



Interstate 84 Exit 62 Interchange Area Management Plan

Interstate 84/Cascade Avenue (Historic Columbia River Highway)

Prepared for
City of Hood River
Hood River County



Prepared by
DKS Associates
TRANSPORTATION SOLUTIONS

Angelo
planning group
Parametrix

December 2011



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Acknowledgments

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** Appendices are provided as a separate document. See Appendices for Interstate 84 Exit 62 Interchange Area Management Plan and Interstate 84 Exit 63 & Exit 64 Interchange Area Management Plan, Hood River Oregon, December 2011.*

ACRONYMS

HCRH	Historic Columbia River Highway
HDM	Highway Design Manual
IAMP	Interchange Area Management Plan
LOS	Level of Service
OAR	Oregon Administrative Rule
ODOT	Oregon Department of Transportation
OHP	Oregon Highway Plan
TSP	Transportation System Plan
UGB	Urban Growth Boundary
V/C	Volume to Capacity

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CHAPTER 1: EXECUTIVE SUMMARY

This Interchange Area Management Plan (IAMP) for the I-84 Exit 62 interchange in Hood River, Oregon acts as refinement areas of the City of Hood River and Hood River County Transportation System Plans (TSPs) and as a facility plan for the Oregon Department of Transportation. It establishes the desired function of this interchange and provides a long-range plan for infrastructure improvements and operations to achieve agency and community goals as the City continues to grow.

The IAMP was developed as a cooperative effort between the Oregon Department of Transportation, the City of Hood River, Hood River County, and the Port of Hood River. Further input from the community and local stakeholder groups was obtained through meetings with a Stakeholder Working Group and through public open house meetings. The process followed in the development of this plan is illustrated in Figure 1.

This plan has been organized to facilitate implementation, including only content needed to understand the direction for managing the transportation system within the interchange area and to guide future decision-making in a manner consistent with that direction. Documents containing detailed background information developed through the planning process that created the basis for findings and recommendations are included in a separate appendix.¹ The plan elements in this report include:

Introduction

- This chapter discusses the purpose of the I-84 Exit 62 IAMP, the intended function of this interchange, identification of the study area, and the goals and objectives for this plan developed by participating agencies and local stakeholders.

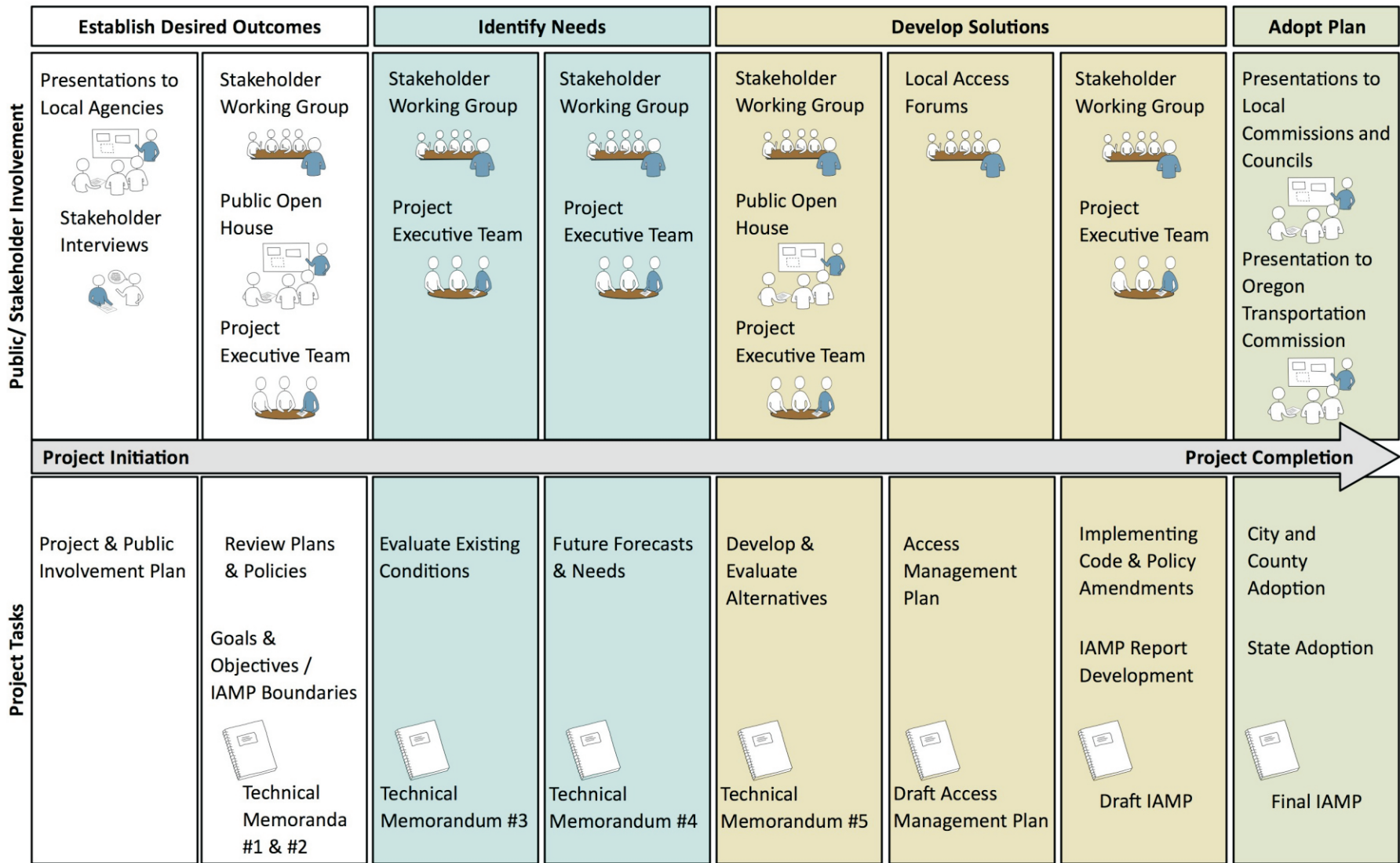
Management Plan

- A multimodal plan for transportation system improvements is provided for the I-84 Exit 62 interchange and surrounding area, including projects for pedestrian and bicycle travel, as well as for motor vehicle needs.
- An access management plan is included to facilitate the ongoing maintenance of the interchange crossroads in a manner that is consistent with their intended function.
- Roles and responsibilities related to the adoption and implementation of the IAMP are outlined for the Oregon Department of Transportation, the City of Hood River, and Hood River County. Recommended amendments to City and County plans and development codes necessary to successfully adopt and implement the IAMP are also included as appendices.
- Planning-level cost estimates for recommended improvement projects are included to guide future financing strategies.

Monitoring and Updates

- A process for tracking future traffic growth and impacts in the interchange area and comparison against forecasted conditions is provided.
- A list of potential actions or conditions that could result in a need to update the IAMP is provided and should be continuously reviewed as part of the ongoing monitoring process.

¹ *Appendices for Interstate 84 Exit 62 Interchange Area Management Plan and Interstate 84 Exit 63 & Exit 64 Interchange Area Management Plan, Hood River Oregon, May 2011.*



**I-84 Exit 62
Interchange Area Management Plan**

Figure 1 IAMP Development Process

CHAPTER 2: INTRODUCTION

This chapter discusses the purpose of the Interchange Area Management Plan, introduces the management area, describes the function of the interchange, and outlines the goals and objectives.

IAMP Purpose and Intent

The I-84 Exit 62 interchange and surrounding transportation system has not been significantly improved since it was constructed to serve the underdeveloped west end of the City of Hood River. Today, much of this infrastructure is substandard and unable to adequately serve the growing demand from new development. In fact, development of surrounding properties has been difficult because of the inability of the transportation system to safely and efficiently accommodate added traffic.

While no improvements are currently planned for the I-84 Exit 62 interchange, a comprehensive plan is needed to guide future investments in transportation improvements that allow for safe and efficient travel through the interchange area as the City continues to grow. Therefore, the City of Hood River, Hood River County, and the Oregon Department of Transportation (ODOT) have worked together to develop this IAMP.

IAMPs are required by OAR 734-051-0155(7) for any new or significantly reconstructed interchange. The Oregon Highway Plan policies further direct ODOT to plan and manage interchange areas for safe and efficient operation. The purpose of an IAMP is to protect the function of the interchange and, consequently, the state's and local agency's investment in the facility. New interchanges and improvements to existing interchanges are very costly. State and local government and their citizens have an interest in ensuring that their interchanges function efficiently. The IAMP will define how the land use and transportation systems within the interchange study area will function over the planning horizon (year 2031).

Interchange Function

Generally, an interchange is defined as a system of interconnecting roadways in conjunction with one or more grade separations that provides for the movement of traffic between two or more roadways or highways on different levels.² The function of an interchange is established by the characteristics of the connecting highway. The I-84 Exit 62 interchange is a component of I-84, an Interstate Highway and Freight Route. The interchange's primary function is to serve the residential areas of the City of Hood River and Hood River County through key surface streets such as Cascade Avenue, Westcliff Drive, Country Club Road, and Rand Road. The interchange is also an important access point for freight movement from Hood River County to the interstate system and markets outside of the County. In addition, it provides access to the Heights residential area, as well as large undeveloped commercial, industrial, and future residential lands at the west end of the City of Hood River. As the west end of the City continues to develop, Exit 62 will become an important gateway into the urban area.

The Oregon Highway Plan (OHP)³ classifies I-84 as an Interstate Highway. According to the OHP, the primary function of an Interstate Highway is to "provide connections to major cities, regions of the state,

² *A Policy on Geometric Design of Highways and Streets*, American Association of State Highway and Transportation Officials, Washington D.C., 5th Edition, 2004, p. 743.

³ *1999 Oregon Highway Plan*, Oregon Department of Transportation, Amended July 2006.

and other states. A secondary function in urban areas is to provide connections for regional trips within the metropolitan area. Interstate Highways are major freight routes and their objective is to provide mobility.”

Cascade Avenue (also known as US 30 or the Historic Columbia River Highway) is owned by ODOT and is the crossroad within the I-84 Exit 62 interchange. ODOT classifies Cascade Avenue as a District Highway, which are facilities of county-wide significance and function largely as county and city arterials or collectors. Cascade Avenue provides both a connection to the interstate freeway system and access to local businesses and residences in the City. The City has designated Cascade Avenue as a minor arterial in their Transportation System Plan.

Approximately 100 feet north of the I-84 Exit 62 interchange, Cascade Avenue ends at Westcliff Drive, which parallels I-84 and provides access to properties bordering the Columbia River. To the west of Cascade Avenue, Westcliff Drive is under Hood River County jurisdiction. However, the intersection with Cascade Avenue and the remaining segment of Westcliff Drive to the east are under ODOT jurisdiction. The City has designated Westcliff Drive as a local street.

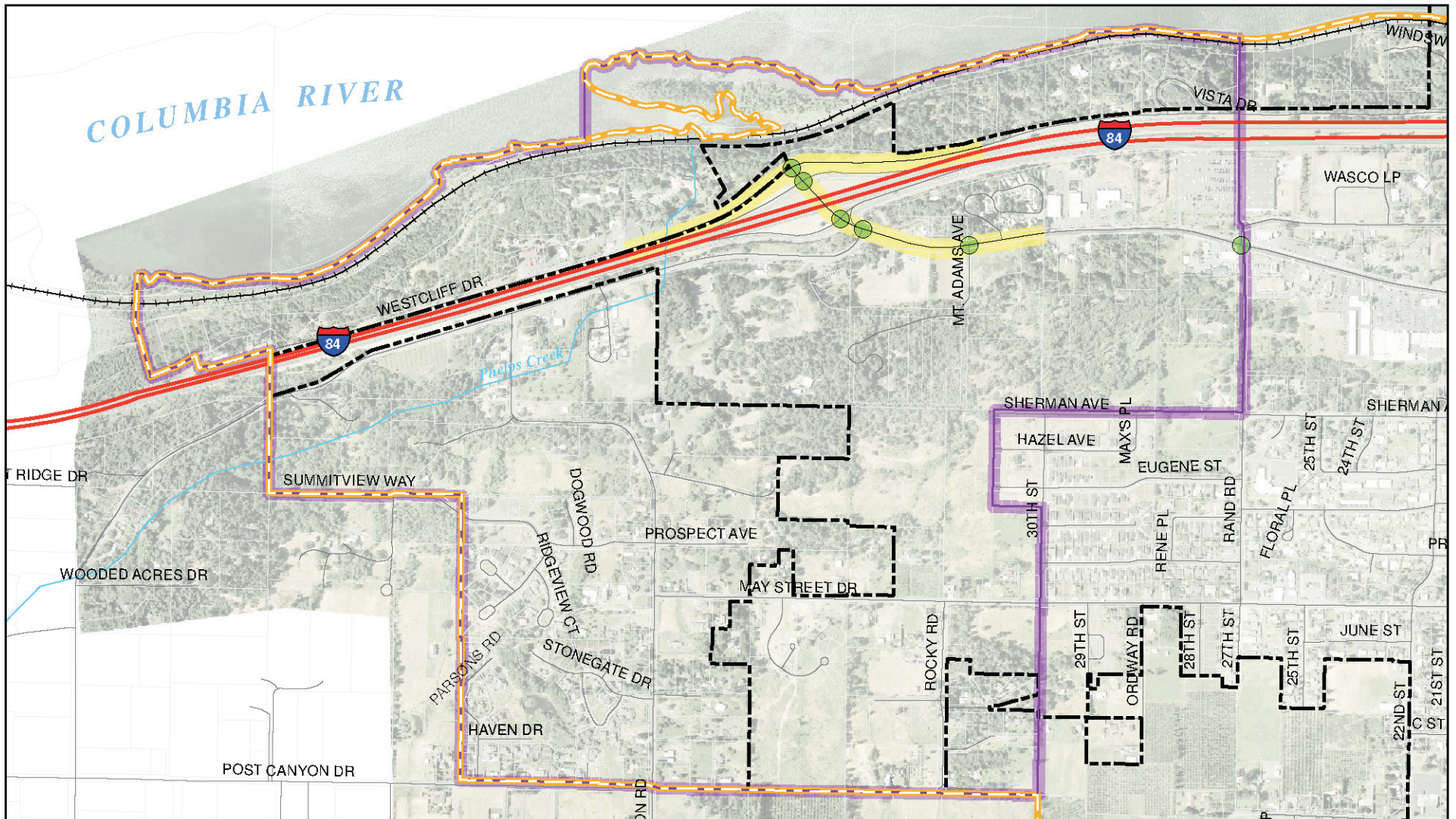
Study Area

Figure 2 illustrates the Study Area for the I-84 Exit 62 IAMP. The Exit 62 study area boundaries include a combination of the urban growth boundary (UGB) and Sherman Avenue to the south, 30th Street and Rand Road to the east, and the UGB to the north and west.

The IAMP study area was chosen to reflect the general area where the interchange would potentially influence land use and traffic patterns. As a general rule of thumb, lands located within approximately ½-mile from the interchange are considered. However, the boundary was further refined through consideration of existing and planned land uses in the vicinity that will impact the interchange, transportation facilities and traffic operations, and natural and cultural resources.

While Rand Road is slightly beyond the ½-mile radius from the interchange, it was included as a study boundary because it represents a significant link in the transportation system. In addition, the area between May Street, Frankton Road, 30th Street, and the UGB was included because of its high development potential over the next 20 years and its anticipated reliance on the I-84 Exit 62 interchange for access to areas beyond Hood River. It should also be noted that a small pocket of existing residential development in the southwest and southeast corners of the study area were excluded, as their potential for redevelopment within the planning horizon was considered to be negligible.

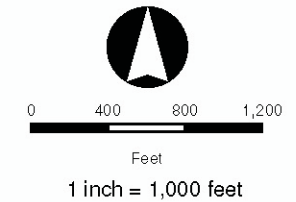
In addition to mapping study area boundaries, Figure 2 also identifies study intersections and access management areas. Study intersections are key locations where safe and efficient operation is essential for adequate operation of the interchange. These intersections were analyzed as part of the study to identify any safety or operational deficiencies through the planning horizon. Needed improvements to address deficiencies were developed and recommended for inclusion in State and local capital improvement plans. Within the Study Area, ODOT, Hood River County, and the City of Hood River all maintain jurisdiction over one or more key roadways, as shown in Table 1.



**I-84 Exit 62
Interchange Area Management Plan**

Figure 2 Study Area

- Study Area
- Study Intersection
- Access Management Area
- Interstate
- Roadway
- Railroad
- City Limit
- UGB
- Stream
- Parcel Boundary



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Table 1: Roadway Jurisdiction

Key Interchange Area Roadway	Agency of Jurisdiction
I-84	ODOT
Cascade Avenue	ODOT
Westcliff Drive	ODOT (Cascade Avenue to Jaymar Road)
	Hood River County (west of Cascade Avenue)
Country Club Road	City of Hood River (within City Limits)
	Hood River County (outside of City Limits)
Rand Road	City of Hood River

Access management areas are corridors along the interchange crossroad where turning movements related to driveways and public street intersections can influence interchange operations. As a general practice, this corridor includes the length of the interchange crossroad within ¼-mile of the interchange ramp terminals, which would be consistent with ODOT’s access management spacing standards for interchange areas. As part of the IAMP, an access management plan was developed that provides short, medium, and long-range actions to modify access to the crossroad within the access management area to provide conformance with ODOT’s access management spacing standards where feasible.

Goals and Objectives

The goals and objectives of this IAMP reflect the intentions and interests of ODOT, the City of Hood River, Hood River County, and other key stakeholders for the interchange and transportation operations in the area. The goals and objectives are guided by, but not re-statements of, Oregon Highway Plan policies and OAR language. The objectives relate what the plan is trying to accomplish and are intended to be achievable and measurable. The objectives served as the basis for data collection and research, as alternative evaluation criteria to guide alternatives analysis and selection of the preferred alternative, and to guide management decisions.

Goal 1: Protect the function and operation of the interchange and the state highways as follows:

- I-84 is classified as an Interstate Highway. It is part of the National Highway System and is a designated freight route between Portland and points east. The operational objective for Interstate Highways is to provide safe and efficient high-speed travel in urban and rural areas.
- The Historic Columbia River Highway (HCRH) is classified as a District Highway. The operational objective for District Highways is to allow safe and efficient moderate to low-speed travel in urban and urbanizing areas for traffic flow, as well as bicycle and pedestrian movements. In addition, the HCRH has design and operational requirements not applicable to other highways in the state.

Objective 1a: The project alternatives meet the requirements of the Federal Interchange Policy and will accommodate design-year (2031) traffic demands as a threshold.

Objective 1b: The project alternatives are consistent with the OHP requirement that the maximum volume to capacity ratio for the ramp terminals of interchange ramps be the smaller of the values of the volume to capacity ratio for the crossroad or 0.85.

Objective 1c: Meet or move in the direction of ODOT access management spacing standards for access along interchange crossroads.

Objective 1d: The project alternatives are consistent with the intent of the Programmatic Agreement for the HCRH.

Objective 1e: The project alternatives are consistent with the intent of the I-84 Corridor Strategy.

Goal 2: Provide for an adequate system of local roads and streets for access and circulation within the interchange area that minimizes local traffic through the interchange and on the interchange crossroad.

Objective 2a: Any necessary supporting improvements to the surface street system have been (or will be) identified in the local comprehensive plan and funding or a funding source for these improvements has been identified.

Objective 2b: While recognizing the urban fabric of Hood River, the project alternatives propose surface street improvements that either meet the ODOT established access management standards or improve on the current conditions.

Objective 2c: The project alternatives propose surface street improvements that will operate adequately over the 20-year planning horizon.

Goal 3: Provide safe and efficient multimodal travel between the connecting roadways.

Objective 3a: While recognizing existing capacity constraints and consistent with the Programmatic Agreement for the HCRH, the project alternatives will improve safety by adding capacity to reduce congestion and/or correcting geometric conditions that do not meet current standards.

Objective 3b: The project alternatives will improve bicycle and pedestrian safety by providing upgraded bikeways and walkways that meet current standards and include facility infill and extensions where needed to provide a continuous network while respecting the historic streetscape.

Goal 4: Ensure future changes to the planned land use system are consistent with protecting the long-term function of the interchange and the surface street system and the integration of future transportation projects and land use changes.

Objective 4a: The project alternatives were developed in partnership with affected property owners in the interchange area, the City of Hood River, Hood River County, the Oregon Department of Transportation, and other stakeholders, including interchange users.

Objective 4b: The City and County Comprehensive Plans and/or Transportation System Plans are consistent, or will be made consistent, with the project alternatives.

Objective 4c: The project alternatives are consistent with the County's Bike Plan.

Goal 5: Recognize the importance of the interchange function to support local and regional economic development goals and plans.

Objective 5a: The project alternatives are expected to reduce delay for vehicles, including commercial vehicles, accessing the freeway and increase safety.

Objective 5b: The project alternatives would facilitate access to, through, and from businesses in Hood River.

Objective 5c: The project alternatives recognize the importance of recreation and tourism to the regional economy.

Goal 6: Ensure that the needs of regional through trips and the timeliness of freight movements are considered when developing and implementing plans and projects on freight routes.

Objective 6a: The project alternatives would facilitate freight access to and from the many industrial, agricultural, and forest products freight destinations in the interchange area.

CHAPTER 3: MANAGEMENT PLAN

This chapter describes plan actions for improving and managing the transportation system in the interchange area through the year 2031 to maximize the operational life of the I-84 Exit 62 interchange, while ensuring that planned growth can be supported. It describes future operations within the Exit 62 interchange area, identifies transportation improvements for the interchange and surrounding street network, and includes an access management plan to guide the planning of approach locations along the interchange crossroad (Cascade Avenue). Guidance for agency implementation of the plan is also provided, including recommended amendments to City and County plans and development codes.

Transportation System Improvements

Transportation system improvements are categorized by mode of travel, including improvements for the pedestrian, bicycle, and motor vehicle networks.

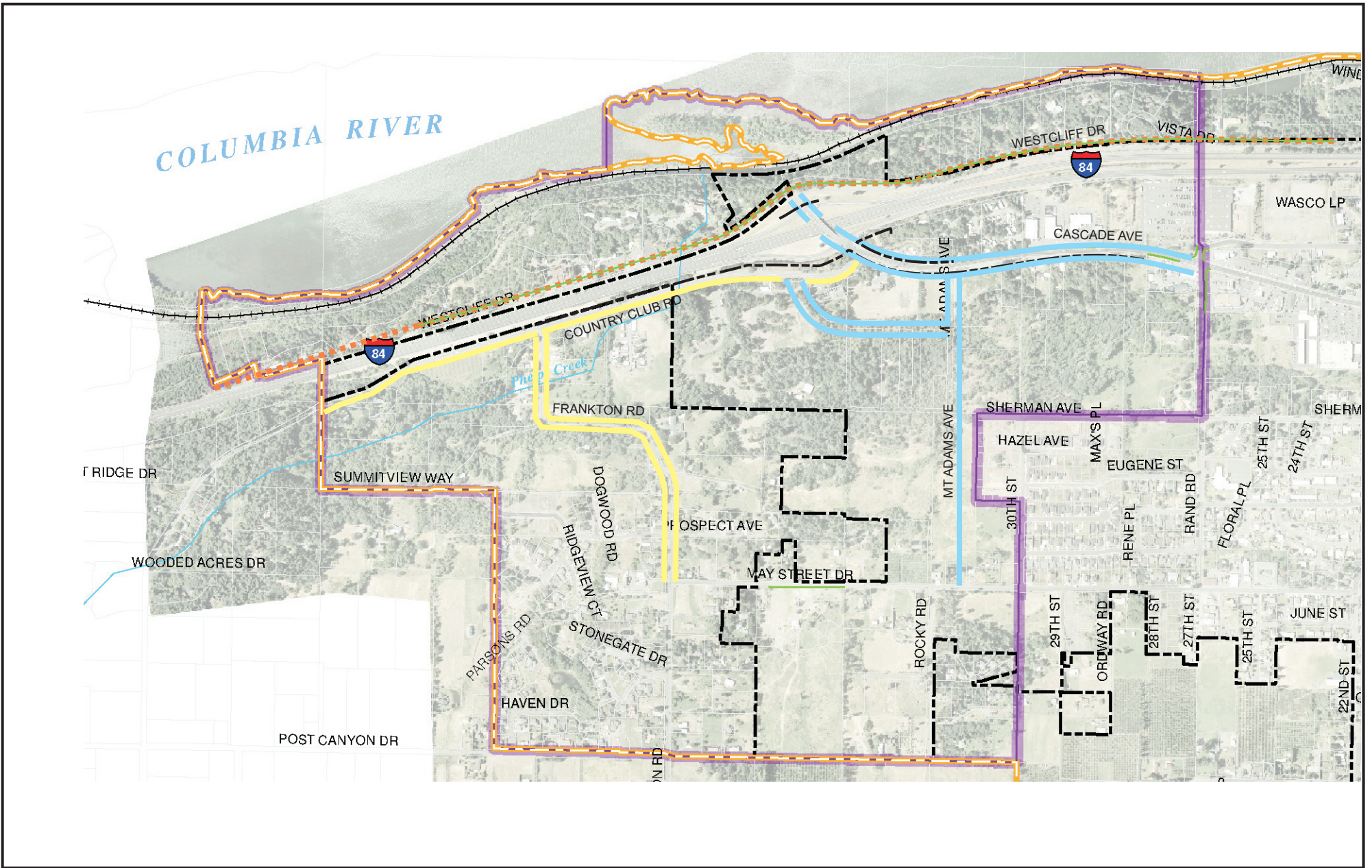
Pedestrian Network Improvements

This category of improvement projects includes those exclusively targeted at improving connectivity for pedestrians within the interchange area. In addition to these, the motor vehicle improvement projects identified along Cascade Avenue, Mt. Adams Avenue, and Country Club Road (including the future realigned section) would include sidewalks as part of a complete street project. Exclusive pedestrian network projects are listed below and illustrated in Figure 3.

- A. Construct sidewalk along the south side of Country Club Road between Cascade Avenue and the urban growth boundary to the west.
- B. When Country Club Road is realigned and the intersection at Cascade Avenue is closed, construct a bicycle/pedestrian accessway between the new cul-de-sac and Cascade Avenue (also listed under Bicycle Network Improvements).
- C. Construct sidewalk along Frankton Road between Country Club Road and May Street.

It is also recognized that an extension of the Historic Columbia River Highway State Trail is planned to occur along the north side of Westcliff Drive, approaching from the west and ending at Ruthton Park. The design and alignment of this trail have not yet been determined, but they may be planned to replace the need for standard pedestrian and bicycle amenities along the property frontages. Furthermore, an extension of the trail design beyond Ruthton Park has been considered, reaching to Cascade Avenue or even to the eastern terminus of Westcliff Drive at Jaymar Road.

The design and location of this trail extension will be a coordinated effort between ODOT, Hood River County, and the City of Hood River. This may effect pedestrian and bicycle facility design through much of the interchange area and along the I-84 Exit 62 interchange itself. As plans are refined, they must compliment adjacent facilities to provide a comprehensive network for walking and biking through the interchange area. Furthermore, it should be acknowledged that future improvements to Westcliff Drive that are outside of the Hood River urban area may require review for consistency with National Scenic Area provisions.



**I-84 Exit 62
Interchange Area Management Plan**

Figure 3 Pedestrian Network Improvements

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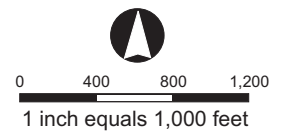
- Study Area
- City Limit
- UGB
- Parcel Boundary
- Railroad
- - Stream

Existing

- - Sidewalk

Future

- - Sidewalk Part of Road Project
- - Infill/New Sidewalk
- - - - Multi-Use Path
- - - - Sidewalk or Multi-Use Path

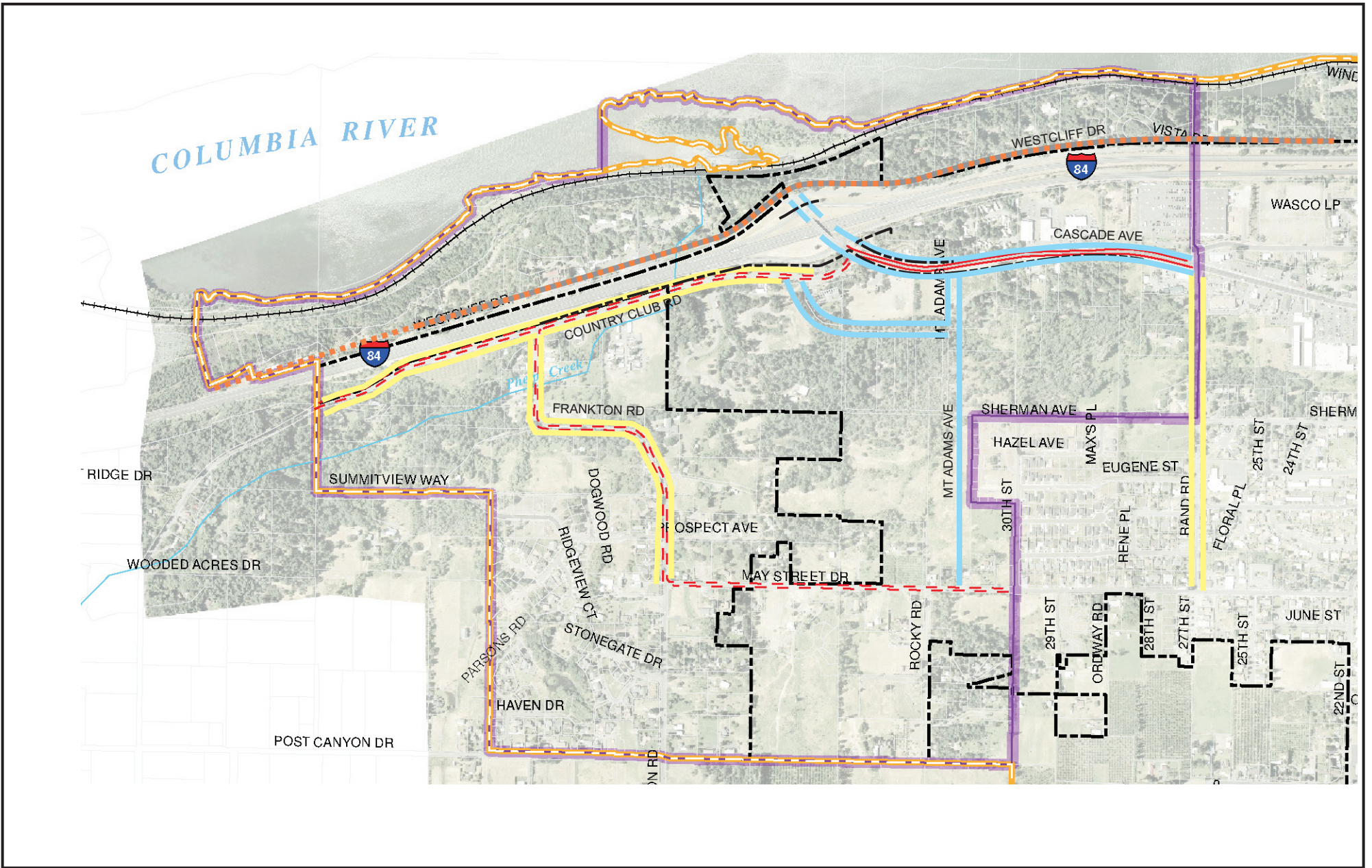


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Bicycle Network Improvements

This category of improvement projects includes those exclusively targeted at improving connectivity for bicyclists within the interchange area. In addition to these, the motor vehicle improvement projects identified along Cascade Avenue, Mt. Adams Avenue, and Country Club Road (including the future realigned section) would include bike lanes as part of a complete street project. Exclusive bicycle network projects are listed below and illustrated in Figure 4.

- A. Infill bicycle lanes along Frankton Road between Country Club Road and May Street.
- B. Infill bicycle lanes along Rand Road between Cascade Avenue and May Street.
- C. When Country Club Road is realigned and the intersection at Cascade Avenue is closed, construct a bicycle/pedestrian accessway between the new cul-de-sac and Cascade Avenue (also listed under Pedestrian Network Improvements).
- D. Construct bicycle lanes along Country Club Road between the eastern terminus (Cascade Avenue under existing alignment or to the newly constructed segment connecting to Mt. Adams Avenue if realigned) and the urban growth boundary to the west. When Country Club Road is realigned to Mt. Adams Avenue, bicycle lane construction for that segment will occur as part of that project. If realignment of Country Club Road occurs before bicycle lanes are constructed along the section of Country Club Road to the west, construction of bicycle lanes on the segment between Cascade Avenue and the point of realignment will not be necessary.



**I-84 Exit 62
Interchange Area Management Plan**

Figure 4 Bicycle Network Improvements

LEGEND

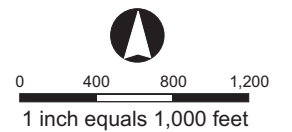
- Study Area
- City Limit
- UGB
- Parcel Boundary
- Railroad
- Stream

Existing

- Partial Shoulder Bikeway
- Dedicated Bikelane

Future

- Bike Lane Part of Road Project
- Infill/New Bike Lane
- Multi-Use Path
- Multi-Use Path or Shared Roadway



Motor Vehicle Network Improvements

Land Use Assumptions

Traffic volume forecasts for the year 2031 were developed through estimation of continued regional growth in through traffic and city-wide growth in housing and employment within the urban growth boundary in a manner that would be consistent with the City of Hood River Comprehensive Plan and Map as of July 2009. The growth in local development would be consistent with full buildout of lands within the Exit 62 interchange area. A detailed description of land use assumptions for the year 2031 is included in the appendix.

Future Traffic Volumes

Traffic volume forecasts were developed for two time periods of interest for the I-84 Exit 62 interchange area: the summer Sunday p.m. peak hour and the summer weekday p.m. peak hour. The summer Sunday p.m. peak hour represents the 30th highest annual hour of traffic for I-84, which is the time period used by ODOT for design purposes. The summer weekday p.m. peak hour represents the time period where local commuting traffic combines with recreational traffic and often reflects a more appropriate design hour for the local transportation system.

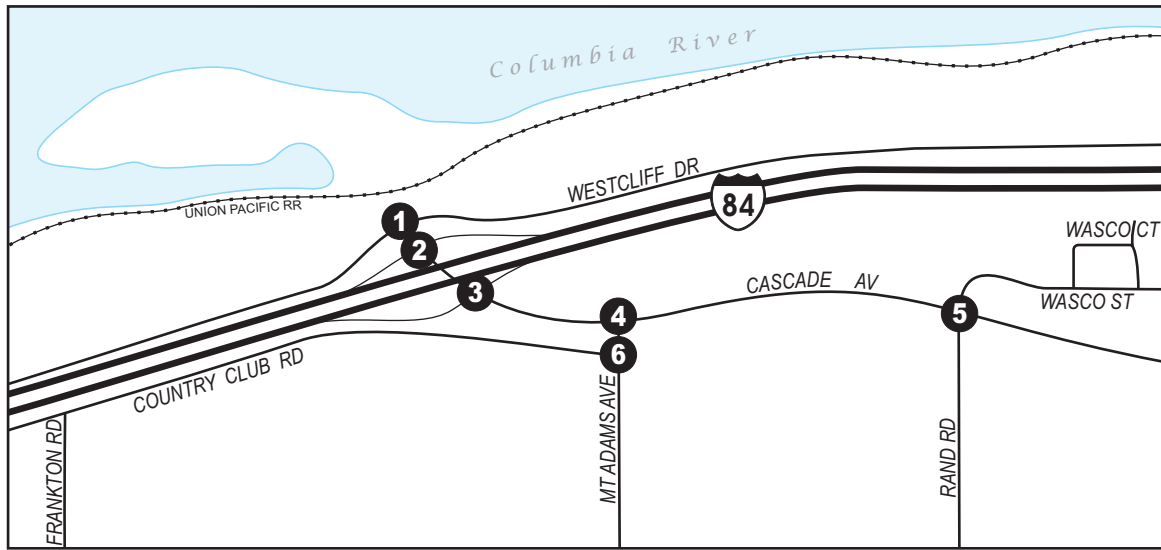
Figures 5 and 6 display the forecasted turning movement volumes at study intersections for the year 2031 during the weekday and Sunday p.m. peak hour scenarios, respectively. Much of the growth in traffic to 2031 in the Exit 62 interchange area is attributed to commercial growth surrounding the interchange and residential growth to the south. However, the Exit 62 interchange is also part of an important travel route for trucks traveling to and from the agricultural lands in the County south of Hood River and for many vehicles traveling to the south area of the city and to the Heights area along 13th Street.

Mobility Standards

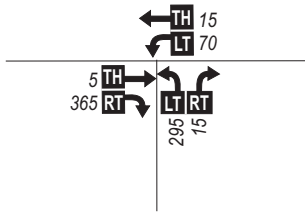
ODOT, the City of Hood River, and Hood River County have adopted mobility standards for transportation facilities under their jurisdiction that require a minimum level of acceptable performance. While ODOT maintains jurisdiction of all study intersections within the Exit 62 interchange area, the City of Hood River applies the most restrictive standard where a transportation facility within the City Limits is maintained by ODOT or the County. For non-ODOT facilities that are outside of the City Limits, the County mobility standards apply.

Through the recent 2011 update of the City of Hood River's Transportation System Plan, the City's mobility standard changed from requiring a level of service C to only requiring a level of service D on City roadways. This change was primarily in response to the increasing difficulty of funding transportation improvement projects in a timely manner to support new development. The City of Hood River's mobility standards are included in the 2011 City of Hood River Transportation System Plan. Under Goal 4, Policy 4 states, "A minimum level of service (LOS) D on transportation systems serving new developments is desired on streets and signalized and unsignalized intersections. Level of service shall be based on the most recent edition of the Highway Capacity Manual. Where a facility is maintained by the County or ODOT, the more restrictive of the standards should apply."⁴

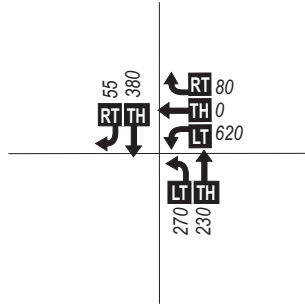
⁴ *City of Hood River Transportation System Plan*, DKS Associates, June 2011.



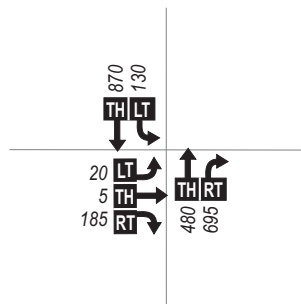
1 Westcliff Dr. @ Cascade Ave.



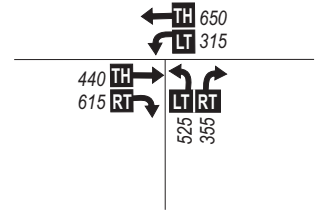
2 I-84 WB On/Off Ramps @ Cascade Ave.



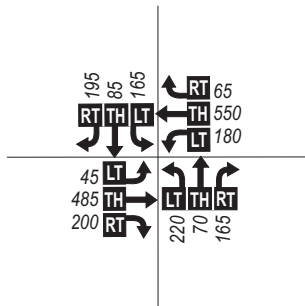
3 I-84 EB On/Off Ramps @ Cascade Ave.



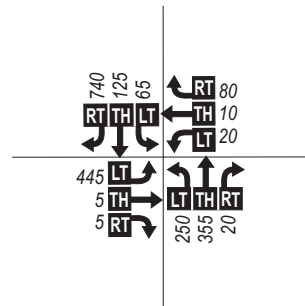
4 Mt. Adams Ave. @ Cascade Ave.



5 Cascade Ave. @ Rand Rd.



6 Mt. Adams Ave. @ Country Club Rd.



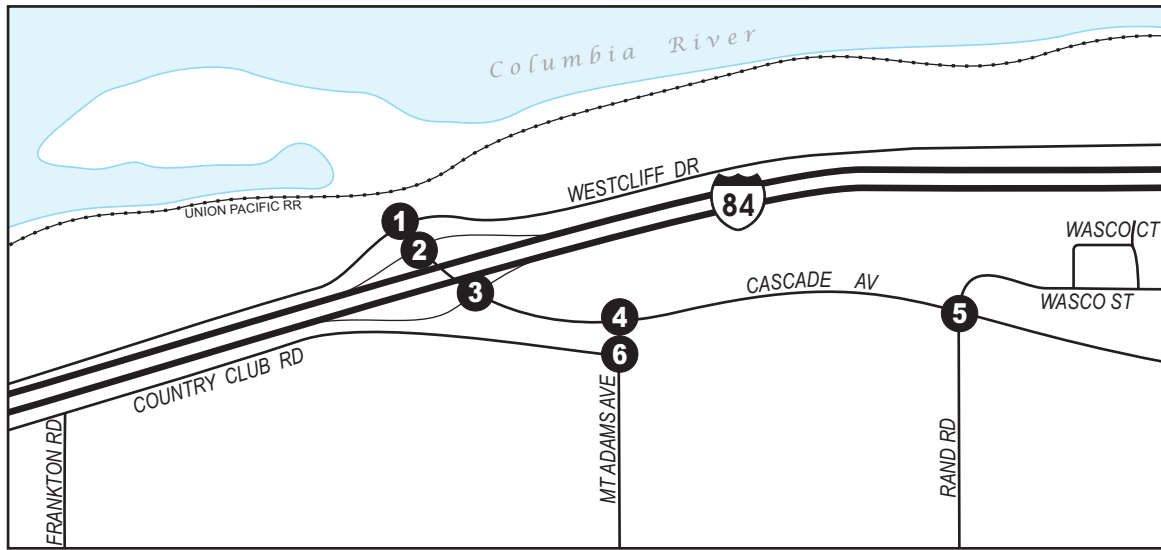
**I-84 Exit 62
Interchange Area Management Plan**

Figure 5 2031 Weekday PM Peak Hour
Traffic Volumes

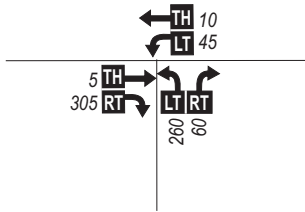
LEGEND

- 0** - Study Intersection & Number
- RT 00 - Right Turn Movement Traffic Volume
- TH 00 - Through Movement Traffic Volume
- LT 00 - Left Turn Movement Traffic Volume

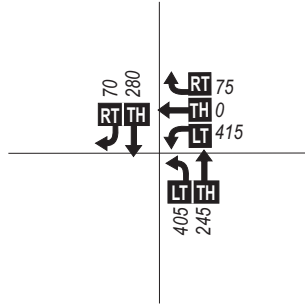




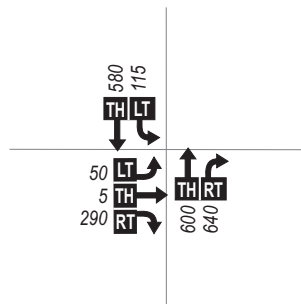
1 Westcliff Dr. @ Cascade Ave.



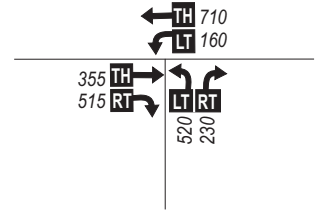
2 I-84 WB On/Off Ramps @ Cascade Ave.



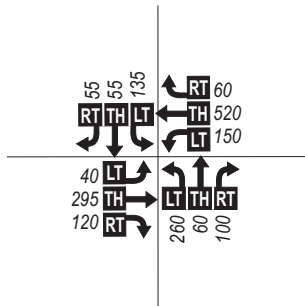
3 I-84 EB On/Off Ramps @ Cascade Ave.



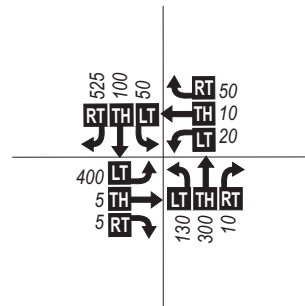
4 Mt. Adams Ave. @ Cascade Ave.



5 Cascade Ave. @ Rand Rd.



6 Mt. Adams Ave. @ Country Club Rd.



I-84 Exit 62 Interchange Area Management Plan

Figure 6 2031 Sunday PM Peak Hour Traffic Volumes

LEGEND

- 0** - Study Intersection & Number
- 00 - Right Turn Movement Traffic Volume
- 00 - Through Movement Traffic Volume
- 00 - Left Turn Movement Traffic Volume



To maintain consistency with City mobility standards, it is recommended that Hood River County amend their mobility standards to allow LOS D operations (a LOS C is currently required) within the City of Hood River urban growth area.

ODOT mobility standards are given as volume to capacity (V/C) ratios and are based on roadway classification, designations, and posted speed limits. There are two types of mobility standards for state facilities that are used for different purposes. Those contained in ODOT's 1999 Oregon Highway Plan (OHP) are applied to the review of development proposals and for the determination of needed infrastructure improvements (i.e., No Build conditions). However, the mobility standards from ODOT's Highway Design Manual (HDM)⁵ are to be applied to the evaluation of all alternatives considered for roadway improvements through public investments.

Table 2 lists the mobility standards from the OHP and HDM that are applicable to Exit 62 interchange area facilities (I-84 is classified as an Interstate Highway and Cascade Avenue is classified as a District Highway). While the recommended improvements included in this plan were designed to comply with the HDM standards, the mobility standards from the OHP will be used for all future interchange area operations monitoring, including the review of development proposals.

Table 2: Applicable ODOT Mobility Standards (V/C ratios)

Highway Category	Inside Urban Growth Boundary	
	Non-MPO outside of STA's where non-freeway speed ≤ 35 mph	Non-MPO where non-freeway speed limit ≥ 45 mph
Oregon Highway Plan		
<ul style="list-style-type: none"> Applied to the review of development proposals and for the determination of needed infrastructure improvements (i.e., No Build conditions) 		
Interstate Highways	-	0.70*
District Highways/ Local Interest Roads	0.90*	-
Highway Design Manual		
<ul style="list-style-type: none"> Applied to the evaluation of all alternatives considered for roadway improvements through public investments 		
Interstate Highways	-	0.65
District Highways/ Local Interest Roads	0.80	-

* The maximum volume to capacity ratio for ramp terminals of interchange ramps shall be the smaller of the values of the volume to capacity ratio for the crossroad or 0.85.

⁵ Highway Design Manual, Oregon Department of Transportation, 2003, p. 10-38.

In addition to the mobility standards shown in Table 2, special conditions apply at some locations. At unsignalized intersections and road approaches, the volume to capacity ratios shall not be exceeded for either of the state highway approaches that are not stopped. Approaches at which traffic must stop, or otherwise yield the right of way, shall be operated to maintain safe operation of the intersection and all of its approaches and shall not exceed the volume to capacity ratios for District/Local Interest Roads within the urban growth boundary.

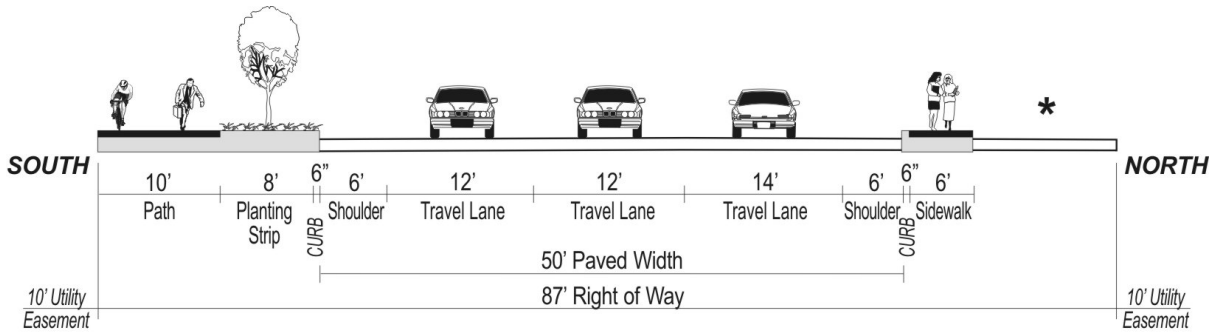
Roadway Improvements

All study intersections within the I-84 Exit 62 IAMP study area will fail to comply with mobility standards during the weekday p.m. peak hour with the exception of the intersection of Westcliff Drive at Cascade Avenue (see future intersection operations included on following pages). However, during the Sunday p.m. peak hour, only the I-84 ramp terminals with Cascade Avenue fail to comply with mobility standards. Critical improvements to maintain safe and efficient operation of the transportation system in the interchange area described below.

- The I-84 Exit 62 interchange will require significant modernization to provide needed turning lanes, bicycle and pedestrian accommodations, and traffic signals. While the design of this interchange may be explored further, a diamond configuration using the existing footprint as much as feasible was assumed for the purpose of this plan.
- The realignment of Country Club Road from Cascade Avenue to a future Mt. Adams Avenue extension is a critical improvement for the Exit 62 interchange area. This project significantly improves intersection spacing in the vicinity of the I-84 interchange ramp terminals, which allows all other elements of the transportation system to function adequately. While sidewalk should be provided on both sides of Country Club Road in the realigned section, topography may make this infeasible. At a minimum, sidewalk should be constructed along the north side of this section, which is adjacent to existing and future development.
- With Country Club Road realigned to intersect with Mt. Adams Avenue, there will be increased traffic demand on the segment of Cascade Avenue between I-84 and the intersection with Mt. Adams Avenue. To adequately accommodate this demand, Cascade Avenue will ultimately need to be widened to include two travel lanes in each direction within the segment. It is imperative that the intersections be designed to accommodate large trucks. Once east of Mt. Adams Avenue, the cross-section of Cascade Avenue can return to only one travel lane in each direction as planned in the City of Hood River TSP.

On March 3, 2011, the Historic Columbia River Highway Advisory Committee passed a motion to support an amendment of the Programmatic Agreement #19942 to accommodate the wider cross-section on Cascade Avenue in this segment. The approved roadway design is shown in Figure 7.

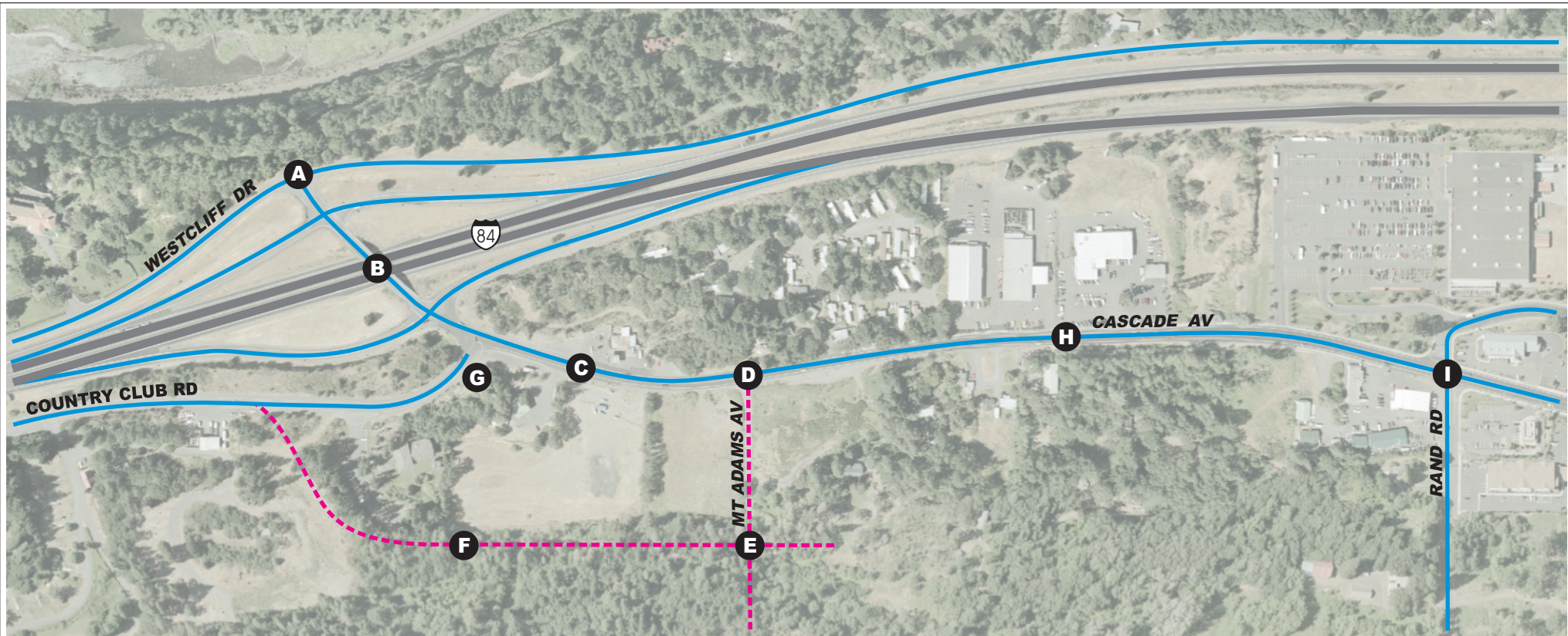
Figure 7: Cascade Avenue Design from I-84 Eastbound to Mt. Adams Avenue



* Prior to construction of the outer westbound travel lane, the City of Hood River and ODOT will demonstrate the need for the lane based on updated traffic projections and will present the findings to the Historic Columbia River Highway Advisory Committee.

- East of Mt. Adams Avenue, Cascade Avenue will be widened to 3 lanes (one travel lane in each direction plus a center turn lane). This design is consistent with that identified in the City of Hood River TSP and will match the existing roadway east of Rand Road.

A comprehensive map of Exit 62 interchange area motor vehicle network improvements is provided in Figure 8, with more detailed descriptions of these improvements as they relate to study intersections included in the following pages. All roadway improvement projects shown along Cascade Avenue, Mt. Adams Avenue, and Country Club Road are assumed to include bicycle lanes and sidewalks.



- A** Improve intersection with traffic signal and turning lanes (see page 20).
- B** Modernize interchange to accommodate turning lanes and traffic signals (see page 21).
- C** Widen Cascade Ave. to an ultimate 4-lane roadway from I-84 eastbound ramps to Mt. Adams Ave. (see Figure 7).
- D** Improve intersection with traffic signal and turning lanes (see page 22).
- E** Improve intersection with traffic signal and turning lanes (see page 23).
- F** Construct new alignment of Country Club Rd. as a 2-lane roadway.
- G** Cul-de-sac Country Club Rd. and provide pedestrian/bicycle accessway.
- H** Widen Cascade Ave. to a 3-lane roadway from Mt. Adams Ave. to Rand Rd.
- I** Improve intersection with traffic signal and turning lanes (see page 24).

LEGEND

- - Existing Roadway
- - - - Proposed Roadway

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Figure 8

**I-84 Exit 62
Interchange Area Management Plan
Motor Vehicle Network Improvements**

Cascade Avenue/ Westcliff Drive Improvements						
Improvements: <ul style="list-style-type: none"> ▪ Construct traffic signal ▪ Eastbound: construct right turn lane (175' storage) 						
Operations (Year 2031):						
Scenario	Level of Service	Delay (sec)	V/C Ratio	ODOT Mobility Standards (V/C Ratio)		City Mobility Standard (Level of Service)
				OHP	HDM	
No Build Sunday PM Peak Hour	B	14.5	0.15	0.90	0.80	D
No Build Weekday PM Peak Hour	C	18.2	0.27	0.90	0.80	D
With Improvements Sunday PM Peak Hour	C	23.6	0.36	0.90	0.80	D
With Improvements Weekday PM Peak Hour	C	29.9	0.36	0.90	0.80	D
Notes: While the proposed improvements are shown to degrade intersection operations compared to the No Build condition, it should be recognized that the above improvements are intended to provide for compatibility with the nearby traffic signal at the I-84 westbound off-ramp. The priority at this intersection is to avoid queue spillback into the I-84 westbound ramp terminal. Prior to construction of a traffic signal, an engineering investigation must be completed showing that signal warrants will be met and ODOT Region and State Traffic Engineer approval must be obtained.						

Cascade Avenue/ I-84 EB and WB Ramps Improvements

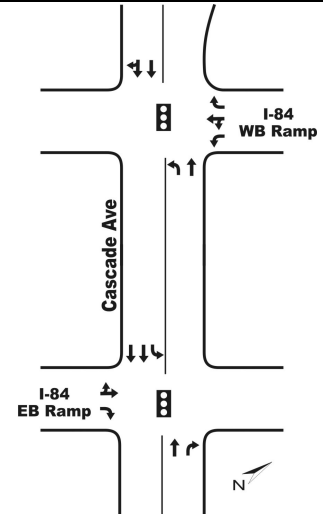
Improvements:

Cascade Avenue at I-84 WB Ramps

- Construct traffic signal
- Northbound: construct left turn lane (full length of bridge)
- Southbound: construct second southbound through lane
- Westbound: construct left turn lane (275' storage) shared through/left turn lane, right turn lane (150' storage)

Cascade Avenue at I-84 EB Ramps

- Construct traffic signal
- Northbound: construct right turn lane (drop lane from Cascade Ave.)
- Southbound: construct second southbound through lane, left turn lane (200' storage or full length of bridge)
- Eastbound: construct right turn lane (125' storage)



Operations (Year 2031):

Scenario	Level of Service	Delay (sec)	V/C Ratio	ODOT Mobility Standards (V/C Ratio)		City Mobility Standard (Level of Service)
				OHP	HDM	
Westbound Ramp Terminal						
No Build Sunday PM Peak Hour	A/F	>60.0	>1.00	0.85	0.65	D
No Build Weekday PM Peak Hour	A/F	>60.0	>1.00	0.85	0.65	D
With Improvements Sunday PM Peak Hour	C	31.5	0.60	0.85	0.65	D
With Improvements Weekday PM Peak Hour	D	39.0	0.65	0.85	0.65	D
Eastbound Ramp Terminal						
No Build Sunday PM Peak Hour	A/F	>60.0	>1.00	0.85	0.65	D
No Build Weekday PM Peak Hour	A/F	>60.0	>1.00	0.85	0.65	D
With Improvements Sunday PM Peak Hour	B	18.8	0.55	0.85	0.65	D
With Improvements Weekday PM Peak Hour	B	14.9	0.50	0.85	0.65	D

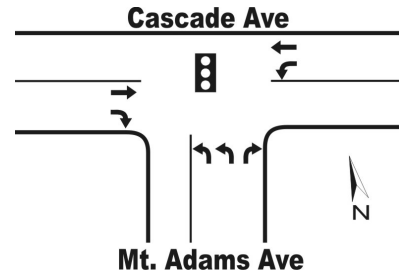
Notes: Bold Text indicates mobility standard is not met

While the design of this interchange may be explored further, a diamond configuration using the existing footprint as much as feasible was assumed for the purpose of this plan. The recommended improvements include signalization of both ramp terminals and widening and lengthening of the eastbound and westbound off-ramps. To accommodate the turn lane requirements at these intersections, the I-84 overcrossing structure would need to be replaced with a wider five-lane bridge, plus bike lanes and sidewalks.

Cascade Avenue/ Mt. Adams Avenue Improvements

Improvements:

- Construct traffic signal
- Northbound: construct two left turn lanes (200' storage on inside, full length to Country Club Rd. on outside), right turn lane (200' storage)
- Westbound: construct left turn lane (200' storage)
- Eastbound: construct channelized right turn lane under yield control (drop lane from Cascade Ave.)



Operations (Year 2031):

Scenario	Level of Service	Delay (sec)	V/C Ratio	ODOT Mobility Standards (V/C Ratio)		City Mobility Standard (Level of Service)
				OHP	HDM	
No Build Sunday PM Peak Hour	C	25.6	0.90	0.90	0.80	D
No Build Weekday PM Peak Hour	C	35.0	0.96	0.90	0.80	D
With Improvements Sunday PM Peak Hour	C	33.9	0.64	0.90	0.80	D
With Improvements Weekday PM Peak Hour	B	18.1	0.62	0.90	0.80	D

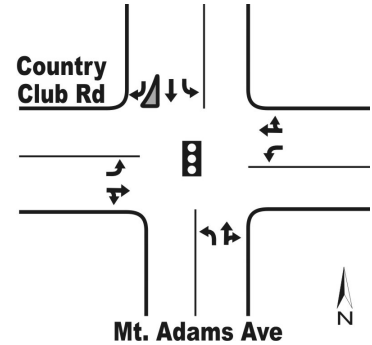
Notes: Bold Text indicates mobility standard is not met

A key element of the above improvements includes the construction of a separate eastbound right turn lane that is channelized and operates with yield control. Channelizing the separate eastbound right turn lane provides an opportunity to construct this lane with a larger radius, facilitating the movement of large trucks. The use of yield control maximizes the capacity of this movement, but as an alternative, it could also function adequately if signalized with right turn overlap phasing (i.e., eastbound right turn would have a green light at the same time as the northbound left turn). In addition, while only 200 feet of vehicle storage is required for the northbound right turn lane, it could be extended back to Country Club Road to provide additional width for large trucks turning from Country Club Road (eastbound to northbound onto Mt. Adams Avenue).

Country Club Road/ Mt. Adams Avenue Improvements

Improvements:

- Construct traffic signal
- Northbound: construct left turn lane (175' storage), shared through/right turn lane
- Southbound: construct left turn lane (100' storage), through lane, channelized right turn lane under yield control (drop lane from Mt. Adams Ave.)
- Westbound: construct left turn lane (50' storage), shared through/right turn lane
- Eastbound: construct left turn lane (275' storage), shared through/right turn lane



Operations (Year 2031):

Scenario	Level of Service	Delay (sec)	V/C Ratio	ODOT Mobility Standards (V/C Ratio)		City Mobility Standard (Level of Service)
				OHP	HDM	
No Build Sunday PM Peak Hour	-	-	-	-	-	D
No Build Weekday PM Peak Hour	-	-	-	-	-	D
With Improvements Sunday PM Peak Hour	B	17.0	0.53	-	-	D
With Improvements Weekday PM Peak Hour	B	19.1	0.66	-	-	D

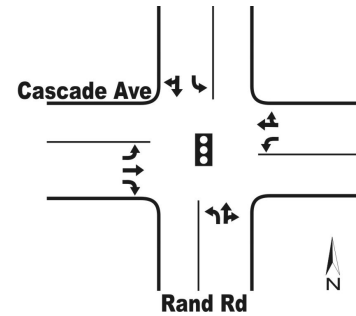
Notes:

The proposed realignment of Country Club Road will create a new intersection with the future Mt. Adams Avenue extension. A key element of this improvement is the channelized southbound right turn lane that operates under yield control. Channelizing the separate southbound right turn lane provides an opportunity to construct this lane with a larger radius, facilitating the movement of large trucks. The use of yield control was implemented to maximize capacity for the high demand movement and is critical for avoiding queue spillback into Cascade Avenue. Also, the second southbound lane extending from Cascade Avenue and dropping as a right turn lane at Country Club Road will provide additional maneuvering width for large trucks.

Cascade Avenue/ Rand Road Improvements

Improvements:

- Construct traffic signal
- Northbound: modify to include left turn lane (200' storage), shared through/right turn lane
- Westbound: none
- Southbound: modify to include left turn lane (175' storage), shared through/right turn lane
- Eastbound: construct right turn lane (150' storage)



Operations (Year 2031):

Scenario	Level of Service	Delay (sec)	V/C Ratio	ODOT Mobility Standards (V/C Ratio)		City Mobility Standard (Level of Service)
				OHP	HDM	
No Build Sunday PM Peak Hour	B	20.9	0.78	0.90	0.80	D
No Build Weekday PM Peak Hour	D	37.5	1.05	0.90	0.80	D
With Improvements Sunday PM Peak Hour	B	17.3	0.70	0.90	0.80	D
With Improvements Weekday PM Peak Hour	C	22.6	0.79	0.90	0.80	D

Notes: Bold Text indicates mobility standard is not met

Key elements of the proposed improvements include the construction of a separate eastbound right turn lane to serve high volumes of traffic destined to the south and modification of the north and south approaches to include separate left turn lanes, which would allow for greater flexibility in signal phasing. However, the modifications to the north and south approaches will require some road realignment to ensure the opposing through lanes are appropriately aligned. Furthermore, prior to construction of the eastbound right turn lane, ODOT and the City will demonstrate the need for the lane based on updated traffic projections and will present the findings to the Historic Columbia River Highway Advisory Committee. This improvement is not only required meet mobility standards, but will help mitigate the potential for rear-end collisions associated with high volumes of eastbound through and right turn traffic using the same travel lane.

Access Management Plan

The purpose of the Access Management Plan is to provide a long-range, comprehensive and coordinated strategy for accommodating access as property develops or as public improvement projects are constructed. It is anticipated that most improvements will occur incrementally over time. The goal of the plan is to provide clear direction and ensure progress is made toward improving the management of access in the interchange area, while allowing sufficient flexibility to accommodate future development plans. Successful implementation will require continued collaboration between neighboring property owners, the City of Hood River, Hood River County, and ODOT staff.

Access Objectives

To provide a basis for decision-making during the development of the access management plan and to guide future policy decisions for the I-84 Exit 62 interchange area, a set of access management objectives was established. Given the constraints in the interchange area, the objectives were used as guidelines and may not be applicable in all instances.

These objectives were intended to reflect current practices, policies, and regulations pertaining to the management of access within the interchange area and include the following:

1. Create shared access points to reduce the overall number of accesses on the interchange crossroad.
2. Provide inter-parcel circulation through cross-over easements, shared parking lots, or connecting driveways where feasible.
3. Seek opportunities to avoid turning conflicts when positioning approaches on opposite sides of roadways.
4. Utilize easements, frontage/backage roads, and other City streets to allow for secondary access to facilitate large truck and emergency service vehicle circulation.
5. Prohibit or restrict movements to accesses adjacent to turning pockets at signalized intersections.
6. Ensure that all properties are provided reasonable access to the public street network.
7. Meet, or move in the direction of meeting, ODOT's adopted access management spacing standards for Interchange Areas, as documented in the *1999 Oregon Highway Plan* (as amended 2006). Applicable spacing standards for the I-84 Exit 62 interchange area are shown in Table 3.

Table 3: I-84 Exit 62 Interchange Area Access Spacing Standards

Type of Access Point	Minimum Spacing Dimension*
Distance between ramp terminal and first major intersection on Cascade Ave. / Westcliff Dr.	1,320 feet
Distance between ramp terminal and first directional median opening on Cascade Ave. / Westcliff Dr.	1,320 feet
Distance between ramp terminal and last right-in/right-out approach on the right side of Cascade Ave. / Westcliff Dr. (when moving toward I-84)	990 feet**
Distance between ramp terminal and first right-in/right-out approach on the right side of Cascade Ave. / Westcliff Dr. (when moving away from I-84)	750 feet

* Spacing standards for Freeway Interchanges with Multi-lane Crossroads

** 990-foot spacing applies to the future improved corridor. Until the corridor is widened, the 2-lane crossroad spacing of 750 feet will apply.

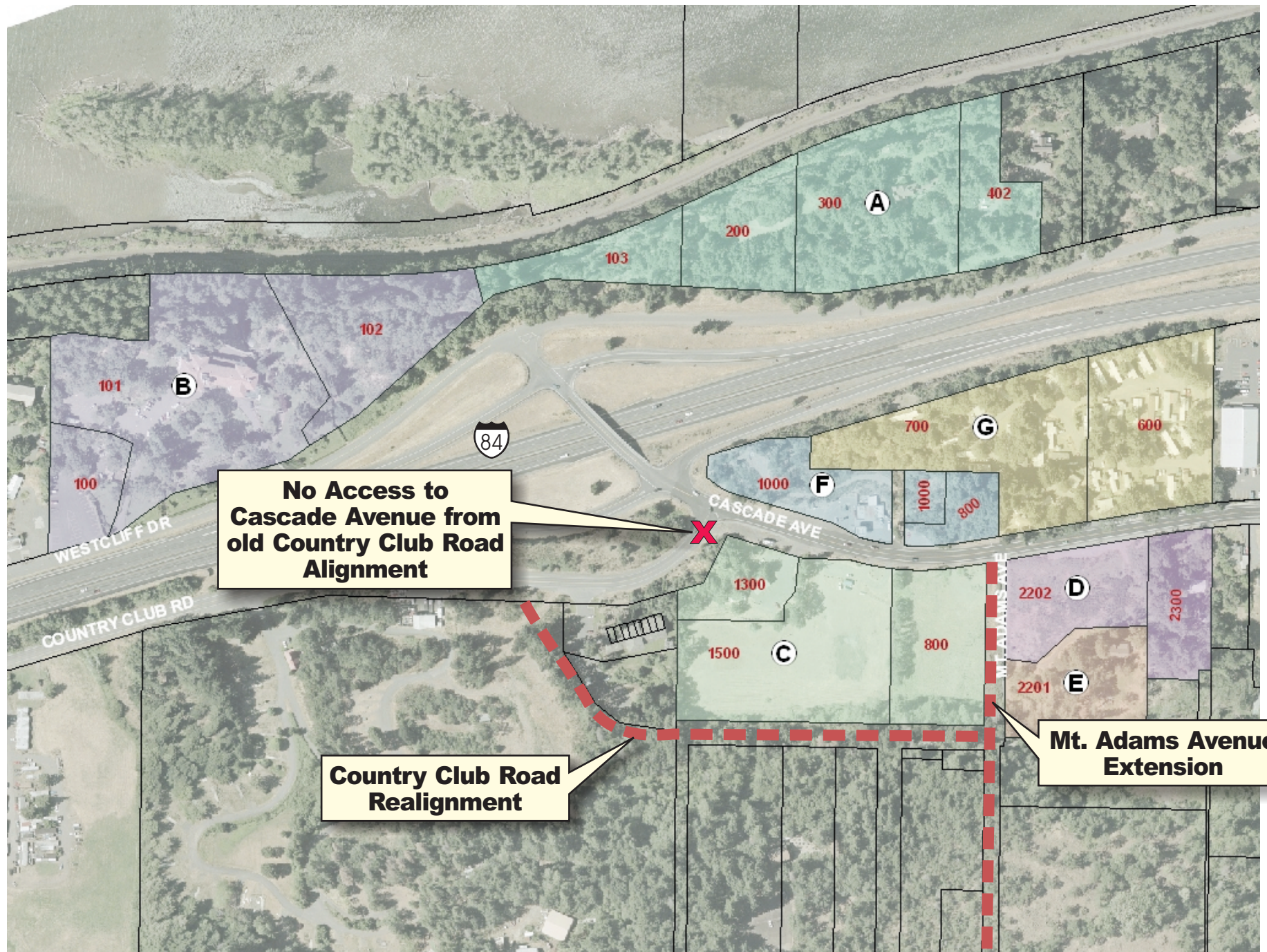
Access Recommendations

The implementation of the access management plan is anticipated to occur incrementally over a long period of time through property development/redevelopment or public construction projects. The framework for the plan provides a structure of existing and planned public streets to work within and guidance for improvements on area properties to work toward the ultimate goal.

A key outcome of this plan is a reduction in direct access to the interchange crossroad (i.e., Cascade Avenue), while maintaining the accessibility of abutting properties. Accomplishing this will require a combination of improvements to the public street infrastructure as well as cooperation among neighboring properties to establish effective accessways between businesses. This could include creating agreements to establish shared driveways or parking lots to establish inter-parcel circulation.

To help identify groups of properties where collaborative access planning and coordination are recommended, “Access Management Blocks” have been outlined in Figure 9. For each block shown, the recommended plan for establishing property access will be documented for future reference. In planning for future access, property owners may elect to work around existing development or assume the site would be redeveloped in the future. Cooperation between property owners within access management blocks, as well as between access management blocks, will be essential for maximizing business accessibility throughout the interchange area.

The access management block planning approach is intended to provide enough certainty and structure to guide future development and ensure progress is made toward the ultimate goal, but to also allow for enough flexibility to accommodate a variety of future development plans and site designs. However, the provision of this flexibility will require continued collaboration between property owners, City of Hood River, Hood River County, and ODOT staff as future developments are proposed or as public improvement projects are planned to ensure each action is consistent with the intent of the plan and is compatible with the access needs of other properties.



LEGEND

- Access Management Block
- Proposed Road
- Tax Lot



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Figure 9

**I-84 Exit 62 Interchange Area
Access Management Blocks**

The I-84 Exit 62 interchange area has been divided into seven access management blocks, with many consisting of several adjacent parcels that have similar access constraints. Access recommendations have been provided for each access management block below, corresponding with Figure 9. It is anticipated that the following recommendations will be modified following coordination with area property owners, the City of Hood River, Hood River County, and ODOT. However, site plan review will be required pursuant HRMC 17.20 Street and interchange improvements (defined as parking removal, access modifications, new lanes, new streets). The site plan review shall include findings and solutions addressing safety, mobility, and how the grid system, pedestrian system, bike system, parking and economic enterprise will be protected and/or enhanced by the proposed.

Block A	
<p>Existing Constraints:</p> <p>Block A is constrained by topography and limited connectivity, with only Westcliff Drive available for access.</p>	<p>Future Recommendations:</p> <p>With no future plans for the construction of additional streets in the vicinity, access would continue to be taken from Westcliff Drive. However, to minimize congestion and potential conflicts within the Exit 62 interchange area, the number of access points within 1,320 feet of the I-84 westbound ramp terminal should be minimized. Any access points allowed to Westcliff Drive within 1,320 feet of the I-84 westbound ramp terminal should be located as far east as feasible.</p>
Block B	
<p>Existing Constraints:</p> <p>Block B is constrained by topography and limited connectivity, with only Westcliff Drive available for access.</p>	<p>Future Recommendations:</p> <p>With no future plans for the construction of additional streets in the vicinity, access would continue to be taken from Westcliff Drive. However, to minimize congestion and potential conflicts within the Exit 62 interchange area, the number of access points within 1,320 feet of the I-84 westbound ramp terminal should be minimized. Any access points allowed to Westcliff Drive within 1,320 feet of the I-84 westbound ramp terminal should be located as far west as feasible.</p>

Block C	
<p>Existing Constraints:</p> <p>Block C is currently only accessible from Cascade Avenue, with rocks and steep topography blocking access to Country Club Road. While future projects have been recommended to construct new roadways adjacent to this block (Mt. Adams Avenue and Country Club Road realignment), topography to the south and proximity to street intersections may limit accessibility.</p>	<p>Future Recommendations:</p> <p>Because Cascade Avenue is the crossroad through the I-84 interchange and Block C is within the interchange influence area (1,320 feet from the ramp terminals), direct access to Cascade Avenue should be minimized and turn restrictions on Cascade Avenue may be required. To help minimize direct access to Cascade Avenue, shared access points should be supported through cross-over easements and parking lot designs including inter-parcel roadways. In addition, access points should not create conflicts with the planned Cascade Avenue/Mt. Adams Avenue signalized intersection. Where access points to Cascade Avenue remain, turning conflicts with access points on the opposite side of Cascade Avenue should be avoided.</p> <p>Options to establish access to the future Mt. Adams Avenue and Country Club Road realignment should be explored to reduce the reliance on Cascade Avenue. Access points to Mt. Adams Avenue should be limited to avoid turning conflicts between the two intersections with Cascade Avenue and Country Club Road.</p>
Block D	
<p>Existing Constraints:</p> <p>Block D is currently only accessible from Cascade Avenue, but could also be accessible from the future Mt. Adams Avenue extension. No opportunities for access exist to the east or south and the construction of the future intersection on Cascade Avenue at Mt. Adams Avenue will create an additional constraint in that vicinity.</p>	<p>Future Recommendations:</p> <p>Access should be taken from Mt. Adams Avenue as much as feasible to reduce reliance on Cascade Avenue. However, options for access to Mt. Adams Avenue may be limited due to potential turning conflicts between the two intersections with Cascade Avenue and Country Club Road. Easements through Block E to the south should be considered to provide access to a potential Block E approach to Mt. Adams Avenue opposite the future Country Club Road extension.</p> <p>Because Cascade Avenue is the crossroad through the I-84 interchange and Block D is partially within the interchange influence area (1,320 feet from the ramp terminals), direct access to Cascade Avenue should be minimized and located as far east as feasible where allowed. Also, turning conflicts with access points on the opposite side of Cascade Avenue should be avoided and access points should be restricted as necessary to avoid conflicts in the vicinity of the planned Cascade Avenue/Mt. Adams Avenue signalized intersection.</p>

Block E	
<p>Existing Constraints:</p> <p>Topography and lack of access to public roadways limit access options to Block E.</p>	<p>Future Recommendations:</p> <p>The primary means of access to Block E should be through the east leg of the planned Country Club Road/Mt. Adams Avenue signalized intersection.</p>
Block F	
<p>Existing Constraints:</p> <p>Block F is currently only accessible from Cascade Avenue, with I-84 and steep topography limiting other opportunities. Block F is also bounded by the I-84 eastbound intersection to the west and the future Mt. Adams Avenue intersection to the east, which will create areas of potential conflicts that will further limit access options.</p>	<p>Future Recommendations:</p> <p>Because Cascade Avenue is the crossroad through the I-84 interchange and Block F is within the interchange influence area (1,320 feet from the ramp terminals), direct access to Cascade Avenue should be minimized and turn restrictions on Cascade Avenue may be required. However, site plan review will be required pursuant HRMC 17.20 Street and interchange improvements (defined as parking modifications, access removal, new lanes, new streets). The site plan review shall include findings and solutions addressing safety, mobility, and how the grid system, pedestrian system, bike system, parking and economic enterprise will be protected and/or enhanced by the proposed. Site plan review will consider requests to include a deviation to allow for continued left turn movements into the site.</p>
Block G	
<p>Existing Constraints:</p> <p>Access to Block G is currently only available from Cascade Avenue and is constrained by I-84 to the north and steep topography to the west.</p>	<p>Future Recommendations:</p> <p>Because Cascade Avenue is the crossroad through the I-84 interchange and Block G is partially within the interchange influence area (1,320 feet from the ramp terminals), direct access to Cascade Avenue should be minimized. To help minimize direct access to Cascade Avenue, shared access points should be supported through cross-over easements and parking lot designs including inter-parcel roadways.</p> <p>Where access points to Cascade Avenue remain, turning conflicts with access points on the opposite side of Cascade Avenue should be avoided. In addition, access points should be restricted to avoid conflicts with the planned Cascade Avenue/Mt. Adams Avenue signalized intersection.</p>

Access Management Plan Phasing

Without a known source of funding or public improvement project planned to follow adoption of the access management plan, the timing of any actions will be uncertain. This section provides a general phasing structure for recommended access management plan actions, broken into short, medium, and long range time periods. This is provided to guide plan implementation and is not intended to be strictly adhered to (i.e., a long range action may precede a short range action if the opportunity arises).

Short Range Actions

- Adopt amendments to the City of Hood River Municipal Code and Hood River County Zoning Ordinance needed to implement the access management plan objectives and recommended actions.

Medium Range Actions

- Establish cross-over easements and inter-parcel roadways as part of property development to consolidate and create shared access points.

Long Range Actions

- Construct the Mt. Adams Avenue extension to the south of Cascade Avenue.
- Realign Country Club Road to connect with Mt. Adams Avenue approximately 450 feet to south of Cascade Avenue and remove the existing intersection of Country Club Road with Cascade Avenue (with continued accessibility for non-motorized travel).

Adoption and Implementation

As land continues to develop within the interchange area, compliance will be required with the access management and circulation plans developed through the IAMP process. As part of the adoption of the IAMP, a number of amendments will be made to state and local documents, plans, and regulations that will implement the IAMP. These include amendments to the City of Hood River and Hood River County Comprehensive Plan, Transportation System Plan, and development codes to reflect amendments contained in the appendix.

ODOT, the City of Hood River, and Hood River County, along with other stakeholders that include the Port of Hood River, have jointly prepared the I-84 Exit 62 IAMP in recognition of the importance of Interstate 84 and this interchange for the movement of people and goods to and from the Hood River region. It is anticipated that ODOT, the City, and the County will adopt the IAMP, thereby codifying a joint commitment to protect the function of the interchange for current and future users. The purpose of the IAMP and function of the interchange are defined in this document. Separate adoption processes for the plans and implementing measures are envisioned for each agency. This section summarizes the implementation roles and responsibilities for the respective jurisdictions.

ODOT/State of Oregon Implementing Actions

Project Construction

- Develop needed transportation system improvements. ODOT improvements, which are described in the plan, are proposed at the Exit 62 interchange and to Cascade Avenue (Historic Columbia River Highway) between Westcliff Drive and Rand Road.

Agency Coordination

- ODOT will continue to coordinate with the City of Hood River, Hood River County, the Port of Hood River, and with applicable state agencies through the development review process to keep interchange area protections in place. ODOT will also monitor and comment on any future actions that would alter land uses in the vicinity of the interchange to ensure the IAMP remains consistent with land use plans for the interchange area.
- In the future when circumstances in the IAMP study area result in the need for changes to the IAMP, the City of Hood River, Hood River County, and ODOT shall prepare amendments to the IAMP management actions and to accompanying funding plans to implement those actions.

Policy Actions

- The Oregon Transportation Commission will adopt the IAMP.

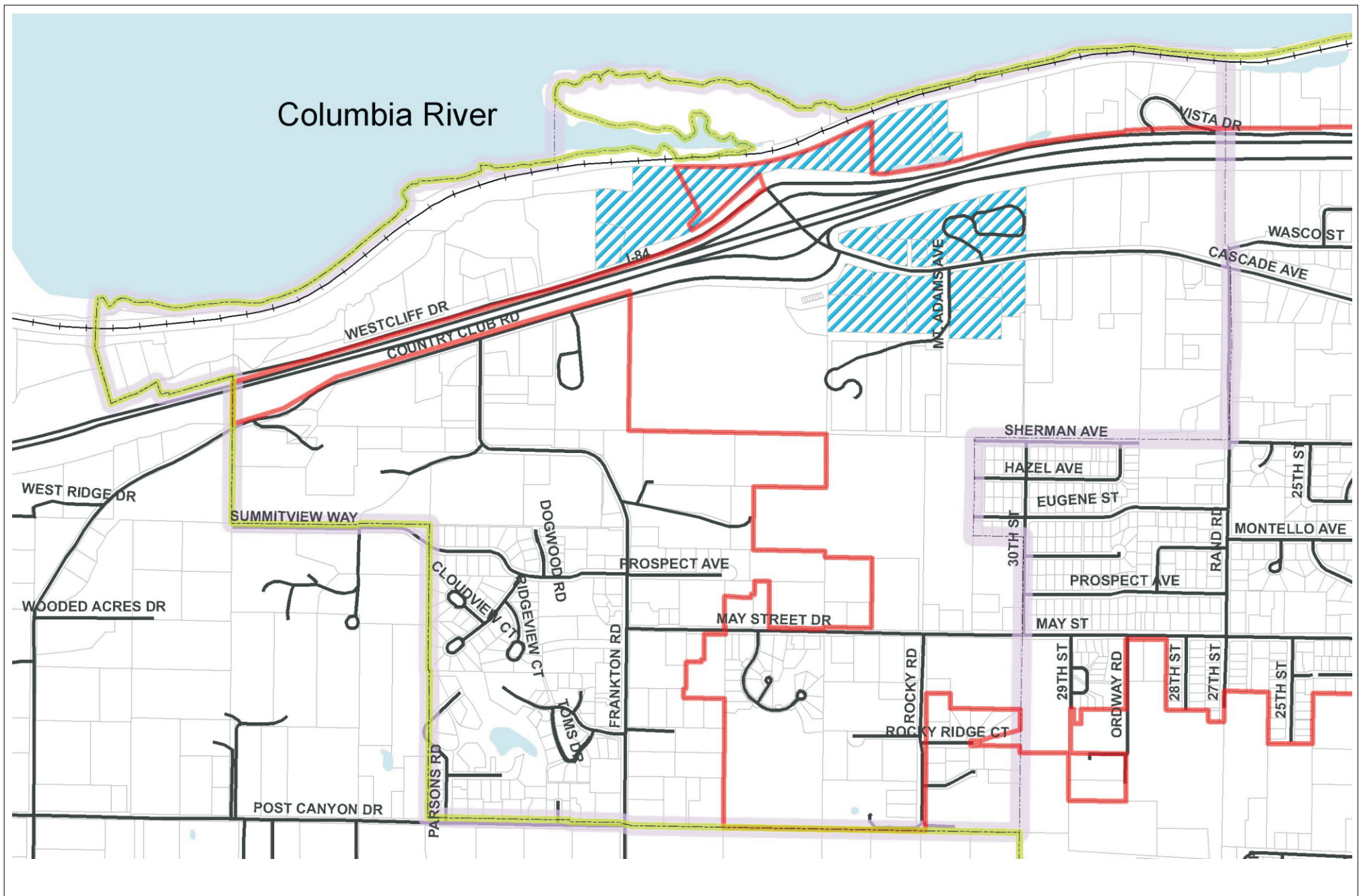
City of Hood River Implementing Actions

Project Construction, Land Use, and Access Management

- The City will modify regulations pertaining to access to local roads in the vicinity of the I-84 Exit 62 interchange, consistent with the Access Management Plan included in this IAMP.
- The City will modify regulations pertaining to Traffic Impact Analyses in the vicinity of the I-84 Exit 62 interchange to require these studies to consider development impacts on the interchange and on IAMP study area intersections.
- The City will amend their Transportation System Plan to incorporate local system improvements and will seek funding to facilitate implementation (primarily for the Country Club Road realignment and Mt. Adams Avenue extension).

Policy Actions

- The City will amend its zoning plan map to include an IAMP Overlay Zone (shown in Figure 10).
- The City will adopt Comprehensive Plan policies that are consistent with the stated function and planned design of the interchange facility and the surrounding transportation system, as identified in the IAMP.
- Requirements for regulating access management consistent with the IAMP will be codified in a new IAMP Overlay Zone (HRMC 17.03.120) and in the City's site development regulations (HRMC 17.20).



Columbia River

VISTA DR

WASCO ST

CASCADE AVE

WESTCLIFF DR
COUNTRY CLUB RD

MT ADAMS AVE

SHERMAN AVE

HAZEL AVE

EUGENE ST

25TH ST

MONTELLO AVE

WEST RIDGE DR

SUMMITVIEW WAY

DOGWOOD RD

PROSPECT AVE

30TH ST

PROSPECT AVE

RAND RD

WOODED ACRES DR

CLOUDVIEW CT
RIDGEVIEW CT

MAY STREET DR

MAY ST

PARSONS RD

FRANKLINTON RD

ROCKY RD

ROCKY RIDGE CT

29TH ST

ORDWAY RD

28TH ST

27TH ST

25TH ST

POST CANYON DR

LEGEND

City Limits

Urban Growth Boundary

Interchange Area Management Plan Overlay Zone

Access Management Blocks

Roadway

Railroad

Taxlots

DKS Associates
TRANSPORTATION SOLUTIONS

Figure 10

I-84 Exit 62 Interchange Area Management Plan Overlay Zone



Hood River County Implementing Actions

Project Construction, Land Use, and Access Management

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Policy Actions

- The County will amend its zoning plan map to include an IAMP Overlay Zone (shown in Figure 10).
- The County will adopt Comprehensive Plan policies that are consistent with the stated function and planned design of the interchange facility and the surrounding transportation system, as identified in the IAMP.
- Requirements for regulating access management consistent with the IAMP will be codified in a new IAMP Overlay Zone (Chapter 17.03.090) and in the County's site development regulations for the Hood River Urban Growth Area, pursuant to Article 17 (Urban Growth Area Zoning Ordinance), Chapter 17.10 (Site Plan Review), Chapter 17.20 (Transportation Circulation and Access Management), and Chapter 16 (Land Division), Section 16.12.020 (General Design and Improvement Standards).

IAMP Adoption

It is anticipated that the adoption sequence will be as follows:

1. 45-day notice of adoption intent sent to state agencies by City and County
2. City planning commission advisory hearing to hear public testimony; deliberative hearings may be conducted at the discretion of the planning commission
3. City council legislative adoption hearings with coordinated staff report, public testimony, and deliberation
4. County planning commission advisory hearing to hear public testimony; deliberative hearings may be conducted at the discretion of the planning commission
5. County commission legislative adoption hearing with coordinated staff report, public testimony, and deliberation
6. Oregon Transportation Commission adoption hearing would take place at the first available meeting date after local adoption to consider amending the Oregon Highway Plan to include the I-84 Exit 62 IAMP

Improvement Costs

Advanced planning for project funding will help implement needed improvements in a timely manner that supports development opportunities. Understanding the magnitude of costs associated with future projects can guide updates to System Development Charge rates, underscore the need for supplemental financing programs such as urban renewal districts or local improvement districts, and provides a basis for grant applications and potential public and/or private partnerships.

Planning-level cost estimates are provided in Table 4 to guide project budgeting. These estimates are intended to support long-range project programming and are based on available data sets and field observations, without the benefit of detailed surveys to accurately define potential environmental impacts, geological constraints, drainage needs, right of way impacts, and other factors that could affect construction costs. Therefore, as projects are developed in more detail in the future, the estimated costs should be updated.

Table 4: I-84 Exit 62 Area Planning-Level Project Cost Estimates (2009 Dollars)

Improvement Project	Estimated Cost
Pedestrian Projects	
Construct sidewalk along the south side of Country Club Rd.	\$700,000
Construct sidewalk along Frankton Rd.	\$1,240,000
TOTAL	\$1,940,000
Bicycle Projects	
Construct bicycle lanes along Country Club Rd.	\$365,000
Construct bicycle lanes along Frankton Rd.	\$235,000
Construct bicycle lanes along Rand Rd.	\$210,000
TOTAL	\$810,000
Motor Vehicle Projects	
Cascade Avenue / Westcliff Drive Improvements	\$950,000
I-84 Exit 62 Interchange Improvements	\$20,900,000
Widen Cascade Avenue between I-84 and Rand Road	\$2,700,000
Country Club Road Realignment (includes Mt. Adams Avenue connection to Cascade Avenue and two traffic signals)	\$4,900,000
Cascade Avenue / Rand Road Improvements	\$1,000,000
TOTAL	\$30,450,000

Potential New Funding Sources

While some funds have been dedicated towards improvement projects in this plan, none of these projects are completely funded at this time. The City of Hood River, Hood River County, and ODOT will need to cooperatively explore funding opportunities if improvements are to be made in a timely manner for supporting future growth. It is recommended that a wide variety of potential funding sources be considered, which may include strategies that have not been previously applied in Hood River.

This section describes several potential transportation funding sources, including State and County contributions, City sources (i.e., residents, businesses, and/or developers), grants, and debt financing. Many of these sources have been used in the past by other agencies in Oregon, and in most cases, when used collectively, are sufficient to fund transportation improvements for a local community.

State and County Contributions

Within the Exit 62 IAMP area, most of the key roadways are not under City jurisdiction but instead are the responsibility of either ODOT (I-84, Cascade Avenue, Westcliff Drive) or Hood River County (Westcliff Drive, part of Country Club Road). The City should seek contributions (i.e., funding partnerships) from ODOT and Hood River County for projects located on their respective roadways.

ODOT Contributions

ODOT funds projects on state highways under three primary programs: modernization, preservation and maintenance, and grants (see Grant Programs below). Programmed projects are included in the four-year Statewide Transportation Improvement Program (STIP), which is updated every two years. ODOT maintenance districts (District 2C for Hood River) also have available funds that may be used for small-scale projects such as infill of sidewalks on a state highway.

ODOT has already conditionally contributed STIP funds for the immediate relocation of Country Club Road as recommended in this plan. While significant, the funds contributed are insufficient to complete the project on their own. Therefore, securing the remainder of the needed funds while the STIP funds are available should be a priority for the City.

Direct Appropriations

The City can also seek direct appropriations from the State Legislature and/or the United States Congress for transportation capital improvements. There may be projects identified in the plan for which the City may want to pursue these special, one-time appropriations. In particular, projects that support economic development, such as the I-84 Exit 62 interchange reconstruction or the Country Club Road realignment, may gain support for direct appropriations.

Developer Exactions

Exactions are roadway and/or intersection improvements that are partially or fully funded by developers as conditions of development approval. Typically, all developers are required to improve the roadways along their frontage upon site redevelopment. This may be an important funding source for the construction of sidewalk and bicycle lane projects along Country Club Road, Cascade Avenue, Frankton Road, and Rand Road.

In addition, when a site develops or redevelops, the developer may be required to provide off-site improvements depending upon the expected level of traffic generation and the resulting impacts on the transportation system. While such improvements could be applied to most projects within the IAMP area, they may be most applicable to the widening of Cascade Avenue, portions of the Country Club Road realignment, and intersection improvements on Cascade Avenue at Westcliff Drive and Rand Road.

Urban Renewal District (URD)

A URD is a tax-funded district within the City. The URD is funded with the incremental increases in property taxes that result from the construction of applicable improvements. As desired, the funds raised by a URD can be used for, but are not limited to, transportation projects located within the URD boundaries.

While the Exit 62 IAMP area has a significant amount of redevelopment potential, the City has already established URDs for the Waterfront and downtown core and has proposed a new URD for the Heights area. Therefore, the City may desire to pay off the debt on these URDs before creating an additional one.

Transportation System Development Charges (SDCs)

SDCs are a funding source collected from new development that can be used to fund projects that increase the transportation system's capacity, but not for projects that target maintenance or operations. While the methodologies for determining the SDC rate may vary, a commonly used method is to base the rate on the estimated p.m. peak hour vehicle trips generated by a proposed development. Because a single-family home generates approximately 1.0 p.m. peak hour vehicle trip, it is often considered the base unit.

The City of Hood River has a current SDC rate of approximately \$666 per single-family residence and \$69.60 per daily trip for all other uses. To help fund transportation improvements to support future growth, the City could consider increasing the SDC rate. For every increase in SDC rates of \$100 for single-family households and \$10 per daily trip for all other trip types, there would be an additional \$514,000 available for transportation improvements over a 21-year period.

Any of the motor vehicle projects in the IAMP area would be eligible for SDC funding through the City. The pedestrian and bicycle projects would not be eligible for City SDC funds under the current ordinance, however, the City is considering an amendment to their SDC ordinance that would allow for such use. The City's SDCs are a critical source of transportation funding and are likely to be spent on projects that directly support new growth. Therefore, it is uncertain how much could be dedicated to projects in the IAMP area. However, increasing the SDC rate would make more funds available citywide.

Hood River County has a current transportation SDC rate of approximately \$1,311 per single-family residence and \$137 per daily trip for other uses. The County's transportation SDC is a "reimbursement fee" for excess capacity in the existing county road system that is available to accommodate growth. New developments outside of incorporated areas are charged the County's transportation SDC, which may be used for any capital improvement project identified in the County's Transportation System Plan (including pedestrian and bicycle projects).

Local Improvement District (LID)

The City may set up Local Improvement Districts (LIDs) to fund specific capital improvement projects within defined geographic areas, or districts. LIDs impose assessments on properties within its boundaries and may only be spent on capital projects within the district. Because citizens representing 33 percent of the assessment can terminate a LID and overturn the planned projects, LID projects and costs must obtain broad approval of those within the LID boundaries.

Proportionate Share Cost Allocations

Proportionate Share Cost Allocations distribute the cost of improvement projects over new developments by charging a fee per trip added to the location in need of improvement. The rate charged is commonly the total cost of the improvement divided by the anticipated growth in trips at that location over a specified period of time. The City has already established a proportionate share rate for the projects to improve the intersections on Cascade Avenue at Mt. Adams Avenue and Rand Road.

Street Utility Fee

A number of Oregon cities supplement their street funds with street utility fees. Establishing user fees to fund designated transportation activities, maintenance, operations, and/or capital construction ensures that those who create the demand for service pay for it proportionate to their use. The street utility fees are recurring monthly or bi-monthly charges that are paid by all residential, commercial, industrial, and institutional users. The fees are charged proportionate with the amount of traffic generated, so a retail

commercial user pays a higher rate than a residential user. Typically, there are provisions for reduced fees for those that can demonstrate they use less than the average rate implies, for example, a resident that does not own an automobile or truck.

From a system health perspective, forming a utility fee also helps to support the ongoing viability of the program by establishing a source of reliable, dedicated funding for that specific function. Fee revenues can be used to secure revenue bond debt for financing capital construction. A transportation utility fee can be formed by Council action.

The General Fund Revenues

At the discretion of the City Council, the City can allocate General Fund revenues to pay for its transportation program. General Fund revenues primarily include property taxes, use taxes, and any other miscellaneous taxes and fees imposed by the City. This allocation is completed as a part of the City's annual budget process, but the funding potential of this approach is constrained by competing community priorities set by the City Council.

Special Assessments

A variety of special assessments are available in Oregon to defray costs of sidewalks, curbs, gutters, street lighting, parking, and central business district (CBD) or commercial zone transportation improvements. These assessments would likely fall within the Measure 50 limitations. One example is the 50/50 program. This is a match program for sidewalk infill projects where property owners pay half the cost of a sidewalk improvement and the City matches the investment to complete the project.

Grants

The City of Hood River should actively pursue State and Federal grants, in particular to complete the identified pedestrian and bicycle projects. Current grant programs include:

Federal Funding Sources

- Highway Safety Improvement Program
- Transportation Enhancements
- Recreational Trails Program
- Safe Routes to School (SRTS)
- New Freedom Initiative
- Community Development Block Grants
- Land and Water Conservation Fund
- Transportation, Community and System Preservation Program

State Funding Sources

- Oregon Immediate Opportunity Fund
- Oregon Transportation Infrastructure Bank
- Oregon Special Transportation Fund
- Oregon Bicycle and Pedestrian Program Grants

- Oregon Pedestrian Safety Mini-Grant Program
- Oregon Business Energy Tax Credits (BETC)
- Oregon Safe Routes to School (OSRTS)

Other Funding Sources

- American Greenways Program
- Bikes Belong Grant Program

Debt Financing

While not a direct funding source, debt financing is another funding method. Through debt financing, available funds can be leveraged and project costs can be spread over the projects' useful lives. Though interest costs are incurred, the use of debt financing can serve not only as a practical means of funding major improvements, but it is also viewed as an equitable funding source for larger projects because it spreads the burden of repayment over existing and future customers who will benefit from the projects. One caution in relying on debt service is that a funding source must still be identified to fulfill annual repayment obligations. Two methods of debt financing are voter-approved general obligation bonds and revenue bonds.

Voter-Approved General Obligation Bonds

Subject to voter approval, the City can issue General Obligation (GO) bonds to debt finance capital improvement projects. GO bonds are backed by the increased taxing authority of the City, and the annual principal and interest repayment is funded through a new, voter-approved assessment on property throughout the City (i.e., a property tax increase). Depending on the critical nature of projects and the willingness of the electorate to accept increased taxation for transportation improvements, voter-approved GO bonds may be a feasible funding option for specific projects. Proceeds may not be used for ongoing maintenance.

Revenue Bonds

Revenue bonds are debt instruments secured by rate revenue. For the City to issue revenue bonds for transportation projects, it would need to identify a stable source of ongoing rate funding. Interest costs for revenue bonds are slightly higher than for general obligation bonds due to the perceived stability offered by the "full faith and credit" of a jurisdiction.

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CHAPTER 4: MONITORING AND UPDATES

Following adoption of the IAMP, regular maintenance is recommended to ensure it continues to meet the needs of area stakeholders.

Interchange Performance Monitoring

This plan identifies improvements to the transportation system surrounding the I-84 Exit 62 interchange that will provide for safe and efficient travel through the year 2031. However, it will be most effective if a proactive approach is taken. When needs are anticipated in advance, there is more time to develop funding and implementation strategies, which could include public and/or private partnerships, so incremental improvements are made in a timely manner and continue to support growth opportunities.

Recommended Process and Responsibilities

As the owner of most transportation facilities in the area, the primary responsibility for interchange area performance monitoring will be assigned to the Oregon Department of Transportation. However, the City of Hood River is encouraged to take an active role in this effort as well.

Performance monitoring will be carried out through regular tracking of traffic volumes through key intersections and roadways, as well as through findings included in Traffic Impact Analyses completed as part of proposed development applications.

Traffic Impact Analyses will be required by ODOT as part of approach applications pursuant to OAR 734-051, and will be required as part of land use applications filed with the City of Hood River pursuant to Hood River Municipal Code 17.20.060 and by Hood River County pursuant to Article 17, Chapter 17.20 (Transportation Circulation and Access Management). Any Traffic Impact Analysis being conducted relative to development partially or entirely within the IAMP overlay zone for the Exit 62 interchange (Figure 10) must include an account of weekday p.m. peak hour site generated trips through IAMP study intersections. Intersections impacted by 25 or more weekday p.m. peak hour site generated trips shall be analyzed for level of service and volume to capacity ratio during day of opening conditions. This requirement will not preclude Oregon Department of Transportation, City of Hood River, or Hood River County from requiring analysis of IAMP study intersections under other conditions.

The Oregon Department of Transportation shall obtain traffic volume counts at IAMP study intersections. Traffic volume counts shall minimally include two-hour weekday p.m. peak hour turn movement counts. New count data for each intersection should be obtained at least every two years. However, count data should be obtained more frequently where significant land development has occurred. ODOT should leverage the use of embedded traffic monitoring technologies to monitor traffic in the interchange areas (i.e., cameras, inductive loops).

Table 5 is provided to help forecast approaching needs for transportation improvements in the interchange area. Within this table, an approximated phasing plan for transportation improvements identified for this area has been laid out assuming growth will occur on an even and linear basis over the next 20 years. Because land development is generally not that regular or predictable, the estimated year of need should be used with caution. Rather, the weekday p.m. peak hour volume targets for critical movements at key intersections should be reviewed as part of the regular monitoring process. Traffic volume data obtained from Traffic Impact Analyses and other sources should be regularly reviewed with consideration to the phasing guide in Table 5 to identify intersection and roadway improvements that will be needed soon.

Table 5: I-84 Exit 62 Interchange Area Transportation Improvement Project Phasing Guide

Estimated Year of Need	Location	Project Needed	Critical Movement	Weekday PM Peak Hour Volume	OHP Mobility Standard
Near-Term	I-84 WB Ramps/ Cascade Ave	Signalize intersection. No additional turn lanes required at this time.	Westbound Left	225	0.85
	Country Club Rd/ Cascade Ave	Close intersection and realign Country Club Rd to connect to new Mt. Adams Ave (also to be constructed as part of this project if not in place). Retain old Country Club Rd section to use for access to adjacent properties and construct a non-motorized access way in the cul-de-sac to allow bicycle and pedestrian passage between Cascade Ave and Country Club Rd. The section of Mt. Adams Ave from Country Club Rd to Cascade Ave can be constructed with only one lane northbound and one lane southbound, with additional lanes constructed at a later time. Signalize intersection of Mt. Adams Ave at Cascade Ave and construct separate northbound left and right turn lanes on the Mt. Adams Ave approach.	Northbound Left	150	0.90
2020	I-84 WB Ramps/ Cascade Ave	Construct separate right and left turn lanes on the westbound I-84 approach. Only single westbound left needed at this time. Improvements to the ramp should be compatible with the future interchange design.	Westbound Left/ Right	425	0.85
		Construct separate northbound left turn lane. Will require bridge widening and should be designed as part of the ultimate interchange reconstruction.	Northbound Left	225	
	Mt Adams Ave/ Cascade Ave	Construct separate eastbound right turn lane that is channelized into an added southbound lane on Mt. Adams Ave, ending as a right turn lane at Country Club Rd. If Mt. Adams Ave has not yet been extended to the south, merge the added southbound lane into the existing southbound lane prior to reaching Country Club Rd.	Eastbound Through/ Right	600	0.90
		Construct separate westbound left turn lane.	Westbound Through/ Left	600	
2025	I-84 EB Ramps/ Cascade Ave	Signalize intersection and construct separate eastbound right and left turn lanes and southbound left turn lane. Improvements should be compatible with the future interchange design.	Southbound Through/Left	750	0.85
	I-84 WB Ramps/ Cascade Ave	Construct separate southbound right turn lane. May construct westbound right turn lane on Westcliff Dr to better manage queuing if needed.	Southbound Through/Right	300	
		Construct second westbound left turn lane. Construct second southbound lane on Cascade Ave from I-84 westbound ramp terminal to Mt. Adams Ave, ending in a right turn lane.	Westbound Left Turn	550	
2030	Cascade Ave	Construct second westbound through lane beginning immediately west of Mt. Adams Ave and dropping as a right turn lane at the I-84 Eastbound Ramps.	Westbound Through	425	0.90
	Mt Adams Ave/ Cascade Ave	Construct second northbound left turn lane.	Northbound Left	700	
	Rand Rd/ Cascade Ave	Construct separate eastbound right turn lane.	Eastbound Through	400	

Improvements to the intersection on Cascade Avenue at Westcliff Drive are not shown in Table 5. Because these improvements are recommended to mitigate potential conflicts with the future signal at the nearby I-84 westbound ramp terminal rather than mitigating failing operations at the intersection itself, the timing of need is uncertain. Therefore, the need for improvements at this intersection should be assessed by monitoring queuing conflicts with the I-84 westbound ramp terminal and overall safety in addition to compliance with mobility standards.

IAMP Updates

As area conditions change, the I-84 Exit 62 IAMP should be reviewed to ensure it continues to address needs through the planning horizon and should be updated accordingly. Actions that should trigger an IAMP review include:

- A change to the City of Hood River or Hood River County Comprehensive Plan, Plan Map, or implementing zoning ordinances that will have a “significant effect” on the transportation system within the IAMP overlay zone. The determination of a “significant effect” shall be pursuant to OAR 660-012-0060.
- The construction of transportation improvement projects within the IAMP overlay zone that are inconsistent with planned and assumed projects in the City of Hood River or Hood River County Transportation System Plans or the I-84 Exit 62 IAMP.
- An amendment or update to the City of Hood River or Hood River County Transportation System Plans.
- Significant modifications to the I-84 Exit 63 interchange that are inconsistent with the I-84 Exit 63/64 IAMP.
- Approval of a development of substantial size within the IAMP overlay zone that is consistent with the underlying zoning, but represents a worst-case trip generation scenario when considering the range of uses allowed in that zoning district. As a general guide, a development of substantial size from a trip generation perspective would generate 500 or more peak hour trips.

In addition to the above actions, consideration should be given to reviewing the IAMP for needed updates every five years. This could be done as part of the monitoring process and could be as simple as reviewing the above list for any actions that may have occurred since the last review.

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