delay, d1	57.5	56.0		61.2	56.5		0.58	0.94	Marine Comments	0.85	0.66	
Progression Factor	1.00	1.00	alectern) (201	1.00	1.00		68.9	24.5	장기관관	54.7	6.1	
ncremental Delay, d2	2.2	0.0		30.0	0.3	Rind a second state	0.96	0.32	Start	1.00	1.00	
Delay (s)	59.7	56.0	STREED FROM TO BE	91.2	56.8	se kraz	17.1	8.9		18.6	2.5	
evel of Service	E	E	800. A M	ा.ट अंटें िल्ल		da dahari	83.0	16.8		73.3	8.7	
Approach Delay (s)	an a <del>na</del> an	57.6	en seen een	ast <b>G</b> ali	<b>E</b>		uitar (	े <b>छ</b> े		E	Α	
Approach LOS	la pianale		a a state	ana si 1904.	71.5	letterhenen alle and	di mayar ku	17.5			23.2	
	an asar ni na kiring 	erat et <del>e</del> t i part		Kon and 1311	E s			В			С	
Resection Summary			s to set	Sies of the								

 HCM Average Control Delay
 26.5
 HCM Level of Service
 C

 HCM Volume to Capacity ratio
 0.91
 Actuated Cycle Length (s)
 140.0
 Sum of lost time (s)
 12.0

 Intersection Capacity Utilization
 83.1%
 ICU Level of Service
 E

 Analysis Period (min)
 15
 15
 C

c Critical Lane Group

Stayton/Sublimity IAMP 04/12/2005 No Build 2025 CH2M HILL

## Queues 3: Whitney & Cascade Hwy

1997 A.

## 07/07/2005

	۶		$\mathbf{F}$	•	<b>4</b>	*	•	<b>†</b>	1	1	Ļ	4
Lane Group	MAB.			e Mals	NVBT.	<b>AND</b> RO	NBL	NET	NER	<b>SASBI</b>	SBT.	SBR
Lane Configurations	ሻ	4Î			<b>1</b>		ň	4Î		٢	<b>Ť</b> +	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)	ebiec Xe	0%			0%			0%	baat bela	. <u>18</u> (1997)	0%	
Storage Length (ft)	300		0	300	2 I GRAN - 1	0	300		0	0		0
Storage Lanes	1		0.0	19 J 1	la de er	0	. 1	ha shi a	0	-38. <b>1</b>		ō
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50	ka sila s	50	50	i den de la com	50	50	<b>.</b>
Trailing Detector (ft)	0	0	sane na 177	0	0	nasel al serve	0	0	natan Palasid	0	0	
Turning Speed (mph)	15	1	9	15	ur de le	9	15	Bill see .	9	15	in e	9
Satd. Flow (prot)	1676	1500	0	1660	1485	0	1660	1723	0	1644	1726	0
Fit Permitted	0.357		an na sairte	0.743		ger ( Li se <sup>t</sup> r	0.950	SECTION	ge da <b>č</b> a	0.950	1120	
Satd. Flow (perm)	630	1500	0	1298	1485	0	1660	1723	0	1644	1726	0
Right Turn on Red	000	1000	Yes	1200	1400	Yes	1000	1120	Yes		1120	Yes
Satd. Flow (RTOR)		271	103	1999 - A.	339		STA	7	163		2	165
Link Speed (mph)	وبريد الأبلار	30		sec. a	30	San	ngan 👘 🔒	55	an an an a'		55	
Link Distance (ft)		1105			636	û vî se		354		ан санана С		
Travel Time (s)	701 t.u.	25.1	er er er er er er			addaese see			an and all		541	
	4 E	a service produced as a	20	40C	14.5			4.4	75		6.7	4.5
Volume (vph)	15	0	20	105	0	140	10	740	75	240	815	15
Confl. Peds. (#/hr)		e la serve	A. 49 S.	a Hana a shi ta shi	assa Afri	a she in the second	dah ut B	and the states of the second	ana mangapa	alt t		
Confl. Bikes (#/hr)		1 (n n n n			المتحادية	الخاص احرائك						
Peak Hour Factor	0.92	0.92	0.92	0.93	0.92	0.93	0.92	0.81	0.81	0.91	0.91	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	4%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)					방문 고신에 한		1 de la de la de Seconda de la de		arti de l			
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	) 16	22	0	113	151	0	11	1007	0	264	912	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		4		성의 문항	8		5	2		1	6	·
Permitted Phases	4			8								
Detector Phases	<b>4</b>	4	S 6 19	8	8		5	2	e gangerig	1	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0			8.0	20.0	Sate for	8.0	20.0	
Total Split (s)	20.0	20.0	0.0	20.0	20.0	0.0	8.0	91.0	0.0	29.0	112.0	0.0
Total Split (%)	14.3%			14.3%		0.0%		65.0%		20.7%		0.0%
Yellow Time (s)	3.5	3.5	ು ಎನ್ನಡಿಸ್ ಚಿತ್ರಗಳು ಗ್ರಾ	3.5	3.5	ಾಂ ತತಿದ್ರೇಗಿತ್ತು	3.5	3.5		3.5	3.5	0.070
All-Red Time (s)	0.5	0.5		0.5	0.5	eren daal	0.5	0.5	Arianterio	0.5	0.5	1.62
Lead/Lag	SECONDER E		24.5 1.7	a for de de de la		NATION CONTRACT	Lag	Lead	(1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)		Lead	
Lead-Lag Optimize?	niðsta an árri		dit signa	4.3 Martin		era e en	Yes	Yes	to en gara	Lag		
Recall Mode	the stand, in the stand	None		None	Alone	stitue da		C-Min	85 in 1871 i	Yes	Yes	
	None	None		None	None					None		
Act Effct Green (s)	14.9	14.9	지방하는	14.9	14.9	8. S.		88.9	1. 1997	24.2	113.9	
Actuated g/C Ratio	0.11	0.11	en av te	0.11	0.11		0.04	0.64	an ing ng	0.17	0.81	
v/c Ratio	0.24	0.05		0,82	0.33		0.18	· · · · · ·	N AN	0.93	0.65	
Control Delay	64.7	0.2		91.5	1.8		66.6	15.6	83 - L F P	88.6	8.6	
Queue Delay	0.0	0.0		0.0	0.0	na san ingin Multi tang	0.0	0.0	64 - AN D	0.0	0.0	
Total Delay	64.7	0.2		91.5	1.8		66.6	15.6		88.6	8.6	
LOS AND	s in the second s	A		, de <b>F</b>	Α	ga se sa sa	E	В		20. F		
Approach Delay		27.4			40.2			16.1		• *	26.5	

Stayton/Sublimity IAMP 04/12/2005 No Build 2025 CH2M HILL

#### Queues 3: Whitney & Cascade Hwy

07/07/20	05
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	≯	-	$\mathbf{F}$	∢	<b>4</b>	۰.	1	†	1	1	Ļ	4
Lana Groen a la Marca		SECT.	E BRO			WER	<b>NHEI</b>	S-NE OX	NER	<b>ase</b> t.	<b>e s</b> et i	SBR
Approach LOS		C		234.44	∕∴ ` <b>D</b>			В			C	
90th %ile Green (s)	16.0	16.0		16.0	16.0		4.0	87.0		25.0	108.0	
90th %ile Term Code	Hold	Hold		Max	Max		Max	Coord		Max	Coord	
70th %ile Green (s)	16.0	16.0		16.0	16.0		4.0	87.0	1 <b>1</b> 1 1 1 1	25.0	108.0	
70th %ile Term Code	Hold	Hold	아이지랑	Max	Max	NgxD, This	Max	Coord	. (d. 1916) 1917 - 1917	Max	Coord	
50th %ile Green (s)	16.0	16.0		16.0	16.0		0.0	87.0		25.0	116.0	
50th %ile Term Code	Hold	Hold		Max	Max	egra es	Skip	Coord		Max	Coord	1.1
30th %ile Green (s)	15.4	15.4		15.4	15.4	., .	0.0	87.6		25.0	116.6	
30th %ile Term Code	Hold	Hold		Gap	Gap		Skip	Coord	建油酸度	Max	Coord	
10th %ile Green (s)	11.0	11.0	ni isteriotanist	11.0	11.0	Antonio Merine et la	0.0	96.0	orda a ser e de la	21.0	121.0	
10th %ile Term Code	Hold	Hold		Gap	Gap		Skip	Coord	adder B <sup>ir</sup>	Gap	Coord	đ.
Queue Length 50th (ft)	14	0		101	0	ana ang sa mara	10	314	er van er ve	238	242	1.0
Queue Length 95th (ft)	39	0		#204	0	and the	m13	m266	9.584.5	#403	482	· · · ·
Internal Link Dist (ft)	1997 N. 1997 N. 1	1025	0.10.011		556			274		LINCONCHEMENT -	461	
Turn Bay Length (ft)	300	.X. 194		300		lan de	300			San da s	4 (1948) <u>an</u>	
Base Capacity (vph)	72	411	n ha shekara ka	148	470		60	1097		294	1405	
Starvation Cap Reductn		0		0	0		0	0	dina de la	0	O	$(0, \infty)$
Spillback Cap Reductn	0	0	turta, est <b>e</b> r eltati	0	0	T	0	0	11-676-0106-568	0	0	
Storage Cap Reductn	0	<b>.</b>		Ô	0	us (shiku)	0	0	0.0448144	o lo	1287 <b>0</b> 9	
Reduced v/c Ratio	0.22	0.05	r garanti ( Brandina	0.76	0.32	enny a constitue	0.18	0.92	New Control of Station	0.90	0.65	
PHORE AND DESIGNATION OF												

Area Type: Other

Cycle Length: 140 Actuated Cycle Length: 140 Offset: 132 (94%), Referenced to phase 2 NBT and 6:SBT, Start of Green

Natural Cycle: 110 Control Type. Actuated-Coordinated

Maximum v/c Ratio: 0.93 Intersection Signal Delay: 23.8 Intersection LOS: C Intersection Capacity Utilization 83.1% ICU Level of Service E

Intersection Capacity Utilization 83.1% ICU Level of Service E Analysis Period (min) 15 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles. #

m Volume for 95th percentile queue is metered by upstream signal.

#### Splits and Phases: 3: Whitney & Cascade Hwy

<b>1</b> <sub>02</sub>	øl	→ ø4
철물 동물 전문 문문 문문 가지 않는 것을 하는 것을 하는 것을 하는 것을 하는 것을 하는 것을 수 있다. 나는 것을 하는 것을 수 있다. 가지 않는 것을 하는 것을 하는 것을 하는 것을 하는 것을 하는 것을 하는 것을 수 있다. 가지 않는 것을 하는 것을 수 있다. 가지 않는 것을 하는 것을 수 있다. 가지 않는 것을 수 있다. 귀에서 가지 않는 것을 수 있다. 귀에서 있다. 가지 않는 것을 수 있다. 귀에서 있는 것을 수 있다. 가지 않는 것을 수 있다. 것을 수 있다. 가지 않는 것을 수 있다. 가지 않는 것을 수 있다. 귀에서 있다. 가지 않는 것을 수 있다. 것을 수 있다. 가지 않는 것을 수 있다. 가지 않는 것을 것을 수 있다. 가지 않는 것을 수 있다. 가지 않는 것을 수 있다. 하는 것을 수 있다. 것을 수 있다. 것을 수 있다. 하는 것을 수 있다. 것을 수 있다. 것을 수 있다. 것을 수 있다. 것을 것을 수 있다. 것을 수 있다. 것을 수 있다. 것을		
ø6	•	<b>←</b> ø8

Stayton/Sublimity IAMP 04/12/2005 No Build 2025 CH2M HILL

HCM Unsignalized Intersection Capacity Analysis 5: EB Ramp & Cascade Hwy

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07/	07/2005
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Movement Social and		E SIS	NBL	NET		SER				
Lane Configurations	Y		a provinsi na mandri na ma	ţ,	4					
Sign Control	Stop				Free				ert setter	
Grade	0%			0%	0%			n an Angeri	1 1 1 <b>1</b> 1 1	erne internet
Volume (veh/h)	65	530	65	830	540	85	나라는 상황되는			
Peak Hour Factor	0.87	0.87	0.84	0.84	0.90	0.90	5			
Hourly flow rate (vph)	75	609	77	988	600	94		상황동료님		
Pedestrians Lane Width (ft)	866		el terre det	in solitate	1888 - 1961 - 1964 - 19	A. M. A. S. M.	na an tha an tha an tha an tha	an an an an an tao an	1980 - De Maria	CARA LIVIN
Walking Speed (ft/s)	MULECTER .	0.13.1943/44			NU-FERIDI.	전 승규는 것이 같아.	황영왕, 이미지 한 일소	요즘은 가지 않았다. 것	에 참 관금 이 같은 것이	영생 지금 수지 않는다.
Percent Blockage	kala di seka	lana arak	di sanaga		990-1740.	a di satat		- 1945 gave 1	era antista di	
Right turn flare (veh)	National de la	n de l'estre de juite	A.19 123	engal sentra i	er vir stratinger	NG GUN AN	n an	n i shekara n	1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 -	4월 11 - 12 - 14 - 14 - 14 1
	None		nan si awa	din si.		n an	an an tha an tao an An tao an tao	e de la Auser		an a
Median storage veh)										
Upstream signal (ft)				954	報告報	영상 문			n an the state of the second st	edian Marine di Santa di Santa
pX, platoon unblocked	0.44	1 X Mar. 1 444 4	NT							
vC, conflicting volume	1790	647	694		유민관관	nna 1970 - 1 Airtí		이 가슴?	일을 감각하는 것이다.	
vC1, stage 1 conf vol	Citaria di Antonio	age graves		C. Tremanes	Studiese - Mer ekwer d	sector states	Maria Andre 1	e and a state.	and the fire	
vC2, stage 2 conf vol vCu, unblocked vol	704 E	647	604	i a a a a a a a a a a a a a a a a a a a	iter (1996),	Set the se		1995년 1997년 1997년 - 1997년 1997년 1997년 - 1997년	관련적 문화	
tC, single (s)	2815 *7.4	*7.2	694 4.1	41 week	<ul> <li>Cases 4</li> </ul>	a no ao a	e a tra tel ca	tali tali s		
tC, 2 stage (s)	unitat for the second	a yan <b>far sh</b> a 180 yan	t <b>Alt</b> ok dar	भ रहित्यके जिल्ला	al Alteria e	Sparsford and a state of the	e Ngalagan sa sa	e nel 1818 (Artelin).	s garage	
tF (s)	*4.5	*4.3	2.2	Serveda		é tati ku	an a	Mederal (	a.c.a.a.	
p0 queue free %	0	0-1953 0	91	6 9 C - AREE	889919926978	realist is the realist	사망원이 있어요? 1999년 - 1999년 199 1999년 - 1999년 1 1999년 - 1999년 1 1999년 - 1999년 199	MARKANNAN .	- 지하는 이 영양을 받았는	a shekarar a she
cM capacity (veh/h)	4	329	892		uis de					
Direction Lone # Second		NEARS								
Volume Total	684	1065	.694							
Volume Left	75	77	0	NACE STRUE	Man watar	se station		dafter sedinaris-	이 안 안 안 안 안 안 안 안 안 안 안 안 안 안 안 안 안 안 안	89. (a. 17 17 1
Volume Right	609	0	94		a adalah a					Anger With States
cSH	30	892	1700	ana na sa waang	b nerzez z reeles	tere tote or lineau	usele d'une consideration pour la	er en grænde kannen som af som	n ti deta barra da in conta da ge	enan, kiran ni k
Volume to Capacity	22.94	0.09	0,41							Han Neithe
Queue Length 95th (ft)	Err	7	0							
Control Delay (s)	En	2.5	0.0			Markiter - 1	a da anti a seconda a		ad Alexandre	
Lane LOS	F 	A	the set had	un ancesti	an tahi saliyada	an a stand from	and the second states of the	ana ana 1975 a		
Approach Delay (s)	En	2.5	0.0			i state i se i		ARCO ARCO		
Approach LOS	Г									
Intersection Sommany								<u> </u>	lat and	
Average Delay	n Awar a state was been also a sta		99.3							
Intersection Capacity Ut	ilization	13:	3.7%	IC	U Level	of Servic	e	H		1.8 🖌
Analysis Period (min)	webbenet	and the con-	15	a e conte co					ara nasa wa	
	age destroyed	AV ST VS	na naj kupiki				ana jawa kali si j	1.1.80 - 14.01. 19.1.1	ann 17 18 m S	
<ul> <li>* User Entered Value</li> </ul>										

Stayton/Sublimity IAMP 04/12/2005 No Build 2025 CH2M HILL

## HCM Unsignalized Intersection Capacity Analysis 6: WB Ramp & Cascade Hwy

(	70	1	0	7	/2	0	0	5

$\checkmark \land \uparrow \land \checkmark$	↓
Movemental Association and a Matrix Alba Single States	
Lane Configurations Sign Control Stop Free	↑ Free a contract that the state of the sta
Grade 0% 0%	
Peak Hour Factor         0.92         0.92         0.85         0.85         0.88           Hourly flow rate (vph)         0         0         747         306         0	0.88 710 general de la service de la company d
Pedestrians	n <b>e se ander en </b>
Lane Width (ft) Walking Speed (ft/s)	
Percent Blockage	
Right turn flare (veh) Median type None	
Median storage veh)	니다. 또는 바로 및 이가에 제가 프로그램의 영향은 것 것 수 있는 것은 가지만 것이 있다. 또한
Upstream signal (ft)	
pX, platoon unblocked vC, conflicting volume 1610 900 1053	(18)1、19)1、1931年、1938年、1938年、1938年、1938年、1938年、1937年、193 1937年、1937年 1937年、1937
vC1, stage 1 conf vol	u na sena anti na Artikazi. Eksika 1990 yang bilang serian serian kana serian s
vC2, stage 2 cont vol	
vCu, unblocked vol 1610 900 1053 tC, single (s) 6.4 6.2 4.1	
tC, 2 stage (s)	n 1994 - Maria Maria Manufarako estas estas estas estas estas de la construcción de la construcción de la constru 1994 - Maria Maria Maria Maria de la construcción de la construcción de la construcción de la construcción de l
tF (s) 3.5 3.3 2.2 p0 queue free % 100 100 100	<b>htti Harrish Kata</b> la Malaka kata kata k
cM capacity (veh/h) 115 337 650	
Volume Total 1053 710	
Volume Left 0 0	s 1 - s 1 de la de Maria de Maria de Comerce antes en entre se entre de la succession de la succession de la su
Volume Right3060 cSH 1700 1700	
Volume to Capacity 0.62 0.42	
Queue Length 95th (ft) 0 0	a tana miling kana sa kata kata kata kata kana daga kana da tana da tana tana tana da kata da kata da kata da k
Control Delay (s) 0.0 0.0 Lane LOS	
Approach Delay (s) 0.0 0.0 Approach LOS	
Average Delay	

 Average Delay
 0.0

 Intersection Capacity Utilization
 55.3%
 ICU Level of Service

 Analysis Period (min)
 15

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## HCM Unsignalized Intersection Capacity Analysis 7: Sublimity Blvd & Cascade Hwy

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Movennept			ABEE	N.NEL	s: Nies	<b>MARER</b>	SBL	Se Slati	C SBR	NW12	<b>NM</b>	NV
Lane Configurations	X				र्स			4			M	
Sign Control	Stop		사람한요		Free			Free		Politik I.	Stop	$\mathbb{E}\left[ \left\{ y^{*}\right\} \right]$
Grade	0%				0%			0%			0%	
Volume (veh/h)	20	35	75	50	585	- 0	20	535	20	15	10	6
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.94	0.94	0.94	0.77	0.77	0.7
Hourly flow rate (vph) Pedestrians	23	40	85	57	665	0	21	569	21	19	13	84
L <b>ane Width (ft)</b> Walking Speed (ft/s)		er de la composition La composition de la c		이 있는 것이 있는 것이 같이 있는 것이 있는 것이 같이 있는 것이 없는 것이 있		K. A				(13) A.S.S.S		
Percent Blockage Right turn flare (veh)		ede eg	n an air Seanna	연기 문화						str jës		
Median type Median storage veh)	None				a Balto da		a star de la s		Red Production	· 북고 동가 - 4	None	
Upstream signal (ft) pX, platoon unblocked					영학자와 (A	: Alternational Al Alternational Alternational Alternational Alternational Alternational Alternational Alternational Alternational A Alternational Alternational Alternational Alternational Alternational Alternational Alternational Alternational A				and for the		
vC, conflicting volume vC1, stage 1 conf vol	1492	1401	580	590		gaan to T	665	Ale da la composición de la composición El composición de la c		1506	1411	665
/C2, stage 2 conf vol						분쟁 철말	문화되는	1997년 - 1997년 1997년 - 1997년 - 1997년 - 1997년 1997년 - 1997년 - 1997년 - 1997년 - 1997년 1997년 - 1997년 - 1997년 - 1997년 - 1997년 - 1997년 1997년 - 1997년 - 1977년 - 1977년 - 1977년 - 1977년 - 1977년 - 1977년 -				
vCu, unblocked vol	1492	1401	580	590			665			1506	1411	665
tC, single (s)	*8.6	*8.0	*7.7	4.1			4,1	i san		*8.7	*8.1	*7.8
tC, 2 stage (s)												
lF (s)	*4.5	*5.0	*4.3	2.2		an a	2.2			*4.6	*5.1	*4.4
p0 queue free %	18	40	75	94			98			0	79	70
cM capacity (veh/h)	28	67	336	970			910		i di Mari	17	63	283
mechon Cart & Cart		NER	581	NV						<b>11</b> 5 1 1 1		
Volume Total	148	722	612	117							4 de 19 de 19	110
Volume Left	23	57	21	19		2997 THE 8181 P	, , ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		·	1.1.145		
Volume Right	85	0	21	84	and a						State Car	
cSH	89	970	910	71		1	39792.1.5.7.1.1					
Volume to Capacity	1.67	0.06	0.02	1.64	200~~~~~			an de la	t to de la sec	ski na Ma	e dela e del del	
Queue Length 95th (ft)	300	ос чих от жено <b>5</b>	2	251	in ne an	er Bearles and -	an ang ar	100000-2010-111	an da la Raya. A	alanda ari kita edi	a nagrých n	
Control Delay (s)	426.2	1.5		439.2	l and sale	Saadel Gula	and a star	na kwa siliki wa wa		and the second		
Lane LOS	erencerenter F	A	A	r state in the second secon	e sanadate d	1992/10/07/20	aktisti Metzelis	n na sanan n	1.11.11.2011	and a second second		
Approach Delay (s)	426.2 F	1.5		439,2 F	ti de la		ký (sl.)		2000 2000 (190		n a grun Maria (Maria) - Maria Maria (Maria) - Maria	
intersection Summary &												
Average Delay			72.5									
Intersection Capacity U Analysis Period (min)			78.8% 15	982 T					D			
* User Entered Value	u jest dir staffa K	i fa sur					a an ta sag		: 			

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## HCM Unsignalized Intersection Capacity Analysis 8: 9th Street & Cascade Hwy

07/07/2005

	ا خ	• •	1	.↓	4
Movementes				e e e e e e e e e e e e e e e e e e e	
Lane Configurations	Y		र्च	4	
Sign Control	Stop		Free	Free	
Grade	0%		0%	0%	
Volume (veh/h)			640		20
Peak Hour Factor	0.92 0.		0.94	0.92	0.92
Hourly flow rate (vph)	- 22	76 32	681	549	22
Pedestrians	etare a contractadar	영화 관람 전체 11.1	alite ni ese	an a	i je na svete politika na vlatika i na politika i na politika na svete Marada utvor se se do te se s
Lane Width (ft) Walking Speed (ft/s)	kitat kati hisiti		adir vadi	1998年1月1日	2. Martin California California California California California California California California California Ca
Percent Blockage		e de trace de la	чж. н	restance et	and the state of the second the state of the st
Right turn flare (veh)	역회 유수가 관계가 가지?	agalah Pakatèn Mi	e Xalo vo etan.	n directa (1994)	·····································
	None	the Lagona	det e l	. In the sy	
Median storage veh)	an na state a sa s	an an an an a			ener hæger hanna sin ben af eller er en heler i sen hæger er særte att eller heler i sen heler er er er sen he
Upstream signal (ft)	st i satte	10 Lanaett	liner de	anaki sheri shi Giran she	的复数形式 化乙酸盐酸盐 人名布尔 化二氯基 化合体化合成
pX, platoon unblocked					
vC, conflicting volume	1304 5	50 571		전문 것 ?	
vC1, stage 1 conf vol					
vC2, stage 2 conf vol	Alexia da Santa da Recepción de Carlos				사람이 있는 것은 것은 것은 것은 것은 것은 것이 가지 않는 것이다. 이 것은 것이 있는 것은 것이 있는 것이 것은 것이 있는 것이 가 같은 것은 것은 것이 있는 것이 같은 것이 있는 것이 같은 것이 있는 것이 같은 것이 같은 것이 같은 것이 같은 것이 같은 것이 같은 것이 있는 것이 있는 것이 같은 것이 같이 있는 것이 같이 있는 것
vCu, unblocked vol		60 571	na kiti kita	tal ta saida	ne Marel I. I. I. Berner and State and State and State and State and State and State and States
	6.4 6	.2 4.1			2월 2019년 1월 2019년 1월 1월 2019년 1월 2
tC, 2 stage (s)	tina se so so se	tan si kabupanén ka	e Sheriyeatari	truk tembera 46	α <mark>ν θα</mark> γής με γαλαγός την και την αρτηγικατικα. Μαγκαταγάγκαι γραγής από το ποριζητης του κατά του τ
tF (s) p0 queue free %		<b>3 2.2</b> 35 97			2014년 - 1917년 1917년 - 1 1917년 - 1917년 - 1917년 - 1917년 -
cM capacity (veh/h)		24 987	NGROSPACE		
				900 <b>-</b> 200 - 200	n na hEarth an Anna an
Enress of the black of the black of the					a na ann an Anna an Ann
Volume Total		13 571	¢		
Volume Left		32 0	onfana fearmea groa	un a Ner vige, eukee	ະຫຼັບຫຼັງເຫັນລະຫາດປະເທດຫຼືຫຼືຫຼືຫຼືຫຼືຫຼືຫຼືຫຼືຫຼື ແລະການເຮັດແຮງ ແລະ
Volume Right	76 358 9	0 22 37 1700			
Volume to Capacity		0.34	anda la testa	A. VII. I. H. A. A.	
Queue Length 95th (ft)	27 27	3 0.34	21699 TO ESS	219 ( 22 - 22 - 22 - 22 - 22 - 22 - 22 - 2	n an
Control Delay (s)		.8 0.0	kon han in der	andera en da	ulan di 1945 milan kumanaka di parti mandalah kuma bahar di seba
Lane LOS	C	Α	www.conorg.	georgenwetten nud	une en la construction de la constr La construction de la construction d
Approach Delay (s)		.8 0.0	Selatada		
Approach LOS	С	zoniko okonomista (k. 19	90995555555599999999	allede er or og	r Nades (1920) Nadi Neder Konstin and selected for the selection of selection of the management for the first of the first of the first of the selection of t
Intersection Sammary?					
Average Delay		1.8			
Intersection Capacity Ut	lization		800 - 10 <b>- 1</b> 1		I of Service
Analysis Period (min)	(internation of the second sec	15	e se	CONCOVE	
	çe goliş de bir i		alatar 2012).	a Africana	(4) 「一般市家」です。「「「「「「「「」」」」、「「「「「「「「「「「」」」、「「」」、「「」」、

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HCM Unsignalized Intersection Capacity Analysis 9: ORE 22 & EB On Ramp

1 1 1

07/07/2005
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$\rightarrow \rightarrow \checkmark \checkmark \checkmark \checkmark$
Movement A. M. KERNERI HAR MARINARI MARINER
Lane Configurations
Sign Control
Grade 0% 0%
Volume (veh/h) 620 0 0 1175 0 150
Peak Hour Factor 0.92 0.92 0.92 0.92 0.87 0.87
Hourly flow rate (vph) 674 0 0 1277 0 172
Pedestrians
Lane Width (ff) Walking Speed (ff/s)
Percent Blockage
Right turn flare (veh)
Median type
Median storage veh)
Upstream signal (ff)
pX, platoon unblocked
vC, conflicting volume 674 1951 674
vC1, stage 1 conf vol
vC2, stage 2 conf vol
vCu, unblocked vol 674 1951 674 tC, single (s) 4.1 6.4 *8.2
tC, 2 stage (s)
(F (s) 23(age (3)
p0 queue free % 100 100 25
cM capacity (veh/h) 917 70 231
Direction Mene W. Schwarz E.S. Man Mannes Market
Volume Total 674 1277 172
Volume Left 0 0 0
Volume Right 0 0 172
cSH 1700 1700 231
Volume to Capacity 0.40 0.75 0.75
Queue Length 95th (ft) 0 0 130
Control Delay (s) 0.0 0.0 65.8 Lane LOS F
Approach Delay (s) 0.0 55.8
Approach LOS F
Intersection Sommany and the second
Average Delay 4.5
Intersection Capacity Utilization 76.2% ICU Level of Service D
Analysis Period (min) 15
한 명이 병원들은 병원을 방병 수있다. 방법은 가장 방법을 위한 것은 것을 받는 것은 것은 것은 것은 것은 것은 것이다. 것은 것은 것은 것은 것은 것은 것은 것은 것은 것을 가지 않는 것을 받으며 가 가 나는 것을 받으며 가 있다. 것은
* User Entered Value

- Harris

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#### HCM Unsignalized Intersection Capacity Analysis 10: ORE 22 & WB On Ramp

07/07/2005

۶ ∢ E B T EE. Lane Configurations t ħ T Free Stop Sign Control Free Grade 0% 0% 0% Volume (veh/h) 0 770 860 0 0 315 0.92 Peak Hour Factor 0.92 0.92 0.92 0.85 0.85 Hourly flow rate (vph) 0 837 935 0 0 371 Pedestrians Lane Width (ft) Walking Speed (ft/s) Percent Blockage Right turn flare (veh) Median type None Median storage veh) Upstream signal (ft) 없는 소문 문 경험에서 그는 것 pX, platoon unblocked vC, conflicting volume 935 1772 935 vC1, stage 1 conf vol vC2. stage 2 conf vol 935 vCu, unblocked vol 935 1772 tC, single (s) 4.1 6.4 \*6.7 경험은 감독을 잡히 없 tC, 2 stage (s) tF (s) 2.2 3.5 \*3.8 p0 queue free % 100 100 Ô cM capacity (veh/h) 732 90 262 2) 10° 20 118 2 935 371 Volume Total 837 Volume Left 0 0 0 
 Volume Right
 0
 0

 cSH
 1700
 1700
 371 262 Volume to Capacity 0.49 0.55 1.42 Queue Length 95th (ft) 0 0 511 Control Delay (s) 0.0 0.0 244.9 Lane LOS F Approach Delay (s) 0.0 0.0 244.9 Approach LOS F Intersections Summary, see Average Delay 42.4

Intersection Capacity Utilization 75.0% ICU Level of Service D Analysis Period (min) 15

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CH2M HILL				

APPENDIX G Build 2025 Traffic Operations Worksheets

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# HCM Signalized Intersection Capacity Analysis 1: Fern Ridge Rd & Cascade Hwy

	ر الحر		$\mathbf{i}$	4	-	•	1	1	/	<b>\</b>	Ŧ	~
Movement		2 <b>2</b> 2 2		<b>6 17</b> 5 15		SMBR.	<b>NEL</b>	NED	<b>MER</b>		SBR.	SBR
Lane Configurations	۲	4		7	4		۲	<b>^</b>		4	<u>†</u> †	
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	de la señera da Senera de las Seneras de las	1.00			1.00	0.95	아이 승규는	1.00	0.95	
Frt	1.00	0.93		1.00	0.95		1.00	0.97		1.00	0.97	
Fit Protected	0.95	1.00	지원	0.95			0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1660	1624		1660	1667		1660	3237		1644	3199	
Fit Permitted	0.22	1.00	( Rec h	0.14	-1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	377	1624		240	1667		1660	3237		1644	3199	
Volume (vph)	165	240	215	115	215	95	175	575	115	110	680	150
Peak-hour factor, PHF	0.92	0.92	0.92	0.84	0.84	0.84	0.83	0.83	0.83	0.92	0.92	0.92
Adj. Flow (vph)	179	261	234	137	256	113	211	693	139	120	739	163
<b>RTOR Reduction (vph)</b>	0	27	0	0	14	0	0	15	0	0	17	0
Lane Group Flow (vph)	179	468	0	137	355	0	211	817	0	120	885	0
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	4%	4%	4%
Turn Type	pm+pt			pm+pt			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4				lainteine ar stad. Adhrácha nábhan ai					alan da san Kabuta basari	, tur de Territorio - A	
Actuated Green, G (s)	43.6	30.7	1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 - 1999 -	40.4	29.1		18.5	39.3		12.7	33.5	
Effective Green, g (s)	43.6	30.7	and the second	40.4	29.1		18.5	39.3	l in the second s	12,7	33.5	
Actuated g/C Ratio	0.40	0.28		0.37	0.26	a an	0.17	0.36		0.12	0.30	
Clearance Time (s)	4.0	4.0		4.0	4 0		4.0	4.0		4.0	4.0	4 SV
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	300	453		234	441		279	1156		190	974	
v/s Ratio Prot	c0.07	c0.29		0.06	0.21	A 1 A 10 10 10	0.13	c0.25		0.07	c0.28	
v/s Ratio Perm	0.17			0.15			ştart	1880 - J				. î
v/c Ratio	0.60	1.03		0.59	0.81		0.76	0.71		0.63	0.91	
Uniform Delay, d1	24.4	39.6	ale adde	27.0	37.8	ius Iri	43.6	30.4		46.4	36.8	1. J. C. C.
Progression Factor	1.00	1.00	are dere oder e	1.00	1.00	n maiorith	1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.2	50.8		3.7	10.3	des délauter	11.1	3.7		6.7	11.9	
Delay (s)	27.5	90.5		30.7	48.1		54.7	34.1		53.1	48.7	
Level of Service	C			C	Ð	aver ni e	D	С	ere visite	D	D	
Approach Delay (s)	et allet ta e an d'ha an	73.8	et and a sea		43.4	бастан — на П		38.2		• • • • • • • • •	49.2	
Approach LOS		E	A. A		D			D			D	
hitessection Summery.												
HCM Average Control		날 모 말 한	49.9	월 <b>13</b> 48년 원년	HÇM Le	vel of S	ervice	관계적실	⇒ D.			
HCM Volume to Capac	ity ratio		0.86					¢				
Actuated Cycle Length	(s)	i de la compañía de l	110.0		Sum of	lost time	(S)	çşi di kad	12.0	Network.	stri de la com	
Intersection Capacity L		า่	82.4%		ICU Lev	el of Se	rvice		E			

Intersection Capacity Utilization 82.4% ICU Level of Service E Analysis Period (min) 15 c Critical Lane Group

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07/08/2005

## Queues

Queues 1: Fern Ridge Rd 8	k Casca	ide Hw	/y								07/0	8/2005
	۶	-+		1	+	•	1	†	1	1	¥	4
	en Ekis			Meter	- WAR	<b>WER</b>	NEIS	SAN BUR	NBR	C SBL	set.	SER
Lane Configurations	ኘ	₽		1	4		ሻ	<b>1</b>		ሻ	41-	-
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%			0%	anter de la composición de la	다 가난한 등	0%		(Aritha)	0%	
Storage Length (ft)	200	A CONTRACTOR AND	0	200		0	200		0	200		Ó
Storage Lanes	18 (A.S. <b>1</b> )	u	0	1		0	1 ( <b>1</b>		0	310 <b>- 1</b> 0		
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50	a sheki	50	50	
Trailing Detector (ft)	0	0	5 - 6 A A & A A	0	0	V	0	0		0	0	
Turning Speed (mph)	15	42.2	9	15		9	15		9		a da Te	9
Satd. Flow (prot)	1660	1623	Õ	1660	1667	Õ	1660	3237	Ő	1644	3200	õ
Flt Permitted	0.174			0.154		gree na P	0.950		e la teñe	0.950	0200	
Satd. Flow (perm)	304	1623	0	269	1667	0	1660	3237	0	1644	3200	0
Right Turn on Red		n <b>ozo</b> Neksiji daj	Yes	200	1007	Yes	1000	5257		1044	5200	Yes
Satd. Flow (RTOR)	(Albur	38	1.69	90 C	19	200 <b>1 CO</b>		23	Yes	allen i sere son	25	res
	areach, eana	30	a yan dalah	waa ee ta	30	goanna - y			a de esta	a kaluna	25	
Link Speed (mph)	2743년 12 2 년	816	en datas	yan nigeri	a 10 alasa 1	왕 전, 그는 연		55		elijet 17)	55	
Link Distance (ft)	devinition of the		and Artan		826	an is		887		a	946	
Travel Time (s)		18.5			18.8		475	11.0			11.7	
Volume (vph)	165	240	215	115	215	95	175	575	115	110	680	150
Confl. Peds. (#/hr)	Advision and	alaan ee dha	- ABCSEA	anal (China (Arte		add er o				ake dala		
Confl. Bikes (#/hr)		an mar nation of			No	the sector and dealers and sec		a a concenceration	nt nasraina	tation de la terretor	All the second	-
Peak Hour Factor	0.92	0.92	0.92	0.84	-0.84	0.84		0.83	0,83	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	-3%	3%	3%	3%	3%	3%	3%	4%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)							상태는 영문을					
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph	) 179	495	0	137	369	0	211	832	0	120	902	0
Turn Type	pm+pt			pm+pt			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		14 CE 200 1000	8		Pro destre e de	• 1993/1997 - 1991 - 199		nan nan nan da ka	one en la compañía de la compañía d	1819 - 111 - 111 - 111 - 11	
Detector Phases	7	4	an dat e	3	8	an a	5	2	hilan da ka		6	a 18 %
Minimum Initial (s)	5.0	5.0	1977 - 1979 - 1	5.0	5.0	MA 1 (11)	5.0	5.0		5.0	5.0	
Minimum Split (s)	20.0	30.0	Nata dar	20.0		tanlaise Maria	20.0	40.0		20.0	40.0	n de la composition d
Total Split (s)	20.0	30.0	0.0	20.0	30.0	0.0	20.0	40.0	0.0	20.0	40.0	0.0
Total Split (%)									0.0%			0.0%
Yellow Time (s)	4.0	4.0	ಲ್ಲಾ ಕಾರ್ಮಾಧನ್	4.0	4.0	अभक्षा चलाइल	4.0	4.0	والمعرفين والتركير	4.0	4.0	0.070
All-Red Time (s)	.0.0	0.0	en bai	0.0	0.0	Radata Anto 1	0.0	0.0	analaha seb	0.0	0.0	
Lead/Lag	Lead	Lag	(1997년) 1998년 (1998년) 1997년 - 1997년 (1998년) 1997년 - 1997년 (1998년)	Lead	Lag	aeraen pistos	Lag	Lag	in de seren	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes	alatera da	Yes	Yes	gen set s	Yes	Yes	an star eage	Yes	Yes	
Recall Mode	None	None	48(1494) (1994)	None	None	68.2345	THE R. P. LEWIS CO., LANSING MICH.	C-Max	a gina D	None	None	
	43.5		Li Adam da			shine the sec			an de lande			
Act Effct Green (s)	1.1.11.100/001\$0/2011.11/06	30.7	~ 22 곳은 문화한	40.5	29.1	hei gentist				12.7	33.5	
Actuated g/C Ratio	0.40	0.28	di na tan	0.37	0.26		0.17	0.36		0.12	0.30	
v/c Ratio	0.64	1.03	e de las	0.57	0.81		0.76	0.71	di kara da	0.63	0.91	
Control Delay	28.5	86.8		25.5	52.0		63.2	34.2		53.3	44.1	
Queue Delay	0.0			0.0	0.0		0.0	0.0		0.0		
Total Delay	28.5	86.8		25.5	52.0		63.2	34.2		53.3	44.1	
LOS	C	68 <b>F</b>		C	Ď	ta Alan Ing Tati Manang	E	C	én h	D	D	
Approach Delay		71.3			44.9			40.1			45.2	

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#### Queues 1: Fern Ridge Rd & Cascade Hwy

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keneropolije - Secondard	SALE DE	a ce da		(CI		<b>WER</b>	a veit	S NEW	NER	an sel	Set	SBR
Approach LOS		. E			D			D			D	
90th %ile Green (s)	16.0	26.4	1	5.6	26.0		16.0	36.0		16.0	36.0	
90th %ile Term Code	Max	Max	•	3ap	Max		Max	Coord	lini del	Max	Coord	ele 4
70th %ile Green (s)	15.2	29.2	1	2.8	26.8		16.0	36.6		15.4	36.0	
70th %ile Term Code	Gap	Max	200 P <b>(</b>	Sap	Max		Max	Coord	다음 소송	Gap	Coord	e de la composition de la comp
50th %ile Green (s)	13.2	30.8	1	1.2	28.8		16.0	39.0		13.0	36.0	
50th %ile Term Code	Gap	Max	~	Sap	Max	요한물건가	Max	Coord	uh la regi	Gap	Coord	8 feb
30th %ile Green (s)	11.3	32.4		9.6	30.7		19.7	41.0		11.0	32.3	
30th %ile Term Code	Gap	Max		Sap	Hold	환전한 문	Hold	Coord		Gap	Coord	
10th %ile Green (s)	8.7	34.5		7.5	33.3		24.7	44.0		8.0	27.3	
10th %ile Term Code	Gap	Max	С (	3ap 🗧	Hold		Hold	Coord		Gap	Coord	1 A.
Queue Length 50th (ft)	81	~354		60	234		148	257		82	303	
Queue Length 95th (ft)	134	#610		95 🕴	#370		#248	308	an n' ser s Ann Airte	140	#389	
Internal Link Dist (ft)		736			746			807			866	
Turn Bay Length (ft)	200			200		말을 얻어	200	친구 아이들 것.	1.1.1	200		
Base Capacity (vph)	322	480	:	311	455		279	1172		239	1064	
Starvation Cap Reductn	0	0		- 0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		• Q	0		0	ି		0	0	
Reduced v/c Ratio	0.56	1.03	C	.44	0.81		0.76	0.71		0.50	0.85	
Intersection Summary a												

Other Area Type:

Cycle Length: 110 Actuated Cycle Length: 110

Offset: 0 (0%), Referenced to phase 2.NBT, Start of Green 이가 여러 방법을 수요. Natural Cycle: 110

Control Type: Actuated-Coordinated Maximum v/c Ratio: 1.03

Intersection Signal Delay: 48.9 Intersection LOS: D Intersection Capacity Utilization 82.4% ICU Level of Service E

ersection Capacity Utilization 82.4% ICU Level or Service c lalysis Period (min) 15 Volume exceeds capacity, queue is theoretically infinite. Analysis Period (min) 15 ~

Oueue shown is maximum after two cycles: # 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases:	1: Fern Ridge Rd & Cascade Hwy	
		_

► ø1	<b>1</b> ø2	<b>√</b> ø3	<b>→</b> ø4	
an l	<b>4</b> <i>a</i> 5	▶ <sub>97</sub>	<b>←</b>	

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HCM Unsignalized Intersection Capacity Analysis 2: Martin & Cascade Hwy

1 ٩ Î 3731 THE !! NERMONE SEG Movement Lane Configurations 1 忭 **†**† Sign Control Stop Free Free Grade 0% 0% 0% Volume (veh/h) 0 20 805 30 0 940 i de t 0.92 0.92 Peak Hour Factor 0.92 0.92 0.81 0.81 Hourly flow rate (vph) 0 22 875 33 0 1160 Pedestrians Lane Width (ft) Walking Speed (ft/s) Percent Blockage Right turn flare (veh) Median type None Median storage veh) Upstream signal (ft) 946 pX, platoon unblocked 0.90 0.83 354 0.83 vC, conflicting volume 1472 454 908 vC1, stage 1 conf vol vC2, stage 2 conf vol 139 685 vCu, unblocked vol 964 tC, single (s) 6.9 7.0 4.2 tC, 2 stage (s) tF (s) 3.3 2.2 3.5 p0 queue free % 100 97 100 cM capacity (veh/h) 224 729 746 SB 2 Direction dearest 313.51 Volume Total 580 22 583 324 580 Volume Left 0 0 0 0 0 0 0 Volume Right 22 0 33 cSH 729 1700 1700 1700 1700 Volume to Capacity 0.03 0.34 0.19 0.34 0.34 Queue Length 95th (ft) 2 0 0 0 0 Control Delay (s) 10.1 0.0 0.0 0.0 0.0 Lane LOS в Approach Delay (s) 10.1 0.0 0.0 Approach LOS В Intersection Summany & Average Delay 0.1

Intersection Capacity Utilization 34.5% ICU Level of Service A Analysis Period (min) 15

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07/08/2005

## HCM Signalized Intersection Capacity Analysis 3: Whitney & Cascade Hwy

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1800	1800	1800	1800	4 1800	1900	<b>]</b>	<b>†</b> ‡-	<b>1</b> 0 <b>-</b> 11-11-	٦	- <b>†</b> Þ	
	4.0	-18 <b>4 (2 2 2</b> 2 3		A DESCRIPTION OF A DESCRIPTION	lovo			1800	<ul> <li>A state of the sta</li></ul>		180
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A 7		da Abiki y		New Hereseasce	્ય પ્રાથમિક સંદેશ કે સામગ્રે છે.	Partie of					
		dan dente			and and a	1.0	41.4		17.2	57.6	
		14336					2004 A 12 Y 2004 B 12 A 10 Y 20	참 및 관계	17.2	57.6	
		usur unio			يتناب المتحري					0.64	
1. S.		at oak				いっか 読み しかりがく うめり			4.0	4.0	t de co
		and the strength			(1720-01-10)				3.0	3.0	
		No. 1	e a se service a lo de c				1506		314	2100	
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0.04		8.8									
		an an an an sao				0.58	0.66	14000	0.84	0.43	
							18.9		35.1		
		Sans Maria - 2					1.00		1.00	1.00	
1.3	0.1		2.9	0.2	84 H	36.3	2.3		18.0	0.7	o da e
42.6	41.0	rivera en	39.9	35.2		80.6	21.2		53.1	8.7	
	D.		D,			F	C			A -	
Ď				37.2			21.9	1.1.1.1.1	1 (	18.7	
	41.7 D	nationale e com	8.9.3.0.4. m. m.	57.2 D						10.7	
	4.0 1.00 0.95 1676 0.95 1676 0.92 16 0.92 16 0.92 16 0.92 16 0.92 16 0.92 16 0.92 16 0.92 16 0.92 16 0.92 16 0.92 16 0.92 16 0.95 1676 16 0.95 17 16 0.95 17 16 0.95 17 16 0.95 17 16 0.95 17 16 0.95 17 17 10 10 10 10 10 10 10 10 10 10 10 10 10	$\begin{array}{cccccc} 4.0 & 4.0 \\ 1.00 & 1.00 \\ 1.00 & 0.85 \\ 0.95 & 1.00 \\ 1676 & 1500 \\ \hline 0.95 & 1.00 \\ 1676 & 1500 \\ \hline 15 & 0 \\ 0.92 & 0.92 \\ 16 & 0 \\ 0 & 21 \\ 16 & 1 \\ 2\% & 2\% \\ \hline 300 & 2\% \\ \hline 300 & 21 \\ 16 & 1 \\ 2\% & 2\% \\ \hline 300 & 21 \\ 16 & 1 \\ 2\% & 2\% \\ \hline 4.2 & 4.2 \\ 4.2 & 4.2 \\ 4.2 & 4.2 \\ 4.2 & 4.2 \\ 4.2 & 4.2 \\ 4.2 & 4.2 \\ 4.2 & 4.2 \\ 0.05 & 0.05 \\ 4.0 & 4.0 \\ 3.0 & 3.0 \\ \hline 78 & 70 \\ 0.01 & 0.00 \\ \hline 0.21 & 0.01 \\ 41.3 & 40.9 \\ 1.00 & 1.00 \\ \hline \end{array}$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	4.0 $4.0$ $4.0$ $4.0$ $4.0$ $4.0$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $1.00$ $0.85$ $1.00$ $0.85$ $1.00$ $0.95$ $1.00$ $0.95$ $1.00$ $0.95$ $1676$ $1500$ $1660$ $1485$ $1676$ $0.95$ $1.00$ $0.95$ $1.00$ $0.95$ $1676$ $1500$ $1660$ $1485$ $1676$ $15$ $0$ $20$ $105$ $0$ $440$ $10$ $0.92$ $0.92$ $0.92$ $0.92$ $0.92$ $0.92$ $0.92$ $16$ $0$ $22$ $113$ $0$ $151$ $111$ $0$ $21$ $0$ $0$ $132$ $0$ $0$ $16$ $1$ $0$ $113$ $19$ $0$ $11$ $2%$ $2%$ $3%$ $2%$ $3%$ $2%$ $5plit$ $5plit$ $112$ $1.0$ $1.0$ $1.0$ $4.$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	4.0         0.95         1.00         0.95         1.00         0.95         1.00         0.95         1.00         0.95         1.00         0.95         1.00         0.95         1.00         0.95         1.00         0.95         1.00         0.95         1.00         0.95         1.00         0.95         1.00         0.95         1.00         0.95         1.00         0.95         1.00         0.95         1.00         0.95         1.00         0.95         1.00         0.95	4.0         1.00         0.95         1.00         0.95         1.00         0.95         1.00         0.95         1.00         0.95         1.00         0.95         1.00         0.95         1.00         0.95         1.00         0.95         1.00         0.95         1.00         1.03         1.03         1.03         1.03         1.03         1.03         1.03         1.03         1.03         1.03

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## Queues 3: Whitney & Cascade Hwy

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Lone Group Manual Sec	isten.		<b>HB</b>					MARI.	NER!	<b>SACIBLE</b>		SBR
Lane Configurations	۲	4		۲	4		ኻ	<b>†</b> ‡		<b>*</b> i	ቶኈ	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%	a Carden State		0%	silian As		0%	letter fil	교수교문	0%	
Storage Length (ft)	300	andar of Adrian	300	300		0	300		0	300		0
Storage Lanes	(h) (h <b>1</b> )	e de la dela	) <b>(</b>	1		0	olar (shi <b>n</b> )	elle de la ca	0	1890. o <b>r</b> t (	uti sherer	0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50	使心液性	50	50	ik grupis
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Turning Speed (mph)	15	arten (* 1841) Graden (* 1841)	9	15		9	15		9	.15		a 1 <sup>6</sup> 9
Satd. Flow (prot)	1676	1500	0	1660	1485	0	1676	3274	0	1644	3280	0
Fit Permitted	0.950			0.950		2839-114	0.950		Lander	0.950		
Satd. Flow (perm)	1676	1500	0	1660	1485	0	1676	3274	0	1644	3280	0
Right Turn on Red	References.	ي وي ملي الله . 19 م م وي الله ما المور الم 19 م م وي الله ما المور الم	Yes			Yes		전화 소문	Yes			Yes
Satd. Flow (RTOR)		264			501			12			2	
Link Speed (mph)		30			- 30			55	문화 영향 전	Alt dat i	55	
Link Distance (ft)		941			636			354			579	
Travel Time (s)		21.4	urili den	i de la compañía de l Compañía de la compañía	14.5		<u>A</u>	4.4		litera e a c	7.2	8 N. 1. 18
Volume (vph)	15	0	20	105	0	140	10	740	75	240	815	15
Confl. Peds. (#/hr)	177. I.A.			iyyet da		gi en terry (C. G-giografia		per estas di la ficilita. Seconda i cari di la di			an a	
Confl. Bikes (#/hr)								The second s		and way to be a set of		
Peak Hour Factor	0.92	0.92	0.92	0.93	0.92	0.93	0.92	0.81	0.81	0.91	0.91	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	3%	2%	3%	2%	3%	3%	4%	4%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)	24 A G			2 것이 속			ki din y		251 36FE			
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	16	22	0	<u>्</u> 113	151	0	11	1007	0	264	912	0
Turn Type	Split			Split			Prot			Prot	500 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
Protected Phases	4	4	황아 않다.	· 8	<b></b>		-5	2		<b>1</b>	6	
Permitted Phases												
Detector Phases	4	4		8	8		5	2		1	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		8.0	20.0		8.0	20.0	en de la com Nomenta
Total Split (s)	20.0	20.0	0.0	20.0	20.0	0.0	8.0	32.0	0.0	18.0	42.0	0.0
Total Split (%)	22.2%	and the state of the State	0.0%	22.2%		0.0%	8.9%	35.6%	0.0%	20.0%	46.7%	0.0%
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	
Lead/Lag							Lag	Lead		Lag	Lead	
Lead-Lag Optimize?			돌려온다				Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	C-Min		None	C-Min	
Act Effct Green (s)	6.4	6.4	신성 좋지?	11.2	11.2	NG N	5.6	46.2	્રો રાગે છે.	14.0	62.4	
Actuated g/C Ratio	0.07	0.07		0.12	0.12		0.06	0.51		0.16	0.69	
v/c Ratio	0,14	0.06	in na chui Stàitean	0.55	0.24		0.11	0.60		1.03	0.40	
Control Delay	39.3	0.2		39.9	0.8		42.5	18.9		104.3	8.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	39.3	0.2		39.9	0.8		42.5	18.9		104.3	8.6	
LOS . A State of the state	D.	A		D	A		Ð	B	1 - 1 - <u>1</u>	a se	A	
Approach Delay		16.6			17.5			19.2			30.1	

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	≯		$\rightarrow \epsilon$	-	•	-	<b>†</b>	1	- <b>\</b>	Ļ	-
ane Group 4 States	<b>EBL</b>		EBRAKMBIG		en er	NBL	S MIGE	NBR	SEL.	SET	- SB(
pproach LOS		B		B	দায়ে কিন্তু		B	56-56		C	
Oth %ile Green (s)	7.8	7.8	15.9	15.9	ti nati si	4.9	36.3		14.0	45.4	
0th %ile Term Code	Gap	Gap	Gap	Gap		Max	Coord		Max	Coord	1.0
Oth %ile Green (s)	6.9	6.9	12.9	12.9	ng iya	0.0	40.2		14.0	58.2	
Oth %ile Term Code	Gap	Gap	Gap	Gap		Skip	Coord		Max	Coord	et ti
Oth %ile Green (s)	6.2	6.2	11.2	11.2	an ta' an	0.0	42.6		14.0	60.6	
Oth %ile Term Code	Gap	Gap	Gap	Gap		Skip	Coord	가는 문제	Max	Coord	
Oth %ile Green (s)	0.0	0.0	9.4	9.4		0.0	54.6		14.0	72.6	
Oth %ile Term Code	Skip	Skip	Gap	Gap	Sta dhi	Skip	Coord	영국 방송	Max	Coord	64. <sup>a</sup>
Oth %ile Green (s)	0.0	0.0	6.8	6.8		0.0	57.2		14.0	75.2	
Oth %ile Term Code	Skip	Skip	Gap	Gap	ar an Arte	Skip	Coord		Max	Coord	87. A
Length 50th (ft)	9	0	61	0		6	217		~163	107	
Queue Length 95th (ft)	28	Ø	109	0	영화, 강말	23	278	1.	#313	234	
nternal Link Dist (ft)		861	<ul> <li>A the class cars cars of end</li> </ul>	556			274			499	
um Bay Length (ft)	300	de Alfreda de Antol Alfreda de Antol	300	1. 例例時		300	동생활	e na stala a	300		
ase Capacity (vph)	298	484	295	676		103	1686		256	2275	
tarvation Cap Reductn	.0	Q	0	0		0	0		0	0	
pillback Cap Reductn	0	0	0	0		0	0		0	0	
storage Cap Reductn	0	0	0	52 X 0		Ö	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	s i ta 193	0	0	19
Reduced v/c Ratio	0.05	0.05	0.38	0.22		0.11	0.60		1.03	0.40	
and a second of the many second s											
	ther	a a na grup a anargan.	the state and more second of the state of	1		u data a restrictor a	ويرون والمحاوي ورو	· · · · · · · · · · · · · · · · · · ·	1. Mar 1. Mar 1		
ycle Length: 90			State (Second						영상 관문	Maria di	8 d. 1
ctuated Cycle Length: 9		A DIVE TO PERMIT AND TO PERMIT	a a 11 was welchtetet. An oostelle	an manager warmen a	antes i di tata dati di						
offset: 0 (0%), Reference	ed to p	hase 2.N	BT and 6:SB	F, Start o	of Gree	n Star	승규가 다음				
latural Cycle: 90	- A Country to Section 1.	the state of the s	an fa sana na saran sa sa sa sa sa	weather after the	aarama keessa a	ann a ca		e en la fan de			
Control Type: Actuated-C		nated			Nort ACE		Neledit et l	이 없는 것을 수 없다.	1813	1910 - 11	
Aaximum v/c Ratio: 1.03		and the second state of the second states of the second states of the second states of the second states of the		<ol> <li>Desiris, desiris da acua</li> </ol>	www.com.com	Landella ne brit.	ur setter d				
ntersection Signal Delay				ntersect			ing de la compañía de			t Barder	
ntersection Capacity Uti		61.3%	Antoneo de autores e en	CU Leve	el of Se	rvice B					
analysis Period (min) 15					이야한 2014년	Northe -	211 - CE -	이상 않는		3월 1198	
<ul> <li>Volume exceeds cap</li> </ul>	pacity, c	queue is t	neoretically in	ntinite.							
Queue shown is max											

Splits and Phases:	3: Whitney & 0	Cascade H	lwy			
<b>1</b> ø2		<b>▶</b> ø1		<b>4</b> <sub>ø4</sub>	7	 ø8
<b>↓</b> ø6			<b>4</b> ø5			

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#### HCM Signalized Intersection Capacity Analysis 5: EB Ramp & Cascade Hwy

٦ t ⋟ NEE SBIMSER 3 X. 1.1 Lane Configurations **^** 1800 đ ſ **↑**Þ ۲ 1800 1800 1800 1800 1800 Ideal Flow (vphpl) 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 0.95 1.00 0.95 0.85 0.99 Frt 1.00 1.00 1.00 0.95 1.00 Flt Protected 1.00 0.95 1.00 Satd. Flow (prot) 1644 1471 3253 1629 3257 1.00 Fit Permitted 0.95 1.00 0.19 1.00 3253 Satd. Flow (perm) 1644 1471 321 3257 Volume (vph) 0 530 830 65 0 0 0 0 65 85 540 0 0.87 Peak-hour factor, PHF 0.87 0.87 0.92 0.92 0.92 0.84 0.84 0.84 0.90 0.90 0.90 Adi, Flow (vph) 75 0 609 0 0 0 0 988 77 94 600 0 **RTOR Reduction (vph)** 0 0 131 0 0 0 0 9 0 0 0 0 478 Lane Group Flow (vph) 0 75 0 332 0 0 1056 94 600 0 0 0 Heavy Vehicles (%) 4% 4% 2% 4% 4% 4% 2% 2% 4% 5% 5% 5% Perm Turn Type Split Prot 1944 2 **Protected Phases** 4 4 4 6 **Permitted Phases** S. 6 18 Actuated Green, G (s) 21.4 30.6 30.6 21.4 30.6 Effective Green, g (s) 30.6 21.4 21.4 30.6 30.6 Actuated g/C Ratio 0.36 0.36 0.51 0.51 0.51 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) 586 525 1659 164 1661 v/s Ratio Prot 0.05 c0.33 c0.32 0.18 v/s Ratio Perm 0.29 v/c Ratio 0.13 0.91 0.64 0.57 0.36 Uniform Delay, d1 8.8 13.0 18.4 10.7 10.2 **Progression Factor** 1.00 1.00 1.00 1.00 1.00 Incremental Delay, d2 0.1 20.1 1.9 13.8 0.6 38.5 12.5 23.9 Delay (s) 13.1 9.4 Level of Service В В Α D С Approach Delay (s) 35.7 0.0 12.5 11.4 Approach LOS В D A В Intersection Sum HCM Average Control Delay 18.7 HCM Level of Service **B** HCM Volume to Capacity ratio 0.75 Actuated Cycle Length (s) 60.0 Sum of lost time (s) 8.0 Intersection Capacity Utilization 57.1% ICU Level of Service B

Analysis Period (min) 15

c Critical Lane Group

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## Queues 5: EB Ramp & Cascade Hwy

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ene Group, etc. Skirk			Meers	Services		E MER	, ENDIZ		SINERG		Secord	SPR
Lane Configurations	an a		n an	na, a chung dharf Carlor	an an tha an Tha an tha an t	999 F. (1994 <b>F. 4</b> 97 F. 696 F.	019635666666666666	<b>ት</b> ኩ			<b>^</b>	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	1000	12	12	12	12	12	1300	1000	1000	1000
Grade (%)	21 281 281 282	0%	12	12	0%	14	<b>ع ا</b>	0%	<b></b>	14	0%	<b>۲</b> ۲
Storage Length (ft)	0	Section 2	300	0	070	0	0	0.70	0	150	0.70	· · · ·
Storage Lanes	്പ്പ്	e generale.		ŭ.	s. en ega d	്പ്	co ŏ		ŏ		90 x .	0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ff)	- <del>1</del> .0 50	4.0 50	- <del>1</del> .0 50	4.U	<b>0.+</b> Cites Franci	4.U	<b>0.</b> + (1999):20%	50	<b>U.</b>	50	+.0 50	4.0
Trailing Detector (ft)	0 0	୍ <b>ପ୍</b> ରେଲ୍ଲର ପ	0 0	eller i si k	ette strak	방법 등 2001년	an an tha an th	ုိ္င္လုိးမွာပုိ		0	50 0	
Turning Speed (mph)	15	jas jaraj	9	ા સંભાગવા	a talifa da sa Cara	an an a	15	ು ನಿಜ <sup>್</sup> ಷ	9	15	sectors in	9
		1644	9 1471	ः (19	100%(2012 •		19 0	3252	9 0	1629	3257	0
Satd. Flow (prot)	0 18. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10	0.950	1471	sa nga 🕺 😽 .	- 10 - 10 - 10 - 10 - 10 - 10 - 10 - 10		an sai si	5252	es sua V	0.168	3237	
Fit Permitted			4 4 7 4		•		jerne offici A	2050		and the second second second	2057	0
Satd. Flow (perm)	0	1644	1471	0	0	0	0	3252	0 	288	3257	0
Right Tum on Red		der Gaussi	Yes	NACES - 1	고 이번 것	Yes	orte engla	40 A	Yes		Weight and	Yes
Satd. Flow (RTOR)	- Marine Alice Co		203		standskalen in	tawa a walao ta	الى يەر يەر يەر	18	- and the second	ajta a A		
Link Speed (mph)		30		2012년 11월	-30	en en en		55			55	
Link Distance (ft)	alagente instalite en	437		ار ود ورو مربقه	770	essent lorne.	المراجع والمراجع	375			562	
Travel Time (s)	걸렸는 소전	9.9		아님아들	17.5	194 ~ 24		4.6	is dia 1		7.0	
Volume (vph)	65	0	530	O National Alexandre	0	0	0	830	65	85	540	0
Confl. Peds. (#/hr)			alagen syn. Er se ser	비야 있었다.		꽃이었다는	Andreas and an			(1821년 전	an shekara ta s	
Confl. Bikes (#/hr)							. arabisati ata	الافراد بسرار بلياري			ant an arar	
<ul> <li>International contraction of the state of th</li></ul>	0.87	0.87	0,87	0.92	0,92	0.92	0.84	0.84	0.84	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	4%		2%	2%	4%	4%	4%	5%	5%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)	<b>같아</b> 요즘 같이 아이지?	( Astrony					G. C	<u>10,000,000</u>	: 2016년 - 141 - 1917 - 1917 - 1917 - 1917 - 1917 - 1917 - 1917 - 1917 - 1917 - 1917 - 1917 - 1917 - 1917 - 1917 - 1917 - 1917			
Mid-Block Traffic (%)	er ef in in antons	0%	an a cherchar		0%		NG 11 16 -	0%		a na ann dath	0%	
Lane Group Flow (vph)	or an in the state of the state	75	609	0	0	0	0	1065	, Ó	- 94	600	0
Turn Type	Split		Prot	and the second second		Awar taran an antara a			and the second	Perm		
Protected Phases	4	4	4		19 - E. E.	환자장 상		, 2			· 6	
Permitted Phases										6		
Detector Phases	·	4	4					2		6	6	letake ji <sup>1</sup>
Minimum Initial (s)	4.0	4.0	4.0					4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0	20.0					20.0		20.0	20.0	
Total Split (s)	28.0	28.0	28.0	0.0	0.0	0.0	0.0	32.0	0.0	32.0	32.0	0.0
Total Split (%)	46.7%	46.7%	46.7%	0.0%	0.0%	0.0%	0.0%	53.3%	0.0%	53.3%	53.3%	0.0%
Yellow Time (s)	3.5	3.5	3.5					3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5					0.5		0.5	0.5	
Lead/Lag	and the second		ante a actividada a	er ne er vit er i viter	ili i da kanakata si	1940 (Anno Anno 1974) A' A' A' A	nandorin y we				are starting in the	
Lead-Lag Optimize?		1. Jak 19		88. (942) - Mariana Maria		and a state of the	网络白银门	e belge	1940-1948) 1940-1948			
Recall Mode	None	A	None				4 144 104 105 10	C-Min		C-Min	C-Min	
Act Effct Green (s)		Contract Sector 2014	21.4		18. <b>19</b> . S.	a geografia	30560	30.6		30.6		et en
Actuated g/C Ratio	awatan ni kutat	0.36	0.36		1963	50 T		0.51	9280 C. 199	0.51	0.51	1 N.L.
v/c Ratio		0.13	0.93		n Adama	a di si	vi Leta	0.64	e file e se e Note e la s	0.64	0.36	
Control Delay	578345 × 111144	12.2	26.4			en din print	1.2	13.5	1711 (Mar 1911)	39.3	10.4	
Queue Delay		0.0			9. 1. j. 49. j. j.	ser i	N. A. S. L.	0.0	i gilasi	0.0	0.0	
Total Delay	waand oo to di	12.2	26.4			2.95 1	* *	13.5	1 4491.52	39.3	10.4	
LOS	gen auro	.2.2 Β	C		en en altan. Altan			B	2012	́`D		
Approach Delay	ge jin sje inee	24.9	·		t et after	A CALL A	•. , •	13.5	r a jajan	4.80 C <b>Y</b>	14.3	
Approach Delay		24.9						10.0			1~1.0	

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## Queues 5: EB Ramp & Cascade Hwy

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tane Group			Sector		N. 19 8 8			NETR			Sector	SPD
Approach LOS		C						В			В	
90th %ile Green (s)	24.0	24.0	24.0	aana mining bar	an de la deservertes de la seconda de la La seconda de la seconda de	angen - angeler	ilia (Intercipita) - CC	28.0	the second second	28.0	28.0	a,
90th %ile Term Code	Max	Max	Max	t d'Alex	公徽 医盐	da da en		Coord	1.15160	11111 March	Coord	
70th %ile Green (s)	24.0	24.0	24.0	Maria de Calendera de La	sh Bhuluuss	e e Mar de la Constal	G Guerrana ner	28.0	भाषता विद्यालय का	28.0	28.0	
70th %ile Term Code	Max	Max	Max			den der der		Coord	a na shi ka s	Coord		
50th %ile Green (s)	24.0	24.0	24.0	# 69935 513-5935	no, 3. Nomen en 3. 30	. 1927 - 1926 - 1996	an a	28.0	1.11.11.11.88838	28.0	28.0	
50th %ile Term Code	Max	Max	Max		in same	sin da		Soord	di Safari	Coord	Coord	
30th %ile Green (s)	20.7	20.7	20.7		are metrice an	er sweet in the	1. 1. 1. <b>1</b> 1000 100	31.3	• • • • • • • • • • • • • • • • • • • •	31.3	31.3	
30th %ile Term Code	Gap	Gap	Gap		4. 1. Desi	tin de la com	. 1946 B	Coord	yang ka	Coord	Coord	
10th %ile Green (s)	14.4	14.4	14.4			anna in chuir an		37.6		37.6	37.6	
10th %ile Term Code	Gap	Gap	Gap	a an	ala ana an	A de la compaña	kasta kela	Coord		Coord	Coord	seg à
Queue Length 50th (ft)		16	130					147		25	70	
Queue Length 95th (ft)		37	#300	દ હમ કંપ્રેલ્સ		ويترب والمهام	ار ( والجراج	188		#100	104	
Internal Link Dist (ft)		357			690			295			482	
Tum Bay Length (ft)			300	ativ eqd			en gebe		a da da	150	Maria A	
Base Capacity (vph)		658	710		Carlo and Carlo Carlo Carlo			1666		146	1660	
Starvation Cap Reductn		0	0					0		0	0	
Spillback Cap Reductn		0	0					0		0	0	
Storage Cap Reductn		0	0. j					0		0	0	
Reduced v/c Ratio		0.11	0.86				. (	0.64		0.64	0.36	
Intersection Strongarther												
Area Type: O	ther										<u> 19</u>	
Cycle Length: 60	il. And						化外接通道					
Actuated Cycle Length: 6	60	and a second	and a start when	••••••••••••••••••••••••••••••••••••••	- 2 M - 1 1 M - 1 M - 1 M - 1 M - 1 M - 1 M - 1 M - 1 M - 1 M - 1 M - 1 M - 1 M - 1 M - 1 M - 1 M - 1 M - 1 M -	, , ,				1.1.1.1.1.1.1.1	••• (*** * * * * * * *	
Offset: 0 (0%), Reference	ed to ph	iase 2.1	<b>IBT</b> and	16:SBT	L, Start	of Greer	٦.				ad Sar	
Natural Cycle: 60						er i na na general a serie de						
Control Type: Actuated-0		ated		品牌 陶冶						iter in in	Research -	de avel
Maximum v/c Ratio: 0.93	}											
Intersection Signal Delay						on LOS:						
Intersection Capacity Uti	lization	57.1%		IC	CU Leve	l of Serv	vice B					
Analysis Period (min) 15									경험성원	실수는 것이다. 19		
# 95th percentile volum												
Queue shown is maxi	imum af	ter two	cycles.									eg e la e
Splits and Phases: 5:	EB Ran	າວ & Ca	iscade l	Hwv								
		-p 0 - 0			<u> </u>							
Τ ø2				÷	<b>ø</b> 4							
	n an an an garait. Shi an an garait											
11 .			,									
l <b>▼</b> ø6												

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## HCM Unsignalized Intersection Capacity Analysis 6: WB Ramp & Cascade Hwy

07/08/2005
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lovement in same to the	SAMBLER		ans.	NBR	an Eyest						
ane Configurations			<u>4</u> †			<u> </u>					
Sign Control	Stop		Free			Free	tille de la compañía	eriil ya ege			
Grade	0%		0%			0%				4	
/olume (veh/h)	0	0	635	260	0	625					
Peak Hour Factor	0.92	0.92	0.85	0.85	0.88	0.88			• • •		
Hourly flow rate (vph)	ି 🔘	0	747	306	0	710	a Magain		한, 미관전		
Pedestrians											
ane Width (ft)		~ 2013		가가지?	2013년 4	tien sta					
Valking Speed (ft/s)											
Percent Blockage	환영상품		문제감독	etter ander		() 전 (1971) (1971)	영상 영상 영		문가 가슴다 한		
Right turn flare (veh)	antikana a sakatar	. Talaan dar	1 1,	rin e i chuire.		z na né a	a statu in a	en en anvier e com			
	None	a na sharar		enzi Lette	n na h	아랍는 성가				유민이지	
Aedian storage veh)	10.75). (	endets water wa		anar an a	attanan au	- ofo	Advantation (		di seri	Bern ein im	
Jpstream signal (ft)			562	백하는 성상은		250		ang sa sa sa	영상에서		
X, platoon unblocked	0.82	0.78	PROPERTY PRO	ەتبېمىد تىق. بى	0.78	taka na Mandora	a satu a sa	age di seri	the sector grad	يفاده بركسي	
C, conflicting volume	1255	526		한 것 같은 것을 같은 것을 수 없다.	1053	철말 소 것 ?			ale e se ale	반 문제 가지?	
C1, stage 1 conf vol	e dare with the	anto Bitana	an an an an a'	01.7	na an Anaz	and set in a			alaa ah ahaa	ten at	
/C2, stage 2 conf vol	1940 (1946) 704		ender sold	옷에는 날카요.	700	<u> 2007 - 19</u>	1월 4일 23	영양 같은 말 것		1940 - Ari	e distante e
Cu, unblocked vol	791 6.8	115 6.9	(bal-altoni	o Mariansa	789 4.2	essenado roca	and the second	والمراجع والإيران	, kongerten	4.5	
C, single (s)	0.0	0.9			્ સુરુ	(960) <sup>a</sup> bash	na glaiteára.		an bira	rijî de	
C, 2 stage (s) F (s)	3.5	3.3		ana an taon	- 22	alia Chiefeada	 Ali katakata da kata da kata da kata da kata da kata kat	landelsfelste Ansteidel	Stannad	Autorian A	a an e
r (s) 50 queue free %	100	100			100				한 2012년 - 신영한 1	YSD MARTIN	
M capacity (veh/h)	269	715	iying diskus	(* <u>*</u> *****	631		Serectrades	5	en soere	STRATE CAA	
	200		11.448 (19.446) 1	eren over			e line de la como	branetera a c	공고왕 전 중45 V 94	이 있는 것이 있는 것	di sette i littit.
ince onto as frequently sources	8 N 8 S		<u></u>	6 (515) 2 (							
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Volume Left	0	0	0	0							
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Queue Length 95th (ft)	0	0	0	0	ماد وروز الهور ا	oppertuite avec a	e de la catalan	an a	Mary and the first state		
Control Delay (s)	0.0	0.0	0.0	0.0		ena nan 1860 - Marian Serang - 1					
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Intersection Capacity Utilization 30.6% ICU Level of Service A Analysis Period (min) 15

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#### HCM Signalized Intersection Capacity Analysis 7: Sublimity Blvd & Cascade Hwy

۶ Î ٩ 55 S ( 74 8 8 C 59 5 1274 5 A . SBT SBR Lane Configurations 1 Þ \*\* ۲ **†**‡ 1800 1800 1800 1800 1800 1800 Ideal Flow (vphpl) 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 0.95 1.00 0.95 1.00 0.90 0.87 1.00 Frt 1.00 1.00 1.00 0.99 **Fit Protected** 0.95 1.00 1.00 0.95 1.00 0.95 0.95 1.00 Satd. Flow (prot) 1629 1539 1398 1629 3257 1527 1629 3240 Fit Permitted 0.95 1.00 0.95 1.00 0.95 1.00 0.95 1,00 1398 1629 3257 Satd. Flow (perm) 1629 1539 1527 1629 3240 20 35 585 75 10 50 20 Volume (vph) 15 65 0 535 20 0.88 0.88 88.0 0.88 0.88 0.88 Peak-hour factor, PHF 0.77 0.77 0.77 0.94 0.94 0.94 Adj. Flow (vph) 85 13 23 40 19 84 57 665 0 21 569 21 RTOR Reduction (vph) 0 78 0 0 77 0 0 0 0 0 2 0 57 Lane Group Flow (vph) 23 47 0 19 20 0 665 0 21 588 0 5% Heavy Vehicles (%) 12% 5% 5% 12% 5% 5% 12% 5% 5% 5% 5% Turn Type Prot Prot Prot Prot **Protected Phases** 7 4 3 8 5 2 6 1 Permitted Phases 7.0 50.9 Actuated Green, G (s) 3.2 7.0 3.0 6.8 3.1 47.0 Effective Green, g (s) 3.2 7.0 3.0 6.8 7.0 50.9 47.0 3.1 Actuated g/C Ratio 0.04 0.09 0.04 0.08 0.09 0.64 0.04 0.59 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) 119 2072 63 65 135 57 143 1904 v/s Ratio Prot c0.01 0.01 0.04 0.01 c0.03 0.01 c0.20 c0.18 v/s Ratio Perm 0.17 0.40 v/c Ratio 0.35 0.35 0.33 0.32 0.33 0.31 Uniform Delay, d1 34.0 37.4 34.4 37.5 34.5 6.7 37.4 8.3 **Progression Factor** 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 Incremental Delay, d2 0.4 3.3 1.6 3.4 0.7 1.8 3.1 0.4 Delay (s) 40.7 35.9 41.0 34.7 36.3 7.1 40.6 8.7 Level of Service C S  $\delta_{\rm Rel} \geq 0$ i, D D D A D, A 9.4 36.7 35.7 Approach Delay (s) 9.8 Approach LOS D D A : A Intersection sound HCM Average Control Delay 14.0 **HCM Level of Service** B HCM Volume to Capacity ratio 0.31 Actuated Cycle Length (s) 80.0 Sum of lost time (s) 12.0 Intersection Capacity Utilization 38.2% ICU Level of Service А Analysis Period (min) 15 c Critical Lane Group

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07/08/2005

Queues 7: Sublimity Blvd &	Casca	de Hw	ł								07/0	8/2005
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Laboregono di Changas				<b>EV</b> EL				NE C	<b>NER</b>	SBU	SET	SBR
Lane Configurations	ካ	eî		٣	4		۲	<u>^</u>		٣	朴	1. The later of the
Ideal Flow (vphpi)	1800		1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12
Grade (%)		0%	$\times^{11}$ (c)		0%		a ser i	0%		' grave i	0%	
Storage Length (ft)	200	1 M.C. 1 K.I.I.	0	200	12 12 12 12 12 12 12 12 12 12 12 12 12 1	0	100		0	200		0
Storage Lanes	2016 <b>1</b> 8		0	9.20 - <b>1</b> 1	gener Mag	0	્ર લા <b>ન</b> ્ટ્ર	승규는 것	0	े ः े <b>.1</b> -	e en	0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50		50	50	· · · · ·
Trailing Detector (ff)	0	0		0	0		0	0		0	0	
Turning Speed (mph)	15		9	15	1994 - I	3	15		9	15		· 9
Satd. Flow (prot)	1629	1539	0	1527	1398	0	1629	3257	0	1629	3241	0
Fit Permitted	0.950		요	0.950	(againe s)		0.950			0.950		
Satd. Flow (perm)	1629	1539	0	1527	1398	0	1629	3257	0	1629	3241	0
Right Turn on Red		, produktiva V	Yes		alphagae	Yes			Yes	Alexander Alexander	gelige i ser	Yes
Satd. Flow (RTOR)		85			84						5	
Link Speed (mph)		30			30	6167		55	82020		55	
Link Distance (ft)		1097			355	1000 1 1 1		250		····	730	
Travel Time (s)		24.9			8.1	같은 만든 소설	장에 문문	3.1	영상 - 영상 (1)		9.0	
Volume (vph)	20	35	75	15	10	65	50	585	0	20	535	20
Confl. Peds: (#/hr)	協会 定準	認識され	평주물건	승규는 영화					en de Carlos en			÷
Confl. Bikes (#/hr)		··· ·				Rever 1			1 11 11 11 11 11 11 11 11 11 11			
Peak Hour Factor	0.88	0.88	0.88	0.77	0.77	0.77	0.88	0.88	0.88	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	5%	5%	12%	12%	12%	5%	5%	5%	5%	5%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)						Alisteria					1943 gurtu	1
Mid-Block Traffic (%)	anaanaa ahaan ka	0%			0%	n de la deserver		0%			0%	
Lane Group Flow (vph)	23	125	<b>0</b>	19	97	0	57	665	0	21	590	0
Turn Type	Prot	11 11 21 11 11 11 11 11 11 11 11 11 11 1		Prot			Prot			Prot		
Protected Phases	7	<u> </u>	3. AZ 4. AV	3	8	i i de la composición	5	2		100 A 10 <b>1</b> 0	6	gan in
Permitted Phases		and the second second		1999 - 1999 1999 - 1999				•				
Detector Phases	7	4		3	8		5	2		1	6	st.
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	8.0	20.0		8.0	20.0		8.0	20.0		8.0	20.0	网络古马马马
Total Split (s)	13.0	25.0	0.0	12.0	24.0	0.0	15.0	31.0	0.0	12.0	28.0	0.0
Total Split (%)	16.3%	31.3%	0.0%	15.0%	30.0%	0.0%	18.8%	38.8%	0.0%	15.0%	35.0%	0.0%
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5	S S S S S S	0.5	0.5		0.5	0.5		0.5	0.5	
Lead/Lag	Lead	Lag	с токо.	Lead	Lag		Lag	Lag		Lead	Lead	
Lead-Lag Optimize?	Yes	Yes	No. je je	Yes	Yes		Yes	Yes	이 맛 모두 눈 눈 눈 눈 눈 눈 눈 눈 눈 눈 눈 눈 눈 눈 눈 눈 눈 눈	Yes	Yes	•11
Recall Mode	None	None		None	None	2012	None	C-Min		None	C-Min	
Act Effct Green (s)	6.6	8.0	(shiya)	6.4	7.9	<u>)</u>	8.5	57.4		6.5	53.5	
Actuated g/C Ratio	0.08	0.10		0.08	0.10		0.11	0.72		0.08	0.67	11 A.
v/c Ratio	0.17	0.54	ang dinas	0.15	0.46		0.33	0.28	rda Dad	0.16	0.27	
Control Delay	35.2	14.7	arean an th	35.6	11.8		35.0	8.4	- 114 - V <sup>1</sup>	35.4	10.1	
Queue Delay	0.0		Byland - C	0.0	0.0	haran e	0.0	0.0	yya 240.°	0.0	0.0	
Total Delay	35.2	14.7		35.6	11.8		35.0	8.4	an na aistài	35.4	10.1	
LOS	Ð	B	a tuti t	D			D	A	ia. Maria	D	В	
Approach Delay	agana gina a ன	17.8	d i 111		15.7	• a • • • •		10.5	e Andužna i		10.9	

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#### Queues

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7: Sublimity Blvd & C	Cascad	de Hwy	r 								07/08	3/2005
	۶	-	$\mathbf{F}$	1	←	۰.	•	· †	1	1	Ļ	1
Lanciarours						MBR	NBL	NET		SPL.	SBT-	SBR
Approach LOS		B			В			В			В	<u> </u>
90th %ile Green (s)	8.5	12.3		8.0	11.8		11.0	35.4	eren og en eren er	8.3	32.7	
90th %ile Term Code	Gap	Gap		Max	Hold		Max	Coord		Gap	A Marcela and the second	
70th %ile Green (s)	7.3	9.3		7.1	9.1		10.4	40.4		7.2	37.2	
70th %ile Term Code	Gap	Gap		Gap	Hold		Hold	Coord		Gap	Coord	l ge e
50th %ile Green (s)	0.0	7.4		0.0	7.4	Martin and an	9.6	64.6	a set a set a set a	0.0	51.0	
50th %ile Term Code	Skip	Gap		Skip	Hold	- 35 - 38 -	Hold	Coord		Skip	Coord	e. An training
30th %ile Green (s)	0.0	5.5	brini i deserve	0.0	5.5	2 V 8 W 8 7	0.0	66.5	1889 - 1911 - 1916 1917 - 1917 - 1918	0.0	66.5	50 C
30th %ile Term Code	Skip	Gap	de autos	Skip	Gap	81 C.44	Skip		an a	Skip	Coord	dar 1
10th %ile Green (s)	0.0	0.0	iliyy Congar	0.0	0.0		0.0	76.0	e e percete	0.0	76.0	
10th %ile Term Code	Skip	Skip		Skip	Skip	e Pilos anum	Skip	Coord	o	Skip	Coord	
Queue Length 50th (ft)	11	19	101 D 194 - 11	9	6		26	28		10	60	
Queue Length 95th (ft)	32	62		25	- 34		58	158		31	152	
Internal Link Dist (ft)	9916 - 13 6 02 70 10 10 1	1017	gor to conve	A MERICAL CONSTRUCT	275	and an order of the	a e la competition	170	Hatterrow (	n, ar chreinige	650	
Turn Bay Length (ft)	200			200			100		ng sa an	200		
Base Capacity (vph)	183	467		153	413	Mir en la la la la	224	2336		164	2168	
Starvation Cap Reductn		0	e 121.4	0	0		0	0	ari Nation	0	A second second	
Spillback Cap Reductn	0	0		0	0	44.969194 - 191	0	0	e i stillente	0	0	
Storage Cap Reductn		0	in 1934	· 0.	0		0	Ċ		Ō	Ō	ngen i f
Reduced v/c Ratio	0.13	0.27	ning ng kang kang kang kang kang kang kang	0.12	0.23		0.25	0.28	12 1、1996年1月6年1、	0.13	0.27	
Interstation sympoletics												
	41											

Area Type: Other

Cycle Length: 80 Actuated Cycle Length: 80

Offset: 14 (18%), Referenced to phase 2:NBT and 6:SBT, Start of Green Natural Cycle: 60 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.54

Intersection Signal Delay: 11.7 Intersection LOS: B Intersection Capacity Utilization 38.2% ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 7: Sublimity Blvd & Cascade Hwy

ø1	<b>↑</b> <sub>ø2</sub>	<b>€</b> ø3	<b>→</b> <sub>24</sub>
<b>φ</b> 6	<b>5</b>	ø7	<b>σ</b> 8
			a na ana ang kang na na ang kang kang ka

Stayton/Sublimity IAMP 04/12/2005 Build Alternative 2025 CH2M HILL

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## HCM Unsignalized Intersection Capacity Analysis 8: 9th Street & Cascade Hwy

07/08/200	5

Movement       Movement       Spectral       Spectra       Spectra       Spectra       Sp
Sign Control Stop Free Free
Volume (veh/h)         20         70         30         640         505         20           Peak Hour Factor         0.92         0.92         0.94         0.92         0.92         0.92
Hourly flow rate (vph) 22 76 32 681 549 22 Pedestrians
Lane Width (ft) Walking Speed (ft/s) Percent Blockage
Right turn flare (veh) Median type
Median storage veh) Upstream signal (ft)
pX, platoon unblocked vC, conflicting volume 1304 560 571 vC1, stage 1 conf vol
vC2, stage 2 conf vol vCu, unblocked vol 1304 560 571
tC, single (s) 6.4 6.2 4.1 tC, 2 stage (s)
tF (s) p0 queue free % 87 85 97
cM capacity (veh/h) 169 524 987 Direction Mana de Mana Mana Mana Mana de Mana
Volume Total         98         713         571           Volume Left         22         32         0
Volume Right         76         0         22           cSH         358         987         1700           Volume to Capacity         0.27         0.03         0.34
Volume to Capacity         0.27         0.03         0.34           Queue Length 95th (ft)         27         3         0           Control Delay (s)         18/8         0.8         0.0
Lane LOS C A Approach Delay (s) 18.8 0.8 0.0
Approach LOS C
Average Delay 1.8 Intersection Capacity Utilization 73.7% ICU Level of Service D

Analysis Period (min) 15

Stayton/Sublimity IAMP	04/12/2005	Build Alternative 2025
CH2M HILL		

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#### HCS2000: Ramps and Ramp Junctions Release 4.1d

CH2M HILL CH2M HILL Phone: Fax: E-mail: \_\_\_\_\_Merge Analysis\_\_\_\_ Analyst: ΤY Agency/Co.: 4-14-05 Date performed: Analysis time period: 30th Highest Hour Freeway/Dir of Travel: ORE 22 EB Cascade Hwy EB On-Ramp Junction: Jurisdiction: Analysis Year: 2025 Build Scenario Description: Stayton Sublimity IAMP/ ORE22 \_Freeway Data\_ Type of analysis Merge Number of lanes in freeway 2 60.0 Free-flow speed on freeway mph Volume on freeway 620 vph On Ramp Data ide of freeway Right umber of lanes in ramp 1 Free-flow speed on ramp 35.0 mph Volume on ramp 150 vph Length of first accel/decel lane 400 ft Length of second accel/decel lane ft \_\_Adjacent Ramp Data (if one exists)\_\_\_\_ Does adjacent ramp exist? No Volume on adjacent Ramp vph Position of adjacent Ramp Type of adjacent Ramp Distance to adjacent Ramp ft \_Conversion to pc/h Under Base Conditions\_ Junction Components Freeway Ramp Adjacent Ramp Volume, V (vph) 620 150 vph Peak-hour factor, PHF 0.87 0.87 Peak 15-min volume, v15 178 43 v Trucks and buses 0 0 몽 Recreational vehicles 0 0 00 Terrain type: Level Level Grade 0j0 90 00 Length mi mi mi "rucks and buses PCE, ET 1.5 1.5 Screational vehicle PCE, ER 1.2 1.2

Heavy vehicle adjus Driver population f			.000 .00		
Flow rate, vp		713 1	72	pcph	
	Estimation	of Vl2 Merge Are	as		
I	. = (E) EQ	quation 25-2 or	25-3)		~ +
E	P ≠ 1.000 Us. FM	ing Equation 0			
τ	v = v (P) = 71 12 F FM	13 pc/h			
	Сарас:	ity Checks	· · · · · · · · · · · · · · · · · · ·		
	Actual	Maximum	LOS F?		
v FO	885	4600	No		
v R12	885	4600	No		
Le	evel of Service De	termination (if	not F)		
Density, D = 5.475 R Level of service for	R	12	A	pc/mi/ln	
	Speed E.	stimation			
Intermediate speed	variable,	M = 0. S	302		
Space mean speed in	n ramp influence a	rea, S = 54 R	.6 mph		
Space mean speed in	n outer lanes,	S = N	/A mph		1
		S = 54			

HCS2000: Ramps and Ramp Junctions Release 4.1d

CH2M HILL

Trucks and buses PCE, ET

ecreational vehicle PCE, ER

CH2M HILL ÷ Phone: Fax: E∽mail: \_\_\_\_\_Merge Analysis\_\_\_\_\_\_ ТΥ Analyst: Agency/Co.: 4-14-05 Date performed: Analysis time period: 30th Highest Hour Freeway/Dir of Travel: ORE 22 WB Junction: Cascade Hwy WB On-Ramp Jurisdiction: 2025 Build Scenario Analysis Year: Description: Stayton Sublimity IAMP/ ORE22 \_\_\_\_\_Freeway Data\_\_\_ Type of analysis Merge Number of lanes in freeway 2 , mph Free-flow speed on freeway 60.0 Volume on freeway 860 vph \_\_\_\_On Ramp Data\_\_\_\_ Right Gide of freeway umber of lanes in ramp 1 Free-flow speed on ramp 35.0 mph Volume on ramp 315 vph Length of first accel/decel lane 400 ft Length of second accel/decel lane ft \_\_Adjacent Ramp Data (if one exists)\_\_\_\_\_ Does adjacent ramp exist? No Volume on adjacent Ramp vph Position of adjacent Ramp Type of adjacent Ramp Distance to adjacent Ramp ft \_\_\_Conversion to pc/h Under Base Conditions\_\_\_\_ Junction Components Freeway Ramp Adjacent Ramp Volume, V (vph) 860 315 vph Peak-hour factor, PHF 0.90 0.90 Peak 15-min volume, v15 239 88 v Trucks and buses 0 0 Ş Recreational vehicles 0 0 ę Terrain type: Level Level Grade 90 e e 옹 Length mi mi mi

1.5

1.2

1.5

1.2

Heavy vehicle adjust Driver population fa Flow rate, vp		1.000 1.00 956	1.000 1.00 350	pcph	
	Estimation d	of V12 Merge A	reas		
	= (EG	quation 25-2 c	r 25-3)		
Р		ing Equation	0		
v	= v (P) = 9! 2 F FM	56 pc/h			
	Capac:	ity Checks		· · · · · · · · · · · · · · · · · · ·	
V	Actual 1306	Maximum 4600	LOS F? No		
FO V R12	1306	4600	No		
Lev	el of Service Det	cermination (i	f not F)		
Density, $D = 5.475 + R$ R Level of service for	R	12	A	pc/mi/ln	
	Speed E:	stimation			
Intermediate speed v	ariable,	M = S	0.307		
Space mean speed in	ramp influence a:	rea, S = R	54.5 mph		
Space mean speed in	outer lanes,		N/A mph		1 Contraction of the second se
Space mean speed for	all vehicles,	S =	54.5 mph		

## APPENDIX H Access Road Intersection Sight Distance Memo

PDX/052070004\_USR.DOC

TO: Project Team

FROM: Jerry Rosenblad PE

DATE: July 6, 2005

SUBJECT: OR22 At Sublimity Interchange (Ph1) Sec. Kn # 13658. Sight distance findings, Cascade Highway, North of Project.

Myself and Monte Richards (District 3 Permit Specialist) met on site Tuesday July 5, 2005 to determine various points of minimal intersection sight distance in the area near the crest of the hill, of Cascade Highway, just north of the Intersection of Highway 22 and Cascade Highway. We determined areas acceptable to having an access and areas where intersection sight distance would prevent an access to exist with adequate site distance.

This section of roadway is posted at 45 mph, which means that we should consider a design speed of 55 mph.

The 2003 Highway Design Manual (HDM) Section 5.2.3 Intersection Sight Distance states, "Intersection sight distance is determined by using a 3.5 foot eve height and 3.5 foot height of object." The HDM refers to "Pages 665-669 of the 2001 AASHTO'S "A Policy on Geometric Design of Highways and Streets - 2001" indicate intersection sight distance requirements for traffic turning left, crossing, or turning right onto a major highway."

Exhibit 9-55 of AASHTO, indicates for a design speed of 55mph, the Intersection Sight Distance should be 610 feet. This distance is what was used to identify allowable locations of an access.

Refer to the attached map below.

.

Point C denotes the point of an existing access on the East side of Cascade highway. We analyzed the existing conditions, and the design conditions of lowering the southerly crest (Near "CH" 16+50) slightly as part of the project, and determined that the Driveway could move as much as 105 feet to the North and opposite an existing driveway on the west side of the highway (point D). Locating an access any further North of point D or any further south of Point C would reduce the actual sight distance to below required standards, and not be acceptable. On the west side of the highway in this location is a house that would likely prevent others from using this same access.

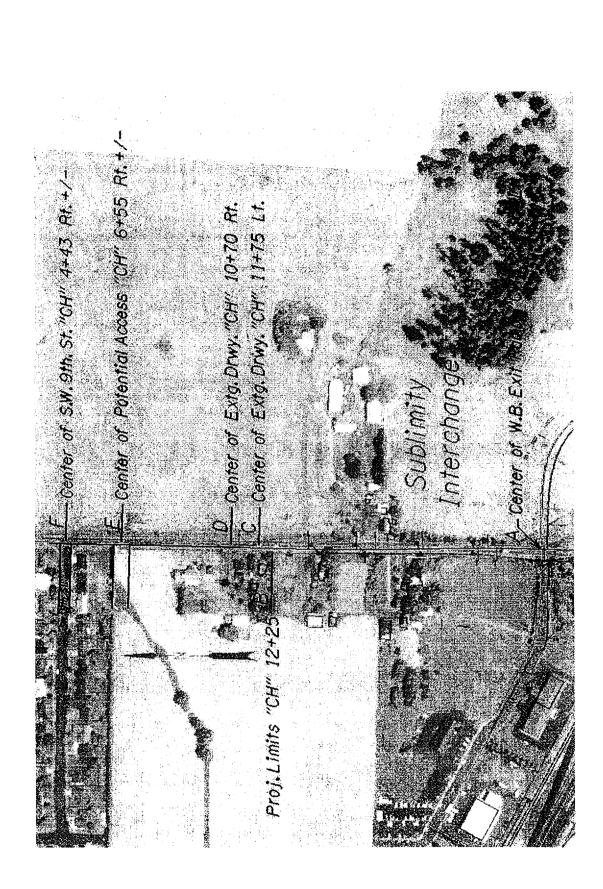
If an access were to be considered further north to gain additional distance from the proposed ramp termini (point A) then the earliest acceptable position to allow an access due to limited intersection sight distance, would be at Point E. This access would have to be placed along the Northerly property line of the large open field. However, as the picture indicates, this point would be approximately 212 feet from SW 9th St. (point F).

The driveway at point C is at the very crest of the Hill. It is conceivable that the crest could be lowered to improve Sight Distance to the North and possibly allow point E to move south. This crest would need to be lowered at least 3 to 5 feet, as a minimum for this to occur. The roadway currently follows the surrounding terrain and lowering the roadway that amount may be adverse to the frontage of the adjacent homes. This crest location is currently beyond the limits of the proposed project (See point B), and would add considerable cost to an already strained budget if it were to be considered at this time.

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There is one remaining access on the East side of Cascade Hwy. just south of point C that could be disconnected from the highway and routed north to connect with the access, at point C.

The remaining 2 or 3 accesses on the West side of Cascade Hwy. just south of point D, could be served by a backage road or alley, that would connect south to Sublimity Blvd. The access at point D could then remain in place.



### **APPENDIX I City of Sublimity Development Code** Language Changes

PDX/052070004\_USR.DOC

### Proposed City of Sublimity Development Code Language Changes

Changes and additions to existing City of sublimity Development Code language are underlined.

### 2.103.05 Development Standards

- All developments in the Commercial District shall comply with the applicable provisions of Section 2.400 of this Ordinance. In addition, the following specific standards shall apply:
- A. <u>Off-Street Parking</u>. Off-street parking shall be as specified in Section 2.203. Due to the required ten (10) feet front yard setback businesses are strongly encouraged to provide parking areas behind the commercial structures.
- B. Signs. Signs in the Commercial District shall be subject to the provisions of Section 2.206.
- C. <u>Subdivisions and Partitions</u>. All subdivisions and partitions shall be reviewed in accordance with the provisions of Section 3.107.
- D. <u>Design Review</u>. All new development and expansion of an existing structure or use in the Commercial District shall be subject to the Site Development Review procedures of Section 2.103.6 and 3.105.
- E. <u>Outdoor Display</u>. There shall be no outdoor display or storage of materials or merchandise within a designated alleyway, roadway or sidewalk that would impede pedestrian or vehicular traffic except during community retail sales events. Safety precautions shall be observed at all times.
- F. <u>Minimum Landscaped Area</u>. Landscaping in the Commercial District shall be subject to Section 2.207
- G. Access. All driveways and points of access shall be subject to the provisions of Section 2.202.03(N).

### 2.106 INTERCHANGE MANAGEMENT AREA OVERLAY DISTRICT (IA) 2.106.01 Purpose

To objective of this overlay zone is to protect and preserve the safe and efficient functional operation of the local street network in the vicinity of the Sublimity Interchange for all users. A goal of the City's Transportation System Plan (TSP) is to "ensure that the objectives of mobility and safety are preserved for Center Street [Cascade Highway], the city's only arterial." The establishment of this overlay zone acknowledges that an increase of vehicular traffic directly onto Center Street will have a deleterious effect on both the safety and mobility functions of that roadway.

Implementation of the overlay zone objective is achieved through the utilization of access management measures, as called for in the TSP.

1

### 2.106.02 Regulations

A. Inside the IA Overlay Zone, access permits are required for all projects requiring any type of development permitting from the city of Sublimity that result in additional trip generation or change of use. "Change in use" is defined as a change in land use, an expansion of an existing land use, or a remodel of an existing use that results in increased traffic.

1) Marion County Roadway Access Permits

- Permits for access onto Marion County roadways shall be subject to review and approval by Marion County, except where the county has delegated this responsibility to the City of Sublimity, in which case the City of Sublimity shall determine whether access is granted based on adopted based on adopted City of Sublimity standards.
- B. Inside the IA Overlay Zone, development involving additional significant trip generation or change of use shall not be permitted to access onto Center Street.
- C. Inside the IA Overlay Zone, the location of access placement for a development involving a change of use must be provided from the lowest functional classification roadway.

### 2.202.03 General Provisions

N. Driveways and Points of Access: Approaches shall be constructed according to City standards and shall meet the minimum separations of five (5) feet between residential driveways, twenty-two (22) feet between commercial and industrial driveways, twenty (20) feet from intersections for residential streets, fifty (50) feet for collectors, and one hundred (100) feet for arterials. The separation shall be measured between the nearest outside edges of each access lane and the edge of the radius of the street.

Construction of driveways and points of access inside the Interchange Area Overlay Zone (IA) shall be subject to the special access provisions of that zone (2.106).

The construction of a duplex on a corner shall provide one driveway per unit per street frontage unless the Planning commission allows a combined access on one street frontage based upon a conflict created by the topography of the lot, the location of a public utility, significant vegetation, or different street classifications.

Adjoining properties are encouraged to combine accesses. For public safety purposes, and wherever possible, driveways shall align with the access points to properties across the street and other street intersections. Where impractical due to lot configuration, driveways shall be as approved by the City's Public Works Director.

SUBLIMITY\_CODE\_LANG\_CHANGES,DOC

APPENDIX J MOU: City of Stayton and Marion County (Regarding Golf Lane Realignment)

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#### 5037672134

### MEMORANDUM OF UNDERSTANDING May 19, 2003

This Memorandum of Understanding is between Marion County, a political subdivision of the State of Oregon ("COUNTY") and the City of Stayton, a municipal corporation ("CITY").

The COUNTY and CITY previously entered into an agreement for improvements to Cascade Highway between Santiam Highway (State Route 22) and Shaff/Fern Ridge Road. These improvements included a bridge replacement, pavement upgrades, a traffic signal at Shaff/Fern Ridge Road and median placement. The CITY, in consultation with their traffic engineer, believes that the installation of medians, as initially called for by the construction plans, along Cascade Highway restricting turns in at the Whitney intersection are not as desirable as the installation of a traffic signal.

The COUNTY has concerns regarding the change to a traffic signal at this intersection and the potential future traffic impacts it will create. To address the potential future traffic impacts, this Memorandum of Understanding has been entered into by hoth parties and pertains to potential future improvements to Cascade Highway, a COUNTY-maintained road, between Santiam Highway (State Route 22) and the intersection with Shaff/Fern Ridge Road (Fern Ridge is a CITY-maintained street and Shaff Road is a COUNTY-maintained road). This section of Cascade Highway includes intersections with Whitney Street and Martin Drive, both CITY-maintained streets. It is mutually understood that the parties agree as follows:

The COUNTY understands that the CITY caused the Kittelson & Associates Whitney/Cascade Highway operational study to be completed in August 2001. In addition, the CITY will complete and update their Transportation Plan by December 2004. These two documents shall serve as a basis for future decisions regarding transportation issues on Cascade Highway between the CITY's northern boundary and Shaff/Fern Ridge Road.

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

The CITY will cause the installation of a traffic signal at the Whitney/Cascade Highway intersection. However, the CITY will not cause the installation of the traffic signal at the Whitney/Cascade Highway intersection until the intersection meets at least two traffic signal warrants. Once the intersection meets the required warrants, the intersection improvements shall be made as funds become available, but no later than December 31, 2008. Intersection improvements shall be constructed as designed in Kittelson & Associates's recommended lane configuration and traffic control map (attachment "A" Figure 10, dated August 2001) and approved by Marion County Public Works.

The CITY acknowledges that installing the signal and realigning Golf Lane may result in traffic flow on one or more of the intersecting roadways failing to meet COUNTY standards for progression speed, signal cycle time, level of service, and volume/capacity ratio. CITY understands that failure to meet any of these standards will cause drivers to experience congestion and possible delays at certain times of day.

The CITY will cause the installation of a median on Whitney Street between Cascade Highway and Martin Street as proposed in the attached Kittelson & Associates recommended Lane Configuration and Traffic Control map (attachment "A" Figure 10, dated August 2001). This work shall be completed either when the Whitney/Cascade Highway traffic signal is constructed, or when property identified on the Marion County Assessors Map 91W03DB Tax Lot #500 (attachment "B") is developed, but no later than October 31, 2008. In addition to the signal, tax lots 500 & 400 on Marion County Assessors Map 91W03DB shall access Whitney Street via a shared driveway as proposed in the Kittelson & Associates recommended Lane Configuration & Traffic Control Map (attachment "A" Figure 10, dated August 2001).

The COUNTY will cause installation of the median on Cascade Highway to limit Martin Drive to right turns in and out as designed in Kittelson & Associates's recommended lane configuration and traffic control map (attachment "A", Figure 10, dated August 2001). This median will be installed at such time Martin Drive fails to meet COUNTY standards for safety and/or operations but not later than completion of the signal at Whitney Street.

The COUNTY, upon completion of the Whitney Street signal, shall program, operate and maintain the signal with the CITY paying for the cost of power.

The CITY will secure all necessary right-of-way, provide all engineering, and financing for all improvements covered under this Memorandum as funds become available.

The CITY understands that COUNTY does not commit or intend to expend any additional funds over and above the contributions made to date towards any of the improvements at this time. All future capacity improvements (ie. additional travel lanes, turning lanes, median, signals, etc.) shall be funded by development or corresponding System Development Charges. Routine maintenance, such as overlays, signing, striping, drainage, and pavement markings, will remain the responsibility of the COUNTY.

This Memorandum of Understanding is entered into this 19th day of May, 2003.

p.4

IN WITNESS WHEREOF, the undersigned parties have agreed to the terms and provisions stated in this agreement.

APPROVED AS TO LEGAL SUFFICIENCY

By <u>FL. Ell.</u> Since County Counsel

APPROVAL RECOMMENDED

B Diren Poble Works

APPROVED AS TO LEGAL SUFFICIENCY

City Attorney

APPROVAL RECOMMENDED By <u>Director of Public Warks</u>

Approved as to form County) Ountracts Coordinator

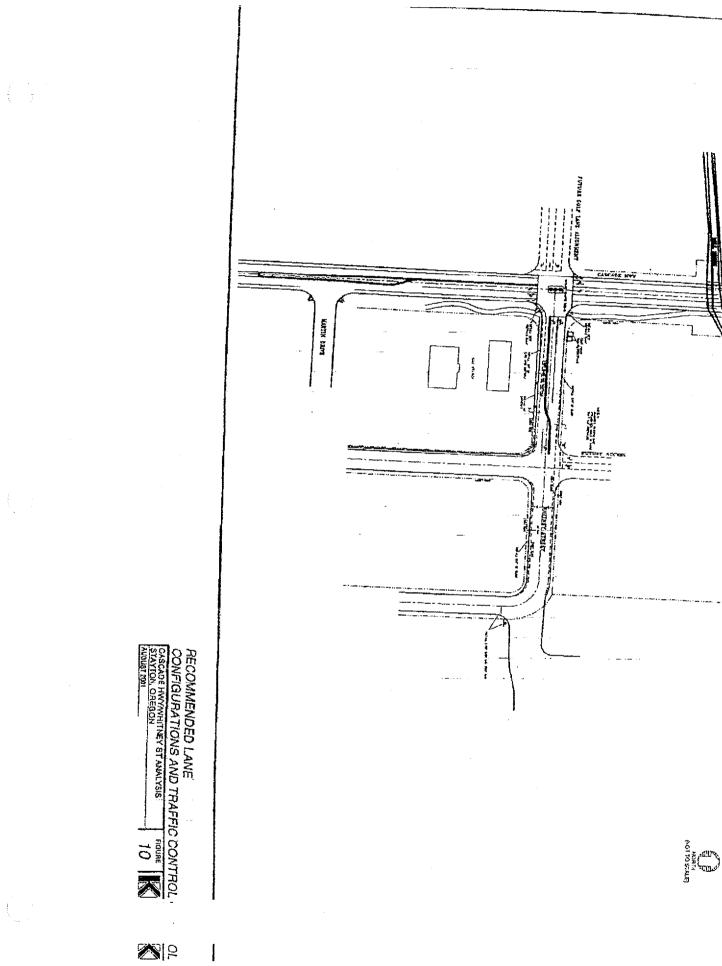
MARION COUNTY BOARD OF COMMISSIONERS

By Commission Bу ømmise Date

CITY OF STAYTON

By City Administrator

Attest D. Martin, CMC City Recorder



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### APPENDIX K City of Sublimity IAMP Adoption Ordinance

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### **BEFORE THE BOARD OF COMMISSIONERS**

OF MARION COUNTY, OREGON

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An ordinance amending the Marion County Transportation System Plan, an element of the Marion County Comprehensive Plan, to include the Sublimity Interchange Area Management Plan, (IAMP) enabling the modernization of the existing interchange and bridge structure and associated local transportation system improvements.

#### ORDINANCE No. XXXX

#### SECTION 1 Title.

This ordinance shall be known as the Sublimity Interchange Area Management Plan Ordinance and shall be so cited and pleaded.

#### SECTION 2 Purpose.

Pursuant to the authority of OAR 734.051.055(5), the Board of Commissioners adopts this ordinance in order to accomplish the following objectives for the Sublimity Interchange area:

- Protect the state and local investment in the Sublimity Interchange
- Protect the function of interchanges by maximizing the capacity of the interchange for safe movement from the mainline highway facility
- Balance the need for efficient interstate and state travel with local use
- Preserve and improve the safety of the existing interchanges
- Provide the safe and efficient operation between connecting roadways
- Adequately protect the Sublimity Interchange from unintended and unexpected development while accommodating planned community development
- Manage existing Sublimity Interchange capacity and new capacity provided through interchange improvements
- Establish how future land use and transportation decisions will be coordinated in the Sublimity Interchange area between ODOT and the local governments
- Minimize impacts to farm and forest lands and other resource lands around the Sublimity Interchange in accordance with adopted Statewide Planning Goals
- Time development with appropriate improvements to the local system after Sublimity Interchange improvements are in place

PAGE 1 OF 2- ORDINANCE NO.

#### SECTION 3 Definitions.

(1) "Interchange" means a system of interconnecting roadways in conjunction with one or more grade separations that provide for the movement of traffic between two or more roadways or highways on different levels.\*\*

(2) "Interchange Area Management Plan" means a plan similar to an Access Management Plan or an Access Management Plan for an Interchange developed to plan for and manage grade-separated interchange areas to ensure sage and efficient operation between connecting roadways and to protect the functional integrity, operations, and safety of an interchange. Interchange Area Management Plans typically include analysis of the relationships between existing local land uses, zoning and long range plans and the state and local roadway network within a designated study area around an existing or planned interchange, and identify necessary improvements to approach roads and the local street network to support the long-term safety and efficiency of the interchange. An Interchange Management Plan is a document that may be developed independent of or in conjunction with a specific roadway project. A plan document is not a roadway project in and of itself.\*\*

(3) "Sublimity Interchange" means the interchange located in Marion County at which Oregon State Highway 22 and Cascade Highway intersect

(4) "Sublimity Interchange Management Area" is the area surrounding the Sublimity Interchange, inside which IAMP analysis was performed and physical improvements and access management recommendations were make. The Sublimity Interchange Management Area can be seen on Figure 1-1 of the IAMP, attached hereto as Exhibit A.

\* Definition excerpted from OAR 734.051.0040(33)

\*\* Definition excerpted from OAR 734.051.0040(34)

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### SECTION 4 Recitals

(1) WHEREAS, Marion County is acting pursuant to the authority of OAR 734.051.055(5); and

(1) WHEREAS, the existing interchange that carries OR 22 over Cascade Highway is functionally obsolete; and

(2) WHEREAS, the Oregon Transportation Commission (OTC) approved funding to reconstruct the existing interchange; and

(3) WHEREAS, as a condition of funding construction for the project, the OTC required that an Interchange Area Management Plan (IAMP) be prepared in association with the design of the interchange and adopted by Marion County, the City of Sublimity, and the City of Stayton; and

(4) WHEREAS, in the Autumn of 2004 ODOT contracted with the firm CH2M HILL to manage a project consultant team to develop the Sublimity IAMP; and

(5) WHEREAS, County-appointed staff and elected officials worked closely with the Oregon Department of Transportation (ODOT) and project consultant team in planning for future improvements to the interchange, through participation on the Project Management Team (PMT) for the Sublimity IAMP project and the development of the IAMP; and (6) WHEREAS, small group meetings with affected property owners were held throughout the course of the project and were instrumental in guiding the development of the Sublimity IAMP; and

(7) WHEREAS, the Sublimity IAMP documents the land use planning, transportation planning, access management and public involvement work that resulted in the Preferred Alternative; and

(8) WHEREAS, the County has held public hearing on the Sublimity IAMP on [insert date] and [insert date]; and

(9) WHEREAS, the City of Sublimity has held public hearing on the Sublimity IAMP on [insert date] and [insert date]; and

(10) WHEREAS, the City of Stayton has held public hearing on the Sublimity IAMP on [insert date] and [insert date]; and

NOW, THEREFORE, MARION COUNTY ORDAINS AS FOLLOWS:

- (1) The City Council of the City of Sublimity hereby adopts and incorporates by reference the Sublimity IAMP, attached hereto as Exhibit A.
- (2) The Marion County Board of Commissioners, based upon the Findings of Fact, does hereby amend the Marion County Transportation System Plan to include the Sublimity IAMP.
- (3) Transportation improvements detailed in Section 5 of the Sublimity IAMP are hereby amended into the Rural Improvements Project List of the Marion County Rural Transportation System Plan, the Facility Improvements Tables of the City of Sublimity Transportation System Plan, and the Street Plan Capital Improvements List of the City of Stayton Transportation System Plan, respectively.
- (4) The Sublimity Interchange Area Management Plan is adopted as a supporting document to the Marion County Transportation System Plan.
- (5) EFFECTIVE DATE: This ordinance shall take effect on the xx day after its enactment.

Signed and finalized at Salem, Marion County, Oregon, this XXth day of XXXX 200X.

MARION COUNTY BOARD OF COMMISSIONERS

ATTACHMENT: "EXHIBIT A: SUBLIMITY INTERCHANGE AREA MANAGEMENT PLAN"

ATTACHMENT: "EXHIBIT A: SUBLIMITY INTERCHANGE AREA MANAGEMENT PLAN"

### APPENDIX L City of Sublimity Code Section 2.103.05 Amendment Ordinance

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### ORDINANCE NO. \_\_\_\_\_

## AN ORDINANCE AMENDING THE CITY OF SUBLIMITY DEVELOPMENT CODE CHAPTER 2.103.05 TO IMPLEMENT THE RECOMMENDATIONS OF THE SUBLIMITY INTERCHANGE AREA MANAGEMENT PLAN

WHEREAS, the City of Sublimity has adopted the Sublimity Interchange Area Management Plan (IAMP), attached hereto as Exhibit A, for the purposes of preserving the long-term function of the Sublimity Interchange in accordance with OAR 734-051-0155(5); and

WHEREAS, the Sublimity IAMP obligates the City to enact language changes to its Development Code to implement the recommendations of the IAMP; and

WHEREAS, this Ordinance amends City of Sublimity Development Code Chapter 2.103.05; and

### NOW, THEREFORE, THE CITY OF SUBLIMITY ORDAINS AS FOLLOWS:

**SECTION 1.** City of Sublimity Development Code Chapter 2.103.05 is amended to read as follows, with the <u>new text underlined</u>:

### 2.103.05 Development Standards

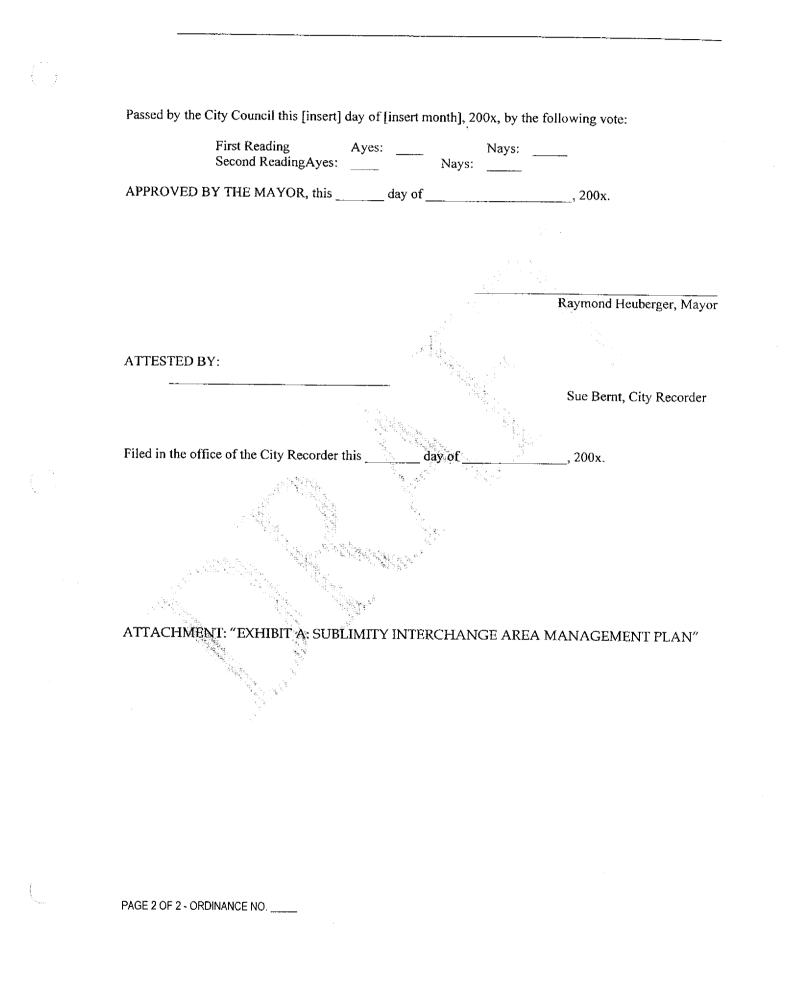
All developments in the Commercial District shall comply with the applicable provisions of Section 2.400 of this Ordinance. In addition, the following specific standards shall apply:

- A. Off-Street Parking. Off-street parking shall be as specified in Section 2.203. Due to the required ten (10) feet front yard setback businesses are strongly encouraged to provide parking areas behind the commercial structures.
- B. Signs Signs in the Commercial District shall be subject to the provisions of Section 2.206.
  - Subdivisions and Partitions. All subdivisions and partitions shall be reviewed in accordance with the provisions of Section 3.107.
  - Design Review. All new development and expansion of an existing structure or use in the Commercial District shall be subject to the Site Development Review procedures of Section 2.103.6 and 3.105.
- E. Outdoor Display. There shall be no outdoor display or storage of materials or merchandise within a designated alleyway, roadway or sidewalk that would impede pedestrian or vehicular traffic except during community retail sales events. Safety precautions shall be observed at all times.
- F. Minimum Landscaped Area. Landscaping in the Commercial District shall be subject to Section 2.207
- G. Access. All driveways and points of access shall be subject to the provisions of Section 2.202.03(N).

PAGE 1 OF 2 - ORDINANCE NO.

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### APPENDIX M **City of Sublimity Code Section 2.106 Amendment Ordinance**

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### ORDINANCE NO. \_\_\_\_\_

### AN ORDINANCE AMENDING THE CITY OF SUBLIMITY DEVELOPMENT CODE CHAPTER 2 TO CREATE AN INTERCHANGE OVERLAY ZONING DISTRICT, SO AS TO IMPLEMENT THE RECOMMENDATIONS OF THE SUBLIMITY INTERCHANGE AREA MANAGEMENT PLAN

WHEREAS, the City of Sublimity has adopted the Sublimity Interchange Area Management Plan(IAMP) for the purposes of preserving the long-term function of the Sublimity Interchange in accordance with OAR 734-051-0155(5); and

WHEREAS, the Sublimity IAMP calls for the City to create an Interchange Overlay Zoning District to implement the recommendations of the IAMP; and

WHEREAS, this Ordinance amends City of Sublimity Development Code Chapter 2

### NOW, THEREFORE, THE CITY OF SUBLIMITY ORDAINS AS FOLLOWS:

City of Sublimity Development Code Chapter 2 is amended to include an additional section, 2.106, to read as follows, with the new text underlined:

### 2.106 INTERCHANGE MANAGEMENT AREA OVERLAY DISTRICT (IA)

#### 2.106.01 Purpose

To objective of this overlay zone is to protect and preserve the safe and efficient functional operation of the local street network in the vicinity of the Sublimity Interchange for all users. A goal of the City's Transportation System Plan (TSP) is to "ensure that the objectives of mobility and safety are preserved for Center Street [Cascade Highway], the city's only arterial." The establishment of this overlay zone acknowledges that an increase of vehicular traffic directly onto Center Street will have a deleterious effect on both the safety and mobility functions of that roadway.

Implementation of the overlay zone objective is achieved through the utilization of access management measures, as called for in the TSP.

2.106.02 Regulations

A. Inside the IA Overlay Zone, access permits are required for all projects requiring any type of development permitting from the city of Sublimity that result in additional trip generation or change of use. "Change in use" is defined as a change in land use, an expansion of an existing land use, or a remodel of an existing use that results in increased traffic.

1) Marion County Roadway Access Permits

Permits for access onto Marion County roadways shall be subject to review and approval by Marion County, except where the county has delegated this responsibility to the City of Sublimity, in which case the City of Sublimity shall determine whether access is granted based on adopted based on adopted City of Sublimity standards.

B. Inside the IA Overlay Zone, development involving additional significant trip generation or change of use shall not be permitted to access onto Center Street.

C. Inside the IA Overlay Zone, the location of access placement for a development involving

PAGE 1 OF 2- ORDINANCE NO.

# Passed by the City Council this [insert] day of [insert month], 2005, by the following vote: First Reading Ayes: \_\_\_\_ Second ReadingAyes: \_\_\_\_ Nays: Nays: \_\_\_\_\_ Nays: APPROVED BY THE MAYOR, this \_\_\_\_\_ day of \_\_\_\_\_ \_\_\_\_, 2005. Raymond Heuberger, Mayor ATTESTED BY: Sue Bernt, City Recorder , 2005. Filed in the office of the City Recorder this day of

a change of use must be provided from the lowest functional classification roadway.

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### APPENDIX N City of Sublimity Code Section 2.202.03 Amendment Ordinance

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### ORDINANCE NO. \_\_\_\_\_

### AN ORDINANCE AMENDING THE CITY OF SUBLIMITY DEVELOPMENT CODE CHAPTER 2.202.03(N) TO IMPLEMENT THE RECOMMENDATIONS OF THE SUBLIMITY INTERCHANGE AREA MANAGEMENT PLAN

WHEREAS, the City of Sublimity has adopted the Sublimity Interchange Area Management Plan (IAMP), attached hereto as Exhibit A, for the purposes of preserving the long-term function of the Sublimity Interchange in accordance with OAR 734-051-0155(5); and

WHEREAS, the Sublimity IAMP obligates the City to enact language changes to its Development Code to implement the recommendations of the IAMP; and

WHEREAS, this Ordinance amends City of Sublimity Development Code Chapter 2.202.03(N); and

#### NOW, THEREFORE, THE CITY OF SUBLIMITY ORDAINS AS FOLLOWS:

**SECTION 1:** City of Sublimity Development Code Chapter 2.202.03(N) is amended to read as follows, with the <u>new text underlined</u>:

#### 2.202.03 General Provisions

N. Driveways and Points of Access: Approaches shall be constructed according to City standards and shall meet the minimum separations of five (5) feet between residential driveways, twenty-two (22) feet between commercial and industrial driveways, twenty (20) feet from intersections for residential streets, fifty (50) feet for collectors, and one hundred (100) feet for arterials. The separation shall be measured between the nearest outside edges of each access lane and the edge of the radius of the street.

Construction of driveways and points of access inside the Interchange Area Overlay Zone (IA) shall be subject to the special access provisions of that zone (2.106).

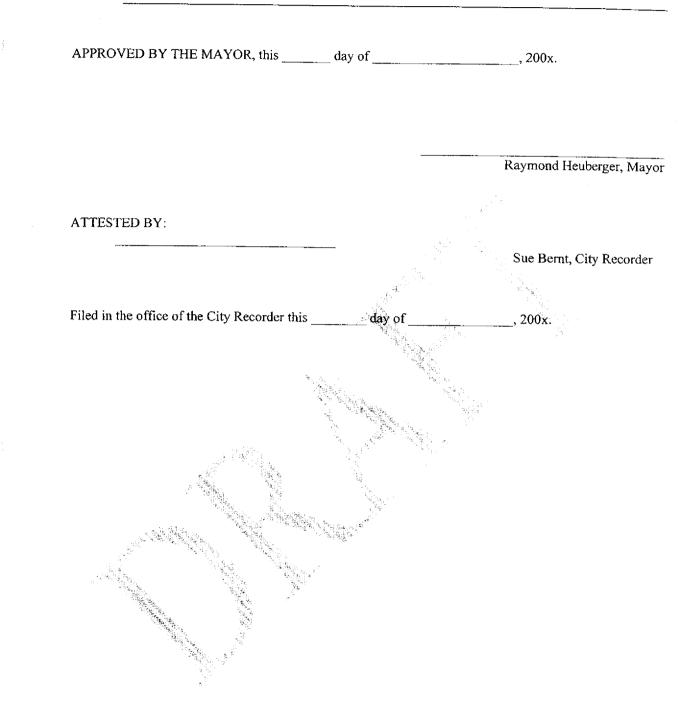
The construction of a duplex on a corner shall provide one driveway per unit per street frontage unless the Planning commission allows a combined access on one street frontage based upon a conflict created by the topography of the lot, the location of a public utility, significant vegetation, or different street classifications.

Adjoining properties are encouraged to combine accesses. For public safety purposes, and wherever possible, driveways shall align with the access points to properties across the street and other street intersections. Where impractical due to lot configuration, driveways shall be as approved by the City's Public Works Director.

Passed by the City Council this [insert] day of [insert month], 200x, by the following vote:

First Reading	Ayes:		Nays:	
Second ReadingAyes:		Nays:		

PAGE 1 OF 2- ORDINANCE NO.



ATTACHMENT: "EXHIBIT A: SUBLIMITY INTERCHANGE AREA MANAGEMENT PLAN"

PAGE 2 OF 2- ORDINANCE NO.

### APPENDIX O City of Sublimity Zoning Map Amendment Ordinance

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### ORDINANCE NO. \_\_\_\_\_

AN ORDINANCE AMENDING THE CITY OF SUBLIMITY ZONING MAP TO INCLUDE THE ADDITION OF AN INTERCHANGE MANAGEMENT OVERLAY ZONING DISTRICT, SO AS TO IMPLEMENT THE RECOMMENDATIONS OF THE SUBLIMITY INTERCHANGE AREA MANAGEMENT PLAN

WHEREAS, the City of Sublimity has adopted the Sublimity Interchange Area Management Plan (IAMP), hereto attached as Exhibit A, for the purposes of preserving the long-term function of the Sublimity Interchange in accordance with OAR 734-051-0155(5); and

WHEREAS, the Sublimity IAMP obligates the City to create an Interchange Management Overlay Zoning District to implement the recommendations of the IAMP; and

WHEREAS, this Ordinance amends the City of Sublimity Zoning Map to depict the boundaries of the Interchange Management Overlay Zoning District; and

### NOW, THEREFORE, THE CITY OF SUBLIMITY ORDAINS AS FOLLOWS:

- **SECTION 1**: The official zoning map of the city of Sublimity is amended to include an "Interchange Management Overlay" zoning district, the boundaries of which are indicated on the map attached hereto as Exhibit B.
- **SECTION 2**: All parcels and properties located within the IA Zone boundaries depicted on Exhibit B will herein be subject to the regulations of the IA Zone as articulated in Code Chapter 2.106.

Passed by the City Council this [insert] day of [insert month], 200x, by the following vote:

First Reading Ayes: Second Reading Ayes:	*}5 <u>;</u>	Nays:	Nays:	. <b>.</b>		
APPROVED BY THE MAYOR, this	day of _				_, 200x.	
$\frac{1}{2} \frac{1}{2} \frac{1}$				·		
		-		D		N 4

Raymond Heuberger, Mayor

#### ATTESTED BY:

Sue Bernt, City Recorder

PAGE 1 OF 2- ORDINANCE NO.

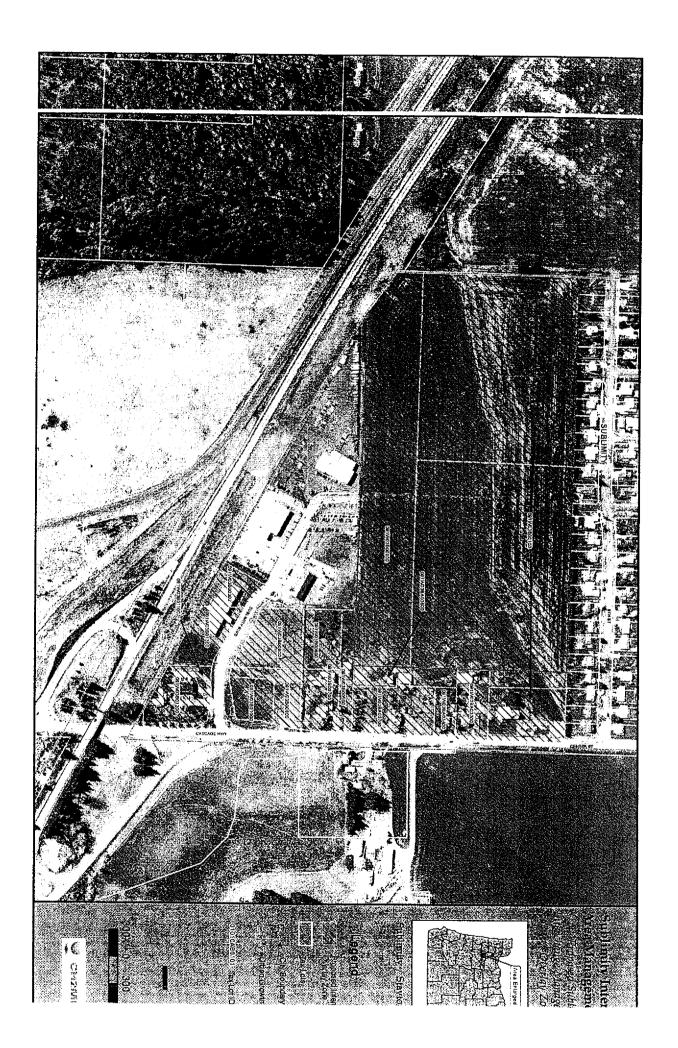
Filed in the office of the City Recorder this \_\_\_\_\_ day of \_\_\_\_\_, 200x.

ATTACHMENTS (2): "EXHIBIT A: SUBLIMITY INTERCHANGE AREA MANAGEMENT PLAN"; "EXHIBIT B: INTERCHANGE MANAGEMENT AREA OVERLAY ZONING DISTRICT MAP"

PAGE 2 OF 2- ORDINANCE NO.

APPENDIX P Sublimity Interchange Management Area Overlay Zoning District Boundary

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Draft Report

## Sublimity Interchange Area Management Plan

Prepared for Oregon Department of Transportation

December 2005

Prepared by CH2MHILL



SUBLIMITY\_IAMP\_V2.DOC

## Summary of Comments on REPORT

## This page contains no comments



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### Acknowledgments

### ~ Project Staff ~

**Oregon Department of Transportation** Dan Fricke, Project Manager

#### CH2M HILL

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**Jeanne Lawson Associates, Inc.** Jamie Damon Kristen Kibler

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**City of Sublimity** Gene Ditter, City Councilman Alan Frost, Public Works Director

Mid-Willamette Valley Council of Govt's Judith Ingram Moore

### ~ Public Agency Contributors, cont. ~

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Sequence number: 1 Author: hwym22n Subject: Cross-Out Date: 3/27/2006 6:59:11 AM

Sequence number: 2 Author: hwym22n Subject: Inserted Text Date: 3/27/2006 6:59:06 AM T\_A k -

## This page contains no comments

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### **Abbreviations and Acronyms**

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ADT	average daily traffic
ATR	automatic traffic recorder
CLOMR	Certified Letter of Map Revision (FEMA)
DEQ	Department of Environmental Quality
DLCD	Department of Land Conservation and Development
EA	Environmental Assessment
EFU	Exclusive Farm Use
ECSI	Environmental Cleanup Site Information (DEQ database)
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
HDM	Highway Design Manual
IAMP	Interchange Area Management Plan
LOS	level of service
LWI	Local Wetlands Inventory
MCBFHA	Mill Creek Basin Flood Hazard Area
MOU	Memorandum of Understanding
NHS	National Highway System
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
OAR	Oregon Administrative Rules
ODOT	Oregon Department of Transportation
OHP	Oregon Highway Plan
OSHPO	Oregon State Historic Preservation Office
OTC	Oregon Transportation Commission
OTIA	Oregon Transportation Investment Act
OTP	Oregon Transportation Plan
OWRD	Oregon Water Resources Department
PMT	Project Management Team
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REA	Revised Environmental Assessment

VII

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#### SUBLIMITY INTERCHANGE AREA MANAGEMENT PLAN

VIII

SPIS	Safety Priority Index System
STIP	State Transportation Improvement Program
TDM	transportation demand management
TMC	turning movement count
TPR	Transportation Planning Rule
TSP	Transportation System Plan
UGB	urban growth boundary
V/C	volume-to-capacity ratios
VMT	vehicle miles traveled

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### **Executive Summary**

The Sublimity Interchange, located at the junction of Oregon 22 and Cascade Highway in Marion County, Oregon, will be undergoing modifications and improvements. This Interchange Area Management Plan (IAMP) documents the land use and transportation strategies developed to protect the function of the Sublimity Interchange over the long-term (20-plus years) in light of these planned improvements, as directed by Oregon Administrative Rule (OAR) 734-051-0155(6).

Evaluation of interchange ramp and bridge alternatives occurred as a result of earlier planning and design efforts; the interchange ramp and bridge design was approved through an Environmental Assessment (EA) by the Federal Highway Administration (FHWA) in 1995. However, this study did evaluate the operational functioning of the ramp terminals, as proposed.

Operations analyses performed indicate that both interchange ramp terminal will require signalization by the year 2025. A signal was assumed at Whitney Drive in 2006, and the realignment of Golf Lane with Whitney Drive is assumed to take place within the 20-year timeframe of this project. Analysis indicates that some adjustments to the signalization at Cascade Highway and Shaff Road would be required in the future to synchronize signal operations along Cascade Highway.

Land use analysis conducted as part of the IAMP indicates the proposed facility would be adequate to handle proposed land uses as well as potential land uses that could arise from the conversion of land zoned for farm use subject to Measure 37. Future development of industrial and commercial properties would likely lead to the signalization of the new access for the backage road during the 20-year timeframe.

Alternatives analyzed for this IAMP were access-related in nature, and the preferred alternative package contains access management recommendations for Cascade Highway both north and south of the interchange within the 1,320-foot Interchange Management Area limits.

An effective access management strategy will help ensure compatibility between future transportation and land use needs (both local and regional) while optimizing mobility and safety conditions at the interchange and on Cascade Highway. This IAMP presents the following access management recommendations:

• A backage access road should be built behind the properties located northeast of the interchange, extending from Cascade Highway (at a point approximately 1,580 feet north of the interchange ramp terminus) to Sublimity Boulevard (at a point approximately 470 feet west of the Sublimity Boulevard/Cascade Highway intersection). Upon redevelopment, the properties located in this section would need to access the backage road instead of Cascade Highway. All private approaches to Cascade Highway in the Interchange Access Management Area Limit would be closed and access relocated to the backage road. These access recommendations are illustrated on Figure 4-9 of this document.

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- The City of Sublimity thould among the Development Code to create an "Interchange Overlay Zone" that will prohibit future development on properties along Cascade Highway (northeast of the interchange) without the presence of an alternate access road.
- Access control Bhould be purchased along the roadway property frontage of Tax Lot# 091W03A00100. The existing access serving this lot and Tax Lot# 091W03A0200 will be allowed to retain access to Cascade Highway.
- The existing approach serving Tax Lot# 091W03A00300 will be consolidated with the approach serving Tax Lots# 091W03A00200 and 091W03A00100.
- A frontage access road should be built from a point on Cascade Highway directly across from the proposed backage road (approximately 1,580 feet north of the interchange ramp terminus), to tie in with the existing driveway serving Tax Lots# 091W03A00300, 091W03A00200, and 091W03A00100. The existing access currently serving Tax Lots# 091W03A0200 and 091W03A00100 would be closed and access relocated to the frontage road.
- The Oregon Department of Transportation (ODOT) should grant deviations for several accesses south of the interchange, including Whitney Drive foolf Lane (with proviso that it be realigned, as agreed, with Whitney Drive Towns warranted in the future), and access to the ODOT Park-and-Ride lot.
- ODOT should grant deviations for Sublimity Boulevard and several private driveway accesses north of the interchange, based on the City of Sublimity Development Code changes noted earlier.
- ODOT should grant a deviation for the intersection of Sublimity Boulevard and the westbound interchange ramp terminals, as the future project is designed.
- The Fern Ridge Road and Santiam Street at-grade intersections should be modified or eliminated to improve access management and safety conditions along Oregon 22.

In addition to access management recommendations, this IAMP also includes the following physical improvement and traffic management recommendations:

- Reconstruct the Oregon 22 entrance ramps to provide standard merge operations onto Oregon 22/110
- Widen Cascade Highway from and including Sublimity Boulevard through the Shaff Road/Fern Ridge Road intersection [11]
- Realign Golf Lane across from Whitney Street,
- Signalize the Oregon-22-ramp termini—Sublimity Boulevard/Caseade-Highway intersection (north of interchange).
- Signalize the Oregon 22-ramp termini/Cascade Highway-intersection (south-of intersection).
- Signalize the Whitney Street Golf Lane/Cascade Highway intersection,

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Comments from page 12 continued on next page

- The City of Sublimity should amend its Development Code to create an "Interchange Overlay Zone" that will prohibit future development on properties along Cascade Highway (northeast of the interchange) without the presence of an alternate access road.
- Access control should be purchased along the roadway property frontage of Tax Lot# 091W03A00100.The existing access serving this lot and Tax Lot# 091W03A0200 will be allowed to retain access to Cascade Highway.
- The existing approach serving Tax Lot# 091W03A00300 will be consolidated with the approach serving Tax Lots# 091W03A00200 and 091W03A00100.
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- The Oregon Department of Transportation (ODOT) should grant deviations for several accesses south of the interchange, including Whitney Drive, Golf Lane (with proviso that it be realigned, as agreed, with Whitney Drive as warranted in the future), and access to the ODOT Park-and-Ride lot.
- ODOT should grant deviations for Sublimity Boulevard and several private driveway accesses north of the interchange, based on the City of Sublimity Development Code changes noted earlier.
- ODOT should grant a deviation for the intersection of Sublimity Boulevard and the westbound interchange ramp terminals, as the future project is designed.
- The Fern Ridge Road and Santiam Street at-grade intersections should be modified or eliminated to improve access management and safety conditions along Oregon 22.

In addition to access management recommendations, this IAMP also includes the following physical improvement and traffic management recommendations:

- Reconstruct the Oregon 22 entrance ramps to provide standard merge operations onto Oregon 22,
- Widen Cascade Highway from and including Sublimity Boulevard through the Shaff Road/Fern Ridge Road intersection,
- Realign Golf Lane across from Whitney Street 12
- Signalize the Oregon 22 ramp termini Sublimity-Boulevard/Caseade Highway intersection (north of interchange).
- Signalize the Oregon 22 ramp termini/Caseade Highway intersection (south of intersection).
- Signalize the Whitney Street Golf Lane/Cascade Highway intersection [13]

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- Coordinate traffic signal operations along Cascade Highway due to the close spacing of signalized intersections
- When traffic demand requires, install a right-turn pocket on the eastbound Oregon 22 exit ramp approach to Cascade Highway
- When traffic demand requires, install right-turn pockets on the Shaff Road/Fern Ridge Road approaches to Cascade Highway<sub>[3]</sub>
- Provide bus and carpool service to the existing park-and-ride facility. This facility is not currently served by bus routes or formal carpool programs. Expansion of service to this facility would aide in managing traffic demand through the IAMP area.
- The Fern-Ridge Road and Santiam Street at grade intersections should be modified or eliminated to both for access management and safety along Oregon 22.

This document includes a complete description of the IAMP development process, land use assumptions, existing conditions analysis, access-related alternative evaluation, and traffic operations analysis. Short-term, medium-term, and long-term transportation strategies for the Sublimity Interchange Area are provided.

This IAMP was prepared in collaboration with ODOT, Marion County, the City of Stayton, and the City of Sublimity.

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# Background

#### **Purpose and Intent**

Oregon Administrative Rule (OAR) 734-051-0155(6) states: "Interchange Area Management Plans are required for new interchanges and should be developed for significant modifications to existing interchanges..." This is a "project-based" IAMP, and is being prepared in accordance with the recommendation in the above OAR because of planned modifications and reconstruction of the Sublimity Interchange, located at the junction of Oregon 22 (North Santiam Highway) and Cascade Highway in Marion County, Oregon. The intent of the IAMP is to provide a consensus framework plan among all affected public jurisdictions and agencies to protect the state's investment in the Sublimity Interchange facility. Preparation of this document was conducted in accordance with state IAMP guidelines.<sup>1</sup>

This IAMP evaluates the transportation effects of the proposed interchange improvements and land use plans within the study area. Future commercial, industrial, and residential developments are expected to occur within the influence area of the interchange. The IAMP will recommend operational and physical improvements and access management techniques to maximize the operation of the interchange to accommodate future growth.

The purpose of this IAMP is to develop a strategy for the Sublimity Interchange that will protect the function of the interchange for at least 20 years. The Sublimity Interchange was proposed for modification and reconfiguration in the *Joseph Street Environmental Assessment*.<sup>2</sup> The original design was subsequently revised and there is currently an interchange design scheduled for construction in 2008-2009 that includes improvements to the entrance ramps, but not the exit ramps.

#### **Problem Context**

The current Sublimity Interchange poses safety and operational issues in that both the east and westbound entrance ramps to Oregon 22 terminate in stop signs. As a result, motorists are forced to quickly accelerate to highway speed from a complete stop. Westbound travelers must enter Oregon 22 traffic from a stop and accelerate up-hill, as the interchange is located at the top of a knoll. Traffic on Oregon 22 is traveling at 55 miles per hour or more, and during peak periods offers few breaks. Eastbound traffic enters on the top of a knoll, but with limited sight distance. Significant numbers of Stayton and Sublimity area residents traveling to jobs in the Salem area use the Sublimity Interchange.

<sup>&</sup>lt;sup>1</sup> Interchange Area Management Plan Guidelines (Final Draft) Prepared by: David Evans and Associates, Inc. with Angelo Eaton & Associates, October, 2005.

<sup>&</sup>lt;sup>2</sup> Joseph Street-Stayton North City Limits Environmental Assessment (prepared by ODOT, March, 1995); Joseph Street-Stayton North City Limits Revised Environmental Assessment (prepared by ODOT, May, 1995)

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The primary traffic issue within the interchange influence area is the location and function of access points to Cascade Highway. The Golf Lane access is very near the south side interchange ramp terminus. Currently, Golf Lane serves only a few houses. However, existing zoning would allow for more residential development, creating a potential operational conflict. Sublimity Boulevard, which provides access to the business cluster in the northwest quadrant of the interchange, is slightly off-set from the existing interchange ramp terminals on the north side of the interchange. In the south-east quadrant, recent efforts have been made to improve traffic operations and control the access to Cascade Highway by prohibiting left turns to Martin Street, There is a traffic signal at the interchange, the roadway is a two lane road, with a paved shoulder on the west side. Bicycle lanes are provided from Division Street through Sublimity.

#### **Project History and Phasing**

The planned modification and reconstruction of the Sublimity Interchange is part of a much larger ODOT undertaking, the Joseph Street-North Stayton City Limits project (henceforth referred to as the "Joseph Street project"). The Joseph Street project was conceived in the late 1980s and the Environmental Analysis for the project was approved by the Federal Highway Administration in 1995.

The selected alternative of the Joseph Street project entailed the following transportation improvements:

- Conversion of approximately 8.5 miles of two-lane Oregon 22 to a four-lane divided highway. Includes a 100-foot separation between the centerline of the westbound and the centerline of the eastbound travel lanes (to permit future expansion to a six-lane roadway within the right-of-way required for this project
- Construction of new interchanges at Aumsville-Shaw Highway and Golf Club Road;
- Reconstruction/modification of existing interchanges at Silver Creek Falls and Cascade Highways (Sublimity Interchange).
- Implementation of full access control.
- Construction of new frontage roads.

Joseph Street project improvements were designed to be constructed in two major phases.

- Phase 1, which has already been completed, included the widening of Oregon 22 to four lanes between Joseph Street to MP 12, the construction of new interchanges at Aumsville-Shaw Highway and Golf Club Road, and the construction of Golf Lane (to provide access for properties whose approaches to Oregon 22 were removed).
- Phase 2, yet to be completed, will occur in two stages: Stage 1 entails the reconstruction/modification of the Sublimity Interchange; Stage 2 entails the widening of Oregon 22 from two to four lanes from MP 12 to MP 14.1.

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- Stage 1 is currently underway, with physical improvements to the Sublimity Interchange programmed to begin in 2008. The proposed improvements will provide for standard merge entrance ramp operations. This IAMP is being prepared as part of Stage 1. Stage 1 improvements are shown on Figure 1-1.
- Stage 2 will be completed when necessary funding is available. Stage 2 improvements are shown on Figure 1-2.

The project area was identified as Oregon 22 between milepoint (MP) 5.16 and MP 14.1. The Joseph Street project entailed the following proposed improvements: widening Oregon 22 to four lanes in the project area; installing complete access control; and "Phase 1", already completed, entailed the segment of Oregon 22 from Joseph Street (MP 5.44) eastward to the MP 12.

#### **Interchange Function**

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Oregon 22 is an Oregon Transportation Commission (OTC) designated expressway, and is classified by the Oregon Highway Plan as a highway of statewide significance and a Statewide Freight Route. Oregon 22 is also part of the National Highway System (NHS). Oregon 22 serves as a major connector between the Mid-Willamette Valley and Central Oregon.

Functional classifications of roadways in the vicinity of the Sublimity Interchange are summarized in Table 1-1.

Roadway	Functional Classification
Oregon 22 (North Santiam Highway)	Rural Principal Arterial – Other*
Cascade Highway (outside city limits)	Arterial**
1 <sup>st</sup> Street (Cascade Highway south of Oregon 22)	Principal Arterial***
Center Street (Cascade Highway north of Oregon 22)	Arterial****
Fern Ridge Road	Major Collector***
Shaff Road	Minor Arterial***
Martin Drive	Local***
Whitney Street	Local***
Golf Lane	Local***
Sublimity Boulevard	Local****
9th Street	Local****

#### TABLE 1-1

Roadway Function	al Classifications
	Roadway

Functional Classification

- Sources:
  - Oregon Highway Design Manual (2003)
- \*\* Marion County Rural Transportation System Plan (1998)
- \*\*\* Stayton Transportation System Plan Final Draft (2004)
- \*\*\*\* Sublimity Transportation System Plan (1998)

The Sublimity Interchange is an important facility for the communities of Stayton and Sublimity, and serves the following functions:

- Commercial/Industrial: The interchange directly serves the downtowns of each community, and the businesses therein. As the commercial and industrial-zoned areas of these communities continue to develop, the Sublimity Interchange will increasingly function as an integral economic development asset.
- Residential Commuting: A significant number of Stayton and Sublimity residents utilize the interchange to access Oregon 22 for their daily commutes into the Salem-Keizer area.
- Agricultural: The interchange serves a farm-to-market function for the numerous agricultural operations in the area.

Sublimity Interchange modifications and associated local improvements must be planned and implemented to accommodate the multi-functional nature of the interchange.

#### **Goals and Objectives**

It is the goal of this IAMP to propose access management, construction and land use measures to interactively augment the effectiveness of the interchange modification design. This report documents the results of the project planning process used to achieve this stated goal for the Sublimity Interchange.

As stated in Policy 3C of the 1999 Oregon Highway Plan, "it is the policy of the State of Oregon to plan for and manage grade-separated interchange areas to ensure safe and efficient operation between connecting roadways". From this definition and a consideration of project-specific local transportation issues, the generalized objectives of the Sublimity IAMP are to:

- Prolong the useful life of the state's investment in the Sublimity Interchange
- Control or decrease, through access management measures, the number of conflict points on Cascade Highway in the vicinity of the Sublimity Interchange
- Provide feasible and equitable driveway relocation alternatives for property owners with current direct access to Cascade Highway
- Balance the need for the interchange to support community development interests with the need for safe and efficient operation within the interchange area

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- Establish agreements with local governments on how to effectively manage the longterm function of the interchange
- Monitor how the interchange capacity is managed through cooperation with local governments
- Provide certainty for property and business owners and local governments

#### IAMP Study Area

The Sublimity IAMP project study area is comprised of Oregon 22 between the Golf Club Road Interchange and the Mill Creek Bridge on Oregon 22, and Cascade Highway between SW 9th Street in Sublimity and Fern Ridge Road SE-Shaff Road in Stayton. The study area is shown on Figure 1-3.

Cascade Highway is alternatively called, respectively, Center Street inside Sublimity city limits and North 1st Avenue inside Stayton city limits. The study area encompasses the southern portion of the City of Sublimity, the northeastern portion of the City of Stayton, and portions of unincorporated Marion County.

The boundaries of the IAMP study area were developed based on a review of the surrounding roadway network and land use patterns as well as existing and future travel patterns. The parameters of the study area take into account:

- Required state IAMP regulations
- Required state access management regulations: the IAMP study area includes all land uses and roadways located within 1,320 feet of the existing Sublimity Interchange. This distance corresponds to the spacing standard outlined in the OAR 734-051 Division 51 rules for interchange ramps.
- Transportation facilities and traffic operations
- The mutual impact of existing natural and cultural resources
- The mutual impact of existing and planned land uses

#### **Related Work Products**

- The Oregon 22 Sublimity Interchange modernization project is an approved project in the 2006-2009 **Draft** STIP. The project is described in the STIP as a "Partial Interchange Reconstruction". This IAMP is part of the final planning for this project.
- Integral to the preparation of this IAMP is the Joseph Street North Stayton City Limits Environmental Assessment<sup>3</sup>. This EA and subsequent REA, which were approved by the Federal Highway Administration (FHWA), provide the rationale for Sublimity

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<sup>&</sup>lt;sup>3</sup> Both the Joseph Street – Stayton North City Limits Environmental Assessment and Revised Assessment were consulted in this IAMP planning process. Source information: Joseph Street – North Stayton City Limits Environmental Assessment (ODOT and FHWA) March, 1995; Joseph Street – North Stayton City Limits Revised Environmental Assessment (ODOT and FHWA) May, 1995.

Sequence number: 1 Author: hwym22n Subject: Cross-Out Date: 3/27/2006 7:07:29 AM Interchange area improvements and serves to document the determination that project actions will not have a significant impact on the human environment.

- The City of Stayton Transportation System Plan (TSP) lists two Capital Improvement Projects (aside from the Sublimity Interchange project) that are located in the Sublimity Interchange influence area. These are excerpted below:
  - Cascade Highway/1<sup>st</sup> Avenue Widening from Highway 22 to Regis Street widen to 5 lanes with sidewalks.
  - Cascade Highway/Whitney Street signalization with EB and WB Left Turn Lanes and Realign Golf Lane.<sup>4</sup>

Both of the above projects were factored into the operational analysis and alternatives decision-making process for this IAMP.

• The City of Sublimity Transportation System Plan lists the City's objectives for street network circulation and access management in the immediate vicinity north of the Sublimity Interchange.

#### Public Involvement

The purpose of the public involvement program is to build a planning process that (1) balances the needs and issues of residences and businesses in the Sublimity Interchange area, including those who depend on the highway, and (2) has the informed support and acceptance of these communities and interests. One key goal of the program is to elicit public discussion of the issues affecting the selection of access relocation alternatives to ensure future safe and efficient conditions in the vicinity of the Sublimity Interchange along Cascade Highway.

Detailed discussion and results of the public involvement process for the Sublimity IAMP project is given in Appendix A of this document.

<sup>&</sup>lt;sup>4</sup> Source: *City of Stayton Transportation System Plan* (Final Draft 2004); Table 8-1 Capital Improvement Cost – Street Improvements; p. 8-1

SUBLIMITY INTERCHANGE AREA MANAGEMENT PLAN

#### Insert Figures 1-1 through 1-3 (11 x 17)

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# Existing Conditions Inventory and Data Analysis

#### **Regulatory Framework**

The Sublimity IAMP study area contains land from three jurisdictions: Marion County, the City of Sublimity, and the City of Stayton. IAMP improvements are therefore subject to applicable land use regulations for each jurisdiction, as well as state and federal regulations.

State, county, and local regulations pertaining to IAMP actions are addressed in the Plan and Policy Review, located in Appendix B.

#### **Existing Land Use**

The Sublimity IAMP study area contains a mixture of urban and agricultural land uses. The Sublimity Interchange lies between the communities of Stayton (population 7,360) and Sublimity (population 2,160)<sup>5</sup>. In the immediate vicinity the land is used primarily for agricultural purposes. A general description of land uses in the study area is as follows:

- NW Quadrant: commercial and light industrial uses along Sublimity Boulevard; lowdensity single-family residences along Cascade Highway.
- NE Quadrant: farm use.
- SW Quadrant: farm use; a few single-family residences.
- **SW12uadrant:** state-owned park-and-ride lot; medium-density single and multi-family residences; commercial establishments; elder-care residential facility.

#### **Comprehensive Plan Designations**

Comprehensive Plan land use designations in Marion County, the City of Stayton, and the City of Sublimity are coincident with the zoning designations for these respective public agencies. Relevant zoning district designations are addressed below.

#### **Zoning Designations**

Planned interchange improvements will take place solely within unincorporated Marion County, and will therefore only be subject to applicable Marion County zoning code regulations. However, longer-term IAMP recommendations will involve utilizing land inside Sublimity and/or Stayton jurisdictional limits. Additionally, the potential for

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<sup>&</sup>lt;sup>5</sup> Source: 2004 Oregon Population Report. Portland State University Population Research Center. Population numbers given are year 2004 estimates.

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increased traffic in the interchange is tied to the type and intensity of development allowed in each of the zoning districts in the IAMP study area. For this reason, IAMP study area zoning regulations for Sublimity and Stayton are addressed here in addition to Marion County.

Zoning designations in the Sublimity IAMP study area are shown in Figure 2-1.

#### Marion County Zoning

Existing Marion County zoning districts in the study area are as follows:

- Exclusive Farm Use (EFU)
- Urban Transitional Farm (UTF)

#### **Project Relevant Issues**

 Public road improvements are permitted outright in all Marion County zones providing that such improvements are in conformance with the *"applicable comprehensive plan and the standards of the Department of Public Works"* [per Marion County Zoning Ordinance 25.10(b)]. The Marion County Comprehensive Plan does not contain any language constraining transportation improvements in an EFU zone. Therefore, Marion County zoning regulations do not constrain planned Sublimity Interchange improvements.

#### City of Stayton Zoning

Existing City of Stayton zoning districts in the Sublimity IAMP study area are as follows:

- Commercial-Retail (CR)
- Interchange Development (ID)
- High-Density Residential (HD)
- Multiple-Family Residential (MD)
- Single-Family Residential (LD)

#### Project Relevant Issues

- Public road improvements are permitted outright in the CR and ID zones [per Stayton Development Code 17.16.690.2(j) and 17.16.710.2(i), respectively].
- Public road improvements are conditionally permitted in the HD, MD, and LD zones [per Stayton Development Code 17.16.680.3(f), 17.16.670.3(b), and 17.16.660.3(b), respectively]. Although no IAMP improvements are planned to occur in any of these three zones, any change which results in transportation-related public improvements in these zones would be subject to site review by the City of Stayton.

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#### **City of Sublimity Zoning**

Existing City of Sublimity zoning districts in the Sublimity IAMP study area are as follows:

- Commercial (COM)
- Industrial (IND)
- Future Industrial
- Low-Density Residential (R-1)
- Medium-Density Residential (R-2)

#### Project Relevant Issues

• Public road improvements are permitted outright in all City of Sublimity zones [per Sublimity Development Code 2.403.01.D] provided that "the right of way is not expanded to more width than prescribed for the street in the Public Facilities segment of the Comprehensive Plan."

#### Transportation Facilities and Traffic Operations

This section summarizes the existing transportation conditions within the study area, provides assumptions and methodologies to be used in the traffic operational analyses, and catalogues existing transportation system facilities and services. To the extent possible, physical as well as operational characteristics of the roadways, intersections and transportation services are described.

#### Existing Transportation Facilities

#### Vehicular Facilities

The following section describes the existing physical characteristics of the study area roadways and the study intersections. Figure 2-2 shows traffic control and channelization in the study intersection.

Oregon 22 is the major east-west highway in Marion County. It is located between the cities of Stayton and Sublimity, and is connected to both cities via an interchange at Cascade Highway. In addition to the Cascade Highway interchange, two other interchange and the Cascade Highway. The Road and Fern Ridge Road, provide a count of the Cascade Highway are full interchanges, while Fern Ridge Road and Santiam Street are stop controlled at-grade intersections located east of the study interchange.

Both the east- and westbound Oregon 22 entrance ramps terminate in stop signs. Drivers enter Oregon 22 traffic from a full stop (right-turn only), and are required to accelerate up-hill  $f_{\underline{8}}$  up to the topography of the highway. In the vicinity of the Sublimity Interchange, Oregon 22 is a two-lane undivided, access controlled highway. The posted speed limit is 55 mph.

The Oregon 22 eastbound exit ramp terminates in a shared left and right turn lane that is stop controlled at Cascade Highway. At this intersection, Cascade Highway has one

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Sequence number: 6 Author: hwym22n Subject: Replacement Text Date: 3/27/2006 7:09:22 AM		 	
Sequence number: 7 Author: hwym22n Subject: Inserted Text Date: 3/27/2006 7:09:09 AM T Fern Ridge Road and			
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through travel lane in each direction, with a shared through and right-turn lane for southbound travel and a shared through and left-turn lane for northbound travel.

The Oregon 22 westbound exit ramp forms the east leg of the Cascade Highway/Sublimity Boulevard intersection. It consists of a single lane with shared left, through and right-turn movements. The ramp is stop controlled at its approach to Cascade Highway. At this intersection, Cascade Highway has one travel lane in each direction, with a shared through and left-lane for northbound travel and a shared left, through and right-turn lane for southbound travel.

 Cascade Highway is a major north-south arterial that provides the primary access to the cities of Sublimity and Stayton from Oregon 22.

North of Oregon 22, Cascade Highway is a two lane roadway with paved asphalt shoulders on its west side. The posted speed limit on the minor arterial is 45 mph.

South of Oregon 22, Cascade Highway is generally a two lane roadway with paved asphalt shoulders. Left turn pockets are provided at the Whitney Street and Shaff Road-Fern Ridge Road intersections. As described in the Pedestrian Facilities section, a portion of Cascade Highway, from Whitney Street to the south, is served by a sidewalk. The posted speed limit on Cascade Highway is 45 mph.

Between the Oregon 22 eastbound ramps and Whitney Street, the width of Cascade Highway is less than the City of Stayton's standard street width of 40 feet for principal arterials. Two bridges are located on Cascade Highway within the City of Stayton project limits. Mill Creek Crossing occurs south of Golf Lane and Lucas Ditch crossing occurs south of Martin Drive.

- 9th Street forms a T-intersection with Cascade Highway in the southern portion of Sublimity and provides access to a residential area. All approaches to the intersection are single lanes, with no dedicated turn pockets. The west approach to the intersection is stop controlled.
- Sublimity Boulevard is located just north of Oregon 22, and aligns with the interchange's westbound ramps. All approaches to the intersection are single lanes, with no dedicated turn pockets. The east leg is comprised of the Oregon 22 westbound ramps. The west leg is a two lane roadway providing access to the business cluster in the northwest quadrant of the interchange including an insurance agency, motorcycle/car dealerships, a tire shop, and a hotel. The east and west approaches to the intersection are stop controlled.
- Golf Lane, located just south of Oregon 22, is a two lane local roadway. At Cascade Highway, a shared right-left turn lane is stop controlled. Cascade Highway has a shared through-right lane for southbound travel and a shared through-left lane for northbound travel. Currently this road serves a small number of residences; however, the adjacent undeveloped parcels are zoned for additional housing development. Across Cascade Highway from this intersection is the access to an ODOT park-and-ride lot.
- Whitney Street consists of one travel lane in each direction. At Cascade Highway, a shared right-left turn lane is stop controlled. Cascade Highway has a shared through-

Sequence number: 1 Author: hwym22n Subject: Replacement Text Date: 3/27/2006 7:12:34 AM Typits into two legs approaching Cascade Highway. The northern leg carries traffic to and from Sublimity; the southern leg to and from Stayton. Both legs consist of a stop-controlled single lane with shared left, through, and right turn movements. The two legs intersect part way up the ramp

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right lane for northbound travel and a through lane with a left-turn pocket for southbound travel. Further to the east of Martin Drive, Whitney Street connects to a single family residential area. Adjacent to Cascade Highway, Whitney Street services commercial and retail properties. The Whitney Street intersection with Cascade Highway is scheduled to be signalized in 2006.

- Martin Drive is a right turn in, right turn out only connection to Cascade Highway with access to Whitney Street. The area served by Martin Drive and Whitney Street is primarily a small commercial/retail base area that includes a gas station with a minimart, fast-food restaurant, liquor store, and pharmacy.
- Shaff Road-Fern Ridge Road provides a key east-west route in northern Stayton and helps relieve traffic congestion through the City. It is a two lane roadway with left-turn pockets at the signalized intersection with Cascade Highway.

#### Truck Routes

Through the project area, Oregon 22 and Cascade Highway are designated as truck routes. Oregon 22 is also designated as a Freight Route in the 1999 Oregon Highway Plan. Truck routes designated by the City of Stayton serve the following areas: the industrial area on the west side of the city, NORPAC in central Stayton, and Morse Brothers south of Stayton. Shaff Road-Fern Ridge Road is a designated City of Stayton truck route.

#### **Bicycle Facilities**

Dedicated bicycle lanes are provided on Cascade Highway from the northern portion of the study area (vicinity of Division Street) through the City of Sublimity. Through the remainder of the IAMP study area, bicyclists must utilize the available roadway shoulders or share the vehicle travel lanes.

Bicycle lanes are also provided on a segment of Fern Ridge Road, east of Cascade Highway to Wildflower Drive.

#### **Pedestrian Facilities**

A sidewalk is provided on the east side of Cascade Highway from just north of Whitney Street continuing south through the City of Stayton. Throughout the remainder of the study area, pedestrians on Cascade Highway must utilize the available roadway shoulders.

Shaff Road-Fern Ridge Road and Whitney Street also have a sidewalk on the south side of the roadway, while Martin Drive has a sidewalk on the north side.

#### Public Transportation & Other Alternative Modes

Transit service in the Stayton/Sublimity area is provided by the Chempeta Area Regional Transit Service (CARTS) and the Wheels of Joy dial-a-ride system for disabled persons. Based on current and future ridership projections, neither would have a significant effect on area traffic patterns.

Laidlaw Transit provides bus service for the North Santiam School District. Within the study area, Cascade Highway and Shaff Road-Fern Ridge Road are designated as school bus routes.

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A Park-and-Ride facility with 94 stalls and semi-covered bicycle racks is located in the southeast quadrant of the Oregon 22/Cascade Highway interchange.

#### Rail/Pipelines/Others

Willamette Valley Railroad services the City of Stayton on a spur line originating in Woodburn. Two to three trips per week currently service the area. Two at-grade crossings, Washington Street at NORPAC and Locust Street/Wilco Road, are located south and west of the IAMP study area, respectively.

The City of Sublimity has no railroad service.

There are no airports in the direct vicinity of the study area. A full service commercial airport is located in Salem, approximately 15 miles to the east. Several small private airstrips and a heliport at the Santiam Hospital are within a 20 mile radius.

#### **Existing Facilities Deficiencies**

Deficiencies in the existing transportation network are outlined in the Marion County and City of Stayton Praft Transportation System Plans. These deficiencies are noted below:

Missing sidewalk links within the study area include:

- Shaff Road north side from Stayton Middle School to Cascade Highway
- Fern Ridge Road north side Cascade Highway to west of Summerview Way
- Cascade Highway west side from Oregon 22 to Shaff Road
- Cascade Highway east side from north of Whitney to Oregon 22

Arterials and Collectors with deficient pavement widths include:

- Shaff Road from western UGB to west of Cascade Highway
- Cascade Highway south of Oregon 22 Eastbound Ramps to Whitney Street

#### **Existing Traffic Conditions**

#### Traffic Operations Performance Measures

Operational performance measures are outlined below for the three jurisdictions within the study area: ODOT, City of Stayton and City of Sublimity.

#### ODOT

The intersections and approaches adjacent to the Oregon 22 interchange are under ODOT jurisdiction.

The Oregon Highway Plan outlines specific performance measures to be maintained along ODOT facilities as part of their Mobility Standards. These standards are intended to maintain mobility along important roadway sections and vary according to functional classification, location, and role within the National Highway System. Table 2-1 summarizes the mobility standards set by the Oregon Highway Plan.

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#### TABLE 2-1

			Land Use	Type/Speed Lin	nits	
		Insid	e Urban Growth Bour	Outside Urban ( Boundary		
Highway	STAs	MPO	Non-MPO outside of STAs where non-freeway speed limit <45 mph	Non-MPO where non freeway speed limit >=45 mph	Unincorporated Communities	Rural Lands
Interstate Highways and Statewide (NHS) Expressways	N/A	0.80	0.70	0.70	0.70	0.70
Statewide (NHS) Freight Routes	0.85	0.80	0.75	0.70	0.70	0.70
Statewide (NHS) Non- Freight Routes and Regional or District Expressways	0.90	0.85	0.80	0.75	0.75	0.70
Regional Highways	0.95	0.85	0.80	0.75	0.75	0.70
District/Local Interest Roads	0.95	0.90	0.85	0.80	0.80	0.75

Source: 1999 Oregon Highway Plan (OHP).

Interstates and Expressways shall not be identified as Special Transportation Areas (STAs). For the purpose of this mobility policy of volume-to-capacity ratio standards, the peak hour shall be the 30th highest annual hour. This approximates weekday peak hour traffic in larger urban areas.

- Oregon 22, North Santiam Highway is a Statewide Expressway and NHS Freight route, non-MPO within the UGB with a speed >45 mph. The maximum acceptable V/C ratio for this facility is 0.70.
- The interchange ramps with Oregon 22 at Cascade Highway have a maximum volume-٠ to-capacity ratio of 0.85 given their categorization as District/Local Interest Roads and Inside Urban Growth Boundary, non-MPO where non-freeway speed limit <45 mph.
- Cascade Highway at the interchange ramps with Oregon 22 have a maximum volume-٠ to-capacity ratio of 0.75 given its categorization as Regional Highway and Inside Urban Growth Boundary, non-MPO where non-freeway speed limit >=45 mph.

#### City of Stayton

The intersections south of the Oregon 22 interchange are within City of Stayton jurisdiction.

The City of Stayton TSP, Section 3 (Transportation Goals and Policies) establishes level of service standards for the City of Stayton as follows:

- Signalized Intersections Level-of-Service D
- Unsignalized Intersections Level-of-Service E ٠

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SUBLIMITY INTERCHANGE AREA MANAGEMENT PLAN

#### City of Sublimity

The intersections north of the Sublimity Interchange are within the City of Sublimity jurisdiction. Marion County mobility standards were applied to these intersections.

- Signalized Intersections Level-of-Service D
- 4-way Stop Controlled Intersections Level-of-Service D
- 2-way Stop Controlled Intersections Level-of-Service E

#### Existing Traffic Volumes

Manual turning movement counts were collected at eight intersections along Cascade Highway on February 3, 2005. The duration of each intersection count is shown below:

- Cascade Highway and 9th Street: 4 hours from 6 AM to 10 AM.
- Cascade Highway and Sublimity Boulevard: 16 hours from 6 AM to 10 PM.
- Cascade Highway and Oregon 22 Eastbound ramps: 16 hours from 6 AM to 10 PM.
- Cascade Highway and Oregon 22 Westbound ramps: 16 hours from 6 AM to 10 PM.
- Cascade Highway and Golf Lane: 4 hours from 6 AM to 10 AM.
- Cascade Highway and Whitney Street: 16 hours from 6 AM to 10 PM.
- Cascade Highway and Martin Drive: 4 hours from 6 AM to 10 AM.
- Cascade Highway and Shaff Road-Fern Ridge Road: 16 hours from 6 AM to 10 PM.

These intersections were included in the IAMP scope of work to represent the influence area of the Sublimity Interchange. In addition to these intersections, the Oregon 22 operations at the interchange entrance ramps were analyzed utilizing the ODOT highway traffic data. The vehicle turning movement data is compiled in Appendix C.

Peak hour turning movement counts were seasonally adjusted to represent the 30th Highest Hour design volumes based on ODOT's permanent Automatic Traffic Recorder (ATR) at station # 22-010, which is located on a segment of highway that closely resembles the traffic operations and geometric characteristics of Oregon 22.

The seasonal factor for volumes on Oregon 22 and Cascade Highway was interpolated from values between February 1 and February 15, 2003. The average seasonal factor was calculated to be 1.19.

The derived 30th Highest Hour design volumes were then balanced along Cascade Highway between adjacent study intersections. The directional traffic volumes were adjusted until the difference between them was less than 10 percent. The derived traffic volumes at the study intersections are shown in Figure 2-3.

#### **Existing Intersection Operations**

Existing (2005) V/C ratios, level-of-service and vehicle queues were computed for the eight study intersections and Oregon 22 entrance ramps based on the 30th Highest Hour design volumes. Table 2-2 shows the results of the existing operations analyses. All locations that do not meet the applicable jurisdiction's standards are highlighted in the table. Appendix D includes the traffic operations worksheets for the existing 30th highest hour conditions.

A Synchro model was constructed for the study area based on the collected traffic turning movement counts balanced to the 30th Highest Hour design volumes, peak hour factors, truck percentages and field observations.

The Synchro model uses the methodology in the 2000 Highway Capacity Manual to analyze both signalized and stop-controlled intersections. The model also computes the level-of-service (LOS) and volume-to-capacity (V/C) ratio necessary to determine whether the intersection meets the applicable mobility standards from the local municipalities and the Oregon Highway Plan.

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Intersection	Mobility Standard <sup>1</sup>	V/C Ratio <sup>2</sup>	LOS <sup>2</sup>	Queue (veh) <sup>2,3</sup>	Mobility Standard <sup>1</sup>	V/C Ratio <sup>2</sup>	LOS <sup>2</sup>	Queue (veh) <sup>2,3</sup>
	Oreg	jon 22 Ap	proache	s	Ramp Approaches			
Oregon 22 eastbound entrance ramp	0.70	0.30	-	-	0.85	0.40		42
Oregon 22 westbound entrance ramp	0.70	0.41	-	` _	0.85	0.74	-	<sup>8</sup> /3
	Cascade	Highway	y Approa	ches	Cros	s Street A	pproach	es
Cascade Highway at 9th Street	Ę	-	А	1	Е		В	1/4
Cascade Highway at Sublimity Boulevard/ Oregon 22 westbound ramps	0.76	0.04	-	1	0.85	0.57	-	3 6
Cascade Highway at Oregon 22 westbound entrance ramp	0.75	0.46	-	-	-	-	-	-
Cascade Highway at Oregon 22 eastbound ramps	0.7/8	0.30	-	2	0.85	>1.0	-	<sup>15</sup> 7
Cascade Highway at Golf Lane	E	-	А	1	E	_	D	<sup>‡</sup> /9
Cascade Highway at Whitney Street	E	-	В	2	E	-	F	19 10
Cascade Highway at Martin Drive	-	-	-	-	E		В	1/11
Cascade Highway at Shaff Road-Fern Ridge Road	D	-	E	31	D	-	D	<del>1</del> 7

#### TABLE 2-2

Existing Intersection Analysis Summary 2005 30th Highest Hour Design Volumes

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Comments from page 31 continued on next page

A Synchro model was constructed for the study area based on the collected traffic turning movement counts balanced to the 30th Highest Hour design volumes, peak hour factors, truck percentages and field observations.

The Synchro model uses the methodology in the 2000 Highway Capacity Manual to analyze both signalized and stop-controlled intersections. The model also computes the level-of-service (LOS) and volume-to-capacity (V/C) ratio necessary to determine whether the intersection meets the applicable mobility standards from the local municipalities and the Oregon Highway Plan.

Intersection	Mobility Standard <sup>1</sup>	V/C Ratio <sup>2</sup>	LOS <sup>2</sup>	Queue (veh) <sup>2,3</sup>	Mobility Standard <sup>1</sup>	V/C Ratio <sup>2</sup>	LOS <sup>2</sup>	Queue (veh) <sup>2,3</sup>
	Oreg	jon 22 Ap	S	Ramp Approaches				
Oregon 22 eastbound entrance ramp	0.70	0.30	-	-	0.85	0.40	-	4 <sub>1</sub>
Oregon 22 westbound entrance ramp	0.70	0.41	-	-	0.85	0.74	-	<sup>8</sup> λ
	Cascade	Highway	/ Approa	ches	Cros	s Street A	pproach	es
Cascade Highway at 9th Street	E	-	A	1	E	-	В	4,
Cascade Highway at Sublimity Boulevard/ Oregon 22 westbound ramps	0.75	0.04	-	1	0.85	0.57	-	eγ.
Cascade Highway at Oregon 22 westbound entrance ramp	0.75	0.46	-	-	-	-	-	-
Cascade Highway at Oregon 22 eastbound ramps	0.75	0.30	-	2	0.85	>1.0	-	<del>1</del> 5
Cascade Highway at Golf Lane	E	-	A	1	E	-	D	ťλ
Cascade Highway at Whitney Street	E	-	В	2	E	-	F	<del>1</del> 9,
Cascade Highway at Martin Drive	-	-	-	-	E	•	В	٦ ۸
Cascade Highway at Shaff Road-Fern Ridge Road	D	-	E	31	D	-	D	<sup>17</sup> (12

#### TABLE 2-2

Existing Intersection Analysis Summary 2005 20th Highest Hour Design Volumes

2005 30th Highest Hour Design Volumes

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SUBLIMITY INTERCHANGE AREA MANAGEMENT PLAN

# TABLE 2-2Existing Intersection Analysis Summary2005 30th Highest Hour Design Volumes

Intersection	Mobility Standard <sup>1</sup>	V/C Ratio <sup>2</sup>	LOS <sup>2</sup>	Queue (veh) <sup>2,3</sup>	Mobility Standard <sup>1</sup>	V/C Ratio <sup>2</sup>	Queue (veh) <sup>2,3</sup>
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<sup>3</sup> ODOT mobility standards are based on volume-to-capacity ratios. Stayton and Sublimity standards are based on level of service.

<sup>2</sup> Results are reported for approach with worst operational characteristics.

<sup>3</sup> ODOT intersections are calculated with the 2-minute rule. Stayton and Sublimity intersections show 95th percentile queues.

#### **Existing Operational Deficiencies**

The results of the existing operational analyses show that two stop-controlled intersection approaches to Cascade Highway, the Oregon 22 eastbound exit ramp and Whitney Street, operate below the required mobility standards. Both approaches are characterized by extensive vehicle queuing during the design hour. Additionally, although the overall intersection LOS of Cascade Highway at Shaff Road/Fern Ridge Road is at an acceptable LOS D, the Cascade Highway approaches operate at LOS E, with significant vehicle queuing.

#### **Existing Safety Conditions**

#### **Accident and Safety Analysis**

A summary of the accidents within the study area was prepared for the period between January 1, 1999 and December 31, 2003.

Table 2-3 summarizes the accidents along Oregon 22 between mileposts 12.00 and 14.50. For reference, the approximate locations of the existing Oregon 22 entrance and exit ramps are as follows:

- Eastbound Exit ramp MP 13.0
- Eastbound Entrance ramp MP 13.2
- Westbound Exit ramp MP 13.4
- Westbound Entrance ramp MP 13.5
- Fern Ridge Road intersection MP 14.3

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#### TABLE 2-3

Five-Year Accident History: January 1, 1999 through December 31, 2003 Oregon 22 Mainline Crash Rates and Severity of Accidents

Mile	post		1999-2003		er of Accid ver 5 Years				Average Annual
From	То	Segment Features	Average Annual Daily Traffic (AADT)	Property Damage Only	Damage		Total Crashes	Average Annual	Crash Rate (Crashes per Million Vehicle- Miles)
12.00	12.50	mainline section west of Sublimity Interchange	12, <b>120</b>	1	2	0	3	0.60	0.27
12.50	13.00	Eastbound exit ramp	11,880	1	0	1	2	0.40	0.18
13.00	13.50	Eastbound entrance ramp & westbound exit ramp	11,880	8	9	2	19	3.80	1.75
13.50	14.00	westbound entrance ramp	11,880	4	2	0	6	1.20	0.55
14.00	14.50	Fern Ridge Road intersection	11,060	3	8	0	11	2.20	1.09
12.00	14.50	•	11,764	17	21	3	41	8.20	0.76

A total of 41 crashes were reported along Oregon 22 between milepost 12.00 and 14.50 during the five year study period. Approximately half of the crashes occurred in the direct vicinity of the Sublimity Interchange and slightly over one-fourth occurred at the Fern Ridge Road intersection. Three fatality accidents occurred within the interchange vicinity during the study timeframe. The remainder of the accidents was roughly evenly split between property damage only and injury only.

The 2003 Crash Rates by Jurisdiction and Functional Classification table from the ODOT 2003 Crash Rate Tables indicates an average crash rate for "other freeways/expressways" as 0.87 crashes per million vehicle-miles. The half-mile segments immediately surrounding the Sublimity Interchange (between mileposts 13.00 and 13.50) and the Fern Ridge Road intersection (between mileposts 14.00 and 14.50) experience a higher than average crash rate (1.09.). However, the rate for the overall Oregon 22 area surrounding the Sublimity Interchange (0.76) remains below this average rate.

Tables 2-4 and 2-5 provide details of the conditions during the accidents as well as the type and severity.

#### SUBLIMITY INTERCHANGE AREA MANAGEMENT PLAN

TABLE 2-4Five-Year Accident History: January 1, 1999 through December 31, 2003Oregon 22 Crash Conditions

	Oregon 2	2 Mainline	
Condition	Number of Accidents	Percentage of Total	
Weather			
Clear	28	68.3%	
Cloudy	7	17.1%	
Rain	4	9.8%	
Snow	0	0.0%	
Unknown	2	4.9%	
Roadway Surface			
Dry	34	82.9%	
Wet	5	12.2%	
Ice	0	0.0%	
Snow	0	0.0%	
Unknown	2	4.9%	
Light	· · · · · · · · · · · · · · · · · · ·		
Day	28	68.3%	
Dimly Lit	3	7.3%	
Dark	6	14.6%	
Dusk	3	7.3%	
Dawn	1	2.4%	

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## TABLE 2-5 Five-Year Accident History: January 1, 1999 through December 31, 2003

Oregon 22 Crash Descriptions

	Oregon 22	Oregon 22 Mainline					
Condition	Number of Accidents	Percentage of Total					
Collision Type							
Rear End	12	29.3%					
Turning	6	14.6%					
Fixed Object	8	19.5%					
Sideswipe	3	7.3%					
Struck at Angle	3	7.3%					
Pedestrian	1	2.4%					
Head On	3	7.3%					
Other	5	12.2%					
Severity							
PDO	17	41.5%					
Injury 194y	21	51.2%					
Fatality	3	7.3%					
Crash Cause							
Failed to yield right-of-way	8	19.5%					
Other - improper driving	1	2.4%					
Speed too fast for conditions	18	43.9%					
Followed too closely	5	12.2%					
Made improper turn	2	4.9%					
Alcohol or drugs involved	2	4.9%					
Mechanical defect	1	2.4%					
Drove on Wrong Side of 2- Way Rd	1	2.4%					
No Code	3	7.3%					

The majority of the accidents on Oregon 22 occurred during clear, dry, daylight conditions. A factor in many of the accidents involved speeding and failure to appropriately yield. The stop-controlled entrance ramp configuration is likely a large contributing factor to these accidents, as vehicles enter the highway from a complete stop.

1. .... Sequence number: 1 Author: hwym22n Subject: Cross-Out Date: 3/27/2006 7:18:51 AM

#### SUBLIMITY INTERCHANGE AREA MANAGEMENT PLAN

Table 2-6 summarizes the accidents along Cascade Highway between milepoints 0.61 and 1.59. Marion County utilizes milepoints to represent distances on county roads; therefore, each 0.01 milepoint is approximately 50 feet. For reference, the approximate milepoint locations of intersections along Cascade Highway are listed below:

- Shaff Road/Fern Ridge Road Milepoint 0.61
- Eastbound Entrance/Exit ramp Milepoint 1.09
- Sublimity Blvd Milepoint 1.20
- 9th Street Milepoint 1.59

#### TABLE 2-6

Five-Year Accident History: January 1, 1999 through December 31, 2003 Cascade Highway Mainline Crash Rates and Severity of Accidents

Mile	post		1999-2003		Number of Accidents (Over 5 Years)				Average Annua Crash Rate		
From	То	- Segment Features	Average Annual Daily Traffic (AADT)	Property Damage Only Injury Fatal		Damage		9		Average Annuai	(Crashes per Million Vehicle- Miles)
0.60	0.85	Shaff Road/ Fern Ridge Road	12,020	7	3	0	10	2.00	1.82		
0.85	1.10	Eastbound entrance/ex it ramp	11,780	2	1	0	3	0.60	0.56		
1.10	1.35	Sublimity Blvd/westb ound ramps	9,310	10	6	0	16	3.20	3.77		
1.35	1.60	9th Street	7,920	2	2	0	4	0.80	1.11		
0.60	1.60	-	10,260	21	12	0	33	6.60	1.76		

A total of 33 crashes were reported along Cascade Highway between Shaff Road/Fern Ridge Road and 9th Street during the five year study period. Half of the accidents occurred near the intersection of Cascade Highway and Sublimity Boulevard/Oregon 22 Westbound exit ramp, and just under one-third of the total accidents occurred in the vicinity of the Shaff Road/Fern Ridge Road intersection. No fatality accidents occurred along the one mile study corridor within the study timeframe. Of the 33 crashes, approximately two thirds resulted in property damage only while the remaining one third resulted in injuries.

Cascade Highway north of Oregon 22 is categorized as an arterial. The average crash rate for Suburban Non-Freeway Arterials is 0.60 crashes per million vehicle-miles. Both quartermile segments north of the interchange experience accidents at a rate higher than average 2003 Oregon crash rates. The segment immediately north of the interchange (including the intersection with Sublimity Boulevard/Oregon 22 Westbound exit ramp) is over five times as great as this average. Cascade Highway south of Oregon 22 is categorized as a principal arterial. The average crash rate for this type of segment is 1.34 crashes per million vehicle-miles. The quarter-mile segment that includes the intersection of Shaff Road/Fern Ridge

2-14

Road experiences a higher than average crash rate, but overall, the southern portion of Cascade Highway remains below the average rate.

Tables 2-7 and 2-8 provide details of the conditions during the accidents as well as the type and severity of accidents along Cascade Highway.

TABLE 2-7Five-Year Accident History: January 1, 1999 through December 31, 2003Cascade Highway Crash Conditions

	Cascade	Hwy Mainline
Condition	Number of Accidents	Percentage of Total
Weather		
Çlear	22	66.7%
Cloudy	6	18.2%
Rain	3	9.1%
Snow	0	0.0%
Unknown	2	6.1%
Roadway Surface		
Đry	27	81.8%
Wet	6	18.2%
Ice	0	0.0%
Snow	0	0.0%
Unknown	0	0.0%
Light		
Day	31	93.9%
Dimly Lit	1	3.0%
Dark	1	3.0%
Dusk	0	0.0%
Dawn	0	0.0%

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#### SUBLIMITY INTERCHANGE AREA MANAGEMENT PLAN

TABLE 2-8Five-Year Accident History: January 1, 1999 through December 31, 2003Cascade Highway Crash Descriptions

	Cascad	e Hwy Mainline
Condition	Number of Accidents	Number of Accidents
Collision Type		
Rear End	17	51.5%
Turning	8	24.2%
Fixed Object	0	0.0%
Sideswipe	1	3.0%
Struck at Angle	6	18.2%
Pedestrian	0	0.0%
Head On	1	3.0%
Other	0	0.0%
Severity		
Property damage only	21	63.6%
Injury 1hiy	12	36.4%
Fatality	0	0.0%
Crash Cause	*** · · ·	
Failed to yield right-of-way	13	39.4%
Other - improper driving	Ó	0.0%
Speed too fast for conditions	15	45.5%
Followed too closely	4	12.1%
Made improper turn	0	0.0%
Alcohol or drugs involved	0	0.0%
Mechanical defect	1	3.0%
Drove on Wrong Side of 2- Way Rd	0	0.0%
No Code	0	0.0%

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Sequence number: 1 Author: hwym22n Subject: Cross-Out Date: 3/27/2006 7:19:19 AM Similar to Oregon 22, the majority of the accidents on Cascade Highway occurred during clear, dry, daylight conditions. Over half of the accidents on Cascade Highway involved rear end collisions. Speed and failure to yield to the right-of-way were factors in almost eighty-five percent of the accidents.

Access management requirements and deficiencies for the Sublimity Interchange are described in Section 4 of this report.

#### **Natural and Cultural Resources**

The Sublimity IAMP study area contains land from three local jurisdictions: Marion County, the City of Sublimity, and the City of Stayton. Project improvements could therefore, potentially trigger environmental protection regulations of any or all of these jurisdictions, as well as State and Federal regulations. This section examines the existence of natural and cultural resources in the study area and related potential project constraints presented.

The existence of any Goal 5 resources are addressed in this section. Goal 5 is a broad Oregon statewide planning goal that covers a variety of environmental and other resources. Goal 5 and related Oregon Administrative Rules (Chapter 660, divisions 16 and 23) describe how cities and counties are to plan and zone land to conserve resources listed in the goal.

#### Topography

The topography of the study area contains both flat and low rolling terrain. The main feature of the landscape is Mill Creek, which runs primarily east-west through the study area. Low ridges step up from the flatlands adjacent to the creek. Topography in the immediate vicinity of the Sublimity Interchange is described by quadrant below.

#### NE Quadrant of Interchange

From the point where it passes under Oregon 22 northward, Cascade Highway SE ascends approximately 50 feet in less than a quarter-mile, dips slightly, then rises again as it intersects with 9<sup>th</sup> Street in Sublimity.

#### SE Quadrant of Interchange

The southeast quadrant of the interchange contains the flat floodplain and wetland area adjacent to Mill Creek. A subdivision with new homes on fill materials is located in the floodplain depression. Moving southward toward the center of Stayton, a low ridge exists with an elevation gain of approximately 50 feet.

#### SW Quadrant of Interchange

The ridge that described in the NE Quadrant is present to the southwest of the interchange and presents a relatively steep grade. The existing two-way highway interchange ramp in this quadrant cuts through this ridge, with a resulting slight hill to the north of the ramp and a steeper hill to the south of the ramp.

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#### NW Quadrant Interchange

The terrain to the northwest of the intersection of Oregon 22 and Cascade Highway SE rises approximately 30-40 feet. Sublimity Boulevard SE drops from this ridge to its intersection with Cascade Highway SE.

#### Project Relevant Issues

 The northbound grade on Cascade Highway SE and adjacent ridges present sightdistance issues for motorists at the two-way highway ramp intersections as well as the intersections of Sublimity Boulevard and Golf Lane. Closely-spaced slope changes have an adverse effect on safety in the interchange area. Interchange rehabilitation efforts will require more earthwork during construction and may require additional stabilization, which will have budget and schedule implications.

#### Hydrology

The project study area lies within the Willamette River Subbasin, in the Middle Willamette Subbasin, in the Mill Creek Watershed. Mill Creek, after passing through the study area, flows northwestward to its convergence with the Willamette River in the City of Salem. Within the study area for this IAMP, Mill Creek runs south of Oregon 22 from the west end of the study area. The creek passes through a culvert under Cascade Highway SE just south of Golf Lane and then traverses under Oregon 22 approximately a quarter-mile east of Cascade Highway.

#### Project Relevant Issues

 There are hydrologic features contained in the study area that are classified as Goal 5 Resources (as defined in Oregon Administrative Rules Division 23). Sublimity IAMP actions may be subject to State and/or local regulations that are in place to protect Goal 5 resources, as will be discussed in greater detail in the next section.

#### **Riparian Corridors**

The Mill Creek riparian corridor located inside the study area includes the perennially flowing Mill Creek, several intermittent streams, and a wetland area measuring just over one acre.

The section of Mill Creek running through the study area is included on the Department of Environmental Quality's (DEQ's) 303(d) list of water quality-limited streams. The DEQ 2003 303(d) list identifies the section of Mill Creek in the study area as water quality limited for Fecal Coliform.

According to the Oregon Department of Fish and Wildlife, the study area section of Mill Creek is spawning and rearing habitat for winter steelhead and fall Chinook, and is rearing and migration habitat for spring Chinook.

#### Project Relevant Issues

 Sublimity IAMP actions are subject to State Department of Land Conservation and Development (DLCD) Goal 5 ordinance regulations concerning land use actions inside the Mill Creek riparian corridor. Proposed Sublimity IAMP use actions are allowed in riparian corridors [per OAR 660-023-0090(8)(a)], provided that these actions "are designed and constructed to minimize intrusion into the riparian area."

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## PUBLIC HEARING MINUTES

### STAYTON PLANNING COMMISSION MEETING MINUTES MONDAY, FEBRUARY 27, 2006

#### CALL TO ORDER

### Vice-Chair Brandt

COMMISSIONERS:Carol Tower-Chairperson-Excused Karen Odenthal<br/>John BrandtJudy Snider-ExcusedRalph LewisMichelle Wonderling

### COUNCIL LIAISON: Don Koenig-Excused

STAFF MEMBERS: Steve Goeckritz, Interim City Planner Allison Thayer, Assistant Planner Mike Faught, Public Works Director

### 1. COMMISSION BUSINESS

### a. Sublimity Interchange Area Management Plan discussion

Mr. Faught gave a brief presentation of the proposed changes to the Highway 22/Cascade Highway interchange. He gave some of the history of the project, the \$12.5 million from the state and the two phases of construction. Mr. Faught explained how the various jurisdictions involved were able to come to agreement on this interchange improvement. Mr. Faught explained the purpose of an area management plan is to protect the interchange from surrounding development so that it does not become obsolete as soon as it is completed.

The Commission inquired about the effects on traffic that construction would have. Mr. Faught responded that it would likely shift traffic onto Golf Club Road. The Commission inquired about the status of the proposed traffic signals on Cascade Highway that are to go in "when warranted." Mr. Faught indicated that the City would be negotiating with the state to try and get those lights as soon as possible.

The Commission asked for additional maps from the IAMP document to be included with the report. They inquired about the phases of construction and what was needed from them for adoption of the IAMP.

### b. Phase IV-Questionnaire discussion

The Commission requested a brief discussion of the issues raised in the questionnaire handed out on 1/30/06 regarding the development of design standards. They began by discussing multi-family design standards.

Page 1 of 2

The first question was should the number of units in one building be limited control the bulk of buildings. The Commission discussed the merits of limiting the number of units. Limiting lot coverage was also discussed. The addition of amenities and architectural features to larger multi-family complexes versus smaller complexes was discussed. One suggestion made by the Commission was to provide guidelines based on the number of units in a development; increasing the required number of amenities and architectural features for larger developments.

The Commission listed blank walls, cinder block, or long blank roofs as features to be controlled. The Commission was not inclined to develop guidelines that prohibit or proscribe a specific architectural style. The main concern was preventing unsightly or inappropriate development. The Commission agreed to the importance of height transitions for tall developments and adjoining neighborhoods. They also agreed there was a need for lighting standards.

Looking at design standards for commercial development, the Commission had a lengthy discussion over the merits of placing commercial buildings close to the street; the benefits of pedestrian friendly environments versus safety in visible parking areas. There was agreement that parking lots needed more landscaping and pedestrian amenities, long blank walls should be prevented and sidewalks should be provided.

### c. Phase III-Changes (revisited)

Mr. Goeckritz gave the Commission an update on the status of Phase III. There were several new developments relating to parking issues in the last few weeks. Because of issues raised regarding inadequate parking and queuing areas for drive-thrus, staff did additional research on parking standards. There are additional proposed changes for the parking section of Title 17 that will be brought to the next meeting in a discussion paper.

### ADJOURN

Carol Tower, Planning Commission Chairperson

27/06. Date

ATTEST

Steve Goeckritz, City Planner

3/28/06

Page 2 of 2

### STAYTON PLANNING COMMISSION MEETING MINUTES MONDAY, MARCH 27, 2006

### CALL TO ORDER

### **Chairperson Tower**

COMMISSIONERS: Carol Tower-Chairperson John Brandt Ralph Lewis Karen Odenthal Judy Snider Michelle Wonderling

COUNCIL LIAISON: Don Koenig

STAFF MEMBERS: Steve Goeckritz, Interim City Planner Allison Thayer, Assistant Planner Mike Faught, Public Works Director

1. APPROVAL OF MINUTES:

Motion: Commissioner Odenthal moved the minutes for March 13, 22006 be approved as written. Commissioner Lewis seconded. Motion passed: Unanimously.

- 2. PUBLIC HEARING, Sublimity Interchange Area Management Plan (IAMP)
  - a. Public Hearing: Land Use File #02-01/06
  - b. Declaration of Ex Parte Contact: None
  - c. Declaration of Conflict of Interest: None
  - d. Staff Report: Mr. Goeckritz began by entering Land Use File #02-01/06 and the Sublimity Interchange Area Management Plan with Appendices into the record in their entirety. Mr. Goeckritz then gave a brief summary of the staff report. He explained that the Commission would be sending a recommendation to the City Council for amendment of the Comprehensive Plan and Transportation System Plan. These amendments are to support the IAMP which the Commission will also recommend to the City Council. Mr. Goeckritz then gave a summary of the proposed changes to the Comprehensive Plan goals.

Mr. Faught then presented additional information about the IAMP regarding the timelines for completion of the project and the status of the funding for the process. Mr. Faught began by presenting the history of the Interchange project. The project is broken down into two phases. Currently funding has been obtained for Phase I and there are tentative funds for Phase II. Phase I includes a new westbound on/off ramp, a new bridge over Cascade Hwy., a new eastbound on ramp and a realignment of intersections. The intent of the IAMP is to protect the life span of the project so that it will fill the needs for the next 20 years by controlling the development around the interchange that would cause the interchange to fail. A member of the audience asked what "fail" means in this context. Mr. Faught explained

Page 1 of 5

that "fail" means that a transportation system doesn't carry traffic safely or efficiently. Phase II of the Interchange project will construct a new bridge at Mill Creek and extend four lanes to just past Mill Creek. The reason for the IAMP is to protect the access to the interchange by limiting the access points on Cascade Highway.

- e. Proponents' Testimony: None
- f. Opponent's Testimony: None
- **g.** Governmental Agencies: Dan Fricke, Senior Transportation Planner with the Oregon Department of Transportation Region 2 Office. 455 Airport Rd SE, Salem. Mr. Fricke began by thanking staff and Mayor Aboud for all the work they have done on the project. Mr. Fricke stated that he was present to support the project and answer any questions.
- h. General Testimony: None
- i. Questions from the Public: None
- **j.** Questions from Commission: Commission Snider asked a question about the realignment of the Golf Club Lane intersection, how would it be designed. Mr. Faught explained that the specific design of that realignment had not been determined and that specific element would not be completed with the main part of the Interchange project but at such time as all the warrants were met for realignment of the intersection. Commissioner Snider then asked about the signal at Whitney and Cascade Hwy. Mr. Faught explained that three legs of that signal are scheduled to be installed this fall as a City project, because the warrants have been met.

Commissioner Snider then asked about the signal at the eastbound entrance ramp. Mr. Faught explained that the state traffic engineers determined that the signal was not warranted at this time, but would be installed in the future when the signal meets warrants. The City of Sublimity is looking at that signal, but it will have to meet engineering warrants before it can be installed. Commissioner Odenthal asked if those two signals are installed later, who pays the cost? Mr. Fricke stated that it will probably be a shared cost. He also indicated that the issues of the signals are not finalized until the final warrant analysis comes in. Commissioner Odenthal asked how much a signal costs. Mr. Faught stated they were \$250,000 to \$300,000. Mr. Faught stated he would be recommending, when the project entered the design phase, that as a minimum the conduit for these signals be laid.

Commissioner Brandt asked if the existing bike and pedestrian trails will be preserved. Mr. Faught indicated that issue will be pursued when the project enters design phase. Mr. Fricke indicated that it is intended to accommodate five lanes (on Cascade Hwy) and bike and pedestrian facilities. Commissioner Snider asked if the drainage issues, in the area under the bridge will be addressed. Mr. Faught stated that some of the issues had already been addressed by the county but that additional measures would be incorporated in the design. A member of the audience asked if any provisions would be made to have casings for a water extension (or other utilities) to Sublimity. Mr. Faught indicated that was a conversation that would happen jointly with Sublimity sometime in the future.

Page 2 of 5

**k.** Staff Summary: Mr. Goeckritz stated that staff recommend the Planning Commission recommend the City Council adopt the IAMP, with amendments of the Comprehensive Plan and the Transportation System Plan

### I. Close the Hearing:

- **m.** Commission Deliberation: Commissioner Odenthal stated that a new interchange was needed and this was the first step to achieving that. Commissioner Wonderling stated there were no real problems with the issues. Commissioner Brandt stated that for him it was primarily a safety issue at that intersection, and this was a good thing.
- **n.** Commission Decision: Commissioner Odenthal moved to approve the order and Commissioner Snider seconded.

Motion Passed: Unanimously.

- 3. PUBLIC HEARING, Mill Creek Dental, Site Plan Review
  - a. Public Hearing: Land Use File #03-02/06
  - b. Declaration of Ex Parte Contact: None
  - c. Declaration of Conflict of Interest: None
  - d. Staff Report: Mr. Goeckritz began by entering Land Use File #03-02/06 into the record in its entirety. Mr. Goeckritz then gave a brief summary of the staff report. Mr. Goeckritz explained the need for a lot line dissolvement, the shared parking agreement and realignment of the driveway accesses with the Library, the architectural design elements, and the relocation of the main sign. Mr. Goeckritz then explained how the right-of-way dedication condition of approval mistakenly was left out of the staff report.

Mr. Faught then provided additional explanation of the right-of-way (ROW) dedication requirement. Public Works is requiring a 15 ft ROW dedication. Most of the streets in the City are 60 ft ROW. This dedication of 15 ft is to meet the minimum 60 ft ROW on 1<sup>st</sup> Ave. Any new development is required to make this type of dedication if additional ROW is needed. In addition, there is a special 50 ft setback off the centerline of 1<sup>st</sup> Avenue. The additional ROW does shift the centerline of 1<sup>st</sup> Ave that impacts the setbacks on the property.

Mr. Faught also spoke about the realignment of the driveways. The adopted TSP requires restricted access on major roads. He is pleased with the realignment because it both eliminates driveways, and realigns that driveway to match Marion Street which will improve the pedestrian crossing. This is a good first step in reducing accesses on 1<sup>st</sup> Ave.

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e. Applicant's Testimony: Dr. Tim Burns, 521 1<sup>st</sup> Ave, Stayton. Dr. Burns stated he has a letter from the City of Salem stating the construction easement (that would go underneath the building) will be abandoned. Regarding the parking, the City has estimated 15 parking spaces based on floor area and six employees. He only has four employees and they had to count floor area only used as storage. Dr. Burns spoke about having to give up 15 ft for ROW.

Commissioner Brandt asked if Dr. Burns anticipated part of his parking would be provided by the library. Dr. Burns indicated that it was part of the shared parking agreement.

Mr. John Seaders (applicant's engineer) MSS Inc. Salem, OR. Mr. Seaders addressed the ROW issue and the need to move the building. They are able to move the building and meet the 50 ft setback, by adding a one-hour firewall on the back wall. Mr. Seaders also spoke about the requirement for 15 parking spaces. Mr. Seaders also noted that Dr. Burns is relinquishing three entrances on 1<sup>st</sup> Ave to comply with the TSP. Consolidating the two lots will not be a problem, and moving the sign is not a problem.

- f. Proponents' Testimony: None
- g. Opponent's Testimony: None
- h. Governmental Agencies: None
- i. General Testimony: None
- **j.** Questions from the Public: (Sublimity)Where is the new sewer line for the Library going to go? Mr. Faught indicated that this subject had been addressed in discussions about the Library expansion.
- **k.** Questions from Commission: Commissioner Snider asked to clarify that the three additional conditions of approval will be added as Public Works conditions 1 f, g, and h. Mr. Goeckritz indicated that they were.

Commissioner Brandt asked why that ROW requirement was there. Mr. Faught responded that the ROW dedication occurs whenever there is a land use action because the City has found, historically, the full 60 ft ROW wasn't dedicated at the previous land use action. Any time there is building permit or a land use action a dedication to reach 60 ft ROW is required. City streets all have a minimum of 60 ft ROW. Commissioner Brandt clarified that this requirement is not anything that any other applicant would be required to give. Mr. Faught concurred. Commissioner Odenthal asked if the ROW dedication would change the look of the building. Mr. Faught stated it was. Commissioner Odenthal asked the applicant if he was satisfied with the ROW condition, or is a continuance of the hearing needed? The applicant stated that he can meet that requirement.

Commissioner Brandt asked if the County was going to approve the pedestrian crossing [at the Library and Marion]. Mr. Faught indicated that the Library and Dr. Burns worked this out between them. This is an unsafe intersection for both pedestrians and cars and the realignment of the driveway will improve that significantly. There won't be a crosswalk.

Page 4 of 5

Commissioner Brandt then asked if this project would increase the number of parking spaces for the Library. Mr. Faught explained that the joint parking agreement would allow either party to use the parking on both properties. Mr. Goeckritz added that on the issue of the number of parking spaces, that staff was both limited on how they can calculate the parking and because staff prefers to err on the side of caution.

Commissioner Lewis asked if the Christmas tree would be impacted. Mr. Faught indicated that the tree would be able to stay but some of the roses would have to be taken out.

- I. Applicant Summary: None.
- **m. Staff Summary:** Mr. Goeckritz stated that staff was recommending approval with the three additional conditions of approval.
- n. Close the Hearing:
- Commission Deliberation: Commissioner Odenthal stated that it was a nice design. Commissioner Wonderling said it was a good design for both pedestrians and drivers. Commissioner Lewis said it was a nice addition to 1<sup>st</sup> Ave.
- **p.** Commission Decision: Commissioner Snider moved to approve the order with the three additional conditions of approval. Commissioner Brandt seconded.

Motion Passed: Unanimously.

### **ADJOURN**

Carol Tower, Planning Commission Chairperson

Date

Date

ATTEST

Steve Goeckritz, City Planner

Page 5 of 5

# NOTICE OF PUBLIC HEARINGS

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## **City of Stayton**

Administration • Finance 362 N. Third Avenue • Stayton, OR 97383 Phone: (503) 769-3425 • Fax: (503) 769-1456

### NOTICE OF PUBLIC HEARINGS before the STAYTON PLANNING COMMISSION and the STAYTON CITY COUNCIL

HEARING: Public hearings will be held before the Stayton Planning Commission, Monday, March 27, 2006, 2006 at 7:00 pm. A second public hearing will be held before the Stayton City Council, Monday, April 17, 2006 The meeting will be held at the Stayton Community Center, 400 W. Virginia Street, Stayton, for the purpose of hearing testimony and rendering a decision regarding the following issue:

LAND USE FILE #020-01/06 – Application for Comprehensive Plan Amendment, Transportation Plan Amendment and adoption of the Sublimity Interchange Area Management Plan for the new Highway 22/Cascade Highway Interchange

### APPLICANT: City of Stayton

**DECISION CRITERIA**: Statewide Planning Goals, 1999 Oregon Highway Plan, City of Stayton Transportation System Plan, Marion County Zoning

The application, evidence, decision criteria, and staff reports will be available for public inspection seven days prior to the hearing at the City of Stayton Planning Department, 311 N. Third Avenue, Stayton. Copies of all relevant documents are available at reasonable cost to any interested citizen.

The public hearing will be conducted in accordance with the city's land use rules of procedure. Anyone wishing to provide testimony may do so in person or by authorized representative at the public hearing. Written comments will be received at the City of Stayton Planning Department until 5:00 p.m. on the day of the public hearing, or they may be filed with Planning Staff at the hearing. If you wish to have your comments included in the staff report, please submit to Planning Staff by March 17<sup>th</sup> before the scheduled public hearing.

The city should be notified of testimony prior to the hearing. Failure to raise an issue in person or by letter to the city precludes appeal, and failure to identify the specific criterion to which the comment is directed precludes an appeal based on that criterion.

Questions regarding the above matter should be directed by phone or letter to Steve Goeckritz, City Planner, 362 N. Third Avenue, Stayton, Oregon 97383, (503) 769-2998.

The meeting location is accessible to persons with disabilities. A request for an interpreter for the hearing impaired or for other accommodations for persons with disabilities should be made at least 48 hours prior to the meeting. If you require special accommodations, please contact planning staff at (503) 769-2998.

*Police* 386 N. Third Avenue Stayton, OR 97383 Phone: (503) 769-3423 Fax: (503) 769-7497 *Planning* 311 N. Third Avenue Stayton, OR 97383 Phone: (503) 769-2998 Fax: (503) 767-2134 *Public Works* 311 N. Third Avenue Stayton, OR 97383 Phone: (503) 769-2919 Fax: (503) 767-2134 Wastewater Facilities 950 Jetters Way Stayton, OR 97383 Phone: (503) 769-2810 Fax: (503) 769-7413 *Public Library* 515 N, First Avenue Stayton, OR 97383 Phone: (503) 769-3313 Fax: (503) 769-3218



On Monday, March 27, 2006 at 7:00 pm the Stayton Planning Commission will be holding a public hearing. On Monday, April 17 at 7:00 pm the Stayton City Council will be holding a subsequent public hearing. The meetings will both be held at the Stayton Community Center, 400 W Virginia St for the purpose of hearing testimony and rendering a decision regarding the following issue:

LAND USE FILE #02-01-06: Adoption of the Sublimity Interchange Area Management Plan

### **ISSUE:**

The City of Stayton and the City of Sublimity have been pursuing State of Oregon Transportation funds to reconstruct the Highway 22/Cascade Highway Interchange (Sublimity Interchange) for several years. Many other communities competed for the State of Oregon's limited transportation funds so funding for the Sublimity Interchange required support from several local agencies. As a result, the State of Oregon, to date, has allocated \$12.5 million to the first phase of the project (see attached map). Construction of the first phase is anticipated to begin in 2007.

The Sublimity Interchange Project will construct a new bridge on Highway 22 at Cascade Highway and Mill Creek, new westbound on- and off- ramps that align with Sublimity Blvd., a new eastbound on-ramp, and may include an new eastbound off-ramp if sufficient funds are available. The second phase of the project (approximately \$4 million) will construct two new travel lanes on Highway 22 from Golf Club Road east to Mill Creek.

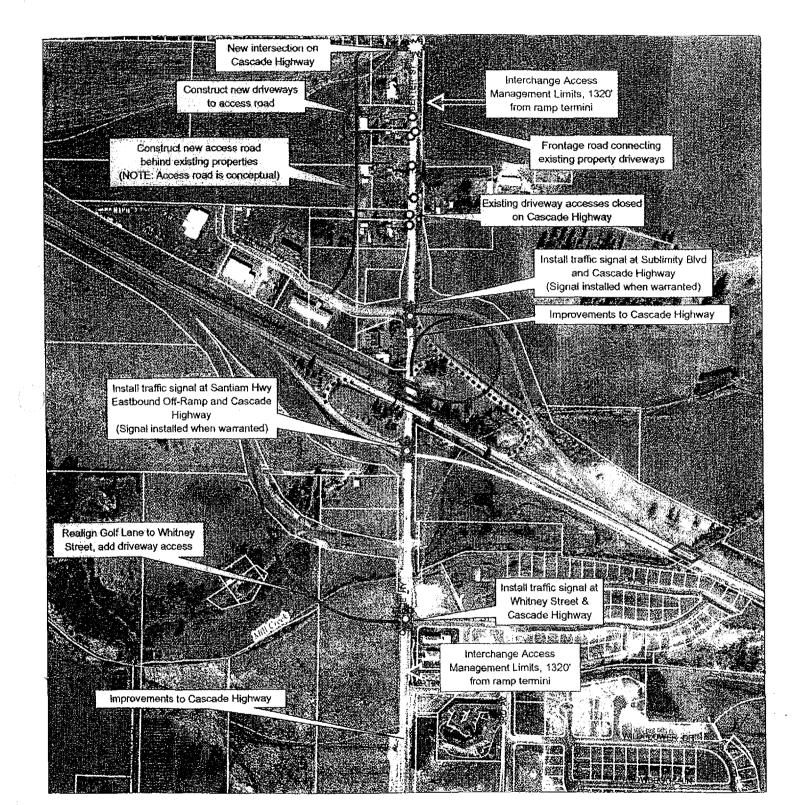
In order to proceed with this project the City of Stayton, the City of Sublimity, and Marion County must adopt the Sublimity Interchange Area Management Plan. The purpose of this plan is to protect the new interchange from development related improvements that would otherwise shorten the useful 20-year design life of the new intersection. As such, the Sublimity Interchange Plan limits access onto Cascade Highway as outlined in the attached map.

The impacts to the City of Stayton side of the Sublimity Interchange Project are minimal, as most of the required access points onto Cascade Highway are already identified in the new Transportation System Plan adopted adopted in 2004. Those changes include the construction of a new traffic signal at Whitney Street and Cascade Highway (which is currently scheduled to be constructed by September 2006), and the realignment of Golf Lane Road to intersect with Whitney Street at Cascade Highway.

The adoption of the Sublimity Interchange Area Management Plan requires changes to Stayton's Comprehensive Plan and Transportation Master Plan as part of the process for developing the interchange. The proposed amendments and the Management Plan will be available for the public review seven days prior to the public hearing at the Stayton Planning Department.

### **FURTHER INFORMATION:**

Questions regarding the above matter should be directed by phone or letter to Steve Goeckritz, City Planner, 362 N. Third Avenue, Stayton, Oregon 97383, (503) 769-2998.



### **City of Stayton**

NOTICE OF PUBLIC HEARINGS before the TAYTON PLANNING COMMISSION and the 'AYTON CITY COUNCIL

<sup>2</sup>ublic bearings will be held before the Stayton mission, Monday, March 27, 2006, 2006 at 7:00 pm. dic hearing will be held before the Stayton City day, April 17,2006 The meeting win be held at the nunity Center, 400 W. Virginia Street, Stayton, for of hearing testimony and rendering a decision following issue:

LE #020-01/06 - Application for Comprehensive Plan ransportation Plan Amendment and adoption of the change Area Management Plan for the new Highway ;hway Interchange

### City of Stayton

RITERIA: Statewide Planning Coals, 1999 Oregon City of Stayton Transportation System Plan, Marion

, evidence, decision criteria, and staff reports will be blic inspection seven days prior to the hearing at the Planning Department, 311 N Third Avenue, Stayton. levant documents are available at reasonable cost to tizen.

ing will be conducted in accordance with the city's of  $\cdot$  edure. Anyone wishing to provide testimony sol. by authorized representative at the public bearmments will be received at the City of Stayton ment until 5:00 p.m. on the day of the public bearing, iled with Planning Staff at the hearing. If you wish to a nents included in the staff report, please submit to y March 17 before the scheduled public hearing.

be notified of testimony prior to the hearing. Failure n person or by letter to the city precludes appeal, and fy the specific criterion to which the comment is is an appeal based on that criterion.

ing the above matter should be directed by phone or eckritz, City Planner, 362 N. Third Avenue, Stayton, 503)769-2998.

ation is accessible to persons with disabilities, A erpreter for the hearing impaired or for other accomrsons with disabilities should be made at least 48 e meeting. If you require special accommodations, unning staff at (503) 769-2998.

Stayton Mail March 15, 2006

## Affidavit of Publication

STATE OF OREGON,

County of Marion,

I...Leah Thibeau.....being First duly sworn, dispose and say that I am the principal clerk of the East Valley Newspapers, publisher of The Stayton Mail, a newspaper of general circulation as defined by ORS192.010 and 193.0210; printed and Published at Stayton in the aforesaid county and state; that the

**RE: PUBLIC NOTICE – CITY OF STAYTON – Planning –** Land Use File – 020-01/06 – Comprehensive Plan Amendment et al

### **Allison Thayer**

### Ad # - 11272330

a printed copy of which is hereby annexed, was published in the entire issue of said newspaper for......ONE......Successive and consecutive times in the following issues – March 15, 2006

Subscribed and sworn to me this pril 2006 Day of \_\_\_\_ ma ia Notary Public for Oregon My Commission expires  $\perp$ OFFICIAL SEA PATRICIA ANN GARRET NOTARY PUBLIC - OREGON MY COMMISSION EXPIRES AUG. 2,2006 

## FORM 1

DLCD NOTICE OF PROPOSED AMENDMENT This form <u>must be received</u> by DLCD <u>at least 45 days prior to the first evidentiary hearing</u> per ORS 197.610, OAR Chapter 660 - Division 18 and Senate Bill 543 and effective on June 30, 1999. (See reverse side for submittal requirements)

ate of Final Hearing:April 17, 2006 (Must be filled in)
(es: No: _x Date:
mprehensive Plan Map Amendment
ning Map Amendment
her:
(Please Specify Type of Action)
s. Do not write "See Attached."
ational and physical improvments and ration of the Highway 22 interchange. In System Plan address this topic.
to
to
and Cascade Hwy Acres Involved: An
Proposed:n/a
D: _X_
Special Districts:ODOT, Marion
Code + Phone Number: _503.769.2998
Code + Phone Number: _503.769.2998 City: Stayton

,

I acknowledge that DLCD received the following materials from the City of Stayton on February 8, 2006.

- 1. Notice of Proposed Amendment
- 2. Draft Amendments to:
  - a. Comprehensive Plan
  - b. Transportation System Plan
  - c. Interchange Area Management Plan

## DEPT OF

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FEB 08 2006 LAND CONSERVATION AND DEVELOPMENT