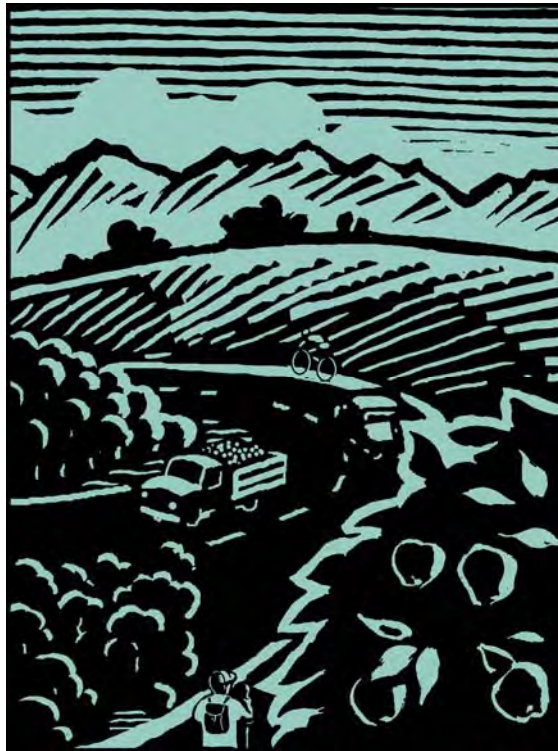


# SR 28 (Sunset Highway) Eastside Corridor Project East Wenatchee, Washington

## SUMMARY

### Final Environmental Impact Statement Final Section 4(f) Evaluation

*October 2006*



*Lead Agencies*





## Summary

### What Is the Purpose and Need for the Project?

The SR 28 Eastside Corridor Project responds to long-standing traffic problems in the Sunset Highway corridor between the Odabashian Bridge and Downtown East Wenatchee. Since the 1970s, the Washington State Department of Transportation (WSDOT) along with Douglas County and the City of East Wenatchee has recognized the need to make improvements in this corridor.



School Bus Loading at SR 28 and Glendale Street

Congestion, safety, access, and mobility are all identified as problems and will continue to get worse as the area grows and develops. As one example, school buses must stop traffic in both directions on this busy two-lane highway and pick up children without the benefit of sidewalks or shoulders. Not only has WSDOT identified this highway as a “high accident corridor,” but also the state legislature has designated it as a Transportation Facility of Statewide Significance. Regional and local transportation plans support the need for improvements and numerous public meetings have produced direct testimony on citizens’ concerns.



Traffic Behind School Bus on SR 28

Between 2005 and 2025, the population in the Greater East Wenatchee Area is expected to grow from 24,000 to over 40,000. The improvements to Sunset Highway are not only designed to correct existing problems, but to serve this planned growth. Almost 90 percent of the traffic on Sunset Highway is local. One of the major challenges is meeting the needs of the local citizens while also serving as a major corridor for the transport of freight and commodities.

## **How Does the Environmental Review Process Work?**

WSDOT responded to this need by proposing improvements to the Sunset Highway corridor. Through an extensive alternative evaluation process over the course of three years involving citizens, local governments, affected stakeholders, and various permitting agencies, WSDOT identified five alternatives that met the purpose and need for the project.

These five alternatives were compared to the No Build Alternative in the Draft Environmental Impact Statement (Draft EIS) as part of the National Environmental Policy Act (NEPA) process. The Draft EIS was published on December 17, 2004. The Federal Highway Administration (FHWA) is the lead agency.

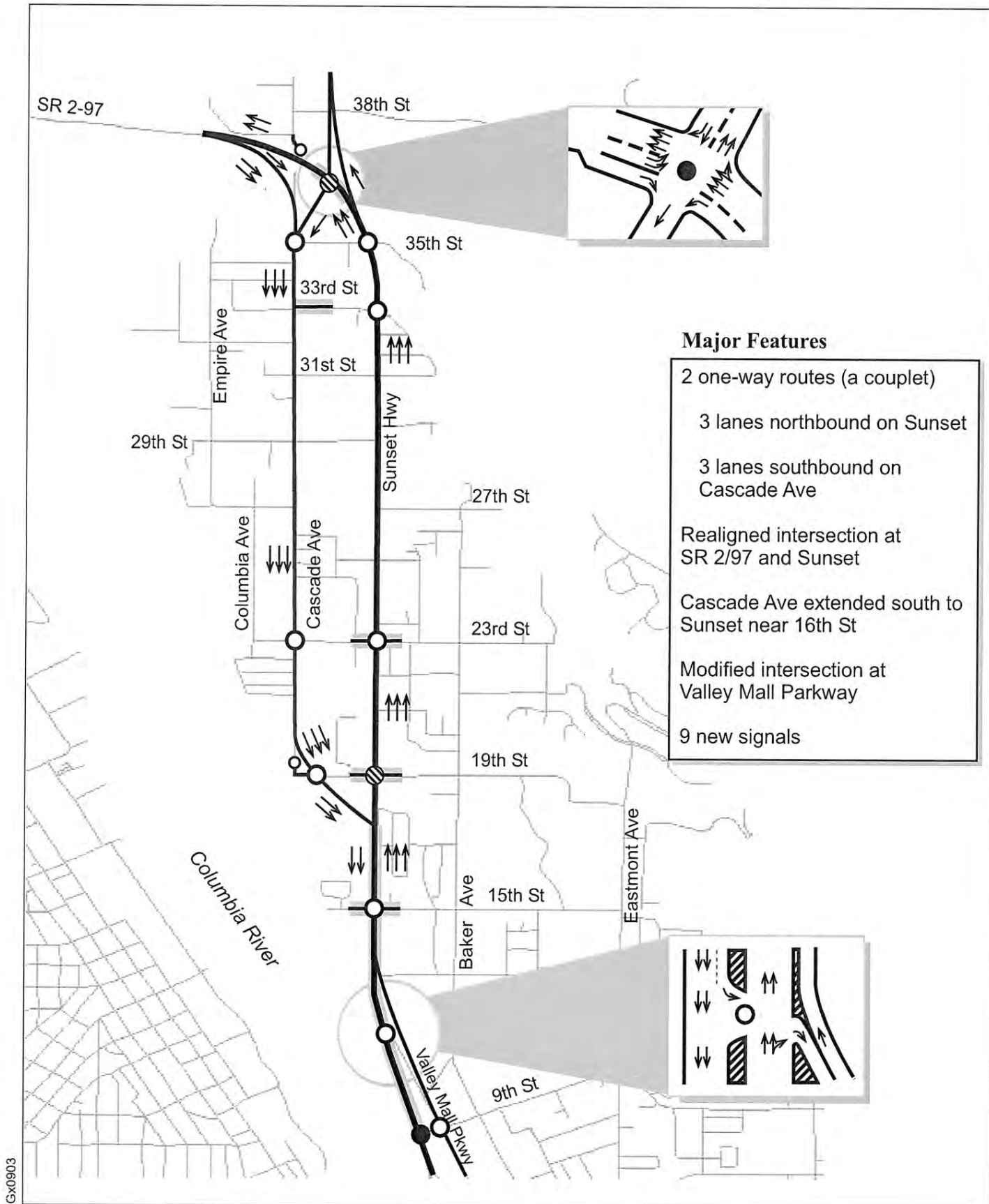
The publication of the Draft EIS initiated the formal public comment period. During this period, WSDOT held a public hearing and conducted targeted community outreach to solicit comments from all members of the public including minority, low income, and elderly members on the alternatives and their environmental impacts. WSDOT and FHWA evaluated the comments and prepared responses for publication in this Final Environmental Impact Statement (Final EIS).

## **How Were the Alternatives Selected?**

WSDOT began the evaluation of alternatives for consideration in the EIS by considering 34 alternatives. These were ultimately reduced down to four alternatives through a comprehensive screening process that looked at whether the alternative solved the problem, improved safety, was constructible, would receive permits, and minimized displacements. Another criterion was added towards the end of the screening process that examined whether the alternative maintained the functionality and life span of the facility. Under this criterion, one of the four alternatives was modified to prepare an option that managed access more efficiently.

The five alternatives are briefly described below and illustrated in the following figures (see Figures S-1 through S-5).

**Alternative 1:** This alternative consists of a one-way couplet (a pair of one-way streets) utilizing Sunset Highway and NW Cascade Avenue between SR 2/97 and 9th Street NE (Figure S-1).



**Legend**

- 1 Lane Each Way
- Existing Signal
- ▬ Left Turn Pocket or 2-Way Left Turn Lane
- ◉ Revised Signal
- ↑↑ Through Lanes and Direction, if >1
- New Signal
- Cul-de-sac Road

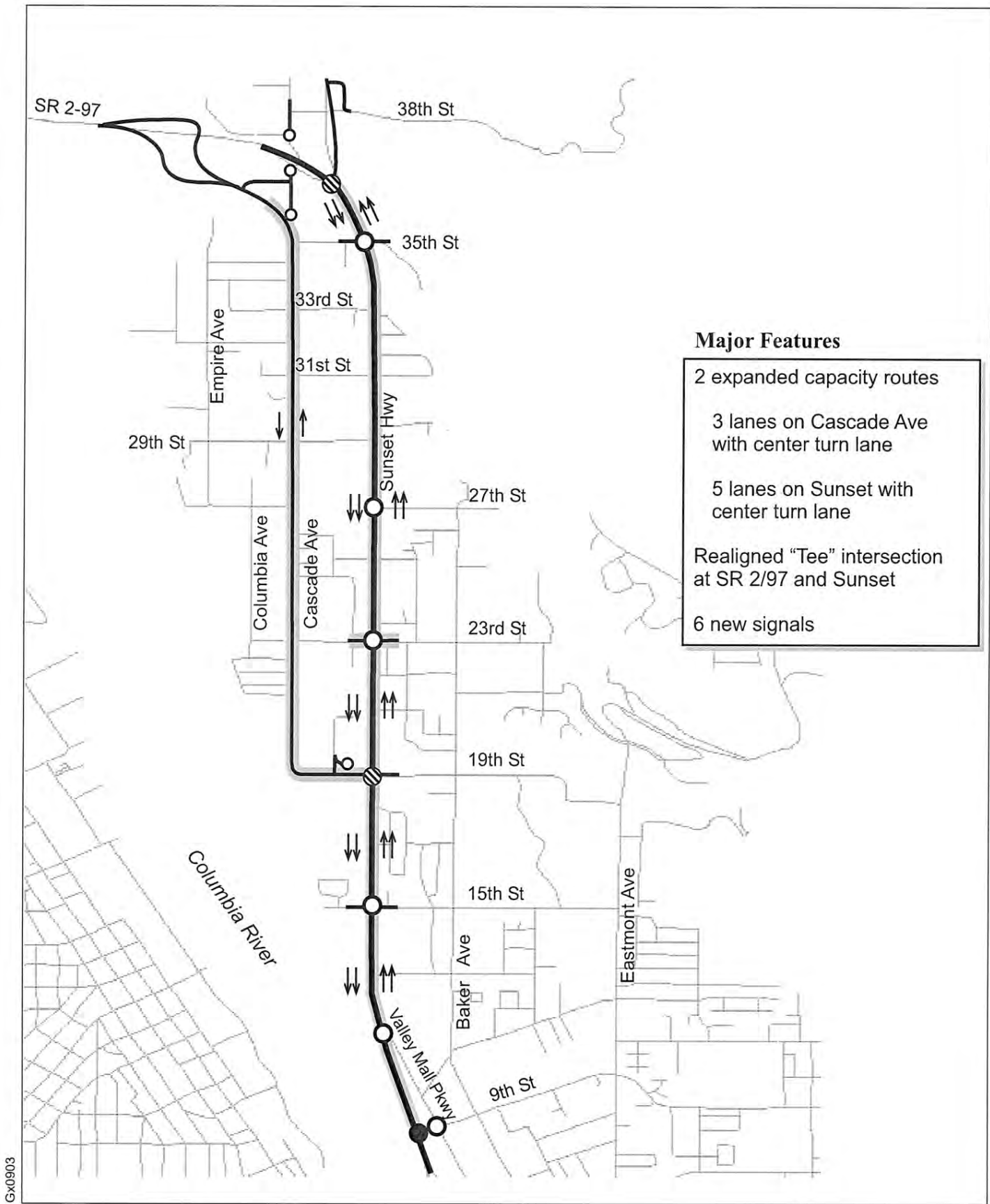


NOT TO SCALE

Figure S-1

**Alternative 1 Configuration**





**Major Features**

- 2 expanded capacity routes
- 3 lanes on Cascade Ave with center turn lane
- 5 lanes on Sunset with center turn lane
- Realigned "Tee" intersection at SR 2/97 and Sunset
- 6 new signals

**Legend**

- 1 Lane Each Way
- ▬ Left Turn Pocket or 2-Way Left Turn Lane
- ↑↑ Through Lanes and Direction, if >1
- Cul-de-sac Road
- Existing Signal
- ⊗ Revised Signal
- New Signal

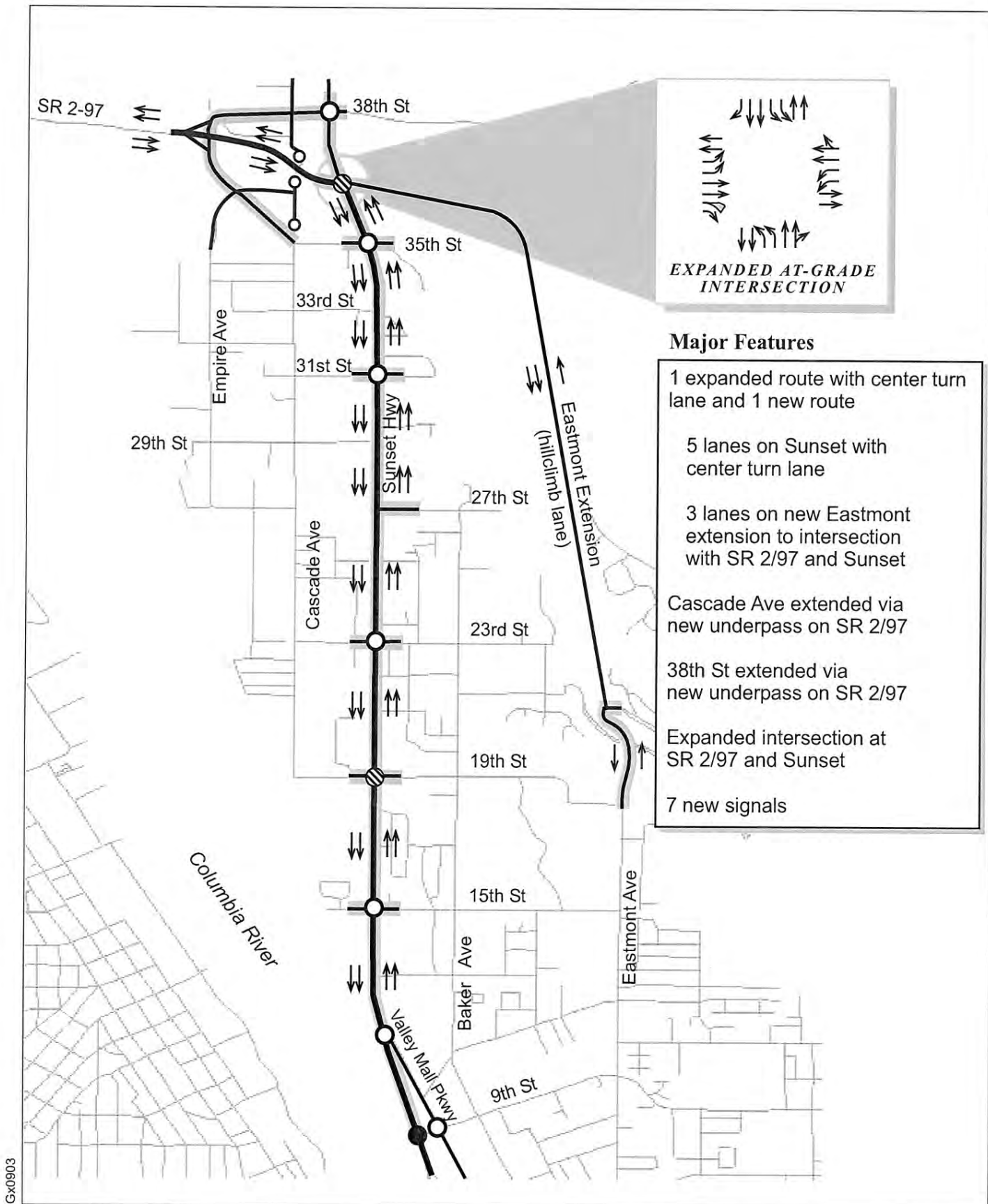


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Figure S-2  
**Alternative 2 Configuration**







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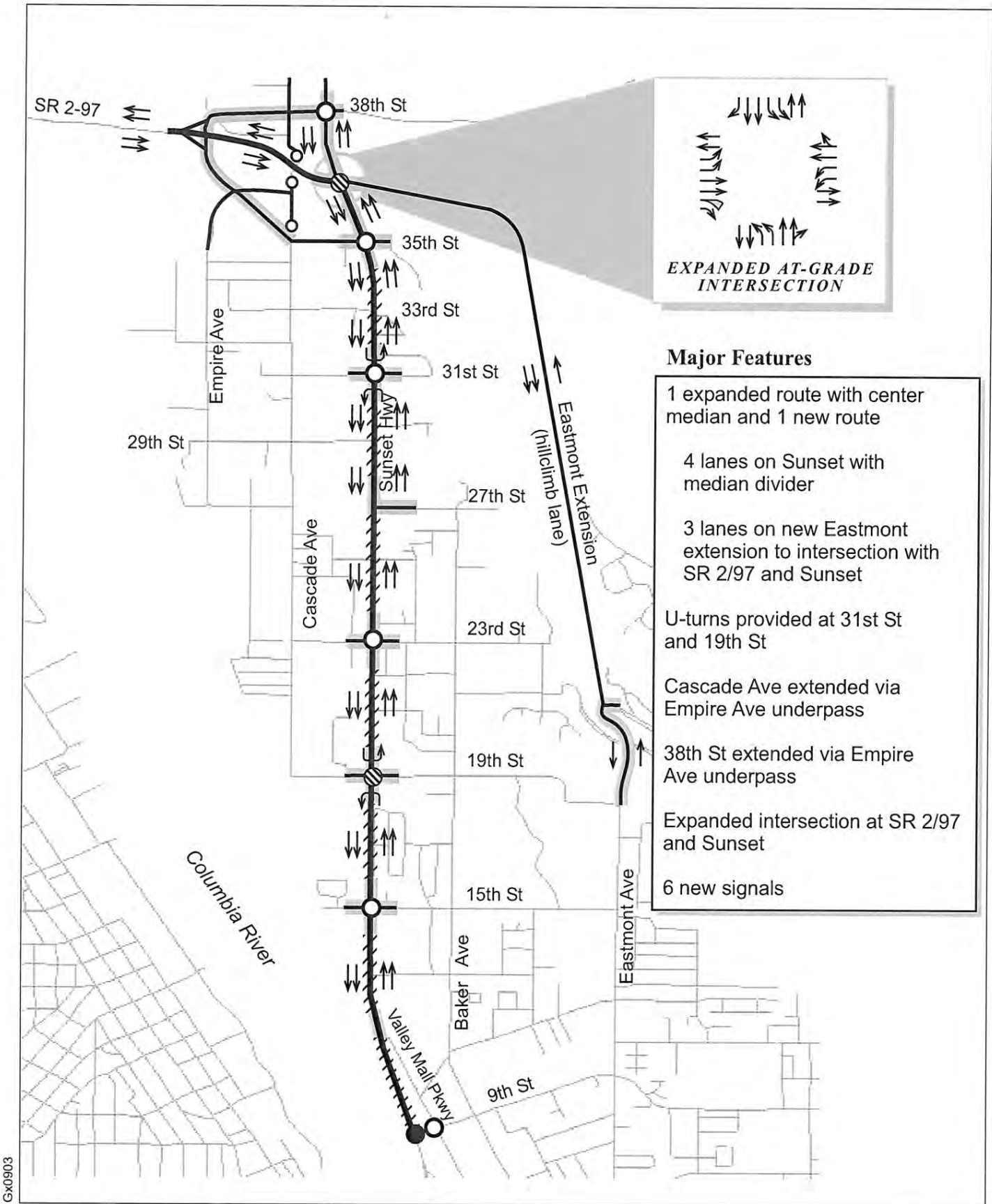
**Legend**

- 1 Lane Each Way
- Existing Signal
- ▬ Left Turn Pocket or 2-Way Left Turn Lane
- ◐ Revised Signal
- ↑↑ Through Lanes and Direction, if >1
- New Signal
- Cul-de-sac Road



Figure S-3  
**Alternative 3A Configuration**





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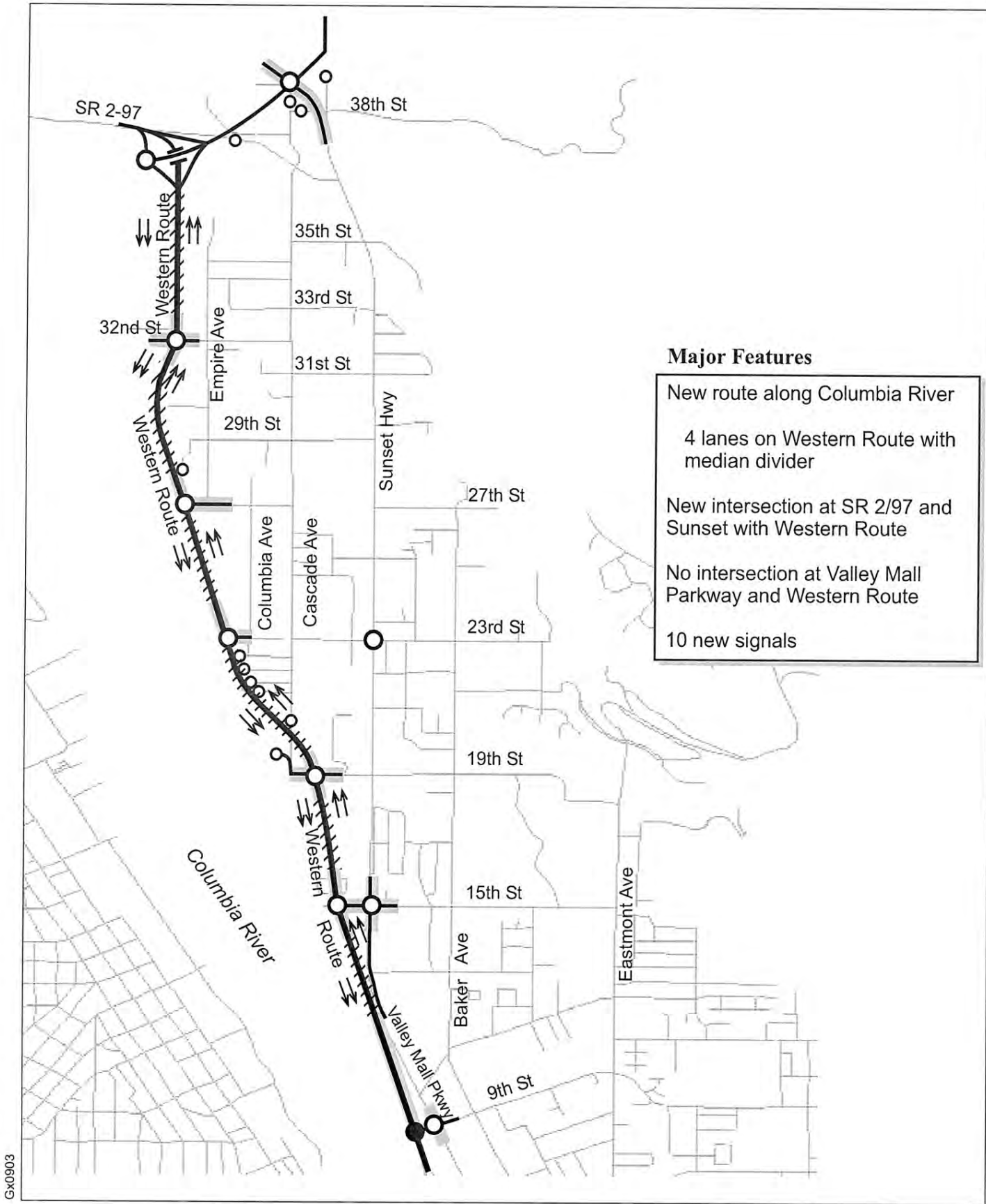
**Legend**

- 1 Lane Each Way
- Left Turn Pocket or 2-Way Left Turn Lane
- ↑↑ Through Lanes and Direction, if >1
- Cul-de-sac Road
- /// Raised Median No Left Turns
- Existing Signal
- ⊗ Revised Signal
- New Signal



Figure S-4  
**Alternative 3B Configuration**





**Major Features**

- New route along Columbia River
- 4 lanes on Western Route with median divider
- New intersection at SR 2/97 and Sunset with Western Route
- No intersection at Valley Mall Parkway and Western Route
- 10 new signals

**Legend**

- 1 Lane Each Way
- Left Turn Pocket or 2-Way Left Turn Lane
- ↑↑ Through Lanes and Direction, if >1
- Cul-de-sac Road
- /// Raised Median No Left Turns
- Existing Signal
- ⊘ Revised Signal
- New Signal



Figure S-5  
Alternative 4 Configuration



**Alternative 2:** This alternative would widen NW Cascade to three lanes with a center turn lane and connect it to Sunset Highway at its southern end. Sunset Highway would be widened to five lanes with a center turn lane (Figure S-2).

**Alternative 3A:** This alternative would construct an extension of Eastmont Avenue from the intersection of SR 2/97 and Sunset Highway to Badger Mountain Road. Sunset Highway would be widened to five lanes with a center turn lane (Figure S-3).

**Alternative 3B:** This alternative is the same as 3A but instead of center turn lane on Sunset Highway, a median would be constructed and U-turn intersections provided (Figure S-4).

**Alternative 4:** This alternative would construct a new alignment approximately 300 feet from the Columbia River from SR 2/97 to 13th Street NE (Figure S-5).

Each of these alternatives are evaluated in the Final EIS and compared to the impacts that are expected to occur under the No Build Alternative. The No Build Alternative consists of planned and funded improvements that would be made to Sunset Highway and existing roads in the area between 2004 and 2006. While there are identified projects beyond 2006, funding for them is not yet available.

### How Was the Preferred Alternative Selected?

WSDOT and FHWA tentatively selected **Alternative 3B** as the Preliminary Preferred Alternative for the Draft EIS. They made this selection after reviewing the various discipline reports and determining that **Alternative 3B** was the most effective at balancing functional

efficiency with environmental, social, and economic effects. The selection was preliminary and subject to revision, depending on comments received during the public comment period.

WSDOT held an environmental design hearing on January 26, 2005 to present the project alternatives to the public and take public comment. Over 200 people attended, and more than 150 comment letters were received.

WSDOT and FHWA reviewed the public and agency comments received on the Draft EIS and responded with revisions and additional analysis on the



Draft EIS Open House (January 26, 2005)

impacts of the project. These revisions and additional analysis are contained in this Final EIS. The comment letters and their corresponding responses are in Appendix C of the Final EIS.

After considering all the comments and conducting the additional analysis, WSDOT and FHWA reaffirmed their selection of **Alternative 3B** as the preferred alternative. Together with committed mitigation, they believe the Preferred Alternative best meets the purpose and need for the project while minimizing adverse impacts to the built and natural environments. This Final EIS identifies **Alternative 3B** as the Preferred Alternative.

### **What Were the Major Concerns Raised During Public Comment?**

WSDOT received 192 comments in the form of letters, cards, emails, and testimony. A large percentage of comments were concerned about the impact of the Eastmont Extension. The specific concern was that the Eastmont Extension would divert traffic off of Sunset Highway and serve as a detour route because of congestion and additional stop lights on Sunset. The additional traffic on Eastmont would create congestion, more pollution, more accidents, and more community disruption in the neighborhoods along Eastmont Avenue.

WSDOT conducted additional analysis to address this concern. Under the Preferred **Alternative 3B**, the additional analysis found that travel times through the corridor on Sunset were faster than on the Eastmont Avenue Extension (10.4 minutes versus 12.5 minutes). The reasons were steeper grades on Eastmont, signal synchronization on Sunset, lower speeds on Eastmont, and increased future traffic on Eastmont. The travel time on Eastmont is likely to be even longer than estimated because of the high probability of signals being installed at some intersections by the year 2025 due to growth in traffic volumes. For the above reasons, it is unlikely that trucks or passenger cars will use the Eastmont Extension as a detour through the corridor.

The additional analysis also examined the consequences of not constructing the Eastmont Extension as part of **Alternative 3B**. Levels of service on Sunset worsen if the Eastmont Extension is not built because the Extension does not exist to take Fancher Heights bound traffic off of Sunset. Levels of service also worsen on side roads connecting Sunset with Eastmont without the Extension.

Pedestrian safety along Eastmont does not decrease under the Preferred **Alternative 3B** compared to not constructing the Extension. **Alternative 3B** will construct a number of safety improvements on Eastmont including designated sidewalks, crosswalks at stop signs, pedestrian and bicycle signage, and multipurpose shoulders. Pedestrian safety along the side



streets will improve under the **Alternative 3B** because more traffic will use the Extension to get to Fancher Heights and other local areas.

Surprisingly few comments were received on the impact of the median under the Preferred **Alternative 3B**. While many members of the public were in support of **Alternative 3B**, those opposed cited concerns of access, convenience, and safety. WSDOT responded to the safety concerns by reiterating that the design of the median will meet all safety standards and is an acceptable design in an urban area with a posted speed of 40 miles per hour. WSDOT acknowledged in its response to access concerns that the use of the U-turns will be slightly more inconvenient, but the safety improvement with the median was an important trade-off.

### **What Changes Have Occurred in the Final EIS From the Draft EIS?**

For the Final EIS, WSDOT and FHWA have elected to reproduce the Draft EIS in its entirety with changes based on public and agency comments. There are two changes of note. First, the additional traffic analysis conducted in response to comments about traffic impacts to the Eastmont neighborhood under the Preferred **Alternative 3B** is included in Section 3.1.4 (see pages 3-62, 3-70, Table 3.1-17, and Table 3.1-18). Second, the alignment of Alternative 2 and Alternatives 3A/**3B** was shifted slightly to the east between 13th Street NW and 17th Street NW to avoid affecting two homes eligible for listing as historic on the National Register of Historic Places (NRHP). Section 3.8.6 discusses the results of the evaluation conducted in compliance with Section 4(f) of the Department of Transportation Act of 1966 (see page 3-256). As a consequence of the shift, the Preferred **Alternative 3B** affects the fewest Section 4(f) resources of the alternatives.

### **How Are the Environmental Impacts Evaluated?**

The Final EIS evaluates each of the Build Alternatives and the No Build Alternative against nineteen areas of the environment including natural and built elements. Direct, indirect, and cumulative impacts are identified for construction and operation of the alternatives. Appendix D contains summary matrices of these impacts and is a useful tool for comparing the alternatives. Mitigation measures are recommended in each chapter to reduce the identified impacts.

Of the nineteen environmental areas, the following have beneficial or minor impacts after mitigation measures are taken into account (see Appendix D for a summary by area):

- **Air Quality** – all of the alternatives will meet air quality standards.

- **Soils and Geology** – erosion control best management practices will be required for all construction.
- **Water Resources** – flooding will be reduced and the Columbia River and local streams will be protected through the use of best management practices.
- **Biological Resources** – minor loss of habitat will occur for some alternatives, some endangered or threatened species may be indirectly impacted through disturbance.
- **Visual Quality and Aesthetics** – minor changes in views along all alternatives, existing landscapes will have minor impacts.
- **Hazardous Materials** – known sources are identified and mitigation measures required.
- **Noise** – general increase in noise will occur under all alternatives including the No Build due to increased traffic, noise walls are not recommended.
- **Land Use** – all alternatives are consistent with land use plans.
- **Recreation** – during construction minor indirect impacts (mainly noise and dust) to recreation facilities including the Apple Capital Loop Trail. Relocation of one trail parking area under one alternative.
- **Farmland** – conversion of minor acreage of farmland occur under all alternatives in areas already identified as future residential and commercial development.
- **Environmental Justice** – no disproportionately high and adverse impacts to minority or low-income populations.
- **Public Services** – improved services under most alternatives due to improved traffic conditions.
- **Utilities** – all utilities will be relocated as necessary and no breaks in service are expected.
- **Energy** – there are adequate energy supplies in the area for construction and operation of all alternatives.

### **Which Areas of the Environment Are Most Affected?**

The remaining five areas of the environment may sustain more substantial impacts. These include transportation, historic, cultural, economic, and social elements of the environment.

## ***Transportation***

All of the Build Alternatives satisfy the purpose and need for the project. Each would improve safety, congestion, and mobility. Each would meet Level of Service standards. What separates the alternatives is their area-wide effectiveness. Tables S-1 and S-2 summarize each alternative with respect to this measure.

**Table S-1.  
Measures of Traffic Effectiveness, by Alternative<sup>1</sup>**

|    | <b>Measure of Effectiveness</b>                             | <b>2025<br/>No Build<br/>Alternative</b> | <b>2025<br/>Alternative<br/>1</b> | <b>2025<br/>Alternative<br/>2</b> | <b>2025<br/>Alternative<br/>3A</b> | <b>2025<br/>Alternative<br/>3B</b> | <b>2025<br/>Alternative<br/>4</b> |
|----|---|--|-----------------------------------|-----------------------------------|------------------------------------|------------------------------------|-----------------------------------|
| 1  | Average Speed in the Sunset Highway Corridor (mph)          | 15.1                                     | 33.7                              | 25.7                              | 30.6                               | 32.4                               | 33.8                              |
| 2  | Average Speed on East-West Streets (mph)                    | 11.7                                     | 19                                | 17.8                              | 18.7                               | 20.1                               | 18.7                              |
| 3  | Delay in Eastside Study Area (hours)                        | 813                                      | 247                               | 311                               | 239                                | 198                                | 202                               |
| 4  | Unprotected Left Turns and Through Movements (no.)          | 531                                      | 164                               | 356                               | 326                                | 0                                  | 266                               |
| 5  | East-West Access to Eastmont Avenue (volume)                | 1374                                     | 1335                              | 1351                              | 570                                | 509                                | 1275                              |
| 6  | Average Travel Time Across Columbia River (min.)            | 17.3                                     | 15.3                              | 15.8                              | 15.8                               | 14.7                               | 15.2                              |
| 7  | Delay in Region Outside the Sunset Highway Corridor (hours) | 6392                                     | 6297                              | 6396                              | 6314                               | 6390                               | 6357                              |
| 8  | Average Travel Time in the SR 28 Corridor (min)             | 19.8                                     | 11.0                              | 12.5                              | 10.9                               | 10.4                               | 11.0                              |
| 9  | Average Travel in the Eastmont Corridor (min.)              | 22.6                                     | 13.3                              | 15.2                              | 13.8                               | 12.5                               | 15.0                              |
| 10 | Average Travel Time in the Local Eastmont Corridor (min.)   | 4.0                                      | 3.7                               | 3.8                               | 5.1                                | 3.9                                | 3.8                               |

Source: traffic forecasting model

<sup>1</sup> The measures of effectiveness are recorded in miles per hour (average speed), hours (total delay experienced by drivers), volume (vehicles per hour during peak periods), minutes (travel time), and numbers of turning vehicles.

**Table S-2.  
Rank Ordered Measures of Traffic Effectiveness, by Alternative**

|    | Measure of Effectiveness                                    | 2025<br>No Build<br>Alternative | 2025<br>Alternative<br>1 | 2025<br>Alternative<br>2 | 2025<br>Alternative<br>3A | 2025<br>Alternative<br>3B | 2025<br>Alternative<br>4 |
|----|---|---------------------------------|--------------------------|--------------------------|---------------------------|---------------------------|--------------------------|
| 1  | Average Speed in the Sunset Highway Corridor (mph)          | 6                               | 2                        | 5                        | 4                         | 3                         | 1                        |
| 2  | Average Speed on East-West Streets (mph)                    | 6                               | 2                        | 5                        | 3                         | 1                         | 3                        |
| 3  | Delay in Eastside Study Area (hours)                        | 6                               | 4                        | 5                        | 3                         | 1                         | 2                        |
| 4  | Unprotected Left Turns and Through Movements (no.)          | 6                               | 2                        | 5                        | 4                         | 1                         | 3                        |
| 5  | East-West Access to Eastmont Avenue (volume)                | 6                               | 4                        | 5                        | 2                         | 1                         | 3                        |
| 6  | Average Travel Time Across Columbia River (min.)            | 6                               | 3                        | 4                        | 4                         | 1                         | 2                        |
| 7  | Delay in Region Outside the Sunset Highway Corridor (hours) | 6                               | 1                        | 5                        | 2                         | 4                         | 3                        |
| 8  | Average Travel Time in the SR 28 Corridor (min)             | 6                               | 3                        | 5                        | 2                         | 1                         | 3                        |
| 9  | Average Travel in the Eastmont Corridor (min.)              | 6                               | 2                        | 5                        | 3                         | 1                         | 4                        |
| 10 | Average Travel Time in the Local Eastmont Corridor (min.)   | 6                               | 2                        | 2                        | 5                         | 4                         | 2                        |
|    | Unweighted Sum of Rank Scores                               | 60                              | 25                       | 46                       | 32                        | 18                        | 26                       |
|    | Overall Rank Order, Unweighted                              | 6                               | 2                        | 5                        | 4                         | 1                         | 3                        |

1 = most effective, 6 = least effective. Closely ranked alternatives receive same score

The tables show that **Alternative 3B** ranks highest in area-wide effectiveness. But the scores are close between **3B**, 1, and 4. The measures are unweighted and different perspectives among the various stakeholders might argue that some measures should be ranked higher.

### ***Historic Resources***

Historic resources are those that are eligible for listing on the NRHP. Homes, buildings, or structures that are over 50 years in age are evaluated for eligibility. Because the area contains a number of older homes, each of the alternatives adversely impacts some historic properties. For example, all of the alternatives impact the eligible irrigation canal built in 1908. Table S-3 illustrates the differences between the alternatives in impacts to historic resources.

**Table S-3.  
Comparison of Effects on Eligible NRHP Properties**

| ALTERNATIVE           | EFFECT                                       |                             |  |
|-----------------------|--|-----------------------------|--|
|                       | Potentially Affected Properties <sup>1</sup> | Indirect Non-adverse Effect | Direct Adverse Effects Requiring Removal |
| No Build              | 0  | 0                           | 0  |
| Stormwater Facilities | 5  | 0                           | 0  |
| Alternative 1         | 12   | 7                           | 3  |
| Alternative 2         | 12   | 4                           | 4  |
| Alternatives 3A & 3B  | 9  | 5                           | 2  |
| Alternative 4         | 8  | 2                           | 6  |

<sup>1</sup> The total number of NRHP eligible properties within the area of potential effect for that alternative.

Alternative 1 affects two historic buildings in part because it has a small footprint. Alternative 2 has the largest footprint and likewise affects more sites. Alternative 4 is a new alignment through several older neighborhoods and affects six historic sites (five buildings plus the canal). Alternatives 3A and 3B only involve Sunset Highway and relatively few newer homes along the Eastmont Extension. These alternatives only affect one historic building along with the canal.

To partially mitigate for impacts to these historic resources, WSDOT has developed a Memorandum of Agreement with the State Historic Preservation Officer that specifies how WSDOT will document these resources for federal, state, and local historic agencies.

***Cultural Resources***

All of the alternatives potentially impact cultural resources because the Study Area was actively used by Native Tribes for the past 10,000 years or more. Because of the high probability of discovering cultural artifacts and resources, the project will be subject to strict measures governing construction. In general, these will begin with avoidance and transition to recovery where avoidance is not possible.

WSDOT and FHWA will implement mitigation measures approved by the State Historic Preservation Officer and reviewed by the affected tribes under the Memorandum of Agreement. The mitigation measures include a Monitoring Plan, an Inadvertent Discovery Plan, and a Recovery Plan.

### ***Economic/Relocations***

The economic impacts include both beneficial and negative impacts. The beneficial impacts include the boost to the local economy from the construction of any alternative. Table S-4 below shows the estimated project costs of each alternative.

**Table S-4.  
Summary of Estimated Project Costs for Build Alternatives**

| <b>Alternative</b>     | <b>Estimated Construction Contract</b> | <b>Estimated Construction w/ ROW</b> | <b>Total Estimated Design to Operation</b> |
|------------------------|--|--------------------------------------|--|
| No Build               | N/A                                    | N/A                                  | \$ 3,019,397                               |
| Alternative 1          | \$ 57,909,498                          | \$ 119,820,778                       | \$ 138,106,532                             |
| Alternative 2          | \$ 57,048,430                          | \$ 120,119,070                       | \$ 139,743,917                             |
| Alternatives 3A and 3B | \$ 72,890,998                          | \$ 129,588,478                       | \$ 151,614,837                             |
| Alternative 4          | \$ 64,967,007                          | \$ 104,740,362                       | \$ 121,401,793                             |

*Source: Resource Dimensions estimates*

NOTE: Estimates are based on preliminary design information and may be revised in the final design and construction phase of the project. Totals reflect all associated costs (design, construction, consulting, and operation) estimated for the first 10-year project cycle. Guidelines provided by WSDOT 2004.

The alternatives have a multiplier effect on the local economy that is directly proportional to the construction costs. Alternatives 3A and 3B will provide the greatest economic benefits to the area because of their higher construction costs. Alternative 4 is the least costly to construct and provides the fewest economic benefits.

The negative impacts are primarily related to the costs and disruption created by relocating residents and businesses due to right-of-way acquisition. Table S-5 shows the total number of residences and business that would be acquired by each alternative.

**Table S-5.  
Total Number of Residences and Businesses to be Acquired for each Alternative**

|             | <b>Alternative 1</b> | <b>Alternative 2</b> | <b>Alternatives 3A and 3B</b> | <b>Alternative 4</b> |
|-------------|----------------------|----------------------|-------------------------------|----------------------|
| Residential | 131                  | 156                  | 108                           | 84                   |
| Business    | 13                   | 14                   | 7                             | 11                   |
| Lots        | 4                    | 4                    | 5                             | 7                    |
| Other       | 0                    | 1                    | 0                             | 0                    |
| Total       | 148                  | 175                  | 120                           | 102                  |

## ***Social Impacts***

All of the alternatives including the No Build will impact the social character of the Study Area. The social impacts to the community are a composite of many of the individual elements of the environment. The analysis of social impacts evaluates the various types of impacts created by each alternative. The analysis includes traffic congestion, air quality, access to properties, safety, impacts on neighborhoods, impacts on recreation opportunities, social cohesion, services, schools, aesthetics, and quality of life. Many of these measures are qualitative.

Alternatives 3A and **3B** have the fewest negative impacts to the elements used to measure social character. The No Build has the highest followed by Alternatives 1 and 2. Alternative 4 scores closer to Alternatives 1 and 2, in large part because of its impact on the rural character, aesthetics, and the Apple Capital Loop Trail.

## **What Are the Significant Areas of Controversy?**

In the course of the numerous public meetings, one area of controversy stands out: the location of Alternative 4. There are strong feelings both for and against this alternative because of its history and its location. Many people feel very strongly about protecting the shoreline of the Columbia River. Equally passionate are those who argue that this alternative is the least disruptive to existing neighborhoods and communities. These positions are largely value-based and the information presented in this Final EIS can be used to refute or support either view.

Another area of controversy is the access management of Sunset Highway. Douglas County has stated that the inclusion of **Alternative 3B** in the Final EIS does not mean they support it. Changing much of the access along Sunset Highway from unrestricted access to right-in, right-out only will impact those properties that remain with direct access after the project is constructed. While that number will be substantially less than exist today due to relocations, it will still represent a large number of properties.

## **What Project Approvals Have Been Received?**

In addition to meeting the requirements of the NEPA and SEPA process, the project will require permits and approvals from federal, state, and local agencies before construction may begin. These are listed in the Fact Sheet at the beginning of the Final EIS. The Action has received approval from the State Historic Preservation Officer pursuant to Section 106 of the National Historic Preservation Act and its implementing regulations 36 CFR 800. The Action has also received approval from the federal agencies responsible for administering the Endangered Species Act.

## **What Environmental Commitments Have Been Made?**

The following list identifies the environmental commitments of WSDOT and FHWA on the **Preferred Alternative 3B**. WSDOT will implement these commitments through either contract provisions or environmental permit conditions.

### ***Traffic and Transportation***

Mitigation measures for traffic include preparing a traffic management plan to minimize construction-related impacts to local streets, limit truck traffic to designated routes, and limit construction-related lane closures and detours to the minimum required for construction.

### ***Air Quality***

Controlling dust is the primary mitigation measure for air quality.

### ***Soils and Geology***

As mitigation for impacts to soils and geology, WSDOT will follow recommendations of a geotechnical engineer to perform all major excavation, shoring, and foundation support for roads and stormwater ponds to meet seismic design requirements.

### ***Water Resources***

WSDOT will adhere to all required water quality Best Management Practices for the protection of both surface and groundwaters. These measures include:

- implementing a Temporary Erosion and Sediment Control (TESC) Plan, as outlined in the current Highway Runoff Manual (HRM) to prevent, intercept, and treat all potential silt-laden runoff during construction;
- using the best available design practices to maintain existing hydrologic function and drainage patterns based on site geology, hydrology, topography, and practicality;
- providing a Spill Control and Countermeasures Plan (SPCC), as detailed in the current HRM for control of construction products related pollutants;
- performing an accurate survey of existing well locations prior to construction to determine if the wells would be abandoned, replaced, or connected to the East Wenatchee water system;
- coordinating with East Wenatchee Water District to develop management strategies to minimize releases of potential groundwater



contamination from the highway in the Wellhead Protection Area of the 19th Street Wellfield;

- preparing a Stormwater Site Plan consistent with the current HRM.

### ***Biological***

Mitigation measures for construction primarily involve avoiding and minimizing impacts to species and their habitat areas, including limiting construction timing during periods when sensitive species are particularly vulnerable to disturbance (Section 3.5.5).

Mitigation measures for operation of the alternatives primarily involve minimizing and compensating for adverse impacts. Measures to minimize adverse impacts include planting native vegetation. Measures to compensate for adverse impacts may include replacement of culverts that are currently blocking fish passage to suitable habitats with fish-friendly designs.

### ***Visual***

The mitigation measures for visual impacts are to provide lighting at locations along the roadways that would be directed onto the road so as to minimize the potential for light spill in the surrounding area and the occurrence of artificial light glow on the night sky.

### ***Hazardous Materials/Waste***

WSDOT will mitigate for potential hazardous materials and wastes by adhering to standard cleanup protocol when these materials are encountered.

### ***Historic Resources***

Adverse effects on historic resources (i.e., resources eligible for listing in the NRHP) would require mitigation. Documentation using Historic American Building Survey (HABS) guidelines prior to relocating or removing the resource would be used to mitigate some of the adverse effects on eligible NRHP properties.

Mitigation measures could include moving the resource to another site or relocating the structure on the same tax lot, but further from the street.

### ***Cultural Resources***

Significant archaeological resources will need to be addressed and adverse effects mitigated through avoidance or by some other means, such as data recovery, to be decided in consultation with appropriate tribes. WSDOT has developed a Memorandum of Agreement with the State Historic

Preservation Officer (SHPO) to implement a Data Recovery Plan, Monitoring Plan, and Inadvertent Discovery Plan.

### ***Noise***

WSDOT will mitigate for construction noise by implementing best management practices for construction equipment, and providing a noise complaint resolution process.

### ***Land Use***

Impacts to land use are not considered significant and no specific mitigation is provided.

### ***Recreation***

Mitigation measures for recreation include erecting signs to advise residents of temporary restrictions to specific access points for the Apple Capital Loop Trail.

### ***Farmland***

The primary mitigation measures for impacts to farmland include maintaining access to farm fields during and after construction, and rebuilding the canal only during the off-season for irrigation.

### ***Economics***

For mitigation, WSDOT will adhere to specified relocation requirements, notify businesses of detours required during construction, and work to minimize impacts on businesses.

### ***Social and Environmental Justice***

WSDOT will develop a relocation plan, per federal and state requirements, to provide acquisition and relocation assistance and work with displaced residents to minimize the disruption.

### ***Public Services and Utilities***

WSDOT will work closely with public service providers and utilities to minimize disruption during construction. WSDOT will adhere to standard best management practices in coordinating with emergency service providers like police and fire. WSDOT's Design Manual and Utilities Manual provide specific guidance on the relocation of utilities during construction.

### ***Energy***

Impacts to energy are not considered significant and no specific mitigation is provided.

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