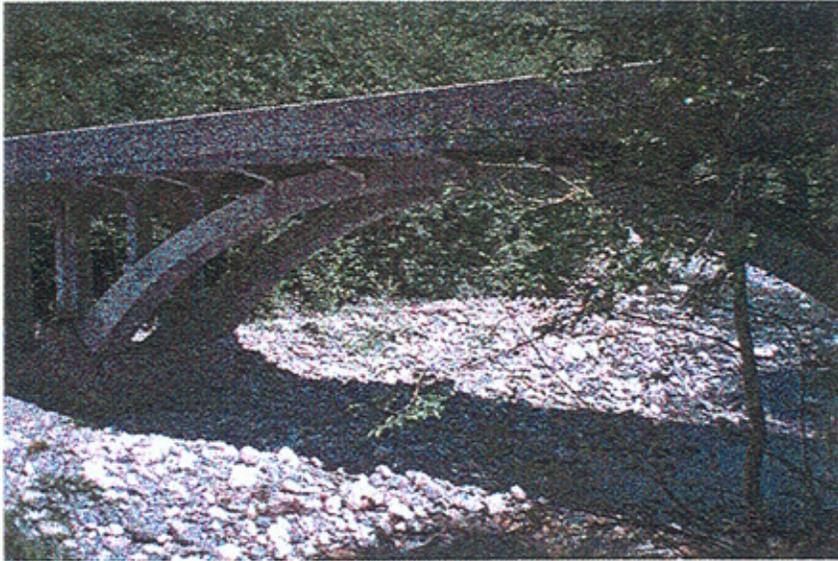


MOUNTAINS TO SOUND GREENWAY

# IMPLEMENTATION PLAN

Volume 4



## GREENWAY PROJECTS AND LAND USE



Washington State  
Department of Transportation



# Greenway Projects and Land Use

Mountains to Sound Greenway  
Puget Sound to Elk Heights  
Interstate 90: MP 1.94 to MP 93.62



## **Volume 4** of the Mountains to Sound Greenway Implementation Plan

December 1997  
WSDOT Northwest Region Planning Office

John Okamoto, Regional Administrator

**TABLE OF CONTENTS**

<b><u>SUBJECT</u></b>	<b><u>Page</u></b>
<b>Table of Contents .....</b>	<b>i</b>
<b>Introduction.....</b>	<b>ii-iii</b>
<b>Vicinity Map.....</b>	<b>iv</b>
<b>Greenway Projects.....</b>	<b>1-1 to 1-54</b>
Project 1: The Signing Plan.....	1-1 to 1-37
<i>Conceptual Signs</i> .....	1-3 to 1-34
<i>Sign Estimate Table</i> .....	1-35 to 1-37
Project 2: Issaquah Connection Trail.....	1-38 to 1-42
Project 3: High Point Trailhead Trestle Repair.....	1-43
Project 4: Snoqualmie Pass Visitors Site.....	1-44 to 1- 1-48
Project 5: High Point to Preston Trail.....	1-49 to 1-53
Project 6: Silver Creek Fish Crossing Retrofit.....	1-54
<b>Appendix A: Signing Element.....</b>	<b>A1-A6</b>
<b>Appendix B: Trails Element .....</b>	<b>B1-B5</b>
<b>Appendix C: Trailheads Element.....</b>	<b>C1-C4</b>
<b>Appendix D: Scenic View Element.....</b>	<b>D1-D3</b>
<b>Appendix E: Wildlife Corridors Element.....</b>	<b>E1-E9</b>
<b>Appendix F: Revegetation Element.....</b>	<b>F1-F2</b>
<b>Appendix G: Mountains to Sound Greenway Workshop.....</b>	<b>G1-G4</b>
<b>Appendix H: SI to Imperial Table.....</b>	<b>H</b>
<b>Appendix I: Bikeway and Trail Designs.....</b>	<b>I</b>

## INTRODUCTION

The ultimate goal of the Mountains to Sound Implementation Plan is the detailed analysis of a number of projects, resulting in either detailed planning or preliminary level design for each. Part of the task of the overall effort was to identify which projects would receive this level of attention. This volume, titled *The Implementation Plan*, contains those plans in the main body of the text, and a description of the full list of projects from which these were chosen appears in the appendices. The appendices contain a description of the process by which the projects were chosen. The work contained in the text is intended to lead directly to detailed design or construction of these projects once funding is available.

### **Purpose**

The primary goal of the Mountains to Sound Greenway Implementation Plan is to analyze the needs of the Greenway in six specific areas and to develop plans for implementing specific projects within these six areas. The level of detail to which each of these plans will be developed will vary depending upon needs and resources. This planning effort responds to the six specific elements in the I-90 corridor:

- scenic vistas
- signing
- trailheads
- trails
- vegetation planting
- wildlife corridors

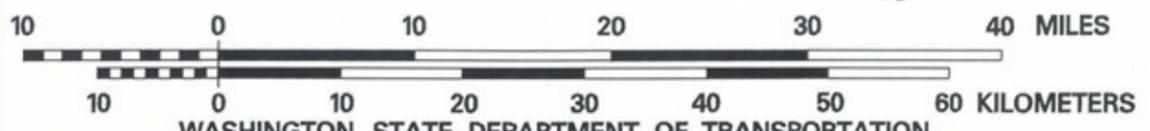
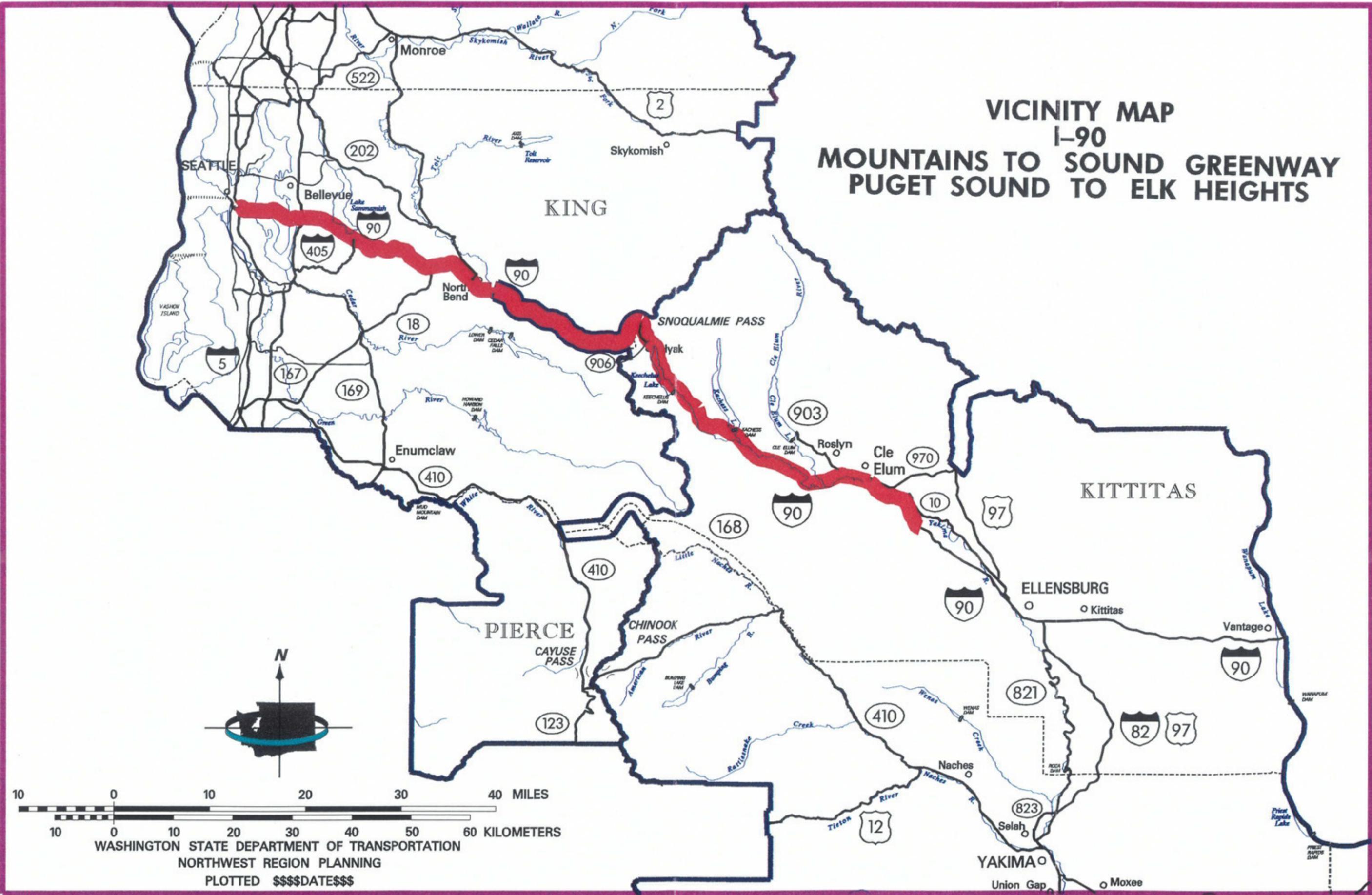
In addition to identifying previously defined projects within the study area and screening them, this plan has attempted to identify gaps in the six areas. After an initial information gathering process, a workshop was held in July 1995 for public and private individuals to discuss each area in order to identify additional projects, and to prioritize them. (See Appendix G.) After the workshop, the Mountains to Sound Greenway Trust (MTSGT) made a list of projects for detailed study in the Implementation Plan.

### **ISTEA Grant**

The Regional Surface Transportation Project (STP) Grant request that defines the scope of work for the plan was developed through collaboration between the Mountains to Sound Greenway Trust and the Washington State Department of Transportation (WSDOT) Northwest Region Planning Office. The MTSGT staff identified advancement of various projects as their highest priority. They selected six projects that would enhance the above-noted six areas of interest. The main text of this volume covers the following:

1. The *Signing Plan* is a conceptual and action plan which, when implemented, will unify the various recreational and cultural sites along the greenway by standardizing the secondary signs throughout the area. The extensive use of the greenway trailblazer will assure that all motorists will be able to follow the attractions that each interchange accesses.
2. The *Issaquah Connection Trail* analyzes different ways of connecting the north side of I-90 with the south side just east of Issaquah.
3. The *High Point Trailhead Trestle Repair* project replaced a substandard railway trestle with a pedestrian bridge with railings.
4. The *Snoqualmie Pass Visitors Site Study* studies sites in the summit area that could be used for a wayside park. Unlike a safety rest area, the wayside park would be located off the freeway and be accessible to all travelers, regardless of mode.
5. The *High Point to Preston Trail* study analyzes the provision of a convenient path shared by pedestrians, equestrians, and bicyclists from the High Point area to the Preston area along the north side of Interstate 90. The path would follow an abandoned railway grade.
6. The *Silver Creek Fish Crossing Retrofit* summarizes the necessity for design of the retrofit needed to allow fish to pass the highway crossing and return to the Silver Creek Basin.

# VICINITY MAP I-90 MOUNTAINS TO SOUND GREENWAY PUGET SOUND TO ELK HEIGHTS



WASHINGTON STATE DEPARTMENT OF TRANSPORTATION  
NORTHWEST REGION PLANNING  
PLOTTED \$\$\$\$DATE\$\$\$

## PROJECT ONE: THE SIGNING PLAN

**Introduction**

Next to safety and adequate capacity, the provision of adequate destination signing is crucial to the proper functioning of a traveled way and enjoyment by its users. Often, however, due to either “historical inertia” or lack of a coordinated effort (between jurisdictions, citizens, and other stakeholders), signing along any given route is disjointed and not particularly useful. This is often the

situation when a highway is developed in segments over several decades, as is the case with the Interstate 90 corridor between Seattle and Cle Elum.



WSDOT personnel installing “trailblazer” sign

With this in mind, WSDOT, in collaboration with the Mountains to Sound Greenway Trust, has developed a conceptual signing plan that will aid the unfamiliar traveler in identifying Greenway sites and activities along the corridor. The Corridor Management Plan requires, among its other elements, a signing plan. Volume 4 of the *Mountains to Sound Greenway Implementation Plan* analyzes only the recreational and cultural interest signs (“brown on white”).

This section will first provide definitions of recreational and cultural areas, then briefly describe some different kinds of signs, signing concepts used for this project, conceptual sketches of the sign designs themselves, and finally a summary table of proposed signs, estimating the cost, size, and location of each.

**Recreational and Cultural Interest Area Signs**

“Recreational and cultural interest areas are attractions, or traffic generators, that are open to the general public for the purpose of play, amusement, or relaxation used to refresh the body or mind (RECREATION) or for the training and refining of the mind, emotions, manners, taste, etc., (CULTURAL INTEREST). Recreational attractions include such facilities as parks, race tracks, and ski areas, while examples of cultural attractions include museums and art galleries.”

We have grouped recreational and byway logo signing into five major functions. These groups can be used on an Interstate highway. The groups are:

1. **recreational** signs (brown),
2. **visitor information** signs (blue),

3. **gateway logo** signs (green),
4. **trailblazer/marker logo** signs, (see below), and
5. **supplemental guide** signs (green).

Trailblazer/marker logo signs generally consist of an enlarged version of the logo alone, and therefore have no “background” on which the pattern appears.

### **Implementing the Proposed Signing Plan**

The proposed plan will provide travelers with an informative series of supplementary signs along the I-90 mainline. The extensive use of the

greenway logo on trailblazer signs will assure that all motorists are aware that

they are in the Greenway. Appropriate signing of major attractions will enable visitors to follow and understand those attractions. Directions to less prominent attractions will be advertised through Greenway pamphlets and signing at the ramp terminals at each interchange access. This “follow-through” signing should be coordinated between WSDOT, the counties, and any other affected agencies or stakeholders. Implementation of this project will also help consolidate existing signs (both on the mainline and on the off-ramps/crossroads) as they are replaced.



Information kiosk at Hyak/Iron Horse State Park Trailhead

### ***Signing Plan Design Process***

For each interchange along the corridor a list of valued recreational or cultural sites and activities was assembled. Each of these interchange lists were then matched with one of the signing concepts detailed in Appendix A, *Signing Plan*.

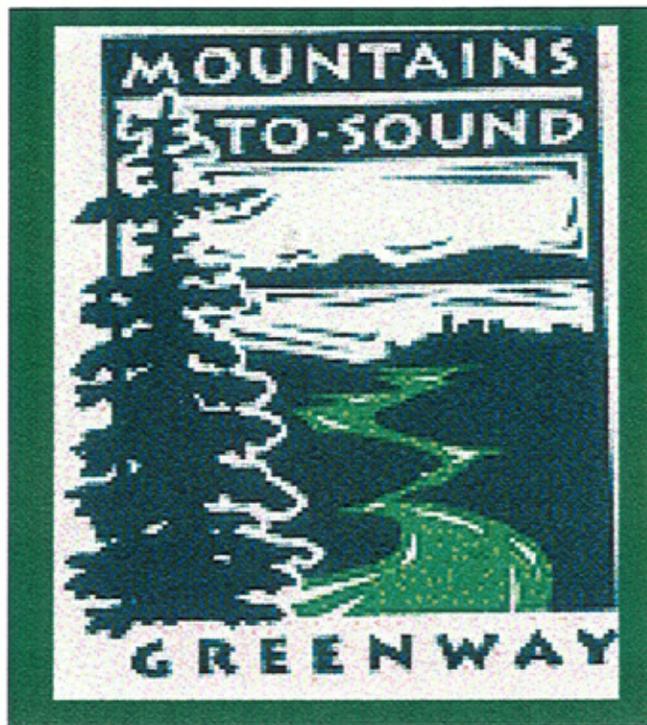
When the existing off-ramp and/or crossroads signs are replaced, better sign design will be used to consolidate the existing and proposed signing groups into just one or two signs. This work will be coordinated with the agencies and groups who maintain the sites.

### **Review Process**

These proposed signs were reviewed by WSDOT Northwest Region, WSDOT South Central Region, WSDOT Olympia Service Center, Mountains to Sound Greenway Trust, and public agencies with jurisdiction over the site the signs reference.

---

<sup>1</sup> MUTCD, US Department of Transportation, Federal highway Administration, 1988, section 2H-2.



**TRAILBLAZER SIGN**

*Sign Reference #:* 1-24

*Site:*

Mountains to Sound Greenway

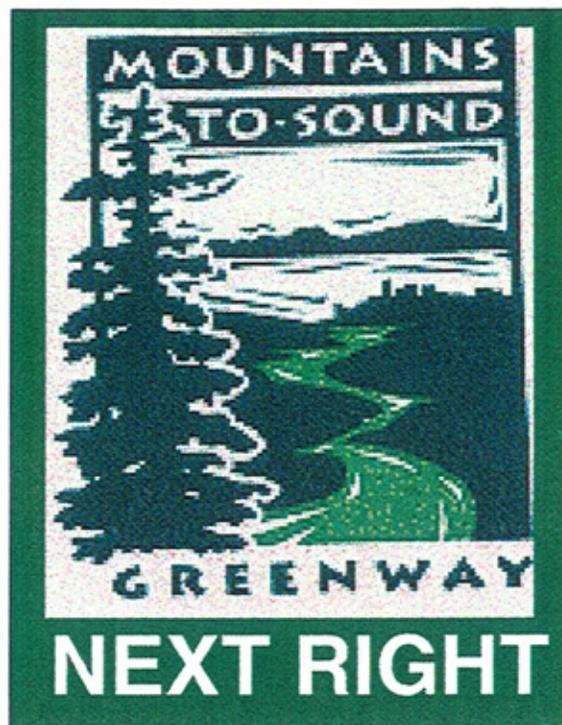
Interstate 90

*Problem:*

There are currently only two signs along Interstate 90 identifying the route as the Mountains to Sound Greenway.

*Solution:*

Trailblazer signs similar to the one shown above will be placed along I-90, at approximately 8-10 km intervals, as spacing permits.



EXIT 164A and 164 on Interstate 5 to I-90  
EXIT 11 on Interstate 405 to I-90  
SR 18 to I-90  
SR 903 / SR 970 to I-90

*Sign Reference #:* 37-41, 87, 88

*Site:*

Mountains to Sound Greenway

Interstate 90

*Problem:*

There is currently no signing at major highway junctions with the Greenway that identify the route to travellers.

*Solution:*

According to the Scenic Byway Signing Guidelines (December 1996), when a scenic byway obtains national designation or All-American road and meets all state criteria, supplemental guide signing can be applied to intersecting roads to guide the traveler to the byway. These supplemental guide signs should also be available on Interstate highways.

*Future Action:*

Install these guide signs (or similar ones) on I-5, I-405, SR 18, and SR 903/ SR 970, as spacing permits, when National Scenic Byway designation or All-American Roads status is achieved.



**Lake Sammamish  
State Park**  

---

**Washington Zoo**  
**NEXT RIGHT**

**EXIT 15 SR 900**

*Sign Reference #:* 42, 43, R1, R2, R3, R4

*Sites:*

Lake Sammamish State Park

Washington Zoological Park

*Solution:*

Replace the existing WB Lake Sammamish State Park sign. The existing "Zoo" signs would be removed and replaced with a line of text under the Lake Sammamish State Park as shown on above sign. The same sign would be placed on EB I-90.

*Immediate Action:*

Replace/install Signs 42 and 43 (or similar) as soon as possible. Remove small Zoo signs (R3, R4).

# Lake Tradition Trailhead NEXT RIGHT

**EXIT 20 High Point Way**

*Sign Reference #: 44, 45*

*Sites:*

Lake Tradition Recreational Area

Issaquah-High Point Trail

Historic High Point Church and Housing

*Immediate Actions:*

The Lake Tradition trailhead is the most heavily used in the state. A Concept 1 sign would inform travelers of this main resource, and follow-through signs would be placed at the ramp terminals (see below).



*Future Action:*

If formal trailhead parking is ever developed, install an informational kiosk, which could direct interested people to the historic High Point community.

# Information Kiosk NEXT RIGHT

## **EXIT 22 Jones Road (Preston)**

*Sign Reference #:* 46, 47

*Sites:*

Preston-Snoqualmie Trail (partially developed by King County)

Preston Mill Site (Proposed Restoration/Interpretive Center)

Preston Community Center (Old Stone Structure)

Snoqualmie Valley "Time Places" Heritage Tour

(Interpretive Markers are in place but follow-through signing is not. A brochure is available to guide the motorist.)

*Solution:*

Place a kiosk at the Preston Park and Ride for guidance to Greenway Sites at this intersection. This would be the simplest way to sign for the variety of recreational and cultural sites that are accessible from this interchange. Maps and brochures should be displayed to guide visitors. More information could be easily added when sites and tours are fully developed.

*Immediate Action:*

Design a kiosk spot into the newly expanded Park N Ride lot landscaping plan.

When funding is secured construct the kiosk including information plaques.

# Tiger Mountain Recreation Area

Follow  West  
**NEXT RIGHT**

**Exit 25 SR 18/Snoqualmie Parkway** (under construction)

*Sign Reference #:* 48, 49

*Sites:* Tiger Mountain State Forest  
Snoqualmie Falls (future)

Tiger Mountain State Forest is a very popular recreation area 6.5 km (4 miles) south of this interchange with direct access from SR 18.

*Immediate Action:*

After receiving approval from the Washington State Parks, install the above Concept 4 sign.

*Future Actions:*

When the Snoqualmie Parkway is completed into Snoqualmie, replace "Follow 18 West" line on Signs 48 and 49 with "Snoqualmie Falls".

# Visitor Information Center NEXT RIGHT

**EXIT 31 SR 202/North Bend Gateway (sign for eastbound only)**

*Sign Reference #: 50*

*Sites:*

Snoqualmie Valley Historical Museum & Visitor Information  
North Bend Historic District  
North Bend Ranger Station

*Solution:*

Add Visitor Information Center Sign. Put Greenway information at the Visitor Information Center next to the Snoqualmie Valley Historical Museum. Display maps and brochures for the Heritage Tour.

*Immediate Action:*

Get approval from the existing visitor information center. Add the Visitor Information Center sign on posts. Make sure the Visitor Information Center is continually supplied with Heritage Tour Brochures and other information sources.

**Snoqualmie Falls**

**Visitor Information**

**NEXT RIGHT**

**EXIT 31 SR 202 (sign for westbound only)**

*Sign Reference #:* 51, R5

*Sites:*

Snoqualmie Valley Historical Museum & Visitor Information

Snoqualmie Falls

North Bend Historic District

*Solution:*

Replace existing signs with a Mixed Concept Sign - As with eastbound Sign 20, inform traveler of Visitor Information Center. However, since this is the last westbound access to Snoqualmie Falls, add "Snoqualmie Falls" to sign legend as well (replaces existing mainline sign R5).

*Immediate Action:*

Get approval from the existing visitor information center. Add the Visitor Information Center sign on posts or overhead (if it will fit on an existing sign bridge). Make sure the Visitor Information Center is continually supplied with Heritage Tour Brochures and other information sources.

# Ranger Station

---

# Iron Horse State Park Access

# NEXT RIGHT

**EXIT 32 436th Avenue**

*Sign Reference #:* 52, R6

*Sites:*

North Bend Ranger Station (This sign currently exists on the mainline with symbol follow-through signs.)

Rattlesnake Lake Picnic Area (Proposed Rehabilitation)

Iron Horse State Park Access (Proposed)

*Solution:*

Replace existing Ranger Station sign R6 on WB mainline with Sign 52.

*Future Action:*

If and when formal trailhead parking is constructed for access to Iron Horse State Park, replace existing Ranger station signing with above sign.

# Twin Falls State Park NEXT RIGHT

## **EXIT 34 Edgewick Road**

*Sign Reference #:* 53, 54, R7, R8

*Sites:*

Twin Falls State Park

Middle Fork Snoqualmie River

*Solution:*

Replace existing signs R7 and R8 with Signs 53 and 54. Adequate follow-through signing to Twin Falls State Park is in place. Signs are needed on the off-ramps or at the ramp terminals. Ask Washington State Parks and Recreation for approval of signing off the highway to this location. Middle Fork of the Snoqualmie River is not developed and may be too far from the highway for signing. If activities develop on the Middle Fork, follow-through signs will be needed.

*Immediate Action:*

Install new mainline signs 53 and 54.

*Future Action:*

If desired by MTS GT, sign to Middle Fork Snoqualmie River after recreational development occurs.

# Olallie State Park NEXT RIGHT

## **EXIT 38 Homestead Valley Road/Garcia Road**

*Sign Reference #:* 55, 56

*Sites:*

Twin Falls State Park East Access, Olallie State Park, Iron Horse State Park Access  
(Westbound Only)

*Solution:*

Concept 4 would add a new sign at this interchange with a description of a site, as above. Olallie State Park is the only site on this list that is not or will not be signed any place else along the corridor. Olallie State Park is not signed along the mainline, ramps or frontage road. The only sign is on the driveway from the frontage road to the nature trail.

*Immediate Action:*

Install new mainline signs 55 and 56 and frontage road signs opposite ramp terminals. (There is need for a permanent Olallie State Park sign on the frontage road.)

*Future Action:*

Add Iron Horse State Park Access to above sign when access is developed and damaged trestle is replaced. (Could be possible public partnership if rest area facilities are included in the Iron Horse Access.)



**EXIT 38 Homestead Valley Rd/Garcia Rd (sign for westbound only)**

*Sign Reference #: 57*

*Sites:*

Twin Falls State Park East Access, Ollalie State Park, Iron Horse State Park Access  
(Westbound Only)

*Solution:*

Concept 4 would add a new sign at this interchange. Currently in the westbound direction there is *no* exit guide sign.

*Immediate Action:*

Install green mainline sign on westbound I-90.

# Tinkham Campground

---

## McClelland Butte Trailhead

# NEXT RIGHT

**EXIT 42 Tinkham Road**

*Sign Reference #:* 58, 59

*Sites:*

Tinkham Campground

McClelland Butte Trailhead

Iron Horse State Park Access at McClelland Butte Trailhead

*Solution:*

Suppelement existing RV Camping signs on the mainline with the Concept 4 signs above (Sign 58 and 59).

*Immediate Action:*

Install Signs 58 and 59 on the mainline per recommendation of USFS. Also install ramp or ramp terminal signs. (Follow-through signing is made of temporary materials.)

# Lookout Point Interpretive Center NEXT RIGHT

## **EXIT 45 Lookout Point Road/Bandera Road**

*Sign Reference #:* 60, 61

*Sites:*

USFS Roads #9030 & #9031 (Mason Lakes Trailhead/Alpine Lakes Wilderness Access)

Lookout Point (Talapus Lake Trailhead/Alpine Lakes Wilderness Access)

Bandera Emergency Airstrip (No Entry)

*Solution:*

Concept 4 was applied to this interchange. Lookout Point has a great view of the valley and the range to the south, and is used as a trailhead to Talapus Lake, but is currently undeveloped.

*Future Action:*

If and when USFS develops Lookout Point into an interpretive site, consider placing signs 60 and 61 at this interchange.

# Denny Creek Recreation Areas NEXT RIGHT

## **EXIT 47 Asahel Curtis Interchange**

*Sign Reference #:* 62, 63, R9, R10

*Sites:*

**Tinkham Road:** Asahel Curtis Nature Trail/Annette Lake Trailhead/Iron Horse State Park Access; Hansen Creek Road; and Tinkham Campground;

**Denny Creek Road:** Asahel Curtis Picnic Area, Denny Creek Campground, Denny Creek Trailhead (Alpine Lakes Wilderness Access), Franklin Falls Trail, and the Old Wagon Road. (Historical)

**Alpine Lakes Wilderness Trailhead:** Pratt Lake Trail , Granite Mountain Lookout Trail

*Solution:*

Replace existing guide signs per recommendation by USFS so that they read “Denny Creek Recreation Areas” rather than the existing “Denny Creek/Asahel Curtis”.

*Immediate Action:* Replace existing signs R9 and R10 with guide Signs 62 and 63 at the same time as Signs 64 and 65 (see page 1-18 for more information).



**EXIT 47 Asahel Curtis Interchange**

*Sign Reference #:* 64, 65, R11, R12

*Sites:*

**Tinkham Road:** Asahel Curtis Nature Trail/Annette Lake Trailhead/Iron Horse State Park Access; Hansen Creek Road; and Tinkham Campground;

**Denny Creek Road:** Asahel Curtis Picnic Area, Denny Creek Campground, Denny Creek Trailhead (Alpine Lakes Wilderness Access), Franklin Falls Trail, and the Old Wagon Road. (Historical)

**Alpine Lakes Wilderness Trailhead:** Pratt Lake Trail , Granite Mountain Lookout Trail

*Solution:*

Per recommendation by USFS, replace existing brown guide signs R11 and R12 with green signs that read “Denny Creek Road/Tinkham Road” rather than the existing “Denny Creek/Asahel Curtis”.

*Immediate Action:* Replace existing signs with guide Signs 64 and 65 at the same time as Signs 62 and 63 (see page 1-17 for more information).

# Visitor Information Center

## NEXT RIGHT

**EXIT 52 West Summit Interchange (sign for eastbound only)**

*Sign Reference #: 66*

*Note:* This is a half diamond interchange with access from-to the west only.

*Snoqualmie Summit Area Sites:*

Snoqualmie Summit Ski Area, USFS Guard Station Visitor's Information Center, Wayside Park (Proposed), Traveler's Rest, Pacific Crest Trail North and South Trailheads.

*Alpental Area Sites:*

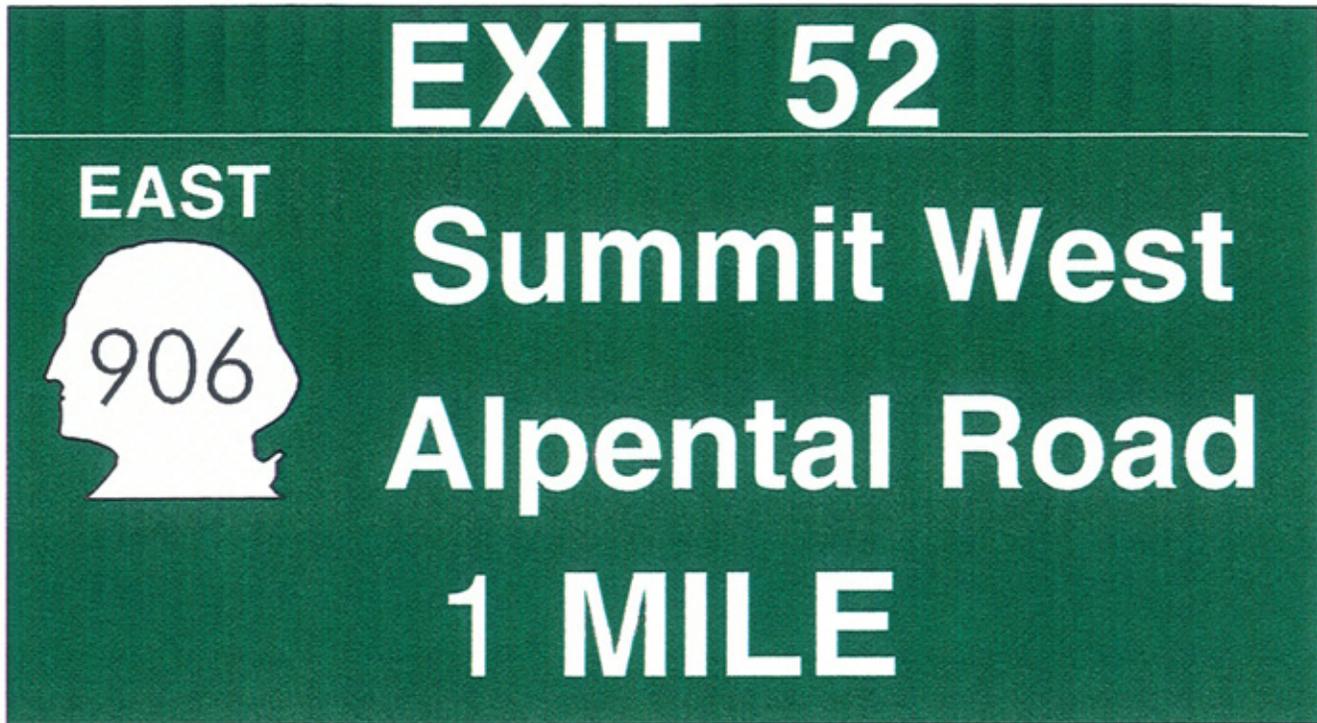
Alpental Ski Area, Tubing Area, and Snow Lake Trailhead.

*Solution:*

This interchange accesses many sites as well as many activities, and due to this, several signs will be provided. The first sign will be a blue Concept 1 sign (above). Ramp terminal and follow-through signing for the visitor information will be needed at the off-ramp.

*Future Action:*

Install the above sign when USFS or Traveller's Rest provides visitor information either inside their respective buildings or in an outdoor kiosk.



**EXIT 52 West Summit Interchange (sign for eastbound only)**

*Sign Reference #:* 67, R13

*Note:* This is a half diamond interchange with access from-to the west only.

*Snoqualmie Summit Area Sites:*

Snoqualmie Summit Ski Area, USFS Guard Station Visitor's Information Center, Wayside Park (Proposed), Traveler's Rest, Pacific Crest Trail North and South Trailheads.

*Alpental Area Sites:*

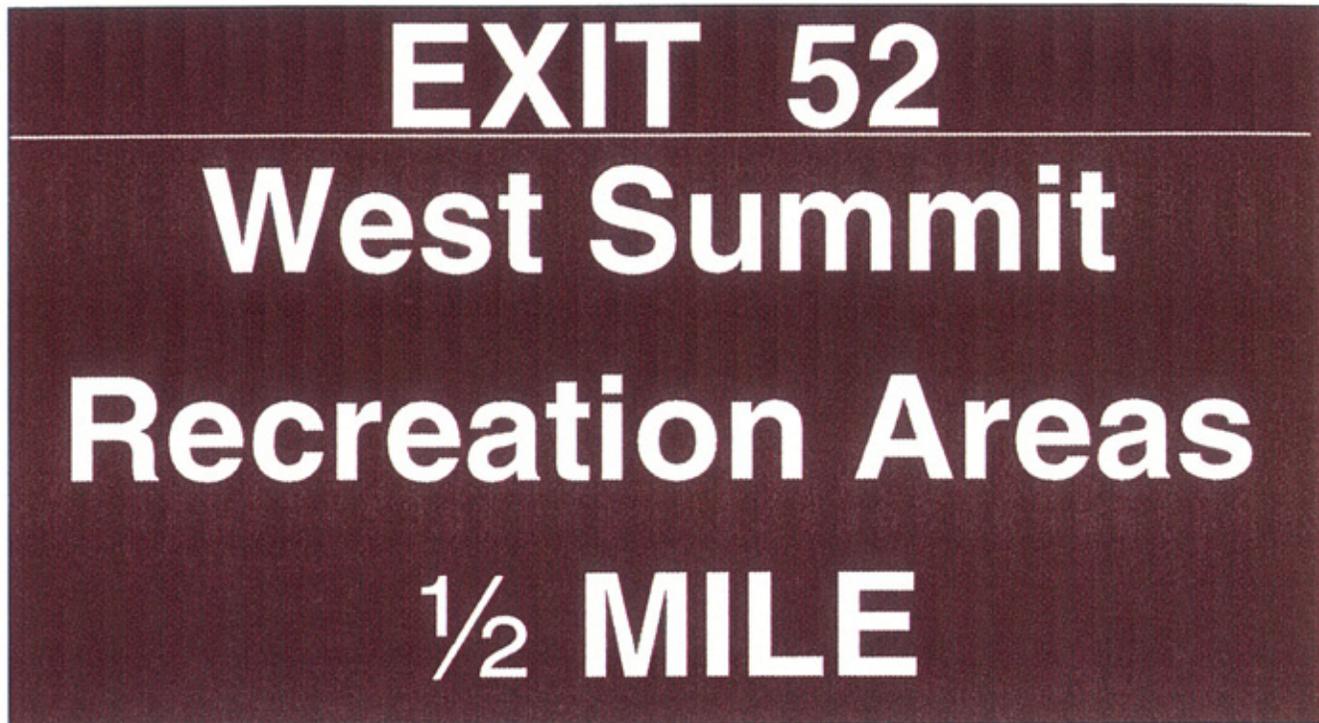
Alpental Ski Area, Tubing Area, and Snow Lake Trailhead.

*Solution:*

This interchange accesses many sites as well as many activities, and due to this, several signs will be provided. The green guide sign will replace the existing brown "West Summit" sign and will provide greater consistency with established signing principles.

*Immediate Action:*

Per conversations with the South Central Region and the Summit community replace existing "W. Summit" brown sign R13 with the sign above.



**EXIT 52 West Summit Interchange (sign for eastbound only)**

*Sign Reference #:* 68, R14

*Note:* This is a half diamond interchange with access from-to the west only.

*Snoqualmie Summit Area Sites:*

Snoqualmie Summit Ski Area, USFS Guard Station Visitor's Information Center, Wayside Park (Proposed), Traveler's Rest, Pacific Crest Trail North and South Trailheads.

*Alpental Area Sites:*

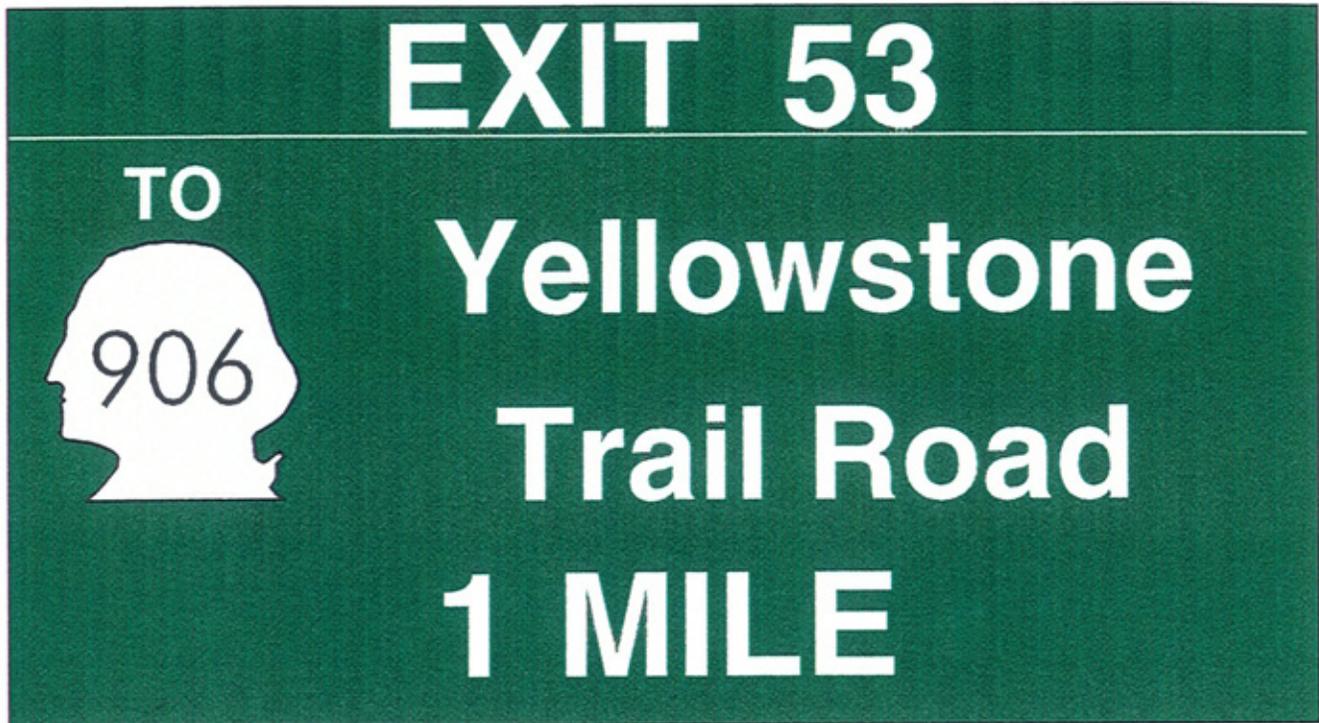
Alpental Ski Area, Tubing Area, and Snow Lake Trailhead.

*Solution:*

This interchange accesses many sites as well as many activities, and due to this, several signs will be provided. The Concept 1 brown supplemental sign above will replace the existing brown "West Summit" sign at this location and will provide greater consistency with established signing principles.

*Immediate Action:*

Replace existing "W. Summit" brown sign R14 with the sign above.



**EXIT 53 East Summit Interchange**

*Sign Reference #:* 69, R15

*Problem:*

There is currently no signing to the state highway and local road which are accessed at this interchange.

*Solution:*

Place signs similar to the one above at this exit.

*Immediate Action:*

Replace existing "E. Summit" green sign R15 with the green guide sign (Sign 69) above.



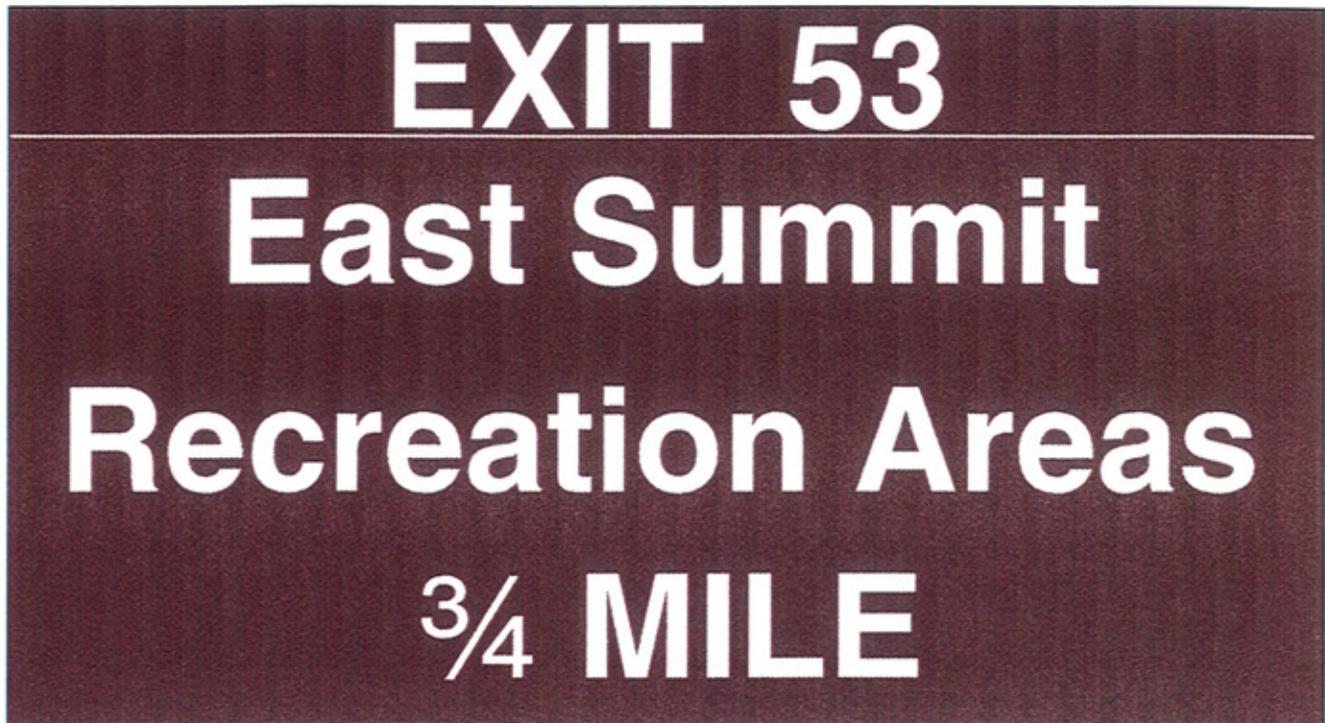
**EXIT 52 West Summit Interchange**

*Sign Reference #:* 70, R16

*Note:* See page 1-20 for explanation of sign placement for this interchange.

*Immediate Action:*

Replace existing "W. Summit - Exit Only" brown sign (R16) with Sign 70.



**EXIT 53 East Summit Interchange (sign for eastbound only)**

*Sign Reference #:* 71, R17

*Problem:* Lack of signing consistency in summit vicinity.

*Solution:* A Concept 1 sign will replace existing "East Summit" brown sign on gantry with sign above, following the example of "West Summit Recreation Areas" sign at the previous exit.

*Immediate Action:*

Replace existing "E. Summit - 3/4 mile" brown sign (R17) with Sign 71.



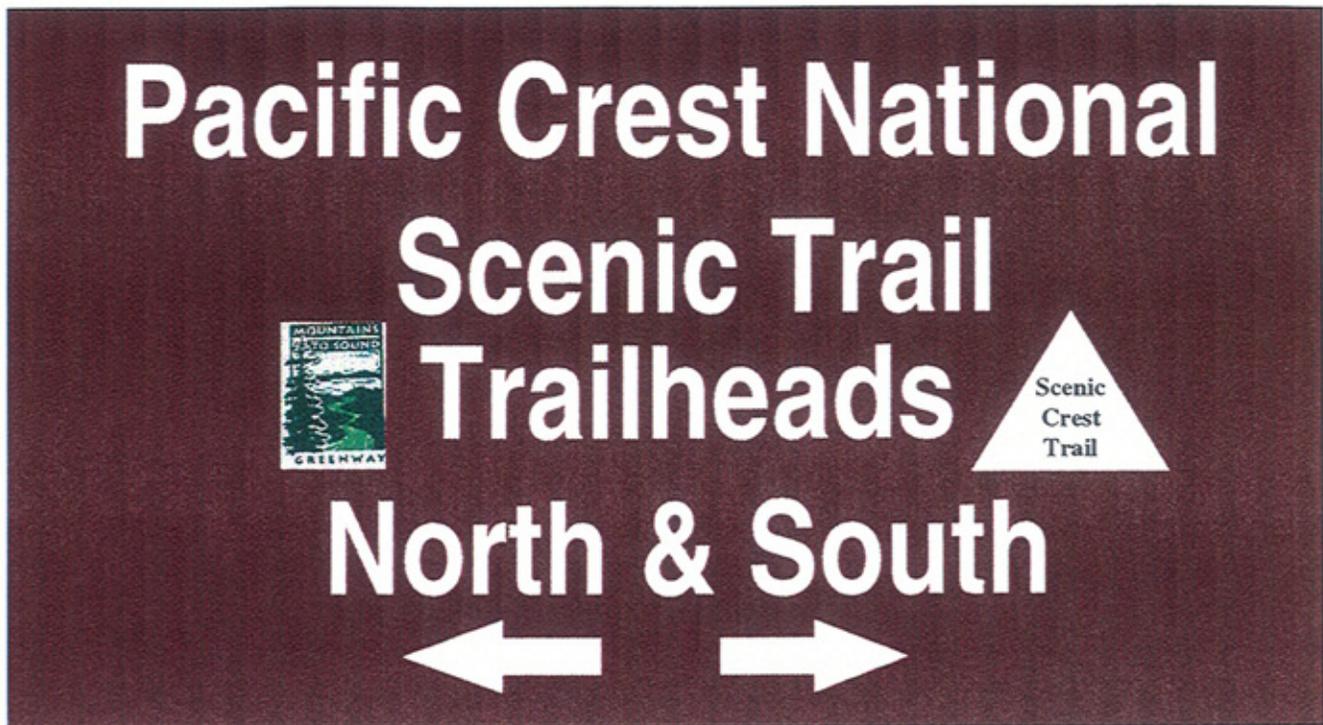
**EXIT 52 West Summit Interchange**

*Sign Reference #: 72, R18*

*Note:* See page 1-28 for explanation of sign placement for this interchange.

*Immediate Action:*

Replace existing "W. Summit - Exit Only" brown sign (R18) with Sign 72.



**EXIT 52 SR 906 (frontage road)**

*Sign Reference #: 73, R19*

*Note:* The Pacific Crest National Trail extends the entire length of the Cascade range in Washington state and therefore should be well-signed on the SR 906 frontage road.

*Solution/Immediate Action:*

Replace existing brown sign R19 on frontage road with new Sign 73 on opposite side of frontage road.

Place this sign to direct travellers to the appropriate trailhead.



**EXIT 53 East Summit Interchange (sign for eastbound only)**

*Sign Reference #:* 74, 75, R20, R21

*Problem:* Lack of signing consistency in summit vicinity.

*Solution:* A green guide sign will replace existing "East Summit" brown sign on gantry with sign above. The crossroad needs to be signed "Yellowstone Trail Road".

*Immediate Action:*

Replace existing "E. Summit - Exit Only" brown signs (R20, R21) with Signs 74 and 75. Coordinate with Kittatas County and Summit community to fabricate and place "Yellowstone Trail Road" sign on crossroad.



**EXIT 53 East Summit Interchange (sign for westbound only)**

*Sign Reference #:* 76, R22

*Problem:* Lack of signing consistency in summit vicinity.

*Solution:* A green guide sign will replace existing "East Summit" brown sign on gantry with sign above. The crossroad needs to be signed "Yellowstone Trail Road".

*Immediate Action:*

Replace existing "Snoqualmie Summit Recreation Areas" brown sign (R22) with Sign 76. Coordinate with Kittitas County and Summit community to fabricate and place "Yellowstone Trail Road" sign on crossroad.

# Snoqualmie Pass Recreation Areas Visitor Information NEXT RIGHT

**EXIT 53 East Summit Interchange (sign for westbound only)**

*Sign Reference #: 77, R23*

*Sites:*

Traveler's Rest  
Ski Acres Ski Resort  
Tubing Center  
Mountaineer's Ski Area

*Solution:*

Concept 1 will characterize the opportunities available at this exit. This is the only westbound access to the Snoqualmie Pass area. There are about six general activity groups and sites of interest that can be accessed from this interchange. Showing all of these on one sign would not convey a clear message to the motorist. The "Visitor Info" plaque will replace a small sign currently affixed to the main sign support.

*Immediate Action:*

Replace existing "Snoqualmie Pass Recreation Areas" brown Sign R23 with the brown/blue Sign 77 above.



**EXIT 54 Hyak Interchange**

*Sign Reference #:* 78, 79, R24, R25

*Sites:*

Traveler's Rest  
Ski Acres Ski Resort  
Tubing Center  
Mountaineer's Ski Area

*Solution:*

The existing green guide signs will be modified by placing a state route shield to direct motorists to the service road that parallels the freeway in the summit area. Supplemental guide signs already in place at the ramp terminals and on the frontage road will direct them to specific sites or activities.

*Immediate Action:*

Replace or renovate existing "Hyak/Gold Creek" green Signs R24 and R25 with the green Signs 78, 79 above.

# Cle Elum Historic District and Museum NEXT RIGHT

## **EXIT 84 W. Cle Elum Interchange**

*Sign Reference #:* 80, 81, R26, R27

*Sites:*

SR 903 to Roslyn

Coal Miner's Trail (Cle Elum to Roslyn Trail)

Cle Elum Historic District

Iron Horse State Park Access

South Cle Elum Historic Depot and Powerhouse (Proposed Recreational and Historical Interpretation Centers)

*Solution:*

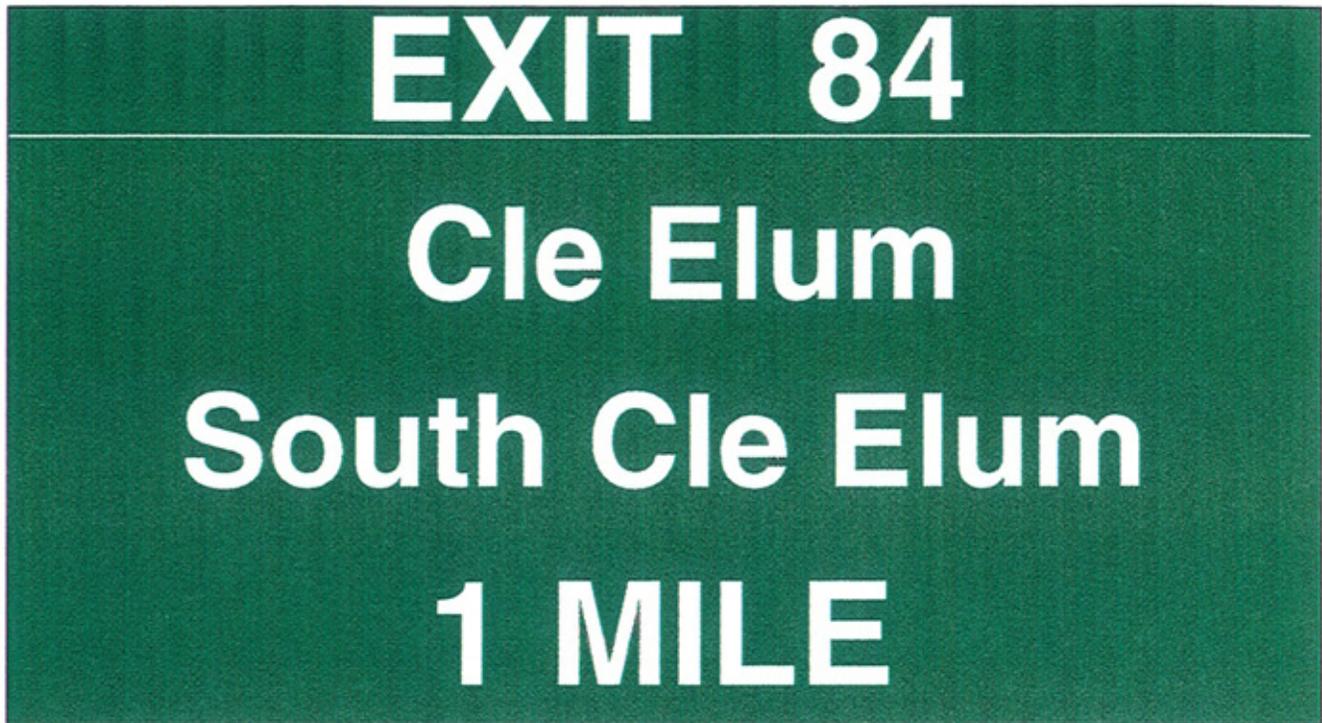
A Concept 4 sign describing the Cle Elum Historic District would direct travelers to the center of town and allow for further information gathering at the museum, etc. for the Coal Miners Trail.

*Immediate Action:*

Remove small "Museum" signs (R26 and R27) from guide signs and replace with Signs 80 and 81 or similar.

*Future Action:*

The proposed South Cle Elum Depot and Powerhouse will be major information centers for the Greenway recreational and cultural activities in the future when they are renovated. At that point, consider installing Signs 83 and 84 in place of above signs.



**EXIT 84 W. Cle Elum Interchange (sign for westbound only)**

*Sign Reference #:* 82, R28, R29

*Sites:*

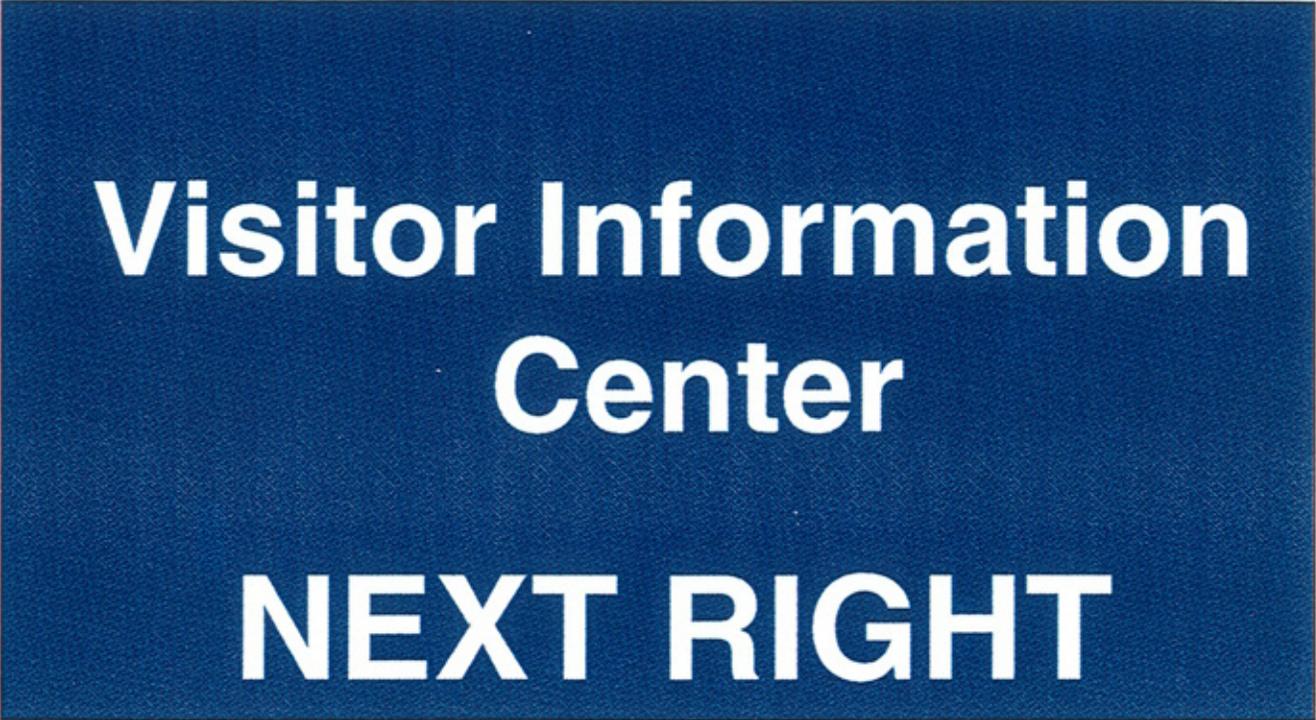
See previous sign description on page 1-31.

*Solution:*

A new supplementary guide sign would be placed at the location of an existing guide sign to South Cle Elum. Therefore, the main guide sign for the interchange will be amended to read as the above sign.

*Immediate Action:*

Remove existing "South Cle Elum - next right" sign (R28) and replace with Sign 81. Replace "Cle Elum - 1 mile" sign (R29) with Sign 82 above.



# Visitor Information Center

## NEXT RIGHT

**Alternative Sign for EXIT 84**

*Sign Reference #: 83, 84*

*Note:* This site is proposed. Consider a sign similar to the one above when the center is completed.

# Visitor Information Center NEXT RIGHT

**Exit 101 Thorp Highway**

*Sign Reference #:* 85, 86

*Site:*

Historic Thorp Mill & Museum

*Solution:*

Concept 4 is proposed for this site. The Scenic and Recreational Highway designation ends at MP 93 (Elk Heights) but this site is recommended by Kittitas County as a historic site and we may want to add a sign for it.

*Immediate Action:*

Make sure this site is presently operating and include the hours and/or months of operation on the above signs before installation.

# Project One: The Signing Plan

## Greenway Projects and Land Use

Sign Ref #	Exit #	Direction	Location	Sign Type	Code	Size (mm)	Cost	Notes
1-36	N/A	EB/WB	Various	TB	N	600 x 1000	\$6804	locate at 8-10 km intervals along I-90
37	164A	NB	163.81	SG-Gr	N	600 x 1200	\$215	on I-5
38	164	SB	165.74	SG-Gr	N	600 x 1200	\$215	alternate location MP 165.66 (on I-5)
39	11	SB	12.23	SG-Gr	N	600 x 1200	\$215	on I-405
40	11	NB	10.58	SG-Gr	N	600 x 1200	\$215	on I-405
41	N/A	EB	27.64	SG-Gr	N	600 x 1200	\$215	on SR 18
42	15	EB	14.72	SG-Br	N	3600 x 3000	\$2442	
43	15	WB	16.57	SG-Br	R	3600 x 3000	\$2442	
44	20	EB	19.50	SG-Br	N	1800 x 1500	\$701	
45	20	WB	20.86	SG-Br	N	1800 x 1500	\$701	
46	22	EB	21.69	I-BI	N	1800 x 1500	\$700	
47	22	WB	23.25	I-BI	N	1800 x 1500	\$700	
48	25	EB	24.87	SG-Br	N	3600 x 2400	\$1978	
49	25	WB	26.57	SG-Br	N	3600 x 2400	\$1978	
50	31	EB	29.82	I-BI	N	1800 x 1500	\$701	
51	31	WB	31.14	SG-Br/I-BI	R	3600 x 2400	\$1978	
52	32	EB	32.00	SG-Br	N	3600 x 2400	\$1978	
53	34	EB	34.07	SG-Br	C	1800 x 1500	\$701	
54	34	WB	35.30	SG-Br	C	1800 x 1500	\$701	
55	38	EB	36.84	SG-Br	N	1800 x 1500	\$701	
56	38	WB	40.50	SG-Br	N	1800 x 1500	\$701	
57	38	WB	39.94	G-Br	N	3600 x 2400	\$1978	
58	42	EB	41.50	SG-Br	N/D	2400 x 2000	\$1152	
59	42	WB	43.20	SG-Br	N/D	2400 x 2000	\$1152	
60	45	EB	44.74	SG-Br	N	1800 x 1500	\$581	
61	45	WB	46.35	SG-Br	N	1800 x 1500	\$701	
62	47	EB	46.87	SG-Br	N	1800 x 1500	\$581	
63	47	WB	49.03	SG-Br	N	1800 x 1500	\$581	
64	47	EB	47.16	G-Gr	N	3600 x 2400	\$1858	
65	47	WB	48.00	G-Gr	N	3600 x 2400	\$1858	

C - add logo to existing sign & replace sign  
 D - remove existing sign  
 N - new sign  
 O - overlay on existing sign  
 R - replace existing sign with new sign (substantially change legend)  
 G - guide  
 SG - supplementary guide  
 I - information  
 TB - trailblazer  
 BI - blue  
 Br - brown  
 Gr - green  
 TOTAL includes 8.2% State Sales Tax

Unless otherwise noted, all signs will be post-mounted on the right shoulder.  
 "Location" references mileposts

# Project One: The Signing Plan

## Greenway Projects and Land Use

Sign Ref #	Exit #	Direction	Location	Sign Type	Code	Size (mm)	Cost	Notes
66	52	EB	50.50	I-BI	N	1800 x 1500	\$581	
67	52	EB	50.99	G-Gr	R	3000 x 2000	\$1290	
68	52	EB	51.25	SG-Br	R	3000 x 2000	\$1290	mount on existing sign bridge
69	53	EB	51.25	G-Gr	R	3000 x 2000	\$1290	mount on existing sign bridge
70	52	EB	51.73	G-Gr	R	3000 x 2000	\$1290	mount on existing sign bridge
71	53	EB	51.93	SG-Br	R	3000 x 2000	\$1290	mount on existing sign bridge
72	52	EB	51.93	G-Gr	R	3000 x 2000	\$1290	mount on existing sign bridge
73	52	N/A		SG-Br	C	3000 x 2400	\$1728	on Alpentel Road
74	53	EB	52.24	G-Gr	R	3000 x 2000	\$1290	mount on existing sign bridge
75	53	EB	52.57	G-Gr	R	3000 x 2000	\$1290	mount on existing sign bridge
76	53	WB	53.25	G-Gr	R	3600 x 2400	\$1978	
77	53	WB	53.86	SG-Br	C	3600 x 2400	\$1978	
78	54	EB	53.95	G-Gr	R	3000 x 2000	\$1410	
79	54	WB	55.87	G-Gr	R	3000 x 2000	\$1410	
80	84	EB	82.18	SG-Br	N/D	3000 x 2000	\$1410	
81	84	WB	84.63	SG-Br	N/D	3000 x 2000	\$1410	
82	84	WB	84.87	G-Gr	R	3600 x 2000	\$1668	replaces "Cle Elum" sign
83	84	EB	82.18	SG-Br	N/D	1800 x 1500	\$701	
84	84	WB	84.63	SG-Br	N/D	1800 x 1500	\$701	
85	101	EB	100.35	I-BI	N	1800 x 1500	\$701	
86	101	WB	101.75	I-BI	N	1800 x 1500	\$701	
87	85	SB	0.30	SG-Gr	N	600 x 1200	\$215	on SR 903
88	85	WB	0.35	SG-Gr	N	600 x 1200	\$215	on SR 970

C - add logo to existing sign & replace sign  
 D - remove existing sign  
 N - new sign  
 O - overlay on existing sign  
 R - replace existing sign with new sign (substantially change legend)  
 G - guide  
 SG - supplementary guide  
 I - information  
 TB - trailblazer  
 BI - blue  
 Br - brown  
 Gr - green  
 TOTAL includes 8.2% State Sales Tax

Unless otherwise noted, all signs will be post-mounted on the right shoulder.  
 "Location" references mileposts

# Project One: The Signing Plan

## Greenway Projects and Land Use

Sign Ref #	Exit #	Direction	Location	Sign Type	Code	Size (mm)	Cost	Notes
R1	15	EB	14.72	N/A	R	N/A	\$150	existing "Lake Sammamish St Park" sign
R2	15	WB	16.57	N/A	R	N/A	\$150	existing "Lake Sammamish St Park" sign
R3	15	EB	14.72	N/A	R	N/A	\$30	existing "Zoo" sign
R4	15	WB	16.57	N/A	R	N/A	\$30	existing "Zoo" sign
R5	31	WB		N/A	R	N/A	\$150	existing "Visitor Info" sign
R6	32	WB		N/A	R	N/A	\$150	existing "Ranger Station" sign
R9	47	WB	48.53	N/A	R	N/A	\$300	existing "Denny Creek/Asahel Curtis" sign
R10	47	EB	46.87	N/A	R	N/A	\$300	existing "Denny Creek/Asahel Curtis" sign
R11	47	EB	47.16	N/A	R	N/A	\$300	existing "Denny Creek/Asahel Curtis" sign
R12	47	WB	48.00	N/A	R	N/A	\$300	existing "Denny Creek/Asahel Curtis" sign
R13	52	EB	50.99	N/A	R	N/A	\$300	existing "West Summit" sign
R14	52	EB	51.25	N/A	R	N/A	\$300	existing "West Summit" sign
R15	53	EB	51.25	N/A	R	N/A	\$300	existing "East Summit" sign
R16	52	EB	51.73	N/A	R	N/A	\$300	existing "West Summit Exit Only" sign
R17	53	EB	51.93	N/A	R	N/A	\$300	existing "East Summit 1/4 Mile" sign
R18	52	EB	51.93	N/A	R	N/A	\$300	existing "West Summit Exit Only" sign
R19	52	N/A	f/road	N/A	R	N/A	\$150	existing "Pacific Crest Trail" sign
R20	53	EB	52.24	N/A	R	N/A	\$300	existing "East Summit Exit Only" sign
R21	53	EB	52.57	N/A	R	N/A	\$300	existing "East Summit Exit Only" sign
R22	53	EB	53.25	N/A	R	N/A	\$150	existing green "Snoqualmie Pass" sign
R23	53	WB	53.86	N/A	R	N/A	\$150	existing "Snoqualmie Pass Rec Areas" sign
R24	54	EB	53.95	N/A	R	N/A	\$150	existing "Hyak/Gold Creek" sign
R25	54	WB	55.87	N/A	R	N/A	\$150	existing "Hyak/Gold Creek" sign
R26	84	EB	82.18	N/A	R	N/A	\$30	existing post-mounted "Museum" sign
R27	84	WB	84.63	N/A	R	N/A	\$30	existing post-mounted "Museum" sign
R28	84	WB	84.63	N/A	R	N/A	\$150	existing "S Cle Elum - Next Right" sign
R29	84	WB	84.87	N/A	R	N/A	\$150	existing "Cle Elum - 1 mile" sign
Subtotal							\$68,344	
<b>TOTAL</b>							<b>\$73,948</b>	

C - add logo to existing sign & replace sign  
 D - remove existing sign  
 N - new sign  
 O - overlay on existing sign  
 R - replace existing sign with new sign (substantially change legend)

G - guide  
 SG - supplementary guide  
 I - information  
 TB - trailblazer

Bl - blue  
 Br - brown  
 Gr - green

TOTAL includes 8.2% State Sales Tax

Unless otherwise noted, all signs will be post-mounted on the right shoulder.  
 "Location" references mileposts

**PROJECT TWO: ISSAQUAH CONNECTION TRAIL ALTERNATIVES**



Existing footbridge at Issaquah Creek under I-90 structures.

**Introduction:**

One of the goals of the Mountains to Sound Greenway Trust is to create a linked network of linear trails which would allow users to travel along the Greenway from one end to the other. Several locations have major deficiencies in the network, which force

users to make circuitous detours. The “missing link” just east of Issaquah was selected as the most important section to improve from a list of implementation projects.

At present, users wishing to cross Interstate 90 to access the High Point-Preston Trail have to use an informal crossing at Issaquah Creek, consisting of a deteriorated footbridge and a low-clearance (less than 2 meters) crossing under the freeway bridges. For safety reasons, WSDOT personnel at one point closed and locked the gate at this location, but frustrated users removed the fencing time and time again, indicating the great need for a formal trail at this location. This chapter examines the alternatives considered to improve what is called the “Issaquah Connection Trail”.

**Background Information:**



Issaquah to High Point Trail where it and the old Issaquah Connection Trail meet.

*Connecting Trails and Facilities:*

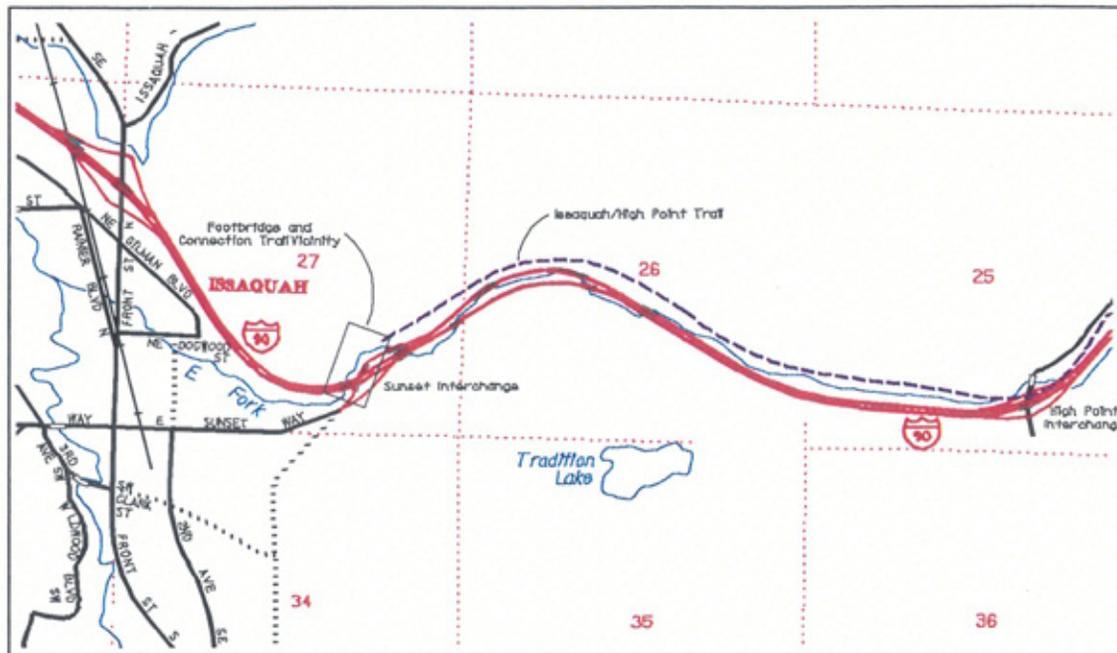
To the east of the Issaquah Connection Trail is the Issaquah-Preston Trail, which follows the south bank of Issaquah Creek into the Preston area. The 3.2 km extension of this trail eastward from the High Point Interchange (Exit 20) along an old rail bed is another

proposal of the Mountains to Sound Greenway Implementation Plan. Southeast of the Issaquah Connection Trail are the Tradition Lake Trailhead and related recreational trail system, the heaviest used in the state.

The following map shows the relative locations of these features.

## Project Two: Issaquah Connection Trail Alternatives

Greenway Projects and Land Use



### *Added Access Proposal at Sunset Interchange:*

WSDOT, in collaboration with local jurisdictions and a land development company, is proposing to reconfigure the Sunset Interchange within the next 10 years. The interchange would be modified to provide freeway access to and from the west, as well as connecting the proposed Samammish Plateau Access Road (SPAR) and the Southeast Issaquah Bypass, when and if they are constructed. The Interchange reconfiguration project could provide bike lanes and sidewalk in each direction on the proposed crossroad or on the ramp structures.

### **Proposed Alternatives:**

A set of alternatives was developed from the recommendations of the Mountains to Sound Greenway Trust and Margaret Macleod, the Trail Coordinator for King County. The proposed alternatives are as follows:

1. Do nothing and wait for the completion of the Sunset Interchange Reconfiguration Project, at least five to ten years (Cost: \$0),
2. Convert the shoulder of the westbound off-ramp to 1.4 meter pedestrian only path with a new trail to the Greenway Trail using an existing abandoned road connection. (Cost Estimate: \$140,700),
3. Construct a separate pedestrian/bicycle crossing (Cost Estimate: \$500,000 to \$2,800,000), or
4. Reconstruct the existing footbridge and trail under Interstate 90 and reopen for pedestrian use (Cost Estimate: \$80,000).

*Alternative One:*

This proposal would do nothing to improve the safety aspects of the existing hiking trail. We know the public is currently using the existing footbridge. The gate is currently signed "No Trespassing" but users are not obeying the signing. In all likelihood this will continue for at least five to ten years depending on how quickly funding is available for construction.

The estimated cost of this alternative is \$0.

*Alternative Two:*

A new pedestrian crossing route over Interstate 90 would cross over the highway on the northwest side of the existing westbound off-ramp at the Sunset Interchange. This route would allow pedestrians to cross I-90 and continue on an old road to access the abandoned railroad embankment trail, which is part of the Mountains to Sound Greenway Trail System. This alternative proposes to use a portion of the existing outside shoulder of the off-ramp and leave a 1.2 meter inside shoulder with the existing 4.3 meter lane. A shy distance of 0.6 meter to the concrete barrier will separate the proposed 1.4 meter pedestrian path from the traveled lane. The estimated cost to construct this alternative is \$140,700.

*Alternative Three:*

This alternative would construct a new pedestrian/bicycle crossing structure in the vicinity of the Sunset Interchange. This structure would be approximately 4.2 meters wide, the span across the mainline would be 60 meters, and the ramps would be approximately 100 meters in length at each end to maintain the 5% maximum grade for bicycles. Segments of the existing trail section would also be improved as a two-way bicycle path. This proposal could also be constructed by integrating the bicycle/pedestrian design into the structures of the proposed interchange. The connection to Sunset Way would be similar to that of Alternative Two. The estimated cost to construct this alternative would range from \$500,000 to \$2,800,000, depending on the extent to which the design could be incorporated into the interchange plan.

*Alternative Four:*

This alternative would include the replacement of the footbridge with a similar but more stable pedestrian structure of the same or greater width, and possibly greater length. Stairs at the south end would be the most reasonable solution since the vertical clearance to the overhead and adjacent mainline structures is already substandard and a ramp would further decrease the vertical clearance. A similar situation exists in the University of Washington Arboretum where a pedestrian path crosses under SR 520 with substandard vertical clearance.

Yellow advisory signs at each side of the northern (westbound) mainline structure would warn trail users of the obstruction. The connection trail should be signed "No Horses" due to the low clearance and stairs on the footbridge. Signing will warn all other users (bicyclists and pedestrians) of the "Low Clearance" and that bicyclists must "Walk Your Bike". (With

the stairs on the south end of the footbridge, the bicyclists would have to dismount their bicycles in any case.) This trail would be ADA-accessible as far as the creek on the west end but disabled persons unable to negotiate stairs would not be able to cross the footbridge.

The trail would be reconstructed as a two-way bicycle path up to the existing Issaquah-Preston Trail. The required trail width would be at least 3.6 meters (2.4 meter wide path plus 0.6 meter shoulders on each side) according to *WSDOT Design Manual* Fig. 1020-1b.

The estimated cost to construct this alternative is \$184,200, with \$80,000 devoted to the rehabilitation of the footbridge and its approaches.

### **Alternative Analysis**

#### *Alternative One*

Although the “do-nothing” alternative has no capital costs, there remain potential losses to the State due to litigation by injured persons, even though “no trespassing” signs are posted. The crossing would be completely removed when the Sunset Interchange is reconstructed.

#### *Alternative Two*

Converting the outside westbound shoulder to a temporary pedestrian crossing would allow bicyclists and pedestrians to cross Interstate 90 on their own barrier-separated path before the Interchange Reconfiguration Project is completed. This project would provide an alternate route to the existing inadequate “closed” route under I-90 and satisfy the needs of the trail users at the Issaquah (west) end of the High Point-Preston Trail. The Alternative 2 connection trail would be removed from the ramp when the Sunset Interchange is complete.

A representative of FHWA has visited the site and is uncomfortable with the idea of taking shoulder area away from the vehicles on this structure.

#### *Alternative Three:*

Alternative Three provides a separate pedestrian/bicycle crossing structure over Interstate 90 and access to the Issaquah-Preston Trail. The overcrossing structure would need adequate space at the ends of the structure to return the bicycles and pedestrians down to ground level. Adequate space is available on both sides of the highway. The proposed pedestrian structure could be built to full standards for bicycle use. The design and construction of this improvement could be linked to the Sunset Way reconfiguration project. Since the motorized traffic volumes on the SPAR and on the Issaquah Bypass will be fairly high, it would be preferable to provide a separate structure for pedestrians and bicycles, but if properly designed, a barrier-separated trail on the vehicle structure would work as well.

*Alternative Four Analysis:*

Alternative Four would keep the existing “illegal” connection trail alignment (which is at present a hiking trail at best) and improve it. Due to the stream adjacent to the low vertical clearance site the existing trail can not be lowered without disturbing the stream and possibly the mainline highway bridge piers and footing. The East Fork of Issaquah Creek is a salmon-bearing stream; therefore, any disruption to the channel most likely would not be allowed. Allowing use of this trail and signing the low clearance would need a deviation approval of the vertical clearance of 2 meters instead of the 3 meters required. A new footbridge would be built to accommodate two people passing while pushing their bicycles. Since stairs would be at the south end of the footbridge the bicycle riders would have to dismount and therefore would be walking at the low clearance point.

**The Preferred Alternative**

The recommended alternative is to take a two-tiered approach to resolving the trail issues at this location. In the *short term*, Alternative #4 would meet the needs of most users, although it would require deviations. In the *long-term*, Alternative #3 (building a separate bicycle/pedestrian structure, or barrier-separated facility), is the preferred alternative. The other alternatives were not selected for the following reasons:

- Alternative #1, while the least expensive, is dangerous with its lack of bridge rail and abrupt changes in grade.
- The off-ramp shoulder on Alternative #2 is not wide enough to accommodate a two-way bike trail and would require at least two deviations, one for the bikeway width and one for the highway shoulder width. The *WSDOT Design Manual* [1020.03 (4) (a)] states that “Along highways with high vehicular traffic, a close parallel street or road should be used unless there is adequate width to develop a separate bikeway.”

Meanwhile, the interchange reconfiguration project appears to be moving ahead and the new crossing road should be built within five to ten years. At the time that the new interchange bridge opens to traffic, the temporarily upgraded trail could be abandoned and users would be redirected onto the overcrossing.

The route under the highway is substandard, but is also currently the best route for the safety of the trail users and the motorists traveling along Interstate 90. This trail is already established, and with a small investment requiring only footbridge replacement, minor grading and gravel surfacing for mountain bicycle and pedestrian use could well serve the great majority of trail users in the five to ten years before the Sunset Interchange is reconstructed. The trail users prefer the natural setting along the creek and through the trees. Whichever long-term solution is eventually built, it will resolve a significant missing link in the linear trail along Interstate 90 within the Mountains to Sound Greenway.

**PROJECT THREE: HIGH POINT TRAILHEAD TRESTLE REPAIR**



High Point Pedestrian Bridge; Before Repairs

longitudinal girders to walk on. For safety reasons the bridge needed decking and railing added to the existing bridge structure.



High Point Pedestrian Bridge; After Repairs

The High Point Trailhead and Bridge Repair project is the second highest priority of the Greenway Trust. At Exit 20, on the north side of the highway, there is an existing undeveloped trailhead on WSDOT property. Just west of this trailhead, an abandoned railroad trestle existed with only two separate

The estimated cost of the construction was just under \$10,000. A WSDOT Maintenance crew repaired the bridge as part of the implementation plan effort. Originally the project proposal included the grading of the existing trailhead parking area but that portion of the project was dropped due to environmental concerns. The figure to the left shows the pedestrian crossing after reconstruction.

## PROJECT FOUR: SNOQUALMIE PASS VISITOR SITE

## Introduction



Figure 1-1: Existing USFS Visitor Information Center (preferred site)

The Snoqualmie Pass area is a locus of abundant activities and scenic views. During the prioritization process, the Mountains to Sound Greenway Trust realized that there was no one location at which visitors could obtain information about the area. With this in mind, a Snoqualmie Pass visitor site was added to the list of preferred projects. The following issues were considered:

- Stop Sites (includes trucks)
- Scenic Viewpoints
- Interpretation
- Information

An initial evaluation identified the following sites:

*Exit 47*

1. Lake Annette/Asahel Curtis Nature Trail Trailhead/Iron Horse State Park Access,
2. Pratt Lake Trailhead, and
3. Tinkham Road Access

*Exit 52 & 53*

1. Pacific Crest Trail Trailhead,
2. USFS Visitor Information Center at Snoqualmie Pass,
3. Traveler's Rest/Time Wise Mini-Mart,
4. Snoqualmie Summit Ski Area,
5. Ski Acres Ski Area, and
6. Alpentel Ski Area.

*Exit 54*

1. Gold Creek Pond Recreation Area,
2. Iron Horse State Park Access,
3. Lake Keechelus Boat Ramp,
4. Hyak Ski Area, and
5. Kendall Peak Trailhead.

### **Site Screening**

In the screening process, most of the above sites dropped out for various reasons. The four sites below merited further consideration.

#### *Two Transportation-Related Historical Structures*

Directly across SR 906 from the USFS Guard Station is an old WSDOT maintenance building. This historical transportation-related structure is now privately owned but was once the building that housed the Department's snow plows and maintenance crew. The structure could possibly be acquired and remodeled. The site would then provide parking as well as visitor information for the Snoqualmie Pass area.

The Traveler's Rest at Snoqualmie Summit is also an historical transportation-related structure. This building has historically been the major rest stop site while crossing Snoqualmie Pass. The WSDOT is currently leasing out the building to a mini-mart/grill enterprise and the lessee maintains public restrooms.

#### *Western Portal Visitors Center*

The site of the Snoqualmie Winery, south of the highway at Exit 28, provides a spectacular view of Mt. Si and the valley below it. The Mountains to Sound Greenway Trust has proposed to enhance the existing site to include kiosks for Mountains to Sound Greenway related information. This site was also identified by Mountains to Sound Greenway and US Forest Service advisory committees as the best location for the western visitor information center.

The original concept for a Western Portal Visitors Information Center was brought forth in the *Interstate 90 and Snoqualmie Pass: Visitor Center Feasibility Plan* written by Jones and Jones Inc. in conjunction with the US Forest Service. It was suggested that a public/private partnership be developed between the US Forest Service, Washington State Department of Transportation, Washington State Department of Natural Resources, Washington State Parks and Recreation Commission, King County, the cities of North Bend and Snoqualmie, and non-profit and commercial organizations.

This site would serve very well for the western portal but the city of Snoqualmie desires to use the land for residential, commercial or industrial development to gain property taxes. The City has used an economic development grant to install utilities in the area. So far Snoqualmie Winery is the only operating commercial concern on the site. The Mountains to Sound Greenway Trust is still in the process of collaborating with the city of Snoqualmie to determine the future use of this potential scenic point.

The US Forest Service recently purchased 105 hectares of land adjacent to the Snoqualmie Winery under the Forest Legacy Program. This program is funded by Congress to sustain and protect working forests at risk of conversion to non-forest uses. This new public parcel is covered in trees that were planted about 10 years ago but the parcel is zoned for residential development. This property is also a key piece needed to connect forests and trails from Issaquah to the Iron Horse State Park and access to Rattlesnake Ridge.

### **Selected Snoqualmie Pass Visitor Site**

#### *USFS Guard Station*

Currently the US Forest Service owns and operates a visitor information center at Snoqualmie Summit. The building is a circa 1939 CCC Guard Station. This existing visitor site is the preferred visitor site on Snoqualmie Pass since visitors already stop at this location for Forest Service related material. Mountains to Sound Greenway information could also be distributed from this site if the US Forest Service agrees.

#### *Building Rehabilitation Plans*

The structure was added to in 1963 but the integrity of the building could be re-established by removal of the addition, making it eligible for registration on the National Register of Historic Places. The US Forest Service plans to remove the addition and rehabilitate the structure while preserving its historical, architectural, and cultural features. A new wing would be constructed on the west side of the existing structure to accommodate visitors and interpretive displays. Although this visitor center is not intended to become a major restroom stop for travelers, toilet facilities would be available.

The USFS Guard Station was chosen for the visitor information center since it is already serving in this capacity. The fact that the Forest Service has plans to rehabilitate the structure and that it is currently publicly owned support this choice. Hopefully funding can be found for the rehabilitation of this historical building.

### **Snoqualmie Summit Wayside Park**

The executive director of the Greenway Trust proposed the development of a wayside park at the summit. Three alternative sites were proposed. They are:

*Alternative #1: Scenic Crest Trail  
South Trailhead Vicinity*

Motorists reach this area by leaving eastbound I-90 at Exit 52, turning right toward the Ski Area and taking another direct right onto the paved portion of the old highway. This paved area is used in the winter for snow storage and parking for Ski Acres customers. During the summer this area is bare with grasses and brush on the highway side. The upper road extends a short distance to the National Scenic Crest Trail (south trailhead). A plan to create a wayside park using a portion of the lower road would allow for interpretation of the scenic crest trail or other information at this site. The scenic aspect of the Summit area would attract visitors who wish to take a break from driving and avoid the popular business areas.



Figure 1-2: Alternative #1: West End of SR 906

*Alternative #2: Across SR 906 from  
Ski Lodge*

This alternative site has a good view of Denny Mountain and the ski area but access is limited by access control on Interstate 90. The existing driveway is presently used for the fire station and may not be a good place for additional traffic.

Figure 1-3 shows the area next to the fire station and the view from this site.



Figure 1-3: Alternative #2: Across SR 906 from USFS Guard Station

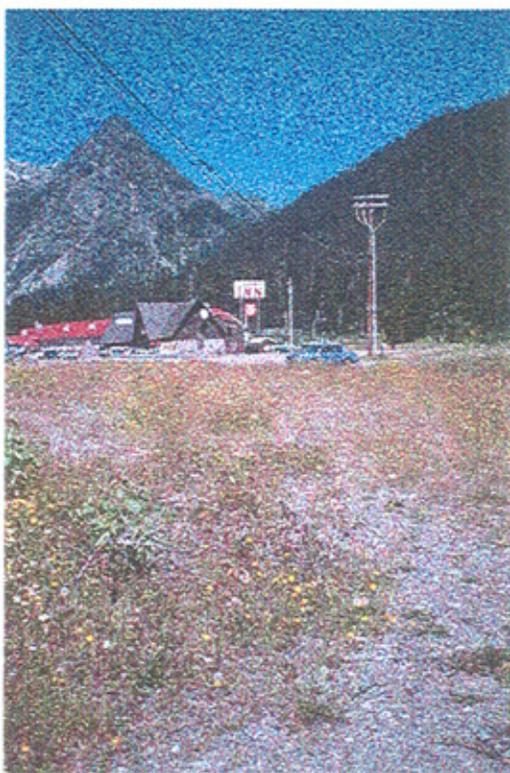


Figure 1-4: Alternative #3: Adjacent to Traveler's Rest

#### *Alternative #3: Near Traveler's Rest*

This alternative has the potential of providing parking for cars, some landscaping to buffer views of I-90 and is near the existing public restrooms. The overhead transmission lines in the area would have to be relocated or buried if this site were to become a rest area. Views at this site are of the developed businesses and the highway with mountains in the background. Figure 1-4 is a view of the site, Traveler's Rest, and the existing power lines.

#### **Selected Snoqualmie Summit Wayside Park**

##### *Scenic Crest Trail South Trailhead Vicinity*

This site was chosen for its good access to and from I-90, as well as its proximity to the National Scenic Crest Trail.

The site is level, and the existing vegetation could easily be enhanced. Ski Acres has also indicated a desire to provide restrooms for its winter patrons, which could also be used by summer visitors to the site. The site would operate as a wayside park only during the summer (April/May through October), as the site is used for snow storage and parking during the winter months. A removable information kiosk could be placed during the summer season, and stored during the winter months.

PROJECT FIVE: HIGH POINT TO PRESTON TRAIL, Phase I (Exit 20 to Exit 22)



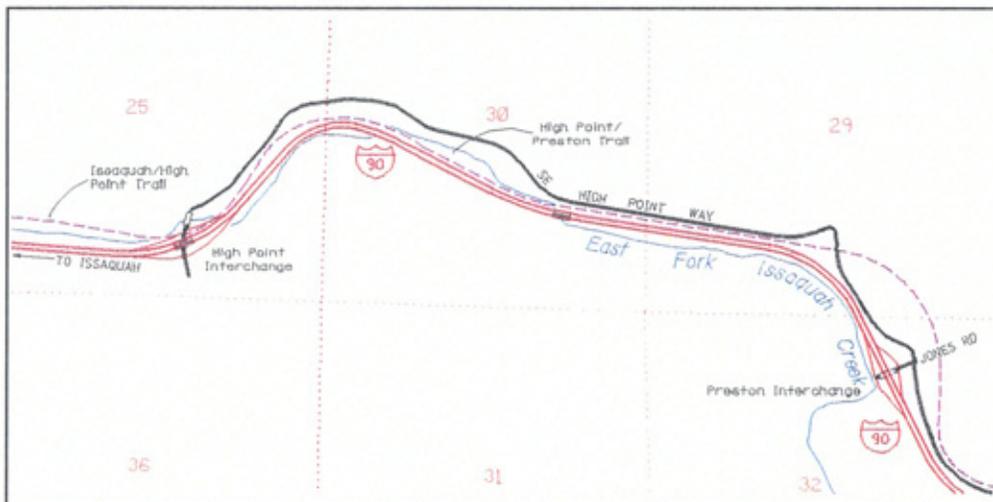
Looking toward bottom of embankment and Issaquah Creek

**Introduction and Summary:**

This project rated fifth on the Greenway’s prioritization list. The project would extend the trail from Issaquah to Preston Road, approximately 2.4 km, following along the East Fork of Issaquah Creek. The property along the creek and highway was a Burlington Northern Railroad route at one time. The railway embankment was abandoned prior to the limited access highway being built adjacent to it. Part of the embankment has been covered by fill from the westbound off-ramp for the highway, blocking continuation of the trail. (See map below.)

It is recommended that the highway embankment be held back with a soldier pile wall with lagging in order to leave room for the trail and the floodplain. The trail would be 4.9 meters wide as required for a Class I Bikeway. The estimated cost of this project is \$2,826,000.

The second phase would complete the trail section that lies between the frontage road and the highway from the end of the phase 1 section to the beginning of the Preston to Snoqualmie Trail (just past the Greenbank Farms Cheese Factory). This project would require enclosed drainage and possibly the relocation of the limited access fence toward the highway by approximately three meters.



**Problem:**

The abandoned railway embankment north of I-90 from Issaquah to Preston is a crucial link in the Mountains to Sound Greenway trail system. A project would enhance the corridor from High Point to Preston for pedestrian, equestrian, and bicycle use. Currently the trail is not passable due a steep slope cutting across the former railbed. The embankment was constructed in the mid 1970s when I-90 was expanded to its current configuration. In the intervening 20-plus years, the slope has also become extensively vegetated. This proposal was prioritized fifth out of the six projects chosen for initial scoping of the Mountains to Sound Greenway Implementation Plan.

**Geometrics:**

The existing abandoned railroad embankment is obliterated by fill for approximately 200 meters at the westbound off-ramp of the High Point Interchange. The trail is located about 12 meters north of the ramp edge of shoulder, at the bank of Issaquah Creek. It lies seven to eight meters below the grade of the ramp. The highway fill slopes vary from 1.5:1 to 2:1, with areas occasionally being up to 1:1.

**Connecting Trails:**

There are three trails or trail systems which intersect the High Point/Preston Trail:

- *The Tradition Lake Trailhead* lies south of I-90 on the High Point interchange frontage road and is the most frequently used trailhead in Washington state. The trail system in the Tradition Lake area is quite extensive, and has been enhanced with an interpretive trail, restrooms, and an outdoor classroom completed by the city of Issaquah and the Washington State Department of Natural Resources (DNR).
- *The Preston/Snoqualmie Trail* is an existing trail located on the same abandoned railway grade as the High Point to Preston Trail. Currently it connects Preston to the Alice Lake area, and eventually King County plans to complete it to Snoqualmie Falls and eastward to Rattlesnake Lake, where it will link to the Iron Horse State Park Trail.
- *The Iron Horse Trail* leads to the village of Easton and the cities of Cle Elum and Ellensburg in Kittitas County.

**Alternatives Examined:**

A set of alternatives was developed after considering the recommendations of the MTSGT and Margaret MacCleod, the King County Trail Coordinator. The proposed alternatives are as follows:

1. *Do nothing.* Leave the landscape trail area as a buffer space for I-90 and the adjacent land owners. (Cost: \$0);

2. *Rock Wall*. Build a rock wall at the bottom of the sloped fill area (approx. 200 m long), fill it in to provide a 4.9 m wide trail, and surface the entire 2.1 km (Cost estimate: \$565,600);
3. *Soldier Pile Wall with Concrete Facing*. Construct a soldier pile wall with tie-backs along the 200 m sloped area, excavate the 4.9 m wide trail in front of the wall, construct a concrete face wall and surface 2.1 km of trail. (Cost estimate: \$3,297,900);
4. *Soldier Pile Wall*. Construct a soldier pile wall with tie-backs along the 200 m sloped area, excavate the 4.9 m wide trail in front of the wall, and provide trail surfacing for the entire 2.1 km (Cost estimate: \$2,825,700); and
5. *Widen Frontage Road*. Widen the existing frontage road between High Point and Preston to allow at least 1.2 meter shoulders in each direction. (Cost estimate: \$6,288,200).

**Alternative One - Do Nothing:**

This alternative would allow the existing landscape to continue growing and buffer the highway from the adjacent properties, but will not augment the linear trail system. The Mountains to Sound Greenway trail systems would need to be routed on the existing frontage road, which has sight distance problems and no shoulders. Alternatively, bicycles can legally use the shoulders of I-90, but pedestrians are prohibited.

There are no direct costs related to this alternative.

**Alternative Two - Rock Wall:**

This alternative would provide the most economical solution to the need for a retaining wall but the environmental constraints created by the flood plain of the creek prove to be a fatal flaw. (The East Fork of Issaquah Creek is a salmon-bearing stream.)

The estimated cost to design and construct this alternative is \$276,000 for the rock wall segment and \$307,600 for the remaining trail segment, for a total of \$584,200.

**Alternative Three - Soldier Pile Wall with Concrete Facing:**

A soldier pile wall will allow a trail to be placed between the off-ramp shoulder and the creek along the highway embankment and preserve the flood plain area for the creek. This solution is expensive and includes a concrete face on the wall. Gabion walls, retained earth walls, cantilever walls, and interlocking concrete walls are other alternatives, but all these designs require some embankment reconstruction and a temporary soldier pile wall would be necessary during their construction.

The estimated cost to design and construct this alternative is \$2,990,300 for the wall segment and \$307,600 for the rest of the trail improvements, for a total of \$3,297,900.

**Alternative Four - Soldier Pile Wall:**

This alternative is identical to Alternative Three but the soldier pile wall does not have a concrete face, and therefore the treated timber laggings will be visible.

The estimated cost to design and construct this alternative is \$2,518,100 for the wall segment and \$307,600 for the rest of the trail improvements, for a total of \$2,825,700.

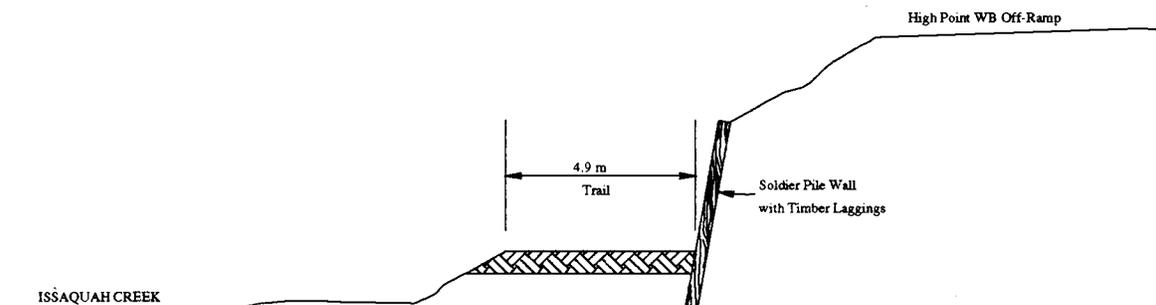
**Alternative Five - Widen Frontage Road:**

Widening the existing frontage road an additional 1.2 meters in each direction would be very difficult due to the cliff down to the stream directly on the south side of the guardrail. The embankment on the north side is also very steep and partially contained by an existing rock wall. Widening this section of High Point Road between the High Point interchange and 272nd Avenue SE (approximately 365 meters) would therefore be very costly. The frontage road has no shoulders along the proposal trail segment and has both horizontal and vertical curves with sight distance problems. At least one large culvert would have to be extended to accommodate the tributary stream which crosses the road.

The estimated cost to design and construct this alternative is \$5,980,600 for the wall segment and \$750,000 for the shoulder widening and ACP paving for three kilometers, for an estimated total of \$6,730,600.

**Recommended Alternative:**

Alternative Four is the best alternative. The soldier pile lagging is expensive, but will support the embankment so that a trail could be built along the 200 meters of sloped area. The remaining segment of the trail is fairly flat and would not require much work to bring it to standards. While the concrete facing of Alternative Three would provide a more “finished” look, it is not required structurally, and in fact, the timber lagging would help the trail retain a more “rustic” look.



The other alternatives were dropped for the following reasons:

- Alternative One would promote the use of the freeway shoulders for use by bicyclists of all experience levels. Given the 70 mph speed limit and the fairly steep roadway gradients, this would not be logical. In addition, it would leave pedestrians with few alternatives, since pedestrians are not allowed on the freeway.

- Alternative Two, while constructable, would impact the flood plain of a salmon-bearing stream.
- Alternative Three would provide an attractive concrete face, but is costly and not required for structural stability of the soldier pile wall.
- Alternative Five would be extremely costly to build, due to the steep cliff on one side and the embankment on the other.

## PROJECT SIX: SILVER CREEK FISH RETROFIT

### Introduction

Wildlife corridors were chosen as an element of the study to meet the Mountains to Sound Greenway Trust's goal to "*identify and protect critical environmental areas in the Greenway for water quality, fisheries and wildlife habitat.*"<sup>7</sup> At the July 1995 workshop in North Bend a preliminary list of wildlife corridors was developed. Previous to the workshop, maps had been sent out to all interested jurisdictions. They were asked to mark known or suspected wildlife corridors, and or crossings. Each potential and existing site was then visited in the field. The general conclusions were that most sites, at least in King County, already support wildlife with existing crossings.

### Project

Silver Creek Fish Retrofit:

The goal of this project is to design the retrofit needed to allow fish to pass the highway crossing and return to the Silver Creek Basin. This project was prioritized seventh by the Mountains to Sound Greenway Trust and was not completed due to budget limits. A preliminary cost estimate includes \$6,000 to do a hydraulic analysis; the remaining work would develop plans, specifications and final estimate, and completing the construction documents would cost a total of \$23,600.



Outlet of Silver Creek Culvert Crossing

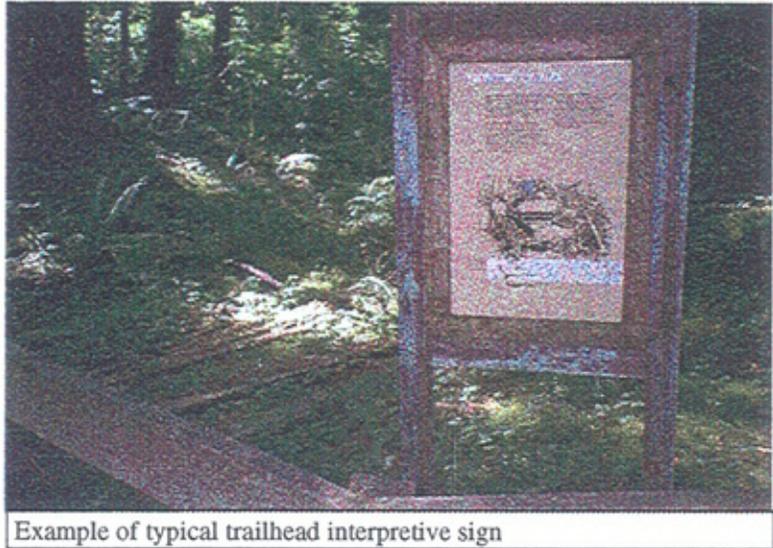
A possible solution to improve fish crossing at this location would be to add baffles to the inside of the culvert to slow the velocity of the water passing through. This solution is estimated to cost \$170,000.

This site is included in the South Central Region's FishBarrier list and commitment system completed by Washington State Fisheries and Wildlife. There is debate as to the where this crossing falls in the priority array of improvements, and before any further analysis is performed, the stakeholding agencies need to collectively discuss the location.

## APPENDIX A: SIGNING ELEMENT

**Introduction**

The Corridor Management Plan requires a signing plan. This report analyzes the recreational and cultural interest area signs (brown and white), and is the basis for the plan in Chapter One. The signing plan was developed to aid the unfamiliar traveler to places of interest along the "Greenway" corridor.



Example of typical trailhead interpretive sign

**Recreational and Cultural Interest Area Signs**

Recreational and cultural interest areas are attractions, or traffic generators, that are open to the general public for the purpose of play, amusement, or relaxation used to refresh the body or mind (RECREATION) or for the training and refining of the mind, emotions, manners, taste, etc., (CULTURAL INTEREST). Recreational attractions include such facilities as parks, race tracks, and ski areas, while examples of cultural attractions include museums and art galleries.<sup>1</sup>

**Scenic Byway Logo Signing Guidelines**

Scenic Byway Logo Signing Guidelines were printed in January 1997 to provide standards for byway logo signing. These guidelines define the eligibility criteria for byway logo signing, and WSDOT's positions on key policy issues. There are three basic types of scenic byway logo signs that are defined in the guidelines:

1. Gateway Signs *not doable*
2. Trail Blazer/Marker Signs
3. Supplemental Guide Signs

*Gateway Signs* mark the beginning of the scenic route at both termini of the route. The location and design of the sign should be determined jointly by the WSDOT region traffic office.

*Trail Blazer/Marker Signs* are placed every 8 to 16 kilometers (5 to 10 miles) along the scenic byway for driver assurance. Trail markers are informational plaques or shields designed to provide the traveling public with route guidance of cultural, historical or educational significance. A good example is the distinctive Lewis-Clark Trail marker sign found in the southern part of the state.

*Exit 32 - Proposed*

The third sign type is the *Supplemental Guide Sign*. This type of signing can only be used at junctions with a scenic byway. See *Scenic Byway Logo Signing Guidelines* for a full discussion.



Existing supplementary guide sign, vicinity MP 80

### Scenic Byway Signing on Limited Access Controlled Highways

There are two segments of Interstate highways in Washington State that are designated as State Scenic and Recreational Highways. These highways are Interstate 90, Issaquah to Elk Heights and Interstate 82, Kennewick to Oregon State Boundary. Of these,

Interstate 90 is the longest route, and also the first to seek national scenic byway status and to develop a signing plan on a limited access highway. The National Scenic Byway designation would allow for special logos to be placed on selected supplementary signs throughout the Greenway corridor. The Mountains to Sound Trust is a non-profit organization whose goal it is to conserve valued resources along the proposed National Scenic Byway.

### Consolidation of "Sign Clutter"

Preparing a cohesive Greenway signing plan also has the added bonus of helping to reduce sign clutter. Over the years as sites develop, signs for these locations propagate along the roadway, sometimes being tacked to existing signposts like an afterthought. Careful consideration in a signing plan such as Project One can consolidate or eliminate some signs, making it easier for motorists to make decisions, as well as reducing the cluttered look along a given stretch of roadway.

### Interstate Recreational Signing Concepts

The following concepts were developed by WSDOT Olympia Service Center Traffic Operations and Heritage Corridors Sections, and Northwest Region Planning to provide direction when signing a limited access facility.

#### Concept #1:

This concept is for those interchanges where *many* activities will be accessed. A main white-on-brown sign will be placed in each direction on the highway and would include a logo as well as wording such as "Recreation Area - Next Right" or "Visitor Information Center - Next

Ok for Fall 2006?

the highway and would include a logo as well as wording such as “Recreation Area - Next Right” or “Visitor Information Center - Next Right”. The intention is to relate the activity or informational message with the Greenway logo. Knowing activities are in the vicinity of this exit, a motorist would exit the highway. On the ramp, another sign (or series of signs) would point the motorist to a specific recreational site or information kiosk where they could obtain a fuller description of local Greenway activities. This site could be a local (existing) visitor center or a roadside kiosk with Greenway information. An example of an area where this type of signing would be appropriate is Snoqualmie Summit, an area with multiple recreational sites. The highway signing would not be installed until the off-highway information site was established.<sup>2</sup>

#### Concept #2 - Pictograms:

This concept applies to those interchanges where only a *few* Greenway sites are located. In this case, it would not be appropriate or feasible to have a central off-highway information site. More specific, yet easily understood, information would appear on the mainline highway signing. This could be done by installing the main white-on-brown sign with the Greenway logo on the highway and then adding international symbol plaques (or pictograms) for the different activities in the vicinity of the interchange. The wording “Next Right” would be included at the bottom of the sign. Pictograms have the distinct advantage of being easily understood at high speeds, yet still provide important information in a small space. As motorists exit the highway, additional signing at the ramp terminal would guide them in the proper direction. Follow-through signing would have to be in place.<sup>3</sup>

#### Concept #3 - Augment Existing Sign:

This concept applies to those interchanges where existing recreational signing is already used. An example is the exit from I-90 to “Lake Sammamish State Park” in the Issaquah area. Rather than replacing the sign with a completely different message, Greenway needs would be added to the existing sign. Through the addition of the Greenway logo as well as the possible inclusion of text such as “Recreation Sites”, the sign would direct travelers off the highway to the main destination, in this example the state park, where further information about other area Greenway activities could be found. The layout and wording of the main sign will be critical.<sup>4</sup>



Supplementary Guide Sign in Issaquah

#### Concept #4 - Verbal Description:

This is a variation on Concept 2 in which the pictograms are replaced with wording describing the actual activity or site. For example, instead of the symbols for hiking and biking, the main white-on-brown highway sign would include the name of the attraction, i.e. "Iron Horse State Park". This concept is especially applicable to signing major tourist attractions ("Snoqualmie Falls") or state parks. It would only apply if one or two activities/sites were accessed via any given interchange. Ramp terminal and follow-through signing would be required. This concept could be viewed as unfair due to some activities/sites being named specifically while others have to settle for a pictogram.<sup>5</sup>

#### Mixed Concept:

In some instances, the needs of the motorist and of the Greenway can be best met by using a "mixed" approach, in which more than one signing concept is combined on one sign. This already has several precedents in the Seattle area. Signs on Interstate 5 direct travelers to Mercer Street/Seattle Center and supplement this information with a pictogram of the Seattle Center. Other signs direct travelers to the Colman ferry docks with both words and pictures, and in yet another instance, several downtown exits also feature the pictogram for the Washington State Trade and Convention Center in addition to street destination wording. Examples of application on the Greenway Signing Plan would be combining the pictogram for "information" (which is a? in a square box) with the wording "Visitor Information Center". Another use for a mixed concept would be at an interchange where, although there is one overriding feature

of interest (for instance “Stampede Pass”), there are also several less prominent but still interesting attractions (“Sno-Park”, camping, hiking, etc.)

## Signing Plan Analysis

### Mainline Signs

Many of the existing recreational and cultural signs have somewhat vague descriptions. A more effective description is desired to convey the valued sites and activities within the corridor. Some of the problems with the existing signing follow:

- EXIT 15: The Washington Zoological Park is only identified by a small brown sign (“Zoo”) appended to a sign post for the “Lake Sammamish State Park” sign.
- EXIT 20: Lake Tradition Recreation Area is a major attraction but is not signed on the highway.
- EXIT 25: Tiger Mountain Recreation Area is a major attraction, yet is not signed from I-90, the major access to the area.
- EXIT 38: Olallie State Park is not signed until after entering the park.
- EXIT 42: “Tinkham Road” sign could be more descriptive of the recreational and cultural activities that are available there.
- EXIT 45: “USFS Rd. 9030” leaves travelers clueless to what they can expect to find at this interchange.
- EXIT 47: The wording on the existing sign is “Asahel Curtis”. This is the name of a famous deceased photographer and does not convey the fact that the Asahel Curtis Nature Area is a feature at this exit.
- EXIT 52/53: The existing recreational signing at Snoqualmie Summit has “W. Summit” and E. Summit” for the descriptions of the recreational areas.
- EXIT 84: A small brown Cle Elum Museum sign was mounted below the green guide sign for this exit.



Follow-through signing at ramp terminal

### Off-ramp and Crossroad Signs

International symbol signs with descriptions exist on the off-ramps to inform travelers of their choices from each interchange area. Though the off-ramp and crossroad signs currently are complete except for a few cases, most of them need to be replaced due to normal weathering and accidental damage.

### The Proposed Signing Plan

The proposed plan would provide descriptive pictograms on the mainline brown signs and have follow-up signs with more detailed descriptions on the off-ramp and/or crossroads. This signing scheme will provide a meaningful and easy-to-read



description of at least one site on the mainline signs, while the signs on the off-ramps and crossroads will further define the activities that are available.

We have grouped recreational and byway logo signing into five major functions. These groups can be used on an Interstate Highway. The groups are:

1. **recreational** signs (brown),
2. **visitor information** signs (blue or brown),
3. **gateway logo** signs (green),
4. **trailblazer/marker logosigns**, (see below), and
5. **supplemental guide** signs (green).

While Visitor Information plaques normally appear on blue signs, a "Visitor Information" plaque may be placed on a brown sign if the only information available at the site is recreation-oriented. Trail blazer/marker logo signs generally consist of an enlarged version of the logo alone, and therefore have no "background" on which the pattern appears.

### *Signing Plan Design Process*

For each interchange along the corridor a list of valued recreational or cultural sites and activities was assembled. Each of these interchange lists were then matched with a signing concept plan described previously. See *Project One: Signing Plan* for the proposed signs.

When the existing off-ramp and/or crossroads signs are replaced, better sign design should be used to consolidate the existing and proposed signing groups into just one or two signs.

### **Review Process**

These proposed signs were reviewed by WSDOT Northwest Region, WSDOT South Central Region, WSDOT Olympia Service Center, Mountains to Sound Greenway Trust, and public agencies with jurisdiction over the signed site.

<sup>1</sup> MUTCD, US Department of Transportation, Federal highway Administration, 1988, section 2H-2.

<sup>2</sup> "Scenic Byway Logo Signing Guidelines", Appendix A.7; Washington State Department of Transportation, December 1996.

<sup>3</sup> Ibid.

<sup>4</sup> Ibid.

<sup>5</sup> Ibid.

## APPENDIX B: TRAILS ELEMENT

**Introduction**

One of the goals of the Mountains to Sound Greenway Trust is to “*create a linked network of non-motorized trails throughout the Greenway*”<sup>1</sup> The purpose of this element is to identify existing trails that can serve as part of a single linear trail extending from one end of the greenway to the other. A description of the existing trail system and nominated links is presented here first. Next, a list of radiating trails connecting to the linear system is also presented. Finally, issues involved in selecting projects are discussed next.

**Description**

Many trails already exist adjacent to Interstate 90, some of which are shown on the Built Inventory Plans in Volume 3 of the plan. For the sake of this plan, “trails” will fall into two categories, with the first being the series linear trails from one end of the Greenway to the other, also referred to as the *trail system*. The second type are those that connect to the trail system, some of which are referred to as *radiating trails*. Figure B-1 shows an example of a linear trail.



Figure B-1: Twin Falls State Park: East Access Trail (Exit 38)

In some places the Greenway Trail System abuts the highway and in other places it is up to three kilometers away. The balancing of various locational factors such as scenic beauty, directness of travel, availability of right-of-way, and user ambiance have led to the trail’s deviation from the highway alignment.

*Existing Mountains to Sound Greenway Trail Links*

A list of the chain of existing trails that are proposed to form the Trail System follows:

1. I-90 Trail from 4th Avenue in Seattle through the Mt. Baker Ridge Tunnel across Mercer Island and the East Channel Bridge to Richards Road in Bellevue (WSDOT built and local cities maintain these trails),
2. Eastgate Interchange to Pedestrian Overcrossing (built summer 1995 by city of Bellevue),
3. School Yard Trail from Pedestrian Crossing to School Yard at West Lake Sammamish Parkway Interchange (built summer 1994 by city of Bellevue),
4. Issaquah-High Point Trail on the abandoned Burlington Northern Railroad Trail north of I-90 between Sunset Interchange and High Point Interchange.

Currently this trail is not accessible at Sunset Interchange. (owned and maintained by WSDOT),

5. Preston-Snoqualmie Trail from Preston to the Lake Alice Trailhead near Fall City. This trail would connect all the way to city of Snoqualmie but a trestle has been removed at Snoqualmie Falls. (operated by King County),
6. Snoqualmie Centennial Trail starts at the Snoqualmie Centennial Log Pavilion in the city of Snoqualmie and connects to Snoqualmie Falls (operated by King County),
7. Snoqualmie Valley Trail along the abandoned railroad beginning at SE Rening Road and ending at Rattlesnake Lake. The abandoned railbed from I-90 south is proposed to be upgraded with safety features. (operated by King County), and
8. From Rattlesnake Lake to Ellensburg, the Iron Horse State Park/John Wayne Trail is the principal continuous trail along Interstate 90 (operated by Washington State Parks).



Figure B-2: City of Bellevue Trail System

*Missing Mountains to Sound Greenway Trail System Links:*

1. Richards Road to Eastgate Interchange (proposed by Bellevue),
2. West Lake Sammamish Parkway to Issaquah (planned by King County),
3. Issaquah Connection Trail at Sunset Interchange (planned by WSDOT),
4. High Point Interchange to Preston Interchange Phase I and II (planned by WSDOT),
5. Trestle on Preston-Snoqualmie Trail near Snoqualmie Falls (planned by King County),
6. Trestle at Hall Creek on Iron Horse State Park (planned by Washington State Parks), and
7. Two trestles and some abandoned railroad right of way west of Lake Easton on Iron Horse State Park (planned by Washington State Parks).

*Significant Existing Connecting Trails:*

- Seattle Central Area Trail (Exit 3)
- Luther Burbank Park adjacent to the I-90 Trail (Exit 7)
- Trail along Interstate 405 from Factoria Interchange to Coal Creek Parkway (Exit 10)
- City of Bellevue Trail to Bellevue Way and MercerSlough Park (Exit 9)
- Lake Sammamish State Park Trail (Exit 13)
- Rattlesnake Ledge Trail (Exit 32)
- Twin Falls State Park (Exit 34)
- McClelland Butte Trail (Exit 42)
- Annette Lake Trail (Exit 47)

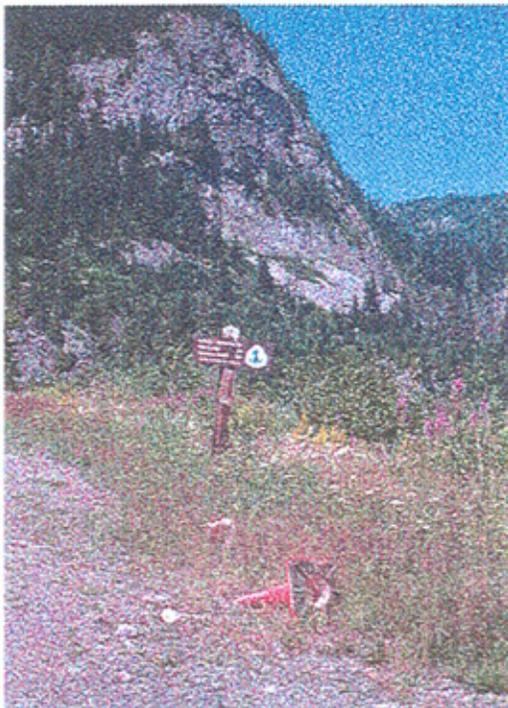


Figure B-3: Pacific Crest National Scenic Trail; South Trailhead

- Pratt Lake Trail (Exit 47)
- Mason Lakes Road & Trail (Exit 45)
- Talapus Lake Road & Trail (Exit 45)
- Denny Creek Road (Exit 47)
- Denny Creek Trail (Exit 47)
- Snow Lake Trail via Alpentel Road (Exit 52)
- Pacific Crest National Scenic Trail, as shown in Figure 2-3, (Exit 52)
- Kendall Peak Trail (Exit 54)
- Common Wealth Creek Trail (Exit 52)
- Gold Creek Valley Trail (Exit 54)
- Cold Creek Trail (Exit 54)
- Stampede Pass Road (Exit 62)
- Lake Easton State Park Trail (Trestle out - access at Exit 70)
- Cle Elum to Roslyn Trail (Exit 84)

**Trail Issues**

*Trails Within Highway Right-of-Way*

Trails are allowed on highway right-of-way in some cases, subject to WSDOT and Federal Highway Administration approval. Generally, local jurisdictions are asked to maintain the trails after construction. WSDOT retains ownership of the right-of-way and any other WSDOT properties.

**APPENDIX C: TRAILHEADS ELEMENT****Introduction**

Trailheads were identified as one of the six elements to be studied because of the importance of these facilities in supplying the connection between the transportation system and recreation facilities. In current transportation planning terms, a trailhead can be termed “*an intermodal center, or transfer point*”.

**Descriptions**

There are already many trailheads within the Mountains to Sound Greenway. They are owned, operated, and maintained by various governmental agencies and private parties. A list of these trailheads and their status follows:

Iron Horse State Park Access

The most significant trailheads along the Mountains to Sound Greenway Corridor serve the Iron Horse State Park. This State Park is currently a day use facility. Descriptions of these trailheads follow:

*Twin Falls State Park: Exit 34.*

The way to the trailhead is signed from the freeway ramp. This access is for foot traffic only; no horses or bicycles are allowed on the trail. When the Iron Horse State Park trail is reached, proceed eastward. The westward route is closed at the Seattle City Watershed boundary. The Seattle Water Department and Washington State Parks and Recreation are working together to develop a trail from the proposed Rattlesnake Lake Park.

*Olallie State Park/Garcia Road: Exit 38.*

This location offers access to the Iron Horse State Park. The missing Halls Creek Trestle interrupts the continuity of the trail. There is a very steep logging road at the east end of Garcia Road that will access the Iron Horse State Park but this route is not a preferred access route. Figure C-1 shows the interpretation along the Olallie State Park Nature Trail.



Figure C-1: Olallie State Park Nature Trail

*McClelland Butte Trailhead: Exit 42.*

This trailhead is on the south side of the highway on Tinkham Road 160 meters from the interchange. It is reached by going east to Annette Lake Trail and Snoqualmie Tunnel or west to Garcia Road access. Bicycles and horses are allowed to access Iron Horse State Park. McClelland Butte Trail is south from the State Park and is for hikers only. Figure C-2 shows a view of the newly located trailhead and pit toilet.



Figure C-2: McClelland Butte Trailhead

*Annette Lake Trailhead: Exit 47.*

The trailhead is east of the ramp on the south side of the highway. Bicycle and horse access is allowed but the access trail is currently too steep for such use. The Iron Horse State Park leads east to Snoqualmie Tunnel and west to McClelland Butte Trail.



Figure C-3: Lake Keechelus/Iron Horse State Park Access

*Lake Keechelus Access: Exit 54*

This is a very nicely developed trailhead with paved parking, restrooms and an information kiosk. Access is allowed for all non-motorized recreation from

this trailhead. The Iron Horse State Park extends west to the

Snoqualmie Tunnel and east to the Stampede Pass area and Crystal Springs Campground. In the winter the trail east from this trailhead is groomed for cross-country skiing. Figure C-3 shows the plowed parking lot, restrooms and kiosk.

*Stampede Pass/Lost Lake Road: Exit 62.*

This trailhead is located 1.6 km south of the highway. Access is permitted for all non-motorized vehicles, but parking is limited. The Iron Horse State Park extends west to the Lake Keechelus Trailhead and east to the Cabin Creek Community. No access is allowed through the Cabin Creek Community and on to Easton. This portion of the abandoned railroad route is privately owned.

*Easton Trailhead: Exit 71.*

This trailhead is signed on the highway and is located just south of the Easton Fire Station. Access is allowed eastward to South Cle Elum. No access is allowed west from this point.

*South Cle Elum Trailhead: Exit 84.*

Access is allowed from this point west to Easton and Thorp. All non-motorized recreational activities are allowed. Figure C-4 shows the South Cle Elum Railroad Depot and Power House adjacent to the trailhead. This trailhead has a restroom and parking area.

*Thorp Trailhead: Exit 101.*

This parking area is 800 meters north of the

highway and is reached by turning left onto West Depot Road, crossing the trail, and then going 400 meters. On the right there is a graded parking area without restroom facilities. Access is allowed west to South Cle Elum, but no access is allowed eastward at this time.



Figure C-4: South Cle Elum Depot & Power House

**Issues****Security**

Security is an issue for users of trailheads. Parked cars at isolated locations can, and often are, targets for vandals and thieves. Some of the trailhead sites could be located at Park and Ride lots in urban areas. Bicycle racks, telephones, and directional signs should be provided at these sites.

In the rural areas the State Patrol should be made aware of any new trailhead installations so that they can include them in their patrols. Although the trailheads may not be on state land, the State Patrol's knowledge of these sites will enhance the security of the trailhead areas.

**Analysis**

Potential trailhead sites were screened for the best locations for study using several criteria. The first criterion used, "Accessibility," evaluates the ease of access from a major transportation facility, usually I-90. The second criterion, "Not Committed," judges whether or not a jurisdiction or other entity is already committed to completing the project. As noted in the section on trails, this is an all or nothing criterion that will effectively eliminate a project from consideration if it has already been committed to. "Need" balances the nearness of alternative trailheads with demand. "Right-of-way Availability" weighs three factors, current ownership (public ownership is generally rated higher), suitability (as a site), and receptivity (of the owner to using the property as a trailhead).

## APPENDIX D: SCENIC VIEWS ELEMENT

**Introduction**

A “viewpoint” has two entirely different definitions as it relates to highways. The first perspective is that of a location where travelers can pull off the road and enjoy views of special value. This is sometimes referred to as a “scenic viewpoint”. The second perspective is that of a special view that can be seen from the roadway. The latter is often referred to as a “viewshed”.

Each of these aspects begins with the same process, identifying special views. The first aspect subsequently requires locating accessible sites where parking can be accommodated. The second aspect requires balancing values such as preserving vegetation and creating distractions with that of enhancing the traveling experience.

**Description**

Scenic views were located from Interstate 90 by driving the highway and evaluating potential sites. Figure D-1 is an example of views that can be seen from the highway.



Figure D-1: View from Eastbound I-90 just west of Snoqualmie Summit

These scenic view locations are identified the Natural Elements Inventory Maps on sheets 1 through 14 of the Roadside Master Plan: Volume 3 using symbols and labels.

In addition to the scenic view locations, the viewshed is also shown on these plans. The viewshed areas with only one direction of hatching were derived from existing ground level contours. The views identified by the topographical viewshed may actually be blocked by trees, buildings and other obstacles. Thus, those sites shown with single hatching can be considered to be *potential* viewsheds. Existing viewsheds are designated by *crosshatching* on the maps and are the actual viewsheds that can currently be seen.

## Issues

### Facility Types

In order for travelers to fully enjoy an exceptional scenic view, there needs to be an area to stop for leisurely observing and taking pictures. There are three types of auxiliary facilities that best meet the needs of a scenic viewpoint. The definitions from the WSDOT Design Manual are as follows:

- A Safety Rest Area is *“a roadside area that is equipped with restroom building(s), parking area, potable water, picnic tables and benches, refuse receptacles, illumination, telephones, pet areas, and related amenities. Other facilities that may be included in a safety rest area are: kiosks, vending machines, interpretive signing, recreational dump stations, trails, scenic views, commercial and public information facilities, visitor information facilities, historical markers, weather information radio receivers. etc.”*<sup>1</sup>
- A Roadside Park is *“a roadside site that allows for safe vehicular parking off the traveled way. These sites may include features or elements such as scenic view, historical marker, picnic tables, chemical toilets, etc. Unlike a safety rest area, a roadside park does not have a permanent restroom building.”*<sup>2</sup>
- A Viewpoint is *“a roadside park that provides motorists with the opportunity to view scenery of interest.”*<sup>3</sup>

### Access Controlled Highway

When accessing a viewpoint, safety must be considered. Any safety rest area or roadside park on an access controlled highway should be located a minimum of 1.6 km, and in rural areas preferably 3.2 km, from the closest interchange. Scenic viewpoints can be constructed near existing interchanges, requiring the traveler to leave the freeway at the interchange to access the viewpoint. Otherwise new ramps must be constructed to allow vehicles to exit the highway.

Safety rest areas and roadside parks are designed and managed for brief occupancy. The site should be designed to provide a relaxing atmosphere: e.g., by giving the appearance of a natural setting or controlling the visual expanse of pavement.<sup>4</sup>

### **Potential Sites**

A list of potential scenic viewpoint locations were nominated at the Mountains to Sound Greenway Workshop. The following information was uncovered about these sites:

#### *Kendall Peak Trailhead*

The Kendall Peak Trailhead location was described at the workshop as having a beautiful view up the Gold Valley toward Chikamin Peak. The US Forest Service has plans to enhance this trailhead in the near future. When this site is upgraded it may or may not

serve as a formal scenic viewpoint. The proposed site may not be large enough to handle the traffic demand of a scenic viewpoint.

#### *Proposed Midlake Park Viewpoint*

The Midlake Park location that was nominated was subsequently believed not to be a good choice since large power transmission lines and structures would be the main view if the tree buffer was cleared.

#### *Proposed South Lake Sammamish Viewpoint*

The South Lake Sammamish (off Newport Way) location would be located in a residential neighborhood on a steep slope. This site may not be adequate for a large number of vehicles.

#### *Proposed Cle Elum Valley Viewpoint*

A site called the Cle Elum Valley Viewpoint was also nominated. This location did not have a wide enough area between the highway and the edge of the bluff that overlooks the Yakima River, and would not be large enough to locate a viewpoint and its associated parking area. Also, power lines are currently located in the trees beside the highway along the length of the potential view.

### **Analysis**

WSDOT staff developed a matrix to help evaluate potential sites. “Accessibility” measured the ability of the public to easily get to the site. “Scenic quality” is self explanatory, and “right-of-way availability” balanced current ownership, suitability of the site, and receptivity of the land owner to the proposal.

### **Projects**

Scenic viewpoint projects did not rank highly during the Mountains to Sound Greenway Trust’s prioritization process and therefore a conceptual scenic viewpoint site plan was not developed as part of this plan. Nevertheless, a Snoqualmie Pass Visitor Site Study was added as a preferred action. The *Snoqualmie Pass Visitor Study* is described in the main body of this document.

---

<sup>1</sup> WSDOT Design Manual, Washington State Department of Transportation, Feb. 1990, pp. 1030-1

<sup>2</sup> Ibid.

<sup>3</sup> Ibid.

<sup>4</sup> Ibid.: pp. 1030-2

## APPENDIX E: WILDLIFE CORRIDORS ELEMENT



Figure E-1: Wildlife Crossing Near Snoqualmie Point, (MP 27)

### Introduction

Wildlife corridors were chosen as an element of the study to meet the Mountains to Sound Greenway Trust's goal to "*identify and protect critical environmental areas in the Greenway for water quality, fisheries and wildlife habitat.*"<sup>1</sup> A preliminary list of wildlife corridors was developed at the July 1995 workshop in North Bend. Previous to the workshop, maps had been sent out to all interested jurisdictions. They were asked to mark known or suspected wildlife corridors, and or crossings. Each potential and existing site was then visited in the field. The general conclusions were that most sites, at least in King County, already support wildlife with existing crossings.

### Description

Discussion of the issue of wildlife corridors is arranged below by agency. Both policy activities and specific locations are discussed.

### Federal Lands

#### *Snoqualmie Pass Adaptive Management Area*

In November 1995 the National Forest Service completed a draft environmental impact statement for the nationally mandated Snoqualmie Pass Adaptive Management Area Plan (AMAP). The goal of the AMAP is to provide habitat and connecting corridors to sustain wildlife while allowing appropriate timber harvests. The Adaptive Management Area includes 40 323 hectares of privately owned lands along with 45 757 hectares of national forest. The north boundary of the Adaptive Management Area is the south boundary of the Alpine Lakes Wilderness Area. Many of the available access points to the Alpine Lakes Wilderness are within the Adaptive Management Area.

During the review period for the AMA Plan, WSDOT requested that further study be done to determine potential wildlife crossing locations. This information was useful in

determining where wildlife crossings are needed from Denny Creek to Easton . This information will be added to the Mountains to Sound Greenway Plan to determine if wildlife crossing plans are possible. The WSDOT South Central Region is planning for the widening of Interstate 90 from Hyak eastward for the length of the Mountains to Sound Greenway and beyond, and any wildlife crossings should be included as part of the scoping when this project is funded for design.

### *Alpine Lakes Wilderness*

The US Forest Service also manages the Alpine Lakes Wilderness Area just north of and part of the Mountains to Sound Greenway Corridor. This wilderness area attracts many recreational visitors from both the local area and from around the country. Many visitors day hike or backpack into the wilderness and some stay for extended periods. The scenic aspects of the Alpine Lakes Wilderness Area are rich in intrinsic resources of a geologic nature, with wildlife, and with distinct vegetation in the alpine areas.

The US Forest Service will play a major role in developing some of the access enhancement projects into recreational areas within the corridor while providing access to the harvestable timber and managing wildlife habitat issues.

## **State Lands**

### *Department of Natural Resources*

State Forests and Conservation areas also provide habitat for wildlife along the Mountains to Sound Greenway Corridor. There are two major divisions of state land along the Greenway Corridor. They are the Tiger Mountain State Forest and the Mt. Si Conservation Area. These lands are managed by the Washington State Department of Natural Resources (DNR).

The DNR manages approximately 850 000 hectares of commercial timberlands statewide. These working forests generate public funds from timber sales and harvests every year, while providing wildlife habitat and recreational opportunities such as hiking, horseback riding, picnicking and sightseeing. DNR supports and encourages the provision of wildlife crossings along I-90, SR 18, SR 900 and the Issaquah-Hobart Road. These crossings would connect the open space habitat that these highways separate, therefore providing greater diversity in wildlife habitat and the wildlife the land sustains.

The DNR is also concerned about the high level lighting at the SR 18 and I-90 Interchange. Its concern is that the dispersed lighting is adversely affecting the wildlife in the area.

## **Washington State Parks and Recreation**

The Mountains to Sound Greenway contains five state park facilities for the visiting public along the corridor. Many of these parks are managed for both their recreational use and the conservation of wildlife habitat. The State Parks are listed as follows:

*Lake Sammamish State Park*

Lake Sammamish State Park conserves a portion of the lake shore and land for public and wildlife use. This park provides habitat for at least two endangered species, the great blue heron and the bald eagle.

*Squak Mountain State Park*

Squak Mountain State Park conserves a portion of the hill directly behind Issaquah and provides trails for recreational use in addition to wildlife habitat. This Park now connects with Cougar Mountain (King County) and Tiger Mountain (DNR). Wildlife crossings on both SR 900 and Issaquah-Hobart Road are needed to connect the wildlife corridors.

*Twin Falls State Park*

Twin Falls State Park provides a nature trail and wildlife habitat along the South Fork of the Snoqualmie River to the falls and connects up with the Iron Horse State Park. Twin Falls State Park can be accessed at the trailhead south of Exit 33 and Exit 34. This park area provides the opportunity for wildlife movement along the South Fork of the Snoqualmie River from the Seattle Watershed area to Grouse Ridge toward the State Fire Training Center.

*Olallie State Park*

Olallie State Park provides river access for the public and wildlife along the South Fork of the Snoqualmie River. This Park is adjacent to the Iron Horse State Park between Exit 36 and Exit 38.

At both exits opportunity is provided for wildlife to cross under the mainline of the highway along the crossing roads. These crossing sites connect the river segment south of I-90 and serve as a continuing habitat with some intrusion from vehicles and persons along the adjacent frontage road.

*Iron Horse State Park*

Iron Horse State Park is a linear park traversing the Mountains to Sound Greenway Corridor east to west, paralleling Interstate 90 between Rattlesnake Lake south of North Bend to Cle Elum at which point the park crosses to the north of the Interstate and follows the Yakima River to Ellensburg. The park is discussed in the Trails section of this report. While the park no doubt provides passage for wildlife, its nature is not of concern for the sake of this analysis.

**Counties**

The Mountains to Sound Greenway Corridor lies within two counties in Washington state, King and Kittitas. King County has both urban and rural areas while Kittitas County is rural. The wildlife habitat in these counties varies significantly due to climate differences. King County has significantly more precipitation than Kittitas County, which has a drier climate. This climate difference is due to the unloading of the storms on the west side of the mountains closer to the coastal region.

### King County

The King County Comprehensive Plan has identified locations along the highway for wildlife crossings. These wildlife habitat networks already exist and are planned to serve wildlife into future generations. They are located at:

#### *Tradition Lake to Grand Ridge:*

The highway overcrossings of the East Fork of Issaquah Creek provide for the cross-movement of wildlife between Tradition Lake and Grand Ridge. No improvements are planned at this site.

#### *Preston to Raging River:*

The highway overcrossing bridges are very long and high at this location and an excellent place for wildlife to cross under the freeway. The Department of Natural Resources has recommended fencing along the wildlife corridor to channel the animals towards the crossing.

#### *Rattlesnake Ridge to Meadow Brook:*

When the access controlled highway was built, a wildlife crossing was included in the project. The crossing consists of arch culverts to allow wildlife to pass under the highway. The wildlife crossing area is well landscaped to provide cover for the wildlife and trees for birds. No improvements are planned at this site.

#### *Denny Creek to South Fork of Snoqualmie River:*

Wildlife can cross under the freeway at the existing highway overcrossing bridges just east of the Asahel Curtis Interchange (Exit 47). These structures carry the freeway over the south fork of the Snoqualmie River and over Denny Creek Road. No wildlife improvements are planned at this site.

#### *Mason Creek to Alice Creek*

Another wildlife crossing was suggested across the highway from Mason Creek to Alice Creek in the Camp Mason Road Interchange area, Exit 42. This crossing currently does not exist but should be considered if any major highway reconstruction is planned.

### Kittitas County

The Washington State Department of Fish and Wildlife provided information on probable wildlife crossing locations in Kittitas County. These wildlife crossings are shown on the Natural Elements Inventory Maps in Volume 3: *Roadside Master Plan*. These suggested wildlife crossings were verbally described to us by Roger McKeel of the Department of Fish and Wildlife and are subject to further evaluation and therefore will change.

In April 1997, the US Forest Service released its Final Environmental Impact Statement for the Snoqualmie Pass Adaptive Management Plan. Included is an analysis of wildlife data which will help to determine possible wildlife corridor routes in Kittitas County.

These locations may be implemented in the future. When the highway is widened to six lanes there may be a chance to construct wildlife crossings, but funding for the highway widening is still uncertain. See *Wildlife Corridors; Federal Lands* previously discussed in this section.

## **Cities**

### City of Bellevue

Bellevue was the only city to provide information on suggested wildlife crossings along Interstate 90. This information is summarized below:

#### *Mercer Slough*

A major wildlife crossing of I-90 within the city of Bellevue jurisdiction is the Mercer Slough. The Mercer Slough is a large 130 hectare wildlife refuge located near the shores of Lake Washington in the city of Bellevue. This natural wetland is home to a variety of species including the endangered Great Blue Heron. In this area the bridge structures are elevated and allow wildlife passage under the highway. No additional improvements are contemplated at this time.

#### *Sunset Ravine Park*

Sunset Ravine Park on the south side of the highway is a potential wildlife crossing location. Any wildlife that may live at this location has not yet been studied. The land use in this area is urban with commercial areas surrounding both sides of the highway. Adequate crossing locations for wildlife do not exist.

#### *Timberlake Park*

This park is located on the north side of the highway along a potentially fish bearing stream on Lake Washington. No improvements have been proposed at this location.

#### *Sunset Interchange*

The Sunset Interchange east of Issaquah is proposed by the city of Bellevue as a potential wildlife crossing area. As mentioned previously, there is already an existing wildlife crossing just east of this location where the East Fork of Issaquah Creek crosses under the highway. A wildlife crossing directly at the Sunset Interchange location might lead the wildlife into downtown Issaquah and onto roadways with high traffic volumes. This site will need further analysis before wildlife usage can be planned.

## **Issues**

### **WSDOT Wildlife Kill Data**

The Olympia Service Center Environmental Affairs Office keeps a database of reported deer and elk killed on the highways. These records are taken from the Washington State Patrol's accident reports. The numbers represent reported deer or elk hit on the highway

from 1977 to 1995, covering approximately 18 years. These records are not inclusive and therefore can not be relied upon for accuracy. This data was analyzed to determine the areas where deer and elk cross, were hit and were reported consistently.

The data was analyzed by breaking the records out into one mile (1.6 km) segments. Example: MP 10 includes data from MP 9.6 to MP 10.5. The data showed a distribution of 0 to 47 animals per mile (0 to 29 animals per kilometer). The one mile segments of data were then rated according to number of animals killed, as shown in Table E1 below.

**Table E1  
Rate of Deer Kill**

<b>Frequency Class</b>	<b>Quantity Range of Deer or Elk Killed per Mile during Past 15 Years</b>
Class A	0 to 9
Class B	10 to 19
Class C	20 to 29
Class D	30 to 39
Class E	40 to 49

Table E2 below, shows highway locations where 30 or more reported deer or elk were killed per mile between 1977 and 1995. NOTE: This frequency classification was derived for use only on this analysis.

**Table E2  
Miles with High Animal Kill Rates**

<b>Begin MP</b>	<b>End MP</b>	<b>Location Description</b>	<b>Recurrence Class</b>	<b>Length (Miles)</b>	<b>Quantity of Game Killed</b>
37.6	38.5	Homestead Valley Road	Class D	1.0	30
38.6	39.5	Garcia Road	Class D	1.0	34
60.6	61.5	Price Creek Vicinity	Class E	1.0	47
61.6	62.5	Price Creek Vicinity	Class D	1.0	32
79.6	80.5	Truck Weigh Station	Class D	1.0	37
80.6	81.5	Cle Elum River	Class D	1.0	38

The six deer and elk kill areas shown above have been grouped into three two-mile segments and analyzed for stopping sight distances (See the *WSDOT Design Manual* Section 630 for detailed design requirements). The current Interstate highway design standards require a 115 km/h minimum design speed be provided in a rural area.

**Table E3  
Substandard Vertical Curves in High Deer and Elk Kill Areas**

VPI MP	Curve Type	Description	Actual Design Speed	Stopping Sight Distance Required	Actual Stopping Sight Distance
38.71	Crest	Ollalie State Park Vicinity	90 km/h	260 m	176 m
60.74	Crest	Price Creek Vicinity	90 km/h	260 m	182 m
81.59	Crest	Cle Elum River Vicinity	90 km/h	260 m	182 m

\* VPI = Curve Vertical Point of Intersection

These substandard vertical curve stopping sight distances may or may not be the cause for the higher rates of animals getting hit on the highway. This analysis was intended to see if there would be any kind of relationship between number of kills and sight distance. The results of this study method indicated a slight probability that the stopping sight distance could be related to deer and elk hit at these locations. But these results are speculative at best and further analysis should be done to draw a proper conclusion.

According to the *WSDOT Design Manual* there must have be at least 5 reported deer kill within one mile during a one year period. We have located three areas that meet this criterion and have conducted a Cost-Benefit analysis to determine if wildlife reflector systems should be installed at either of the identified locations. Further information is available on page E-9.

**Accidents**

Vehicle accidents with large wildlife are a safety concern. Highway right of way provides grasses that may no longer be available elsewhere due to changing land use. These grasses attract certain types of large game and may result in accidents causing injuries, human and wildlife deaths, and severe damage to vehicles.

**Fencing**

Is the installation of game fencing necessary along the entire highway corridor? Only portions of the highway corridor have game fencing. In some areas only a low cable, such as in the Easton vicinity, signifies the end of the highway right of way and then beginning of private or public property.

It may not be beneficial in some areas to install fencing where game could be penned in and not allowed to disperse. If fencing were installed to direct wildlife to a wildlife undercrossing it would then allow an escape route for the wildlife. A “jump out” is a feature that allows game to only jump over the fence to exit the roadside. It consists of a

berm constructed on the road side of the fence to allow animals to exit by reducing the effective height of the fence. This feature was constructed at locations on the Trans-Canada Highway in British Columbia.

The location of the fencing in relation to the highway should be considered. Factors to be considered in these decisions are: visual impact, potential habitat loss, maintenance concerns and engineering constraints. To reduce visual impact the fence should be placed near the edge of the cleared right of way. To preserve habitat the fence should be located close to the highway then screened behind existing vegetation or terrain features when the opportunity exists.<sup>2</sup>

### Crossing Types

There are two general wildlife undercrossing designs. The first is an open span bridge structure and the second is a corrugated multi-plate steel culvert. Figure E-2 shows an open span design.



Figure E-2: Open Span Wildlife Crossing near Snoqualmie Point

On the Trans Canada Highway Twinning project the open span opening beneath the structures was 15 meters wide. However, the 2:1 slope from the backfilled abutments reduced the potential level area to four to five meters wide with headroom of approximately four meters. The corrugated multi-plate steel culverts were 4.27 meters in diameter.<sup>3</sup>

Ungulate (hoofed) species prefer to be able to see side to side when entering a wildlife crossing area and prefer to see through both directions of the highway before they begin to cross.<sup>4</sup>

Cattle guards across the highway at the ends keep animals from entering the highway at the ends of the game fencing. The “animal guards” are difficult to keep maintained. During winter snow gets packed in between the rails and they are then easily crossed.<sup>5</sup>

### Connection of the Open Spaces

Natural connections between suitable habitats provide for a diversity of habitats and therefore wildlife. Corridors are not just paths for movement between habitats; they are habitat for a wide variety of species. Many ecological features and processes occur along linear alignments, particularly waterways. Recreational uses should be carefully planned not to interfere with the interior spaces of the wildlife habitats.

### Proposed Locations for Wildlife Warning Reflectors

Collisions between automobiles and deer produce a substantial economic cost through damage to vehicles, human injury, fatality, and loss of wildlife resource. A wildlife warning reflector system has been developed to reduce this accident potential.

The system consists of a series of reflectors mounted along the roadway. During hours of darkness, light from the headlights of an approaching vehicle is reflected away from the roadway by the reflectors. This reflected light creates an “optical fence” which causes the deer to remain motionless until the vehicle has passed.

Table E4 shows the prospective “optical fence” locations which have been extracted from the vehicle-deer collision history according to the requirement that “reflectors may be warranted if the deer kill for any one mile exceeds five kills per year.”<sup>6</sup>

**Table E4**  
**Proposed Optical Fence Locations**

Priority	Beg. MP	End MP	Location Description	# Kills in One Year	Roadway Geometrics
1	60.6	61.5	WB on ramp from Price Creek Sno-Park @ MP 61.34	10 in 1988 and 9 in 1991	90 km/h vertical curves @ MP 60.79 & 61.48
2	37.6	38.5	Homestead Valley Road MP 37.76	10 in 1994	90 km/h vertical curve @ MP 38.71
3	55.6	56.5	Between Gold Creek and Rocky Run Creek	7 in 1992	130 km/h +

These locations will be analyzed by WSDOT Olympia Service Center Wildlife Biologists to determine the cost-benefit ratio of reflector systems at these locations.

<sup>1</sup> Mountains To Sound Greenway Fact Sheet

<sup>2</sup> B. Bertch, Park Warden, Banff National Park; Summary Report-Monitoring Program Mitigation Measures: Trans Canada Highway Twinning, Environment Canada Park Service, March 1991, pp. 7.

<sup>3</sup> Ibid.; pp. 7.

<sup>4</sup> Ibid.; pp. 13.

<sup>5</sup> Ibid.; pp. 16

<sup>6</sup> WSDOT Design Manual: Section 830.06 (1), page 830-4.

## APPENDIX F: REVEGETATION ELEMENT

**Introduction**

One goal of the Mountains to Sound Greenway Trust is to “incorporate elements of the Greenway Vision into the WSDOT I-90 Master Plan, gain statewide support and begin implementation.” One significant method of accomplishing this is restoring the roadside character as nearly as possible to a “pre-highway” condition.



Figure F-1: Iron Horse State Park Access sign on eastbound I-90 near Easton.

**Description**

Numerous areas within the I-90 right-of-way can be improved to enhance the visual experience of people driving or riding through the corridor. Identifying these areas and selecting planting strategies involves a number of issues. Amongst those issues are:

- shadows in areas subject to roadway icing
- preservation of clear zones
- plant selection
- maintenance

**Issues****Shadows**

One area of particular concern to WSDOT is “roadway shadowing.” This occurs when tall vegetation, usually trees, prevents sunlight from reaching the roadway surface all day long during the winter months. This can result in icy patches forming in these darkened areas, which obviously creates hazardous conditions and often catches unwary motorists by surprise. The solution is to locate trees and other vegetation so that their shadows do not fall on sections of roadway subject to icing.

**Clear Zones**

Clear zones are areas adjacent to the roadway that are maintained in a condition that will allow a vehicle leaving the roadway a chance to recover. There are two relevant elements.

### Clear Zones

Clear zones are areas adjacent to the roadway that are maintained in a condition that will allow a vehicle leaving the roadway a chance to recover. There are two relevant elements.

#### *Slopes*

The first is that of clear zone slopes. In order to prevent vehicles from overturning, the ground slope should not exceed 6:1. This means that for every six meters of distance traveled, the ground elevation cannot change by more than one meter.

#### *Obstructions*

The second issue for clear zones is obstructions. The only types of objectives allowed in clear zones are poles for signing, lighting, etc., that have “break-away” construction, and vegetation with trunks of less than 100 mm diameter. If there are objects that do not meet this criterion, they must be shielded from vehicles by guardrail or similar devices. Slopes that cannot be practicably flattened to 6:1 are also protected by barriers.

### Plant Palette

The third issue is clear zone plant palette. Plant selection is explained in Volume 3: *Roadside Master Plan* of this plan. Department policy dictates a preference toward native plants with low maintenance requirements.

### Maintenance Requirements

The fourth issue is clear zone maintenance. Plant selection and location should not result in undue maintenance requirements. Plantings should not create impediments to WSDOT’s maintenance crews. This will be in the best interests of both the plants and the maintenance crews. WSDOT Maintenance Offices are concerned with maintenance costs, limited methods of maintenance, citizen complaints, and drainage maintenance requirements. For further roadside information see Volume 3 of the *Mountains to Sound Greenway Implementation Plan*, the “Roadside Master Plan.”

### Other Volunteer Planting Activities

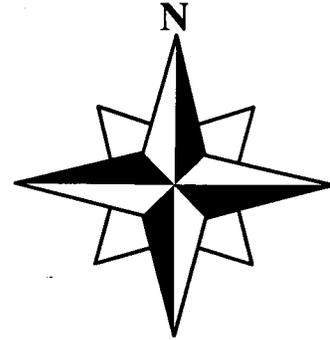
Numerous volunteer planting projects have also been completed along I-90 over the past two years in conjunction with this implementation plan project.

**APPENDIX G: Mountains to Sound Greenway Workshop**

A Mountains to Sound Greenway Workshop was held at the Community Center in North Bend on July 1, 1995. After the workshop, WSDOT staff continued to work with MTSGT to refine the list and analyze selected projects. This volume of the study documents the process and presents the results of this effort.

Trails, Trailheads and Scenic Views

In the afternoon, at the Mountains to Sound Greenway Workshop, Group A, "Trails, Trailheads and Scenic Viewpoints", a large group got together and identified trail links in the Mountains to Sound Greenway Trail System. They also helped locate existing and proposed trailheads and scenic viewpoints within the Mountains to Sound Greenway Corridor. These proposals were then prioritized by the group.



Those attending the Group A gathering were:

Howard Briggs; Ben Brown, NW Region Environmental Engineer; Bob Caldwell, NW Region Bicycle Coordinator; Sharon Claussen, King County; Rudy Edwards, USFS District Ranger; Pat Freedman, Windemere Real Estate; Don Howe, WSDOT NW region Landscape Architect; Gayle Jovanovich, WSDOT NW Region Senior Planner; Jan Klippert, King County Public Relations; Margaret Macloed, County-wide Bicycle Coordinator; Colleen McKee, Wash. State Parks and Recreation; Don Potter; Kristen Pryor, city of Bellevue Bike/Ped Planner; Jerry Schutz, WSDOT NW Region Planning Manager; Ted Thomsen, Issaquah Alps President; Terry Wallgren, Cle Elum Key Bank Manager; and Susan West, city of Bellevue Planning Intern.

The lists were prioritized based on the level of importance of having WSDOT project staff develop design details for the identified element. Important elements may have been listed low because other agencies are already working on them. The project lists and their priorities were determined by the group.

Trails

1. Mercer Slough to Issaquah
2. Three bridges on the Iron Horse State Park
3. Snoqualmie Falls Trestle
4. Rattlesnake Lake Connection to Iron Horse State Park,
5. Issaquah to Preston,
6. Sunset Highway Trail at Snoqualmie Summit, and
7. Multi-use Trail through Issaquah.

Trailheads

1. Cle Elum Wye (Exit 84),
2. Improve Pacific Crest Trail Trailhead to include Sunset Highway Trail at Snoqualmie Summit(Exit 52),
3. Improve Kendall Peak Trailhead at Hyak (Exit 54) ,
4. Snoqualmie Point (Exit 27), and
5. SR 18 Trailhead (Exit ).

Scenic Viewpoints

1. Snoqualmie Point (Exit 27)
2. Kendall Peak (Exit 54), and
3. Midlake Park (Exit ).

Revegetation and Wildlife Corridors

During the workshop Group B, Wildlife and Revegetation, discussed wildlife and planting issues. The Group B participants were:



Sally Anderson, WSDOT NW Region Landscape Architect; John Brim, WSDOT NW Region Maintenance Manager; Joanna Buehler, Guy Couture, WSDOT SC Region Project Development Engineer; Dan Dewald, city of Bellevue Parks Manager; Robert Hoiby, WSDOT NW Region Planner, Linda Knapp, SNOPAC; Joyce Komac, WSDOT NW Region Assistant Maintenance Superintendent; Doug Schindler, Debi Schultz and Kate Stenberg, King County Wildlife Biologist.

Revegetation Proposals

The following three planting actions were proposed as projects:

1. Develop continuous planting plan for volunteers action: Eastgate to North Bend.
2. Screening as identified on the Roadside Master Plan at: Preston, North Bend, Hyak and Cle Elum.
3. Analyze potential view areas for viewshed management. The proposed view areas were: Kachess Lake and West Cle Elum.

## Wildlife Corridors

### King County

The Wildlife Habitat Network and Public Ownership map in the King County Comprehensive plan, Executive Proposed Plan, June 1994 identified wildlife networks crossing Interstate 90 in four locations. These locations are:

- Tradition Lake to Grand Ridge,
- Raging River near Preston,
- East of Exit 27 (City of Snoqualmie), and
- East of Asahel Curtis Interchange

### City of Bellevue

The following wildlife corridors are proposed by city of Bellevue Parks and Open Space Plan, they are:

- Mercer Slough,
- Sunset Creek,
- Vasa Park,
- Lewis Creek.
- East Fork Issaquah Creek,
- Tibbets Creek, and
- No Name Creek (Between Lewis and Tibbits).

### Provide for Fish Passage along the Entire Corridor

Stream crossings should be retrofitted for fish passage along the entire corridor. The Department of Fish and Wildlife rate stream crossings and only two crossings were found to be 0% passable. The stream crossings are:

- Silver Creek near Easton (Milepost 70.9), and
- X-Tributary of the Yakima River (Milepost 74.9).

The Silver Creek crossing is including in the Fish Barrier List.

### **Historical, Interpretive Markers & Signing**

During the workshop Group C; Historical, Interpretive Markers, discussed interpretive and visual issues. Only the Signing Plan, of these three elements, is included in the six items identified for detailed study in the Implementation Plan. Thus, only the Signing Plan is discussed in detail in this volume. The Group C participants were:

Carin Beij, WSDOT OSC; Bill Dues, WSDOT NW Region; Dave Berg, NW Region Traffic Engineer; Nancy Keith, MTSG Trust Executive Director; Leroy Gmazel, city of Snoqualmie; Kerry Grant, WSDOT SC Region Planning Engineer; Fred Knapp, SNOPAC Chairman; Julie Kohler, King County Historic Preservation Office; Don Jeffery, SNOPAC; and Fay Schafi, WSDOT NW Region.

No projects were proposed by this group. The group thought working groups were needed to develop each component. The group suggested that three types of data should be studied, historical, signing and visual elements.

The Historical Group consisted only of Julie Kohler of the King County Historic Preservation Office and WSDOT staff. Julie suggested that this project contribute an historical interpretation theme and that others, such as herself, would carry out the theme including installation of the historical markers, at a future time.

The historical sites had been located on the mapping received from the Mountains to Sound Greenway Trust and are located on the Built Inventory Maps within the Plan.

A signing group was formed consisting of Jerry Schutz, Dave Berg, Gayle Jovanovich (all of the WSDOT) and Nancy Keith of the Mountains to Sound Greenway Trust. This group collaborated to develop the signing concept plans for Interstate 90.

The visual elements group was formed by Sally Anderson, WSDOT NW Region Landscape Architect, Nancy Keith, MTSG Trust Executive Director, Steve Durrant, Jones and Jones, Inc. Landscape Architect, Hans Latooy, WSDOT OSC Landscape Architect and Don Howe, WSDOT NW Region Landscape Architect. This group met and discussed the look of the built features within the Greenway such as, bridges, retaining walls, restrooms, information kiosks, luminaires, sign bridges, bridge rails, interpretive sign mountings, etc. This group felt it was most economical to replace "highway furniture" items as needed due to the construction needs of the highway. When highway construction would cause a highway-related feature to be replaced, it was decided within the group that matching the type of highway hardware that was directly adjacent to the construction site would be the best solution. Having a set of guidelines for the look of the highway seems like a good idea but when it is implemented piecemeal the effect is not consistent and therefore not in harmony.

**APPENDIX H: SI to Imperial Table**

This report was prepared using the SI, or “metric” system of measurement. Apart from the milepost values in the roadkill tables, no Imperial units appear in the body of the text. However, we provide the following conversions to the Imperial system. While the factors shown below are correct, *any conversions will be approximate, and are provided solely for comparative purposes.*

1 mm = 0.001 meter or  $\approx \frac{4}{100}$  inch

25 mm  $\approx$  1 inch

300 mm  $\approx$  1 foot

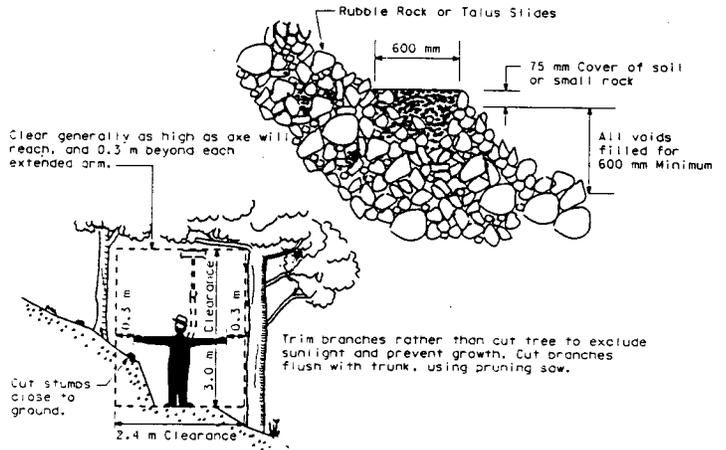
1 meter = 3.28 feet or  $\approx$  3.3 feet/39 inches

1 kilometer = 1000 meters = 0.62 miles or  $\approx$  0.6 miles

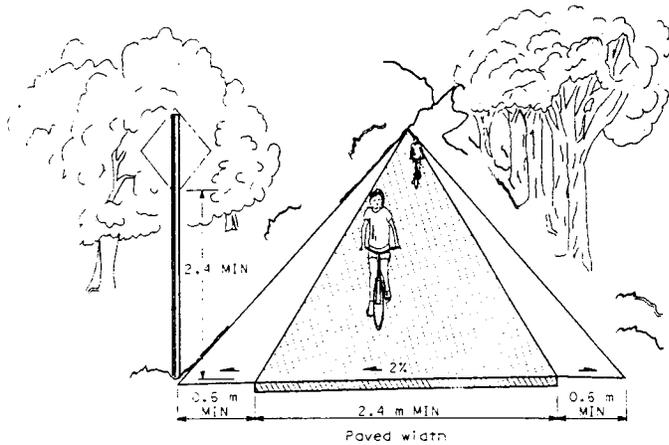
1 hectare = 10 000 m<sup>2</sup> = 2.47 acres or  $\approx$  2.5 acres

1 mile = 1.61 km

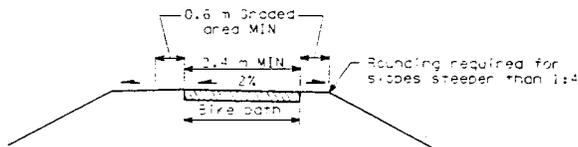
**APPENDIX I: BIKEWAY AND TRAIL DESIGNS**



Width	0.6 m Minimum tread
Grade	20% Maximum short, 10% Maximum sustained
Alignment	Independent and located beyond 9.0 m safety zone
Clearances	3.0 m Vertical, 2.4 m Lateral
Surface	Gravel or natural material
Access Control	As required (see text)



**TYPICAL CROSS SECTION**



**TWO-WAY BIKE PATH ON SEPARATED RIGHT OF WAY**

**GUIDELINES FOR HIKING TRAILS**