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# List of Studies and Reports

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The SR 522 Cathcart Road Vicinity to US 2 project has prepared the following studies and reports:

- Biological Assessment
- Cultural Resources Assessment
- Bridge Hydraulics and Scour Evaluation
- Traffic Conditions Analysis Report
- Environmental Justice Discipline Report
- Final Visual Quality Discipline Report
- Fisheries Discipline Report
- Floodplain Discipline Report
- Geology and Soils Discipline Report
- Hazardous Materials Discipline Report
- Land Use Technical Memorandum
- Services and Utilities Technical Memorandum
- Snohomish River Bridge Crossing Screening Report
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- Traffic Noise Impact Analysis
- Vegetation and Wildlife Discipline Report
- Water Resources Discipline Report
- Wetland Biology Report
- Wetland Biology Report Addendum
- Wetlands Discipline Report

These studies and reports were completed during the preliminary design of this project and contain additional information that supports the conclusions found in this EA. These studies are incorporated into this EA by reference. Some newer information is presented in the EA. Where discrepancies occur, the EA is the later information.

The discipline studies for this project are available for review upon request at:

**Washington State Department of Transportation**

Northwest Region Environmental Office  
15700 Dayton Avenue North, NB 82-138  
Seattle, WA 98133-5910

A fee for copy services may apply.



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# Distribution List

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Monroe Chamber of Commerce  
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University of Washington Suzzallo Library  
Washington State Library  
Washington State Department of Transportation  
Library  
Western WA University, Mabel Zoe Wilson Library

## **Corporations**

Amtrak  
Burlington Northern Santa Fe Railroad

# **Appendix A**

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## **SR 522 Roadway Alternatives Description**



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## TECHNICAL MEMORANDUM

Date: October 23, 2007  
To: Project File  
From: Kirk Wilcox, P.E.  
Subject: SR 522 Roadway Alternatives Description  
cc: Jenny Bailey, Parametrix  
Sharif Shaklawun, P.E., WSDOT  
Marsha Tolon, WSDOT  
  
Project Number: 214-1631-038 (04)  
Project Name: SR 522 Cathcart Road Vicinity to US 2

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### INTRODUCTION

This memorandum is a summary of design decisions regarding mainline SR 522 alignments and interchanges within the project area. It serves as a record of alternatives and options screened for the 4.3 miles of SR 522 between milepost (MP) 20.41 and MP 24.68 where SR 522 meets US 2. It documents the alternatives that were considered but rejected and why, and it supplements the July 2006 *SR 522 Snohomish River to US 2 Snohomish River Bridge Crossing Draft Screening Report*, which focuses only on the process for selecting options to cross the Snohomish River. The alternative screening results are summarized in the SR 522 Cathcart Road Vicinity to US 2 Environmental Assessment (EA). The screening criteria and screening matrix are items to be included in an EA appendix.

The Washington State Department of Transportation (WSDOT) performed much of the alternative development and screening for this portion of SR 522 during preparation of the 1994 Final Environmental Impact Statement (EIS) for improvements to SR 522 from SR 9 in Woodinville to US 2 in Monroe. That environmental review process included review of different alternatives to meet the purpose and need for safety and capacity improvements. Alternatives ranged from transportation system management and transportation demand management to build alternatives, and eventually led to the selected build alternative documented in the 1994 Record of Decision (ROD), which would:

- Add a second two-lane roadway to provide a four-lane, median-separated highway from Cathcart Road (also known as Elliott Road or High Bridge Road), just west of the Snohomish River, to US 2 in Monroe.
- Add a new two-lane bridge over the Snohomish River.
- Improve interchanges at 164th Street SE and US 2.
- Add a wildlife crossing structure and stormwater treatment facilities.

However, in the time since 1994, changes in design guidelines, environmental laws, and available funding have required WSDOT to review the alternative described above. The environmental studies undertaken for this EA describe current environmental conditions and identify potential effects. Importantly, the regional traffic design year is currently regulated and projected to 2030, and the alternative selected in the 1994 ROD was based on a 2010 design year. The remainder of this memo describes the development of the features composing the selected alternative to be analyzed in the EA, and proposed design modifications to meet 2030 traffic projections, current design guidelines, and the existing environmental conditions.

## **BACKGROUND AND HISTORY**

The SR 522 corridor was constructed in the 1960s as a two-lane, limited-access highway from SR 9 to US 2. Alignments and right-of-way widths were established at that time to allow for a future four-lane roadway section with median separation (two lanes in each direction). The typical right-of-way width is approximately 200 feet and expands to as wide as 300 to 400 feet in some places. Grade-separated interchanges were constructed at SR 9, 164th Street SE (W Main Street), and US 2. At-grade intersections were constructed at SR 524 (Paradise Lake Road) and Fales/Echo Lake Road with the intent for future interchanges at these locations. In several areas, grading was completed for the future four-lane roadway but surfacing was not completed. Roadway construction was planned to occur based on operational needs, safety, traffic demand, and the availability of funding.

WSDOT completed a Design Report in 1993 (WSDOT 1993) and published a Final EIS in 1994 (WSDOT 1994) for improvements to SR 522 from SR 9 in Woodinville to US 2 in Monroe. The 1993 Design Report and 1994 Final EIS presented construction of the SR 522 corridor improvements in five stages. WSDOT determined project phases primarily in response to available funding. The 1994 Final EIS referred to the portion of SR 522 from the Cathcart Road vicinity to US 2 as “Stage 5.”

In 1999, WSDOT began to implement the SR 522 improvements. To date, the following actions have occurred:

- In 2001, WSDOT widened SR 522 from two lanes to four lanes between SR 9 and Paradise Lake Road (Stage 1).
- Several changes in environmental regulations and funding led to a new National Environmental Policy Act (NEPA) review of the former Stages 2, 3, and 4. In 2003, highway improvements in these stages were reanalyzed as one project under a NEPA Documented Categorical Exclusion, titled SR 522 Paradise Lake Road Vicinity to Cathcart Road Vicinity.
- In 2004, WSDOT began construction of the SR 522 and Fales Road/Echo Lake Road interchange. This section was defined as Stage 4 in the 1994 Final EIS. The interchange opened to traffic in 2006.

The current design for this project has remained consistent with the Stage 5 design of the 1993 Design Report and the 1994 Final EIS where feasible. Design modifications are described below. For the purposes of this memorandum, “original design” refers to that of the 1993 Design Report and 1994 Final EIS. Within the Stage 5 limits, the 1993 Design Report closely mirrors the 1960s plans, with the primary exception of increasing the radius of some curves to meet 1993 design guidelines.

## **PROJECT ELEMENTS TO BE ANALYZED IN THE EA**

### **1 No Action Alternative**

No additional lane capacity would be constructed with the No Action Alternative. Only routine maintenance and preservation of the SR 522 roadway and bridges would occur. Traffic congestion along SR 522 would continue to increase, and accident rates are anticipated to increase as well.

## 2 Proposed Action

### SR 522 Mainline

The proposed action would widen SR 522 from one lane in each direction to two lanes in each direction separated by a 40-foot-wide median. Two lanes in each direction are anticipated to provide adequate level of service in 2030 per the project's traffic analysis. The existing two-lane roadway was built to one side of the right-of-way, leaving space for the future lanes within the remaining right-of-way. Within the limits of this project, the original two lanes were constructed to the north side of the right-of-way from Cathcart Road to approximately 2,500 feet east of the Snohomish River Bridge and to the south side of the right-of-way from that point to US 2. The original design assumed that the new two-lane roadway would be to the south of the existing alignment at the beginning of Stage 5 near Cathcart Road. The new Snohomish River crossing was intended to be on the south (upstream) side of the existing bridge. Within this stage, the new roadway would become the eastbound SR 522 roadway and the existing roadway would become the westbound SR 522 roadway. The new alignment was proposed to cross over to the north side of the existing roadway approximately 2,500 feet east of the Snohomish River Bridge. From this point to the end of the project at US 2, the new roadway would be the westbound SR 522 roadway, and the existing roadway would be the eastbound SR 522 roadway. Figure 1 illustrates the relationship between the existing roadway and the proposed widening locations.

For the current project, one change to the SR 522 mainline would be made. The new bridge location would be shifted from the upstream side of the existing bridge to the downstream side (see Snohomish River Bridge description below). At the west terminus of the project, just west of Cathcart Road, a transition would be required to connect this four-lane project with the proposed four-lane SR 522 roadway from Paradise Lake Road to Cathcart Road. From this transition point, the new roadway would be on the north side of the existing roadway across the Snohomish River Bridge. The new bridge would narrowly fit within the existing right-of-way. At the east end of the bridge, the new roadway would cross over from the north side of the existing roadway to the south side to rejoin the original alignment. This would take advantage of the existing right-of-way width on the south side and would minimize rock slope excavations. From this point forward, the new alignment would follow the original design, including the crossover from the south side to the north side of the existing roadway approximately 2,500 feet east of the Snohomish River crossing. The widening would continue on the north side of the existing roadway all of the way to the project terminus at US 2. Building within the originally proposed alignment would minimize right-of-way acquisition and impacts to residential development, local streets, and streams. Some right-of-way acquisition would still be necessary to construct rock cuts. Wetland impacts would be similar if widening were to occur to either side of the existing roadway.

Median widths would be narrower than the standard 40 feet at the Snohomish River Bridge and its roadway approaches to keep the structure and roadway within the existing right-of-way. Provision of a full-width median section would require right-of-way purchase from the adjacent Snohomish County park. Standard shoulder widths and barrier separation would be provided to maintain safety and traffic operations on the new bridge and the bridge approaches. The 40-foot standard median width is possible for remaining roadway areas.

The four-lane roadway section with median separation would greatly decrease the risk of severe accidents. While interim safety projects to provide centerline rumble strips and removal of passing zones have helped to reduce the number of crossover head-on collisions, the physical separation of opposing traffic with a median is the most effective way to minimize risk. Table 1 lists SR 522 mainline alternatives that were considered but rejected.

**Table 1. SR 522 Mainline Alternatives That Were Considered but Rejected**

<b>Alternative</b>	<b>Rationale for Rejection</b>
Construction on New Alignment	<p>The restrictive topography in the vicinity of the existing alignment would require a new alignment to be constructed far from the existing corridor.</p> <p>Communities and developments have grown around the existing SR 522 corridor, making new right-of-way acquisition difficult.</p> <p>The magnitude of project effects is high, costly, and potentially not permissible by increased environmental impacts from building outside of the existing right-of-way.</p>
Spot Improvements to the Existing Facility	<p>This would provide only a limited short-term benefit to SR 522.</p> <p>The capacity of SR 522 would not be sufficient to handle current and projected traffic demands.</p> <p>Safety would not be substantially improved.</p>
Transportation Demand Management (TDM) – High Occupancy Vehicles (HOV), reversible lanes, ramp metering, etc.	<p>TDM measures are most effective in urban high-density areas. The rural nature of this corridor, excluding the City of Monroe, would hamper the benefit of any TDM features.</p> <p>TDM measures would not provide safety benefits to the corridor and would conflict with regional and local comprehensive plans.</p>
Expanded Mass Transit	<p>The rural, low-density nature of the corridor, excluding the City of Monroe, precludes the extensive transit feeder network that could provide a substantial reduction in vehicle trips.</p> <p>Only one bus route currently uses SR 522, with three morning and four afternoon trips each weekday.</p> <p>It is unlikely that transit improvements in the SR 522 corridor alone would provide substantial congestion relief.</p>

### **Snohomish River Bridge**

A wide range of crossing alternatives were considered for the Snohomish River, as documented in the *SR 522 Cathcart Road to US 2 Snohomish River Bridge Crossing Screening Report* (WSDOT 2006). After considering eight different alignments, both upstream and downstream of the existing bridge, the alignment just downstream of the existing bridge was selected. The SR 522 mainline implications for these eight alignments are described above. The selected alignment keeps the bridge on WSDOT right-of-way, avoids permanent impacts to the Lord Hill Regional Park and surrounding residences, and minimizes impacts to surrounding wetlands and the Snohomish River. The preferred bridge alignment does require an extra mainline crossover point on each side of the bridge and a reduced median width as described above.

Alignments farther downstream than the selected alternative would cause permanent impacts to the Lord Hill Regional Park, require right-of-way acquisition for the new roadway and bridge alignments, increase impacts to wetlands and streams, and move the alignment closer to a low-income mobile home park. Environmental impacts for bridge alignments upstream from the existing bridge increase substantially because there is no economical means to avoid the dynamic river system and associated flood zone. Alignments upstream from the existing bridge would all have greater impact to a Snohomish River side channel. Two of the three upstream alternatives would have substantial right-of-way acquisition needs and residential impacts. Criteria considered in the screening process are shown in Table 2.

### **164th Street SE (Main Street) Interchange**

The original design included only minimal revisions to the westbound ramp terminal intersection and the westbound SR 522 on-ramp merge channelization. Since completion of the 1993 Design Report, the City of Monroe has constructed a roundabout at the eastbound ramp terminal. The roundabout at the eastbound ramp terminal was constructed to accommodate increased traffic demand due to the opening of the new Monroe High School on Tester Road and large new residential developments along Fryelands Boulevard. The proposed project includes a new roundabout at the westbound ramp terminal because this type of traffic operation feature mirrors traffic operations east of SR 522 and will better ease traffic flow exiting from westbound SR 522 onto 164th Street SE than other options.

Other options considered included leaving the existing stop-control at the westbound off-ramp terminal or signalizing the intersection. Stop-control at the westbound off-ramp terminal was dropped from consideration because of excessive delay for the westbound off-ramp traffic. The signalized intersection was rejected because the project's traffic analysis indicates that the roundabout will result in a higher level of service, lower vehicular delay, and shorter queue lengths. Continuity of traffic operation features along 164th Street SE will assist vicinity traffic flow merging between SR 522 ramps and the City street system with a roundabout at the westbound ramp terminal between the existing roundabout at the eastbound ramp terminal and a roundabout at 164th Street SE and proposed Fryelands Boulevard. The Fryelands Boulevard roundabout construction is expected prior to this project by the City of Monroe. A signal at the westbound ramp terminal between two roundabouts would not perform as well as three roundabouts in series.

### **US 2 Interchange**

The original design of the US 2 interchange included a loop ramp from US 2 to westbound SR 522 that would be a mirror image of the existing ramp. The new loop ramp would require a new signalized intersection on US 2. This option is shown in Figure 2.

As part of this project, different options were considered to connect SR 522 with the US 2 interchange to maintain the improved level of traffic operation resulting from the design improvements described above. Screening criteria pertained to operational performance and included intersection level of service, the need for a new intersection on US 2, queue lengths at intersections, and impacts to local access.

The options considered were a flyover ramp from eastbound US 2 over the BNSF railroad tracks connecting to westbound SR 522 (see Figure 3) and a flyover ramp from eastbound SR 522 over the BNSF railroad tracks connecting to eastbound US 2. The eastbound US 2 to westbound SR 522 flyover ramp was dropped from consideration based on limited benefit for the anticipated cost. This traffic movement is low volume and is adequately served by the existing interchange configuration.

The eastbound SR 522 to eastbound US 2 ramp was studied in the project's traffic analysis and compared to the original design loop ramp. The eastbound SR 522 to eastbound US 2 flyover ramp provides better operational performance as outlined below. Screening criteria included intersection level of service, the need for a new intersection on US 2, queue lengths at intersections, and impacts to local access.

- A new signalized intersection is not needed on US 2 with the eastbound SR 522 to eastbound US 2 flyover ramp option. The loop ramp requires a new intersection within 900 feet of the existing ramp terminal intersection to accommodate left-turning traffic from eastbound US 2 to westbound SR 522. This traffic movement is accommodated by the signalized intersection at the existing loop ramp with the eastbound SR 522 to eastbound US 2 flyover ramp option.
- The eastbound SR 522 to eastbound US 2 flyover ramp removes a large volume of left-turning traffic from the existing ramp terminal intersection, thereby improving intersection performance.
- The eastbound SR 522 to eastbound US 2 flyover ramp provides a more direct path for the majority of eastbound SR 522 traffic. Over 80 percent of the eastbound SR 522 traffic demand is

to eastbound US 2. The current configuration requires the major movement to go through a 180 degree loop ramp followed by a signalized left turn.

For the preferred eastbound SR 522 to eastbound US 2 ramp to function effectively, eastbound US 2 will be widened from two to three lanes so that the ramp traffic will not need to merge with eastbound US 2 through traffic. The widening will extend through the Kelsey Street intersection and drop with a right turn at the SR 203/Chain Lake Road/Lewis Street intersection.

**Future US 2 Monroe Bypass**

WSDOT has planned a US 2 bypass around the north side of Monroe since the 1960s. As a part of this corridor, the SR 522 alignment would extend north to the bypass alignment. WSDOT owns much of the right-of-way necessary for the US 2 bypass and SR 522 extension, but no construction has been completed to date due to funding constraints.

**ALTERNATIVES SCREENING SUMMARY**

Table 2 lists the screening criteria used to determine all of the design decisions described above.

**Table 2. SR 522 Alternative Screening Criteria**

<b>Project Element</b>	<b>Screening Criteria</b>
SR 522 Mainline	<ul style="list-style-type: none"> <li>• Adjacent land use impacts – New right-of-way acquisition, residential and business displacements</li> <li>• Local street impacts – Access, connectivity</li> <li>• Sensitive area and habitat impacts – Wetlands, streams</li> <li>• Safety operations and standard design – Roadway geometry</li> <li>• Reasonably be permitted</li> </ul>
Snohomish River Bridge	<ul style="list-style-type: none"> <li>• Adjacent land use impacts – New right-of-way acquisition, residential and business displacements, environmental justice</li> <li>• Sensitive area and habitat impacts – Wetlands, fish and stream resources, floodplain</li> <li>• Impact to 4(f) and 6(f) property</li> <li>• Cultural resources impact</li> <li>• Safety operations and standard design – Highway and local roadway geometry</li> <li>• Reasonably be permitted</li> </ul>
164th Street SE (W Main Street) Interchange	<ul style="list-style-type: none"> <li>• Intersection level of service</li> <li>• Vehicular delay</li> <li>• Queue lengths</li> </ul>
US 2 Interchange	<ul style="list-style-type: none"> <li>• Adjacent land use impacts – New right-of-way acquisition, residential and business displacements, local access</li> <li>• Traffic operations – Intersection level of service and queue lengths</li> <li>• Safety operations and standard design at intersection on US 2</li> <li>• Reasonably be permitted</li> </ul>

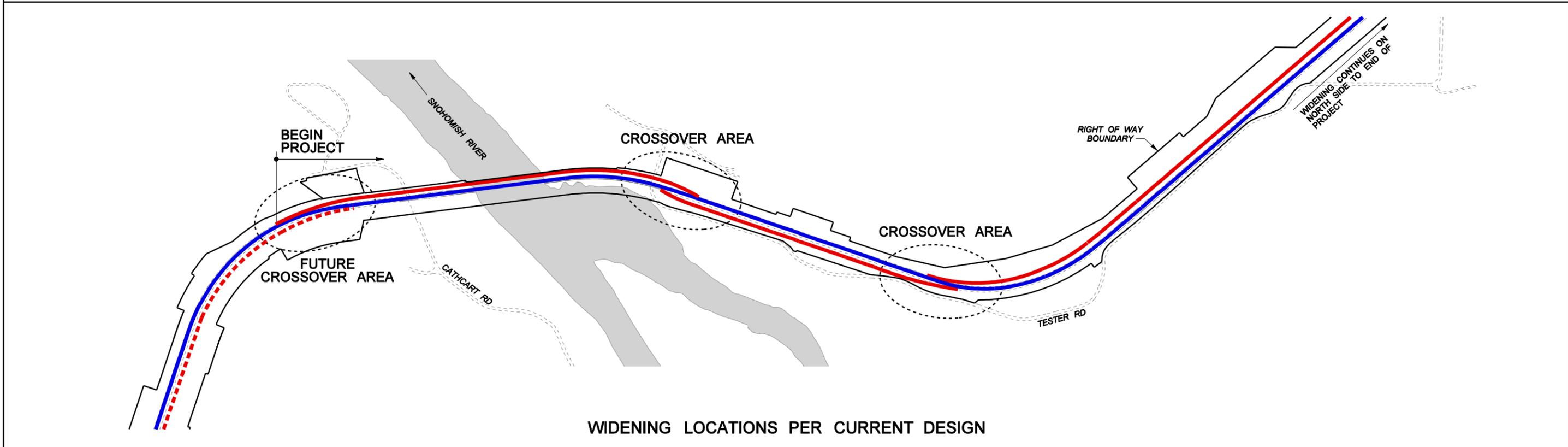
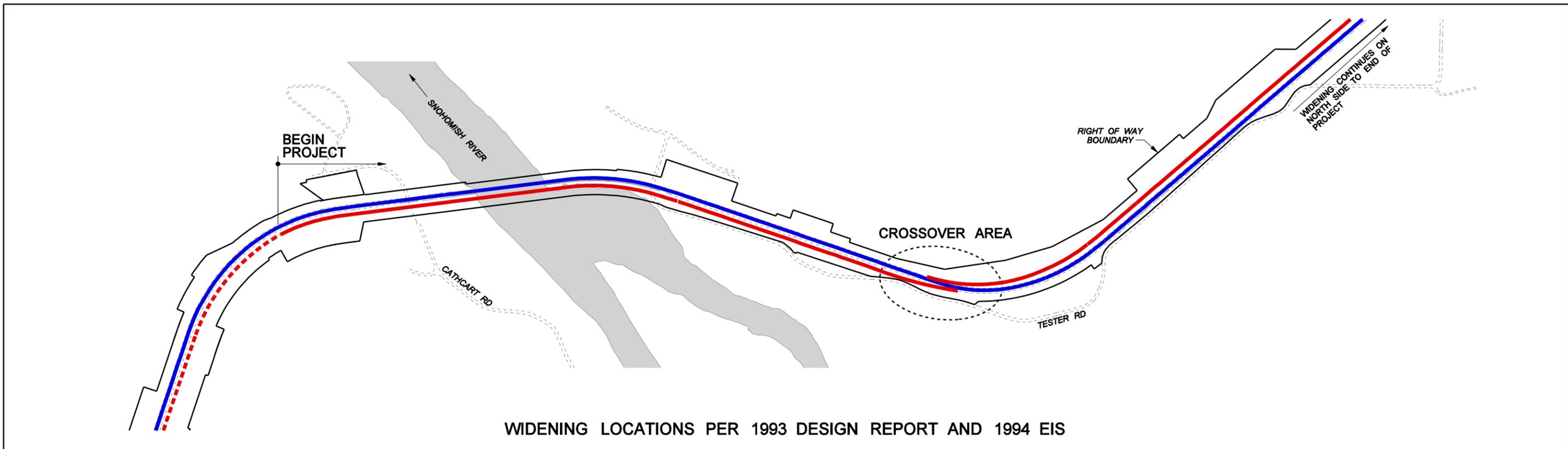
**REFERENCES**

WSDOT (Washington State Department of Transportation). 1993. SR 522 Design Report, SR 9 to SR 2 – MP 14.09 to MP 24.68. L-0753. PIN 152230A, 152232C, 152234B, 152230B, 152232D, 152236A. Washington State Department of Transportation, District No. 1, Seattle, Washington. June 1993.

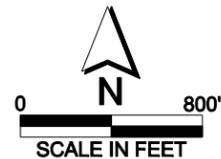
WSDOT (Washington State Department of Transportation). 1994. Final Environmental Impact Statement SR 522 – SR 9 to US 2. Submitted by the Washington State Department of Transportation and the U.S. Department of Transportation Federal Highway Administration. May 1994.

WSDOT (Washington State Department of Transportation). 2006. SR 522 – Cathcart Road Vicinity to US 2 Snohomish River Bridge Crossing Screening Report. Prepared by Parametrix for the Washington State Department of Transportation and the Federal Highway Administration. August 28, 2006.





Parametrix DATE: 10/22/2007 FILE: SU1631038P03T041F-Roadway Widening Schematic.dgn



**LEGEND**

- EXISTING 2-LANE ROADWAY
- PROPOSED 2-LANE ROADWAY WIDENING
- - - FUTURE 2-LANE ROADWAY WIDENING (STAGE 2)

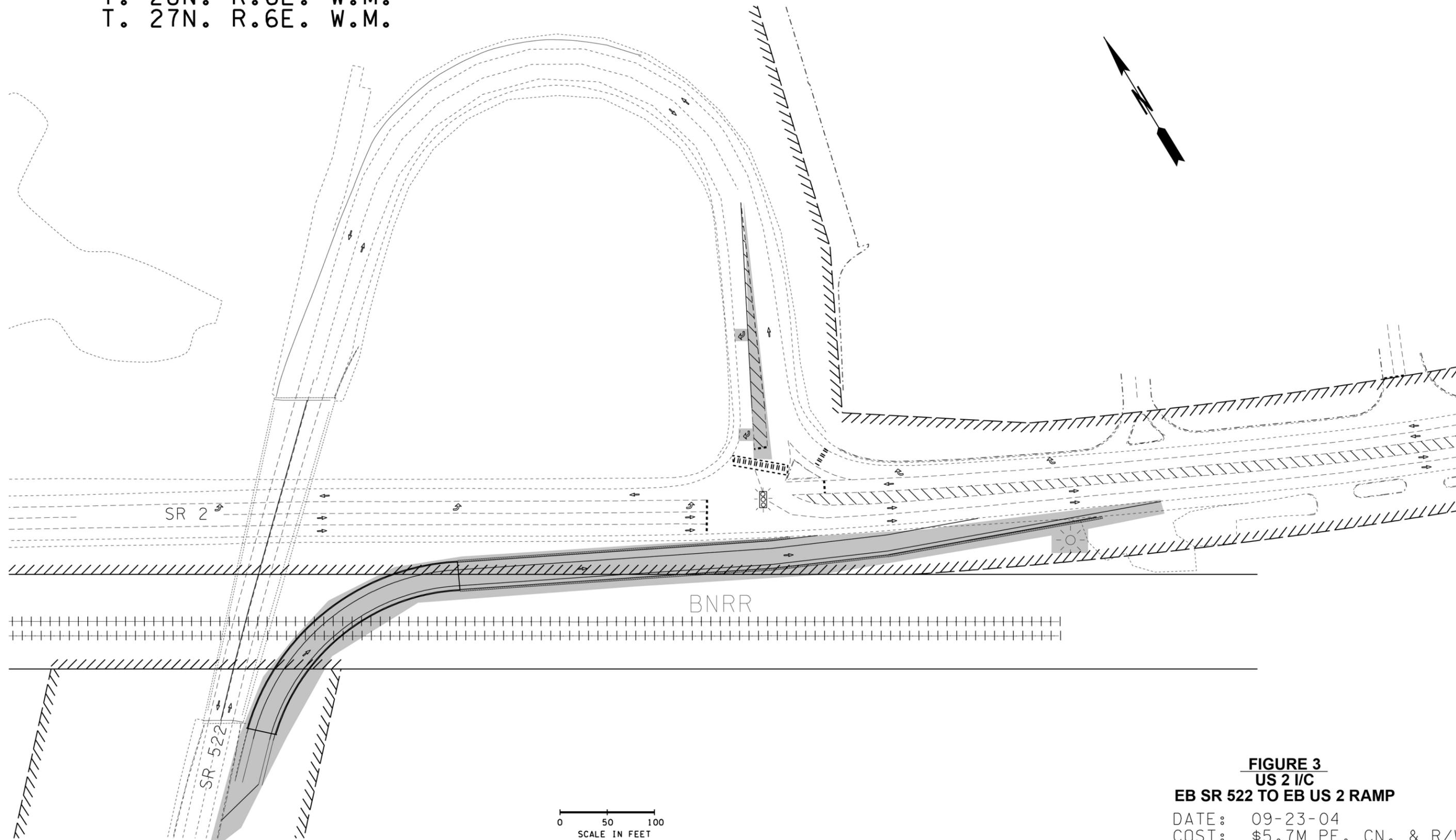
**Figure 1**  
**SR 522 Cathcart Road Vic to US 2**  
**Roadway Widening Schematic**







T. 28N. R. 6E. W.M.  
 T. 27N. R. 6E. W.M.



**FIGURE 3**  
**US 2 I/C**  
**EB SR 522 TO EB US 2 RAMP**

DATE: 09-23-04  
 COST: \$5.7M PE, CN, & R/W

0 50 100  
 SCALE IN FEET

FILE NAME	C:\white paper\options.dgn			REGION NO.	STATE	FED. AID PROJ. NO.	Washington State Department of Transportation	SR522/SR2 INTERIM I/C STAGE 5X WHITE PAPER	PLOT3
TIME	09:19:18 AM			10	WASH				SHEET
DATE	10/22/2004			JOB NUMBER				OF	
PLOTTED BY	edwar ja			CONTRACT NO.		LOCATION NO.		SHEETS	
DESIGNED BY									
ENTERED BY									
CHECKED BY									
PROJ. ENGR.									
REGIONAL ADM.	REVISION	DATE	BY				OPTION 3		



# **Appendix B**

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## **Local and Regional Plans and Policies**



# Appendix B Local and Regional Plans and Policies

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## How is the Project Consistent with Adopted Plans and Regulations?

### State and Regional Plans

The Growth Management Act (GMA) requires coordination between city and county planning efforts and specifies goals for designating areas where urban growth will be encouraged and where new facilities and infrastructure will be directed.

The project site crosses through rural and urban areas that are consistent with the GMA requirement to direct transportation improvements to such areas.

The Puget Sound Regional Council VISION 2020, Draft VISION 2040, and Destination 2030 plans reflect an integrated long-range growth management, economic, and transportation strategy for the central Puget Sound region. Planning for the SR 522, Cathcart Road vicinity to US 2 widening project has been underway for approximately 27 years and is the result of efforts by federal, state, and local agencies. Widening of SR 522 in this vicinity and construction of a new westbound Snohomish River bridge are important components in the regional transportation network to connect the Monroe Urban Growth Area with other metropolitan areas in central Puget Sound. The proposed project provides expanded transportation choices by enhancing community and regional bus systems opportunities.

The No Action Alternative would be inconsistent with goals to implement a near-term regionally significant project aimed at safety improvement and congestion relief on SR 522 in the Monroe area.

Based on current project information, the new westbound Snohomish River Bridge and widening of SR 522 would be consistent with the goals of Destination 2030. Under the requirements of the Coastal Zone Management Act of 1972 and the Shoreline Management Act of 1971, the propose project is subject to review by the Washington State Department of Ecology to ensure compliance with state environmental review and permit requirements. Additional discussion of review requirements for achieving consistency with the Coastal Zone Management and the State Aquatic Lands Act requirements occurs below in the Shoreline Regulations section.

### **County and City Plans**

Snohomish County's Countywide Planning Policies are intended to ensure that the County is served by a balanced, multimodal transportation system that functions effectively and efficiently. The proposed project would serve transportation needs consistent with growth management policies of the county and city. While Washington State Department of Transportation will comply with local plans and regulations, SR 522 is an essential public facility and Highways of Statewide Significance that is governed by the United States Department of Transportation and Washington State Department of Transportation's development standards.

The No Action Alternative is inconsistent with Snohomish County and City of Monroe polices because the traffic operations will continue to degrade and safety will continue to decline.

### **Development Regulations**

#### **Shoreline Regulations**

Site clearing, earthwork, and other construction activities will create a potential for soil erosion and sedimentation into adjacent waters at the bridge and stream locations. Because construction activities would occur in the Snohomish River and surrounding floodplain, a Shoreline Substantial Development and Snohomish County Flood Plain Development permits would be required for the build alternative. Snohomish County and the City of Monroe Critical Area Ordinances require

reporting for effects to wetlands, hazard areas, and critical habitat by the build alternative. Additionally, a Hydraulic Project Approval would also be required from Ecology for the proposed action.

This project is being developed to be consistent with the Washington Coastal Zone Management Plan administered by the Washington State Department of Ecology. Those requirements would be met through application by WSDOT and the granting of the appropriate Shoreline Management Act Permits by Snohomish County prior to construction. In accordance with Zone Management policy, a final determination of consistency cannot be made until after the NEPA process is complete and all permits are received.

#### County and City Codes

As an essential public facility, the SR 522 corridor Mile Post 20.41 to Mile Post 24.66 through Snohomish County and the City of Monroe is an allowed facility and considered compatible with adjacent land uses. There are no development requirements identified in the city or county codes affecting either the no build or build alternatives except for Level of Service designations. Under either build or no build conditions SR 522 will remain as a limited access facility. The speed limit designation will correspond to the facility according to Washington State Department of Transportation regulations and with county and city codes where access and stop conditions occur. The SR 522 mainline speed limit would remain at 55 or 60 mph and at junction with US 2 in Monroe the speed limit would remain 25 mph under either the No Action Alternative or the proposed action.



# **Appendix C**

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## **Right-of-Way Acquisition Process**



# Appendix C Right-of-Way Acquisition Process

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Once right-of-way plans are approved and funding is made available for a highway project, the WSDOT can begin the process to acquire the necessary right of way from affected property owners. The acquisition process includes:

- Establishment of an offer to purchase,
- Presentation of that offer,
- Purchase of the required property, and
- Relocation of displaced people or personal property.

To determine the offer to purchase required property, WSDOT would arrange to have the property appraised to establish the amount of “just compensation” due the property owner or administratively establish the amount in those cases involving nominal consideration. If the land owner wishes, even where the consideration is nominal, WSDOT would have a full appraisal performed and that in either case the land owner would be invited to accompany the WSDOT appraiser to inspect the property to assure that all relevant factors are considered in establishing the value.

Once an offer is presented and settlement reached, the WSDOT representative would collect the required signatures and complete the necessary paperwork. After these details have been completed, payment for the acquisition would be processed.

If you are the occupant (tenant or owner) of a structure that is to be acquired by WSDOT, or if you own personal property located within the area to be acquired, you may be eligible for certain relocation benefits pursuant to federal and state law (Public Law 91-646, RCW 8.26.010 to 8.26.910).

Typically, these benefits may include advisory services, replacement dwelling supplements, and reimbursement for moving expenses incurred as a result of the project.

After construction of the project is completed, WSDOT may identify and dispose of surplus real property. Such property may become available for purchase or lease when a roadway is moved or when small remnants are acquired during the acquisition process. These pieces of land may be offered, at fair market value, to governmental agencies, abutting owners, or other interested individuals.

Should questions arise about the acquisition or property disposal process, please call the WSDOT Northwest Region Real Estate Service Office at (206) 440-4229.

## **Appendix D**

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### **Snohomish River Bridge Crossing Screening Report - Summary**



# Appendix D Snohomish River Bridge Crossing Screening Report - Summary

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Appendix D summarizes the information presented in the *SR 522 – Cathcart Road Vicinity to US 2 Snohomish River Bridge Crossing Screening Report* (WSDOT 2006a). The report is available for review upon request at:

Washington State Department of Transportation  
Northwest Region Environmental Office  
15700 Dayton Avenue North, NB 82-138  
Seattle, WA 98133-5910

## **1 What is the SR 522 Cathcart Road to US 2 project?**

The Washington State Department of Transportation (WSDOT) is planning highway improvements that would widen an existing four-mile portion of SR 522 (MP 20.41 to MP 24.68) in south Snohomish County from two to four lanes. The proposed project includes constructing a new bridge across the Snohomish River and four other bridges (non-water crossings); modifying two existing interchanges in Monroe; adding walls, signals, and a roundabout at the 164th Street interchange westbound ramps; and new illumination. This project's goal is to improve the current safety and traffic congestion conditions on this portion of SR 522.

The design for the existing SR 522 roadway was originally developed as a full-access-control freeway in the mid to early 1960s. A two-lane highway was constructed at that time with right-of-way provided for future widening to four lanes with grade-separated interchanges. In 1994, WSDOT published a Final Environmental Impact Statement (FEIS) for

improvements to SR 522 from SR 9 in Woodinville to US 2 in Monroe. Key issues addressed in the FEIS, based on agency and public scoping, included:

- Opportunities to improve safety for drivers, improve transit service, relieve congestion, improve stormwater management, and include alternative transportation modes such as high-occupancy vehicle lanes, transit, bicycles, and pedestrians within the corridor.
- The potential for the project to result in increased noise, right-of-way acquisition, vegetation and wetland loss, traffic and access disruption during construction, and impacts to local aquifers (the Cross Valley Sole Source Aquifer)

The new Snohomish River Bridge and associated widening are needed to improve safety and mobility within the SR 522 corridor and accommodate the existing and expected future car, truck and freight traffic on a new alignment on SR 522. The SR 522 corridor experiences a high rate of severe vehicle accidents and traffic congestion. As the population in the surrounding communities continues to grow, the frequency and severity of accidents will likely increase and traffic mobility will deteriorate further.

## **2 What alignments were considered?**

WSDOT identified seven potential crossing alignments: three upriver of the existing bridge and four downriver, as shown on Exhibit D-1. In addition, different bridge types were evaluated for each potential crossing alignment. The bridge types are differentiated based on the presence of in-river piers, span lengths, materials (steel versus concrete), and construction methods (girders versus segmental superstructure) are listed in Exhibit D-2. Some bridge types work with multiple alignments and some only work with one alignment (as an example, the clear span cable stay bridge only works on alignments that are relatively straight such as Option F and possibly Option G). The combination of different bridge alignments and types presents a full range of alternatives for study and consideration

since each combination has specific advantages and disadvantages in terms of environmental consequences, cost, and constructibility.

**Exhibit D-1  
Map of Potential Crossing Alignments**



**Exhibit D-2  
Crossing Options**

Potential Bridge Alignments	Potential Bridge Types
Option A - Parallel and adjacent to the existing bridge upriver	Center river pier/drilled shaft/post-tensioned concrete segmental /300 ft span
Option B – Parallel and adjacent to the existing bridge downriver	Center river pier/drilled shaft/steel girder/300 ft span
Option C – 100 ft downriver from the existing bridge	Clear span river/post-tensioned concrete segmental/600 ft span
Option D – 500 ft downriver from the existing bridge	Clear span river/steel truss/600 ft span
Option E – 1,000 ft (+) downriver from the existing bridge	Clear span flood plain/cable stay/2000 ft span
Option F – 1,000 ft (+) upriver from the existing bridge	Clear span flood plain/suspension/2000 ft span
	Center river piers/300 ft spliced concrete girder
	Center river piers/150 ft pre-stressed girder

### 3 What bridge types and spans were considered?

There are several possible bridge types that could be used for the Snohomish River crossing. One obvious option would be to replicate the existing bridge, which is a 1,700-ft-long combination concrete box/steel plate girder bridge supported by nine piers. Pier 3 is located in the middle of the river. Piers 2 and 4 are located on the riverbanks and piers 5 through 8 are located in the active floodplain. The two spans over the river are 300-ft-long steel plate girders; the seven spans over the floodplain are 200-ft-long concrete box girders. Other potential options could involve multiple in-river piers or a “clear span” of the river and some or all of the adjacent floodplain.

Engineers determine the need for piers in the river based on the length of the crossing (span length) and, to a lesser extent, the type of material used to fabricate the superstructure. Cost and constructibility are also critical factors. Not surprisingly, longer spans cost more than shorter spans (approximately \$150 per square foot of additional cost to go from 300-ft to 600-ft span lengths) and can be more difficult to construct. Unique bridge types such as cable stay and suspension bridges require specialized construction techniques and are very expensive (\$320 to \$1,200 per square foot more than regular bridges) so they are typically only used in special circumstances (such as Golden Gate Bridge, Tacoma Narrows) where the topography and related features preclude basic structure types.

For this project, the design team considered four potential span lengths: 150 ft, 300 ft, 600 ft, and 2,000 ft. They also considered concrete girder, steel plate girder, steel truss, cable stay, and suspension bridge types. With these choices in mind, it is possible to match up bridge types with different alignments.

Although various span lengths are possible with the new alignments, the horizontal curve on the east end of the alignment limits the maximum span length. Superstructure types such as prestressed girders can span lengths up to 200 ft, but are not well suited to curved alignments. Prestressed

girders could be used for the floodplain portion of the bridge and would most likely be the least costly, but the piers would probably have to be spaced 150 ft apart or less in the curved portion. As evidenced by the existing bridge, longer curved spans can be achieved with a concrete box girder structure. Steel plate girders can also span a longer curved distance than prestressed concrete girders. Cable stay and suspension bridges require relatively straight alignments and because of their high cost only make sense for the long span options (2,000 ft or more). With any of the proposed bridge options, it is assumed that new in-river pier foundations will be drilled shafts to prevent potential scour.

#### **4 Which alignment and bridge is WSDOT carrying forward and why?**

Option B is the only alignment that is acceptable in terms of its potential environmental consequences. It is the option most preferred by NOAA Fisheries and the U.S. Fish and Wildlife Service and has the added advantages of fitting within the existing highway right-of-way and requiring standard construction techniques.

Although Option A also fits within the right-of-way and was the preferred alternative in the 1994 EIS, its upriver location is problematic because it encroaches into the sensitive stream and riparian habitat at the Skykomish River confluence. All of the other options have potentially more adverse effects on parkland, floodplain, wetlands, streams, and adjoining properties and/or have cost and constructibility problems and are therefore not worthy of further consideration.

WSDOT will continue to evaluate a new 300-ft span bridge on alignment Option B in conjunction with other design elements to comply with the requirements of NEPA and implementing regulations (CEQ 40 CFR 1501-1508 and FHWA 23 CFR 771.119 - 121). A NEPA Environmental Assessment (EA) will be prepared to address the following issues: Wetlands, Floodplains, Wildlife and Wildlife Habitat, Water Resources, Fisheries, Energy, Hazardous Materials, Utilities, Visual

Quality, Social/Environmental Justice, Land Use, Noise, Earth (Geology and Soils), Traffic and Transportation, and Historical and Archaeological Resources. The EA will address the preferred alternative and a No Action alternative. The NEPA EA will be adopted to satisfy State Environmental Policy Act (SEPA) requirements.

# **Appendix E**

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## **Section 106 Correspondence**





STATE OF WASHINGTON

**DEPARTMENT OF ARCHAEOLOGY & HISTORIC PRESERVATION**

1063 S. Capitol Way, Suite 106 • Olympia, Washington 98501  
Mailing address: PO Box 48343 • Olympia, Washington 98504-8343  
(360) 586-3065 • Fax Number (360) 586-3067 • Website: [www.dahp.wa.gov](http://www.dahp.wa.gov)

September 6, 2007

Mr. Michael Chidley  
Washington State Department of Transportation, NW Region  
15700 Dayton Ave. N  
P.O. Box 330310  
Seattle, WA 98133-9710

**RECEIVED**  
SEP 11 2007  
**ENVIRONMENTAL**

In future correspondence please refer to:

Log: 062104-15-FHWA  
Property: SR 522 Snohomish River Bridge to US 2 widening  
Re: Archaeology - No Historic Properties

Dear Mr. Chidley:

Thank you for contacting our office and providing additional information on this project. We concur with your professional recommendations and your finding of No Historic Properties Effected.

We would appreciate receiving any correspondence or comments from concerned tribes or other parties that you receive as you consult under the requirements of 36CFR800.4(a)(4).

These comments are based on the information available at the time of this review and on the behalf of the State Historic Preservation Officer in conformance with Section 106 of the National Historic Preservation Act and its implementing regulations 36CFR800.

Should additional information become available, our assessment may be revised. In the event that archaeological or historic materials are discovered during project activities, work in the immediate vicinity must stop, the area secured, and this office and the concerned tribes notified.

Sincerely,

Matthew Sterner, M.A., RPA  
Transportation Archaeologist  
(360) 586-3082  
[matthew.sterner@dahp.wa.gov](mailto:matthew.sterner@dahp.wa.gov)



**DEPARTMENT OF ARCHAEOLOGY & HISTORIC PRESERVATION**

*Protect the Past, Shape the Future*





**Washington State  
Department of Transportation**

**Douglas B. MacDonald**  
Secretary of Transportation

4 September 2007

Dr. Allyson Brooks  
State Historic Preservation Officer  
Department of Archaeology and Historic Preservation  
PO Box 48343  
Olympia, WA 98504-8343

**Northwest Region**  
15700 Dayton Avenue North  
P.O. Box 330310  
Seattle, WA 98133-9710

(206) 440-4000  
TTY: 1-800-833-6388  
www.wsdot.wa.gov

**Re: Addendum to Area of Potential Effects and Determination Concurrence  
SR 522 – Snohomish River Bridge to US 2 Widening Project  
DAHP Log No. 062104-15-FHWA**

Dear Dr Brooks,

The Washington State Department of Transportation (WSDOT), in cooperation with the Federal Highway Administration (FHWA), is continuing the development an undertaking to address an identified transportation need in Snohomish County. Per provisions of 36 CFR 800 and your request for any additional project information, we are continuing consultation for proposed modifications to the SR 522 Snohomish River Bridge to US 2 widening project.

**Project Description**

This addendum to the project APE and associated request for concurrence on the revised determination of no effect is facilitating changes to the project design to include: (1) stormwater and water quality features, and 2) an identified staging area in Lord Hill Park, a Snohomish County property.

1) Seven (7) locations have been identified for stormwater and water quality features along the length of the project, on both sides of State Route (SR) 522. Of these areas, portions of five (5) extend beyond the previously defined APE. Together, these five locations equal approximately 3.5 acres (1.4 hectares) of additional APE consideration. Two (2) of the areas are contained entirely within the previously defined APE and are not further discussed.

2) A staging area within Lord Hill Park has been identified for use. This area consists of an existing gravel access road within an active county park facility.

**Definition of the Project Area of Potential Effects (APE)**

The project APE includes areas where archaeological resources may be encountered or disturbed and areas where historic structures may be directly or indirectly affected. Potential effects to archaeological sites may occur where ground disturbance will take place. Anticipated project activities associated with this project addendum that will produce ground disturbance include construction activities related to wetland enhancement activities such as grading, clearing and grubbing, vehicle maneuvers, and some excavation.

Historic structures may be directly affected by the above described construction activities, and may be indirectly affected by noise, vibration, or changes to the visual environment associated with the construction and implemented use of the proposed project. There are no known or identified historic structures or buildings within the project APE.

This APE addendum for this project is defined as the area the areas selected for stormwater and water quality feature installation and the designated staging area.

The enclosures illustrate the previous APE and the addition to the APE with topographic data and a more recent aerial photo (see enclosure Figure 1, 2)

### **Previous Cultural Resource Investigations and Determination of Effect**

This project was the subject of a cultural resources investigation by Larson Anthropological Archaeological Services (Roedel et al. 2005). The APE for that project (demonstrated in the enclosed APE maps) included the proposed interchange modifications not included in this addendum. No historic properties were identified in that APE. A determination of *no effect to historic properties* for the project was made by WSDOT, and concurrence was received from your office with a letter dated 28 April 2003.

A previously recorded lithic scatter site, 45SN62, is located approximately 275 meters to the southwest of Area 5. According to the site inventory form, redocumentation efforts have previously failed to relocate site, and it is separated from the proposed APE extension by the significant disturbance of a railroad grade.

Also, site 45SN13, located on the Snohomish River, is also in close proximity to a project APE addition. The additional project limits do not intersect the known site boundaries, and no cultural resources were identified in association with this site despite extensive shovel testing in that area.

### **Current Field Reconnaissance**

I conducted a field reconnaissance of the proposed project extension on 17 August 2007. A pedestrian survey was conducted on each of the proposed areas for work. Three (3) shovel tests were conducted within the APE extensions, with two in an upland pasture, and one in a low oxbow remnant.

Area 1 located on the north side of SR 522, with approximately 50% of the total area previously surveyed (Reidel et al 2005). The area is a low, wet wetland area with substantial amounts of grass cover. Grasses reached over 5 feet in height, with 0% ground visibility. A shovel test was placed within this area (Figure \*), with negative results. Sediments were found to contain dark brown loam with considerable clay banding and redox mottles. Water was encountered at 62cm below surface. This area appears to be an old oxbow will alluvial sedimentation prior to channel abandonment (likely associated with the road fill placement) (see enclosure Figure 3, 7).

Area 2 is located on the south side of SR522 and contains the road ditch, lightly timbered road berm, a residential yard, and a house. The area has been significantly landscaped during house, yard, and road construction, replanting, and outbuilding construction. A review of the parcel data indicates that this house was constructed in 1970 (see enclosure Figure 4,\*8).

Area 3 is located on the north side of SR522 to the west of Monroe High School. The area is currently used as a pasture with approximately 25% ground visibility. Two shovel tests were placed in this parcel. Shovel test 1 was placed near a small tree stand, reaching a depth of 30cm below surface, with negative results. Heavy glacial gravels were present throughout, with extremely dense gravels precluding additional digging. Shovel test 2 was placed on a small mini-terrace near the fenceline. Sediments (brown gravelly loam followed by grayish brown silt clay) were slightly deeper, and the shovel test reached 55cm of depth prior to encountered extremely dense gravel bedrock. The soils are thin within this parcel and have been significantly disturbed by deforesting and pasturage (see enclosure Figure 4, 9).

Area 4 is located on the north side of SR522 and consists of an existing graveled staging yard. The area has been bladed and utterly disturbed by the construction and use of the yard (see enclosure Figure 5).

Area 5 is located on the south side of US 2, just to the east of the US2/SR522 junction off/on ramp. The area is currently graveled and paved. The area has been bladed and utterly disturbed by construction and development (see enclosure Figure 6).

The proposed staging area for the project within Lord Hill Park will utilize only the existing gravel access road. Additional gravel will be placed over the road, and staging will not occur off the road in areas not already included in the prior cultural resources assessment (Parvey 2004; Reidel 2005) (see enclosure Figure 3).

#### **Determination and Recommendation**

No cultural resources have been identified in the proposed APE extensions. Therefore, we have determined that these revised project additions will have *no effect to historic properties*.

The Department will also continue consultation regarding these project changes with the Yakama Nation, Tulalip Tribes, Sauk-Suiattle Tribe, and Snoqualmie Nation. We look forward to responding to any concerns expressed by those parties concerning this APE addition and our determination.

Pursuant to compliance with Section 106 of the National Historic Preservation Act and 36 CFR 800, we are hereby consulting with your office for this project. You are invited to comment on the revised Area of Potential Effect (APE) as defined above, and I look forward to your concurrence with our determination of no effect for these proposed changes. Should you require additional information or have any questions please contact me at 206-440-4525, or by email at [chidlem@wsdot.wa.gov](mailto:chidlem@wsdot.wa.gov). Thank you for your continuing consultation with this project.

Sincerely,



Michael Chidley, M.A., RPA  
Archaeologist, Northwest Region  
(206) 440-4525  
[chidlem@wsdot.wa.gov](mailto:chidlem@wsdot.wa.gov)

**Reference Cited**

Parvey, Michele

2004 Cultural Resources Clearance Survey, SR 522 Snohomish River Bridge Scour Repair, Snohomish, Snohomish County. Hart Crowser and Northwest Archaeological Associates, Inc. Prepared for Washington State Department of Transportation, Contract Y-7856, Task Order AZ.

Roedel, Kurt W., Julie M. Koler, Nichole A. Gillis, Stephanie E. Trudel, Dennis E. Lewarch, and Lynn L. Larson

2005 SR 522, Snohomish River Bridge to US 2, Cultural Resources Assessment, Snohomish County, Washington. LAS Technical Report #2004-18. Submitted to Parametrix, Incorporated. Prepared for Washington State Department of Transportation, Northwest Region.

cc: Project File

Day File

WSDOT Cultural Resources HQ Project

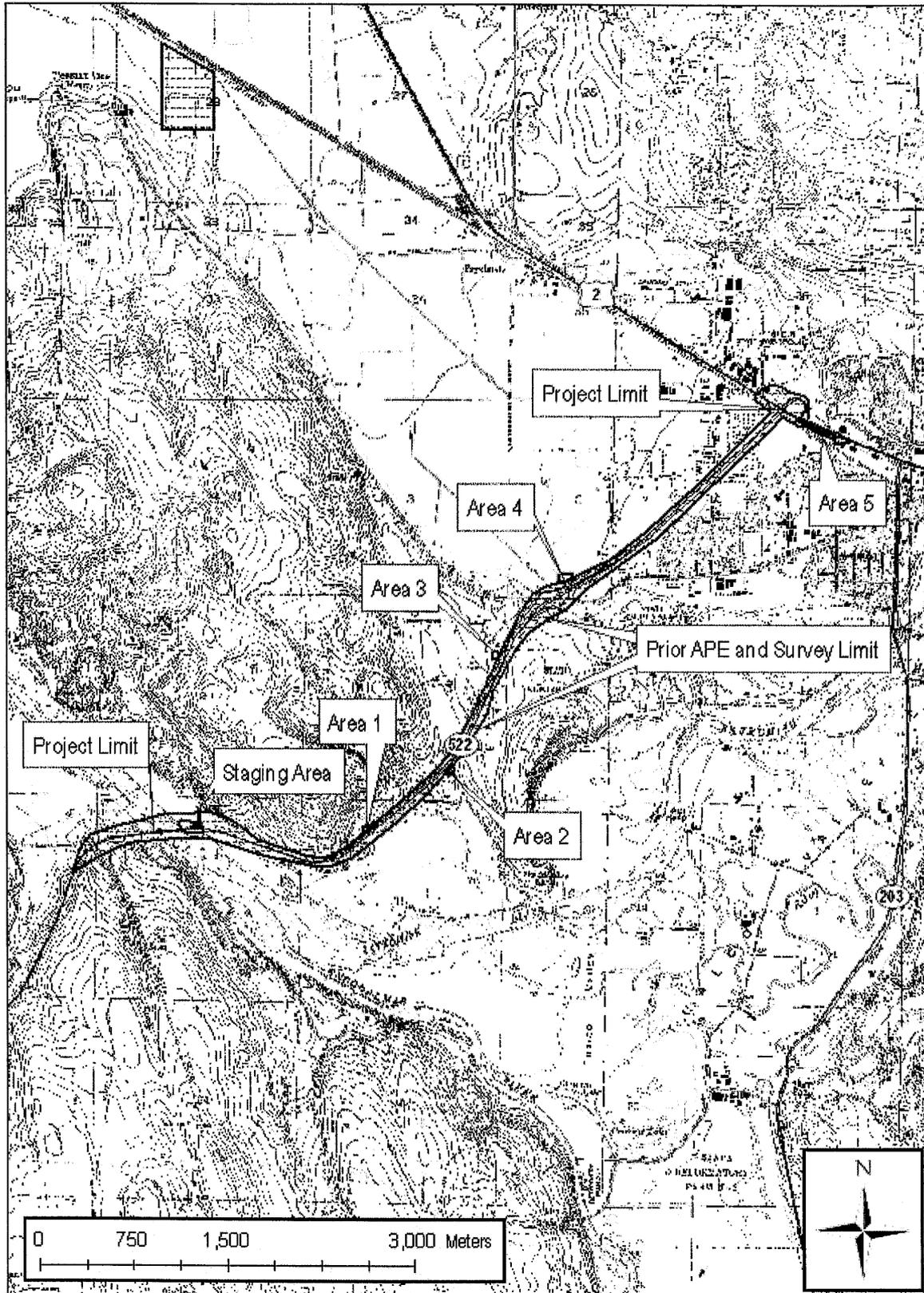


Figure 1. Overview topographic map of APE additions. USGS 7.5' quadrangle.

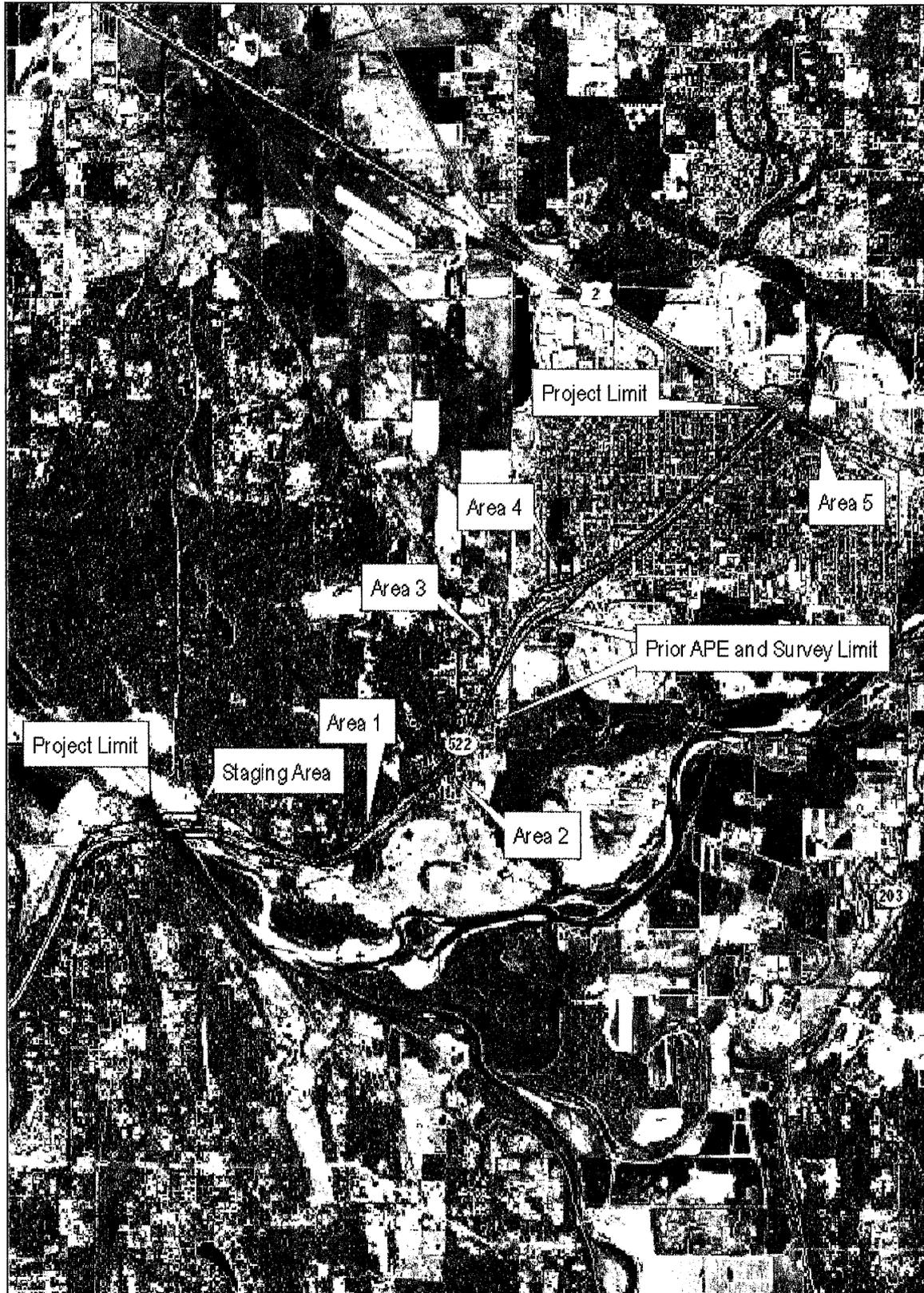


Figure 2. Aerial overview of APE additions.