National Park Service
Cultural Landscapes Inventory
2005

East Side Highway

Mount Rainier National Park

CULTURAL LANDSCAPES INVENTORY (CLI) PROGRAM
2010 Condition Assessment Update for:

East Side Highway
Mount Rainier National Park

Mount Rainier National Park concurs with the condition assessment update for East Side Highway as identified below:

CONDITION ASSESSMENT: **GOOD**

Good: indicates the landscape shows no clear evidence of major negative disturbance and deterioration by natural and/or human forces. The landscape's cultural and natural values are as well preserved as can be expected under the given environmental conditions. No immediate corrective action is required to maintain its current condition.

Fair: indicates the landscape shows clear evidence of minor disturbance and deterioration by natural and/or human forces, and some degree of corrective action is needed within 3-5 years to prevent further harm to its cultural and/or natural values. If left to continue without appropriate corrective action, the cumulative effect of the deterioration of many of the landscape characteristics will cause the landscape to degrade to a poor condition.

Poor: indicates the landscape shows clear evidence of major disturbance and rapid deterioration by natural and/or human forces. Immediate corrective action is required to protect and preserve the remaining cultural and natural values.

David V. Uberuaga 9/21/10

Superintendent, Mount Rainier National Park — Date

Please return to:
Vida Germano
CLI Coordinator
National Park Service
Pacific West Regional Office
1111 Jackson Street, Suite 700
Oakland, CA 94607-4807
(510) 817-1407
(510) 817-1484 (fax)

National Park Service
Cultural Landscape Inventory
2004

East Side Highway
Mount Rainier National Park

Mount Rainier National Park concurs with the management category and condition assessment identified by the CLI, as identified below:

MANAGEMENT CATEGORY: **A: Must be preserved and maintained**

CONDITION ASSESSMENT: **Poor**

David V. Uberuaga 7/25/05

Superintendent, Mount Rainier National Park Date

Please return to:

Erica Owens
Historical Landscape Architect
National Park Service
Pacific West Regional Office
909 First Avenue
Seattle, WA 98104-1060

STATE OF WASHINGTON

Department of Archaeology and Historic Preservation

1063 S. Capitol Way, Suite 106 • PO Box 48343 • Olympia, Washington 98504-8343
(360) 586-3065 • Fax Number (360) 586-3067

September 29, 2005

Ms. Erica Owens
CLI Co-Coordinator
National Park Service
Pacific West Regional Office
909 First Avenue, Floor 5
Seattle, Washington 98104

In future correspondence please refer to:
Log: 092905-06-NPS
Property: Mt. Rainier features for the East Side Highway and Steven Canyon Highway.
Re: Eligibility

Dear Ms. Owens:

Thank you for contacting our office. We have reviewed the materials you provided to our office and we concur with your professional opinion that the historic properties, as defined within the East Side Highway and Stevens Canyon Highway Cultural Landscapes Inventories (CLI) are eligible for the National Register of Historic Places as contributing resources within the boundaries of the Mount Rainier National Historic Landmark District. Furthermore we also concur that the settings, as identified in the CLI, also contribute to the significance of the site as well. We look forward to further consultation regarding any determinations of effect for work on these features.

These comments are based on the information available at the time of this review and on behalf of the State Historic Preservation Officer pursuant to Section 106 of the National Historic Preservation Act and its implementing regulations 36CFR800. Thank you for the opportunity to review and comment. Should you have any questions, please feel free to contact me.

Sincerely,

Michael Houser
Architectural Historian
(360) 586-3076

EAST SIDE HIGHWAY
MOUNT RAINIER NATIONAL PARK

Washington SHPO Eligibility Determination

Section 110 Actions Requested:

1) SHPO concurrence that the Setting, as identified in the CLI, contributes to the significance of the site.
2) SHPO concurrence with the addition of structures to the List of Classified Structures (LCS). (See chart below)

1) X I concur, _____ I do not concur that the **Setting** as described in the CLI contributes to the East Side Highway (see the following landscape characteristics in the Analysis and Evaluation section: spatial organization, land use, topography, vegetation, views and vistas, and natural systems and features).

2) The following structures, located within the historic district, are **already listed on the National Register** as contributing elements:

LCS number	Structure Name	NRIS Number
452578	East Side Highway	97000344
030241	East Side Highway Deer Creek Bridge	97000344
030288	East Side Highway Tunnel	97000344

Based on the information provided in the CLI, the following previously unevaluated structures have been identified as **contributing** to the East Side Highway:

LCS number	Structure Name	Date Built	Concur	Do not Concur
452570	East Side Highway Dewey Creek Box Culvert	1935	X	
452571	East Side Highway Type 2 Guardwalls (3)	1931-40	X	
452572	East Side Highway Culverts (18"-24") (96)	1931-40	X	
452573	East Side Highway Culverts (28"-36")) (14)	1931-40	X	
452574	East Side Highway Culverts (other size) (2)	1931-40	X	
452575	East Side Highway Double Culverts (5)	1931-40	X	
Archeological Site	Cayuse Pass Ski Area	1940	X	
Archeological Site	Site of Ohanapecosh Ranger Station and Road Trace	1934	X	

The following structures, located within the historic district, are **already listed on the National Register as non-contributing** elements:

LCS number	Structure Name	NRIS Number
NA	Eastside Highway Entrance Arch	97000344
NA	Laughingwater Creek Bridge	97000344
NA	Panther Creek Bridge	97000344

Based on the information provided in the CLI, the following previously unevaluated structures have been identified as **not contributing** to the East Side Highway because they were built after 1940:

LCS number	Structure Name	Concur	Do not Concur
NA	Core Ten W Guardwall	X	
NA	Non-historic Culverts (8)	X	
NA	Drop Inlet	X	
NA	Contemporary metal, double leaf gates (2)	X	
NA	Modern Signs	X	

Reasons/comments why any 'Do Not Concur' blocks were checked:

9-28-05

for Washington State Historic Preservation Officer — Date

Please return forms to the attention of:
Erica Owens
Cultural Landscape Inventory Coordinator - Seattle
National Park Service
Pacific West Regional Office-Seattle
909 1st Ave, Floor 5
Seattle, WA 98104
(206) 220-4128
erica_owens@nps.gov

Table of Contents

Executive Summary

General Introduction to the CLI

The Cultural Landscapes Inventory (CLI) is a comprehensive inventory of all historically significant landscapes within the National Park System. This evaluated inventory identifies and documents each landscape's location, physical development, significance, National Register of Historic Places eligibility, condition, as well as other valuable information for park management. Inventoried landscapes are listed on, or eligible for, the National Register of Historic Places, or otherwise treated as cultural resources. To automate the inventory, the Cultural Landscapes Automated Inventory Management System (CLAIMS) database was created in 1996. CLAIMS provides an analytical tool for querying information associated with the CLI.

The CLI, like the List of Classified Structures (LCS), assists the National Park Service (NPS) in its efforts to fulfill the identification and management requirements associated with Section 110(a) of the National Historic Preservation Act, NPS Management Policies (2001), and Director's Order #28: Cultural Resource Management (1998). Since launching the CLI nationwide, the NPS, in response to the Government Performance and Results Act (GPRA), is required to report on an annual performance plan that is tied to 6-year strategic plan. The NPS strategic plan has two goals related to cultural landscapes: condition (1a7) and progress on the CLI (1b2b). Because the CLI is the baseline of cultural landscapes in the National Park System, it serves as the vehicle for tracking these goals.

For these reasons, the Park Cultural Landscapes Program considers the completion of the CLI to be a servicewide priority. The information in the CLI is useful at all levels of the park service. At the national and regional levels it is used to inform planning efforts and budget decisions. At the park level, the CLI assists managers to plan, program, and prioritize funds. It is a record of cultural landscape treatment and management decisions and the physical narrative may be used to enhance interpretation programs.

Implementation of the CLI is coordinated on the Region/Support Office level. Each Region/Support Office creates a priority list for CLI work based on park planning needs, proposed development projects, lack of landscape documentation (which adversely affects the preservation or management of the resource), baseline information needs and Region/Support office priorities. This list is updated annually to respond to changing needs and priorities. Completed CLI records are uploaded at the end of the fiscal year to the National Center for Cultural Resources, Park Cultural Landscapes Program in Washington, DC. Only data officially entered into the National Center's CLI database is considered "certified data" for GPRA reporting.

The CLI is completed in a multi-level process with each level corresponding to a specific degree of effort and detail. From Level 0: Park Reconnaissance Survey through Level II: Landscape Analysis and Evaluation, additional information is collected, prior information is refined, and decisions are made regarding if and how to proceed. The relationship between Level 0, I, and II is direct and the CLI for a landscape or component landscape inventory unit is not considered finished until Level II is complete.

A number of steps are involved in completing a Level II inventory record. The process begins when the CLI team meets with park management and staff to clarify the purpose of the CLI and is followed by historical research, documentation, and fieldwork. Information is derived from two efforts: secondary sources that are usually available in the park's or regions' files, libraries, and archives and on-site landscape investigation(s). This information is entered into CLI database as text or graphics. A park report is generated from the database and becomes the vehicle for consultation with the park and the

SHPO/TPO.

Level III: Feature Inventory and Assessment is a distinct inventory level in the CLI and is optional. This level provides an opportunity to inventory and evaluate important landscape features identified at Level II as contributing to the significance of a landscape or component landscape, not listed on the LCS. This level allows for an individual landscape feature to be assessed and the costs associated with treatment recorded.

The ultimate goal of the Park Cultural Landscapes Program is a complete inventory of landscapes, component landscapes, and where appropriate, associated landscape features in the National Park System. The end result, when combined with the LCS, will be an inventory of all physical aspects of any given property.

Relationship between the CLI and a CLR

While there are some similarities, the CLI Level II is not the same as a Cultural Landscape Report (CLR). Using secondary sources, the CLI Level II provides information to establish historic significance by determining whether there are sufficient extant features to convey the property's historic appearance and function. The CLI includes the preliminary identification and analysis to define contributing features, but does not provide the more definitive detail contained within a CLR, which involves more in-depth research, using primary rather than secondary source material.

The CLR is a treatment document and presents recommendations on how to preserve, restore, or rehabilitate the significant landscape and its contributing features based on historical documentation, analysis of existing conditions, and the Secretary of the Interior's standards and guidelines as they apply to the treatment of historic landscapes. The CLI, on the other hand, records impacts to the landscape and condition (good, fair, poor) in consultation with park management. Stabilization costs associated with mitigating impacts may be recorded in the CLI and therefore the CLI may advise on simple and appropriate stabilization measures associated with these costs if that information is not provided elsewhere.

When the park decides to manage and treat an identified cultural landscape, a CLR may be necessary to work through the treatment options and set priorities. A historical landscape architect can assist the park in deciding the appropriate scope of work and an approach for accomplishing the CLR. When minor actions are necessary, a CLI Level II park report may provide sufficient documentation to support the Section 106 compliance process.

Park Information

Park Name: Mount Rainier National Park
Administrative Unit: Mount Rainier National Park
Park Organization Code: 9450
Park Alpha Code: MORA

Property Level And CLI Number

Property Level: Landscape
Name: East Side Highway
CLI Identification Number: 400034
Parent Landscape CLI ID Number: 400034

Inventory Summary

Inventory Level: Level II

Completion Status:

Level 0
Date Data Collected - Level 0: 6/1/1998
Level 0 Recorder: Susan Dolan
Date Level 0 Entered: 6/1/1998
Level 0 Data Entry Recorder: Susan Dolan
Level 0 Site Visit: Yes

Level I
Date Level I Data Collected: 6/17/2004
Level I Data Collection L. Ballock, L. Davis, M. Davison, J. Hammond
Date Level I Entered: 6/17/2004
Level I Data Entry Recorder: John Hammond
Level I Site Visit: Yes

Level II
Date Level II Data Collected: 6/17/2004
Level II Data Collection L. Ballock, L. Davis, M. Davison, J. Hammond
Date Level II Entered: 11/1/2004
Level II Data Entry Recorder: John Hammond
Level II Site Visit: Yes
Date of Concurrence 7/25/2005

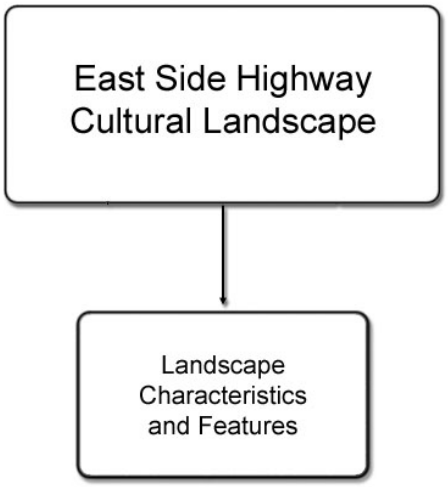
Landscape Description

The East Side Highway is a linear landscape that extends 13.8 miles from the park's southeast entrance near Ohanapecosh Hot Springs (1,928'), to the Mather Memorial Parkway at Cayuse Pass (3,930'). Designed and constructed in the 1930s, the route was designed to perform a dual role as a north-south connector route and scenic park road. Following the east side of Ohanapecosh Creek, the road winds gently before steadily climbing up the Chinook Creek valley with the major scenic overlooks located at Shriner Peak trailhead and Deer Creek. Towards the higher elevations, the road carries through a series of long rock cuts and radial turns and several sections are supported by retaining walls up to 25' in height, among the tallest in the park. Traversing a diverse landscape including lowland forest, montane forest, high elevation forest, subalpine meadow, and numerous creeks, the road retains the historic rustic values that showcase scenic features in the protected landscape of the park.

The East Side Highway is a historic designed landscape, significant as a rare example of an early national park scenic highway, and an integral part of the early master plan for the park. The highway is distinguished by outstanding engineering achievements and features of naturalistic design. The period of significance for the East Side Highway cultural landscape spans the years 1931-1941, reflecting the period when the NPS coordinated the design and construction of the road, and from which the extant landscape characteristics and features date. The naturalistic character of the road is evident in the remaining landscape characteristics and features: spatial organization, response to natural systems and features, land use, topography, buildings and structures, views and vistas, small scale features, and archeological sites. These patterns and their surviving features continue to exist as originally planned conveying the integrity of the road as a scenic highway.

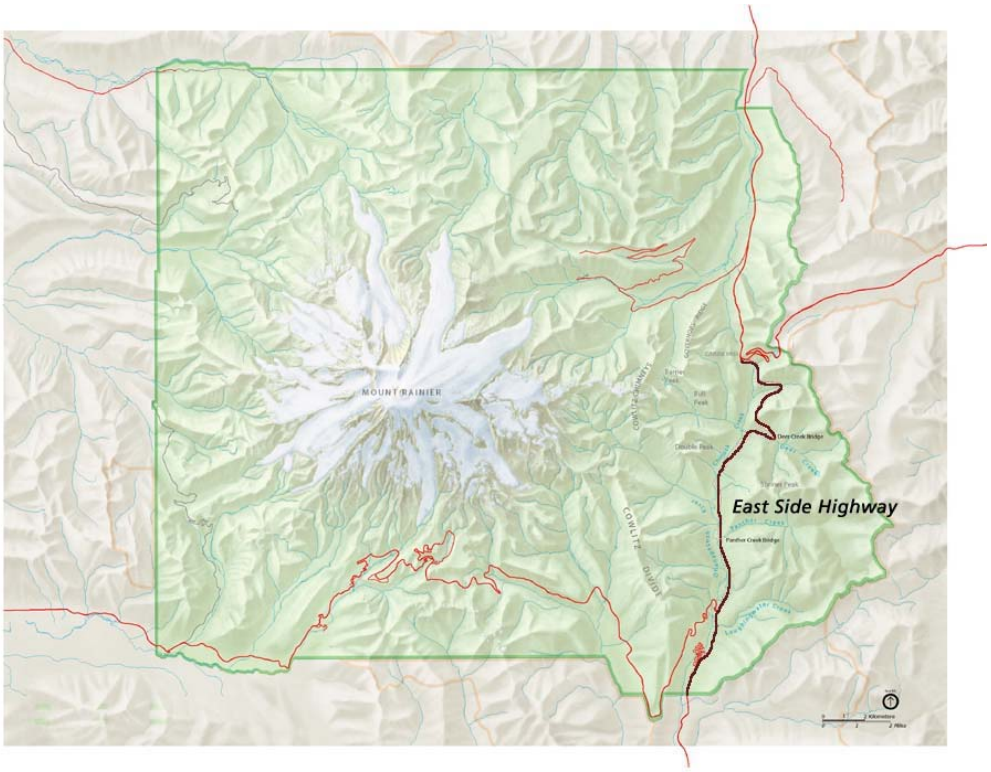
Cultural Landscapes Inventory Hierarchy Description

The East Side Highway is a historic designed landscape with one component landscape. The landscape characteristics and features associated with the road, including the road itself, bridges, a tunnel, guardwalls, retaining walls, turnouts, specimen trees, and culverts are part of the cultural landscape of the East Side Highway.



CLI hierarchy diagram showing the East Side Highway cultural landscape and its component landscape, Ohanapecosh.

Location Map



Map of Mount Rainier National Park showing location of East Side Highway within the park. (PWRO)

Boundary Description

The boundary is defined by the 1997 National Historic Landmark District (NHLD) nomination as 30’ on either side of the centerline of the road, beginning at the Park boundary in the south and continuing 13.8 miles to the Mather Memorial Parkway (HW 410) at Cayuese Pass, incorporating all of the structures associated with the road including the road bed, shoulders, turnouts, rock cuts, vegetation, bridges, tunnels, ditches, culverts, retaining walls, and guardwalls. However, this boundary description suggests a more delineated and "tighter" boundary for the road than that which is perceived in the experience of the landscape. For example, in certain segments along the road, the physical boundaries may narrow, such as between a rock cliff on the inside and a steep down slope on the outside edge. In other segments, the apparent boundaries of the road broaden into the entire viewshed from the road. In other words, the 30’ on either side of the centerline definition is inadequate to encompass all of the characteristics and features of the road. The boundary actually fluctuates along the length of the road, but is accurately approximated by 100’ either side of the centerline.

Regional Context

Cultural Context

The East Side Highway is a linear landscape with areas along the corridor where visitor services and waysides provide expanded boundaries for the road as a landscape system. These areas vary in size and type from Ohanapecosh to small turnouts and waysides along the road. Ohanapecosh is a component landscape of the East Side Highway with a campground, trails, and visitors center.

Political Context

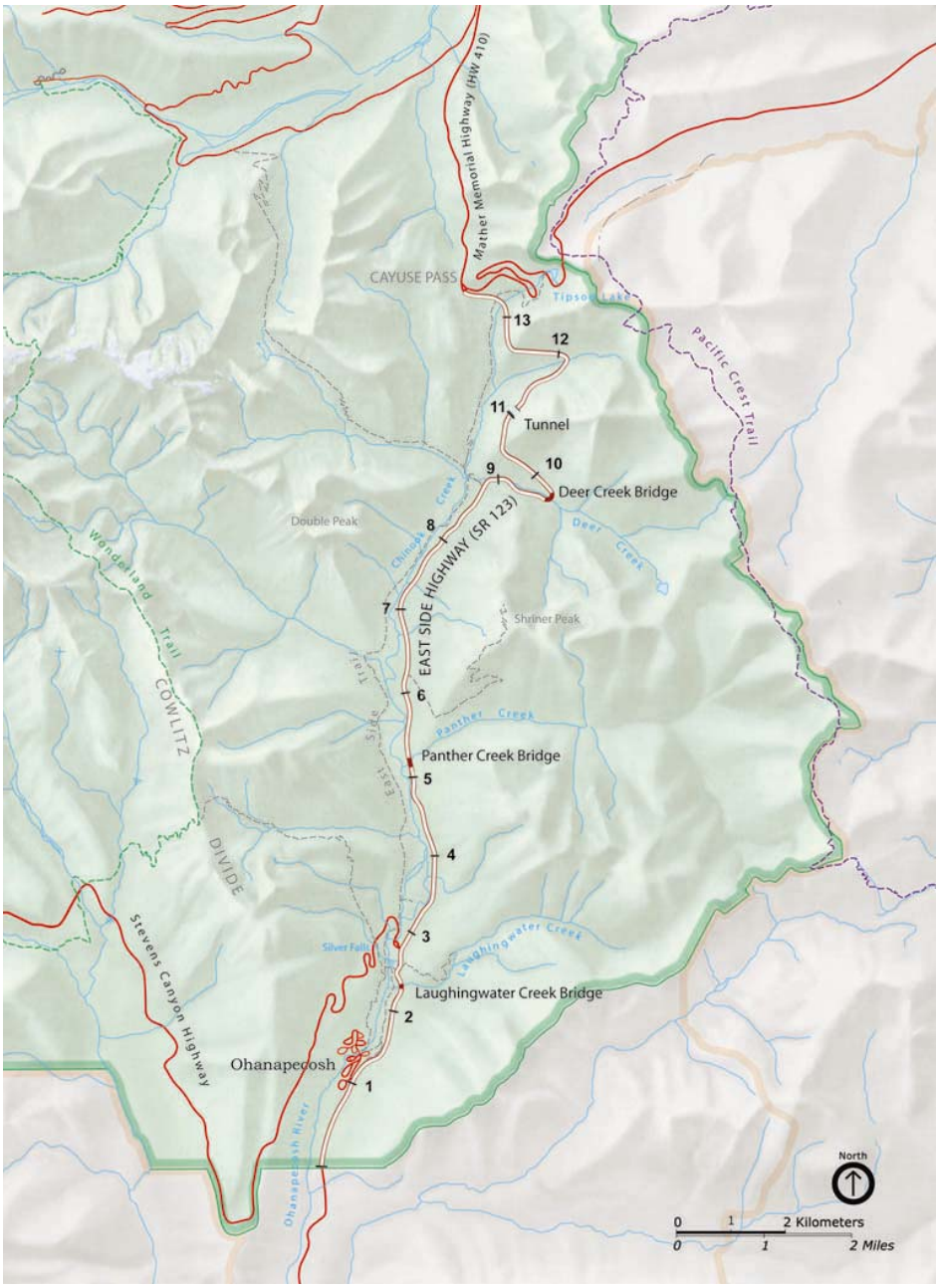
The entire East Side Highway is within the boundaries of Mount Rainier National Park.

Physiographic Context

The East Side Highway traverses the east slope of Mount Rainier, entering the park at the park’s southeast entrance near Ohanapecosh Hot Springs (1,928’), and traveling 13.8 miles to the Mather Memorial Parkway at Cayuse Pass (3,930’). Following the east side of Ohanapecosh Creek, the road winds gently before steadily climbing up the Chinook Creek valley, traversing a diverse landscape including lowland forest, montane forest, high elevation forest, subalpine meadow, and numerous creeks.

Site Plan

Site plan of the East Side Highway showing mile points. (PWRO)



Chronology

Year	Event	Description
1890 - 1900 AD	Built	The first roads were built within Yellowstone National Park, setting a precedent for creating vehicular access in national parks.
1899 AD	Established	Mount Rainier National Park was established.
1904 AD	Designed	The Army Corps of Engineers surveyed a wagon road along the most practial route to the park from the east of the Cascades: up the American River valley over Shriner Peak into the Ohanapecosh valley, then up Olallie Creek, over Cowlitz Divide to Paradise.
1907 - 1913 AD	Designed	Recommendations and surveys were completed by the army Corps of Engineers to create a road around the mountain. "The Wonder Road" or "Round-the-Mountain" road would pass over Cayuse Pass.
1908 AD	Expanded	A Forest Service trail in the southeast of the park connected Lewis (Packwood) to Summit Creek on to the Cascade Crest.
1913 - 1915 AD	Built	An East Side Trail was built, connecting trails in the southeast corner of the park near the Ohanapecosh Hot Springs with trails on the north side of the park near White River.
1914 AD	Designed	A proposed 44-mile highway was surveyed to connect Longmire, the Ohanapecosh Hot Springs, and Chinook Pass, which would continue to Lewis (Packwood).
1916 AD	Built	A 13-mile trail from Lewis (Packwood) accessed Ohanapecosh Hot Springs, just outside of the park boundary on Forest Service land where a concession had developed.

1916 AD	Designed	The Army Corps of Engineers completed road surveys for the East Side Highway, as well as Stevens Canyon, the south end of the Cowlitz Divide, Ohanapecosh River, Chinook Creek, and Cayuse Pass (Mills 1976: no page).
1918 AD	Established	Washington State established State Route 5 (Cowlitz-Naches Road), a portion of which was to connect the Lewis County post office with the McClellan Pass Highway.
1919 AD	Designed	Park Superintendent announced that the best route for State Route 5 was along Ohanapecosh Creek to the White River ranger station at the northeastern park boundary (Superintendent's Annual Report 1919: no page).
1919 AD	Designed	NPS Director Stephen Mather and his assistant Horace A. Albright officially described the entire "Round-the-Mountain" scheme, of which the East Side Highway was a part (Carr 1998: 217).
1924 AD	Built	The state approach road to the park's southeast entrance was reconstructed with an 18 foot roadbed and surfraced with crushed gravel.
1924 - 1929 AD	Built	The state and Forest Service road (State Route 5) was constructed along an existing roadbed, possibly the Cowlitz-Naches road. It was designed to connect Lewis (Packwood) with Clear Fork at Cowlitz Creek terminating at the southeast park boundary.
1926 AD	Designed	In the 1920s, Superintendent Tomlinson proposed a limited amount of road construction and no loop road in the park.
1927 AD	Established	A 33-mile road was proposed to connect Box Canyon Bridge with Cayuse Pass.
1928 AD	Established	The NPS proposed to connect Sunrise with the west side of the park via two new roads: the East Side Highway and Stevens Canyon Road.
1929 AD	Altered	Eighty acres of forest burned along the East Side Highway.

1930 AD	Established	Discussions began on building the East Side Highway influenced by the need for a connecting route between Longmire and Sunrise.
1931 AD	Expanded	Park boundary was expanded to include the Ohanapecosh area and the new Naches Pass Highway (Mather Memorial Parkway).
1931 AD	Built	Clearing was in progress for the first 5.2 miles of the East Side Highway.
1931 AD	Designed	Location surveys were conducted to find a route that would "meet with the new Naches Pass Highway somewhere in the vicinity of Cayuse Pass or Tipsoo Lake, and was to investigate several potential crossings of the Cowlitz Divide" (HAER No. WA-124 1992: 3).
1932 AD	Built	Mather Memorial Parkway was completed.
1932 - 1933 AD	Built	In June 1933, Visitors were permitted to travel the East Side Highway as far as the Ohanapecosh Hot Springs.
1933 AD	Reconstructed	A temporary bridge at laughingwater Creek collapsed and was re-built. Also, a section of the new road from the park boundary to the Ohanapecosh Hot Springs was damaged by flooding.
1933 - 1939 AD	Altered	Civilian Conservation Corps (CCC) was involved in highway maintenance and roadside cleanup, as well as planting trees, trail reconstruction, blister rust control, and campground maintenance.
1934 AD	Built	Clearing, grubbing, and grading between Deer Creek and Cayuse Pass was in progress.
1934 AD	Built	Log cabin ranger and checking station was built at Ohanapecosh campground entrance.
1935 AD	Established	Funding for the tunnel and Laughingwater Creek Bridge projects was approved from the Emergency Appropriation Act.

1935 AD	Built	Laughingwater Creek Bridge was completed, making it the longest continuous girder bridge in the Pacific Northwest.
1936 AD	Altered	Ohanapecosh campground was rehabilitated.
1936 - 1937 AD	Built	Construction work included slope stabilization, correction of drainage, and roadside cleanup of "bright" construction debris; logs covered with moss or lichens were to be "left intact" (HAER No. WA-124 1992: 6).
1938 - 1939 AD	Built	Completion of the East Side Highway tunnel included structural reinforcement, road surfacing, and construction of the aslar stone arch portals at each end.
1938 - 1939 AD	Built	Deer Creek Bridge was constructed in the characteristic "rustic style" of the park. This was the last of the major structures completed.
1940 AD	Built	East Side Highway was completed and opened to traffic. A dedication ceremony was held at the north protal of the tunnel. It is considered the first through-road in the park.
1940 AD	Built	Trail from East Side Highway up to Shriner's Peak built.
1941 AD	Established	A one-dollar entrance fee was introduced.
1942 AD	Altered	The one-dollar entrance fee was suspended.
1946 AD	Removed	U.S. Coast and Geodetic Survey (USGS) benchmarks were placed on the road with white paint marks, enabling visibility for aerial photography. The NPS objected to such an intrusion in the natural landscape and removed the marks.
1946 - 1954 AD	Built	Ski area opened on an experimental basis near Cayuse Pass.
1947 AD	Built	Skate Creek Road was built south of the park.

1947 AD	Maintained	Deterioration of the Panther Creek Bridge was reported and repairs were recommended.
1951 AD	Built	White Pass Highway (Highway 12) was opened, increasing travel on the east side of the park.
1952 AD	Altered	The one-dollar entrance fee was once again collected from motorists at a newly built entrance station at Ohanapecosh. Fees were collected for both north and southbound travelers.
1954 AD	Maintained	Park officials argue for state maintenance assistance on the East Side Road since the "road largely serves as a corridor between points rather than a park scenic road" (HAER No. WA-124 1992: 8).
1955 AD	Altered	The entrance fee was waived on the East Side Highway since it was a cross-state highway, used for through-park travel.
1955 AD	Maintained	Park officials continued to ask the state for maintenance assistance on the East Side Highway. The state refused, but agreed to do winter maintenance in the White River and Cayuse Pass area.
1955 AD	Removed	An entrance station to the Ohanapecosh development was operated for a while then discontinued.
1957 AD	Reconstructed	Mission 66 funds replaced the Panther Creek Bridge.
1958 AD	Paved	Mission 66 funds were used to pave the East Side Highway with a 22-foot asphalt surface, with 2-foot asphalt shoulders.
1958 AD	Built	The Ohanapecosh campground roads were developed.
1959 AD	Maintained	Through a special-use permit, the state assumed maintenance responsibilities for the East Side Highway.

1964 AD	Altered	Ohanapecosh campground and facilities were rehabilitated.
1968 AD	Altered	East Side Highway was officially redesignated Washington Highway 123.
1976 AD	Built	The park constructed the East Side Highway Entrance Arch at the southeast boundary.
1997 AD	Established	A National Historic Landmark District, which included the East Side Highway, was designated within Mount Rainier National Park.
2003 AD	Altered	Forest fire occurred along the East Side Highway near Panther Creek.

Statement Of Significance

The East Side Highway (Washington Highway 123) is a historic road within the Mount Rainier National Historic Landmark District (NHLD). Designated in 1997, the NHLD is nationally significant for its association with the events of early National Park Service (NPS) master planning (criterion A) and the design style of naturalistic landscape architecture (criterion C) perpetuated by the NPS in the period between the First and Second World Wars. As part of the early Mount Rainier National Park master plan, the East Side Highway is significant for its association with the national park system's most complete and significant example of park master planning. It is also significant for its naturalistic landscape engineering as a scenic park highway. The period of significance for the NHLD of Mount Rainier National Park is 1906-1957, broadly incorporating the earliest and latest rustic period development in the park. The period of significance for the East Side Highway cultural landscape spans the years 1931-1941, reflecting the period when the NPS coordinated the design and construction of the road, and from which the extant landscape characteristics and features date.

In association with the events of the American Park Movement and early NPS master planning, the East Side Highway is significant as an integral part of the master plan of Mount Rainier National Park, as first developed in the 1920s. The East Side Highway was the first complete road within the park to be designed and constructed after the Memorandum of Agreement (MOA) was signed by the NPS and Bureau of Public Roads (BPR) in 1926, establishing the framework for interbureau cooperation on national park road construction. The MOA included standard specifications for road construction that adopted the naturalistic style for landscape engineering.

The concept of the East Side Highway had its origins in early plans for a comprehensive road system within the park. In the first two decades of the twentieth century, NPS Engineer Hiram Chittenden and Assistant Engineer Eugene Ricksecker developed and advocated a plan that would circle the mountain with roads, greatly increasing the areas of the park accessible to automobiles. The plan, dubbed the "round-the-mountain" road concept, was based on Chittenden's similar plan for Yellowstone's Grand Loop. By 1913, preliminary surveys located the "round-the-mountain" route along an 80- to 100-mile irregular loop just below the glacier line. Although budget constraints and rugged terrain on the north and west slopes of the mountain prevented the realization of the plan as it was conceived, this early plan laid the groundwork for the comprehensive master planning of the 1920s.

During the subsequent phase of master planning, the concept of the "round-the-mountain" road was abandoned in favor of a partial loop road system that relied more heavily on regional roads outside of the park to create a loop around the mountain. The master plan developed during this time envisioned the infrastructure of the park as a system of scenic highways and developed areas, to be known as rustic park villages, which would accommodate visitors while limiting their vehicular access within the park. The East Side Highway was conceived as a part of that system, connecting Longmire and Paradise in the south with Yakima Park (Sunrise) in the northeast. Construction of the East Side Highway began in 1931. The road was one of the first in the system to be designed from the start according to NPS standard specifications for road construction.

The success of the design was due in large part to NPS Director Stephen Mather's collaboration with the Bureau of Public Roads in the 1920s. The culmination of these discussions led to the MOA being signed by the NPS and BPR in 1926, establishing the framework for interbureau cooperation on national park road construction. The MOA called for park Superintendents and NPS landscape engineers to determine the road alignment and road character, so that park roads could be designed in the naturalistic style of "landscape engineering," advocated by Mather. BPR was to perform the surveys, prepare construction

drawings and manage construction of park roads. This collaboration, together with the role the East Side Highway played in early NPS master planning, imparts particular significance on the road under criterion A.

In association with significant design and construction, the East Side Highway is an outstanding example of park landscape design, embodying the complimentary styles of rustic architecture and naturalistic landscape architecture. Based on 18th-century picturesque and 19th-century naturalistic design theories, the rustic and naturalistic styles were used extensively in NPS architecture and landscape architecture of the 1920s and 1930s. Designers in these styles aimed to harmonize artifice and nature by minimizing the visual impact of constructed developments, while accentuating the picturesque qualities of nature. Indigenous rock, lumber, and native plants were the basic materials for these styles, so that park architecture and landscape architecture would appear to have evolved naturally within the landscape. Forms of the rustic and naturalistic styles were intended to be subordinate to the natural environment and were to appear to be hand-crafted or primitive. This design era coincides with the most significant period of development within NPS history, a time when the NPS created what is now recognized as the hallmark style for developments within natural areas, in order to preserve their scenic beauty.

The design of the East Side Highway exhibits many characteristics of the naturalistic and rustic design styles, including the minimization of cut and fill, the "naturalization" of road shoulders, rock cuts and fill slopes, the dressing of exposed culverts with stone headwalls to render them inconspicuous, and construction details for naturalistic retaining walls, guardwalls, and guardrails. Notable structures and features along the road include the Deer Creek Bridge, the portals of the tunnel, stone retaining walls (Type 4), and crenulated guardwalls (Type 2). The high standards set by the NPS in the construction of the road included salvaging local stone during grading operations for future construction of structures associated with the road's construction. As a result, features including the bridge and guardrails matched the color and texture of rock cuts in their vicinity. The curvilinear alignment and numerous vista turnouts slowed traffic and highlighted spectacular views of Mount Rainier and the surrounding Cascades scenery.

Today, as an integral part of the extant master plan from 1928, the East State Highway remains largely unchanged and is an intact example of an early national park scenic highway constructed using the first national NPS standards for road building. The road's naturalistic character is evident in its remaining landscape characteristics and features, namely in the road's spatial organization, its pattern of response to natural systems and features, the intact land use, circulation patterns, structures, small scale features, views and vistas, topography, and archeological sites. These patterns and their surviving features, such as stone guardwalls, retaining walls, narrow curvilinear alignment, and vista turnouts continue to exist as originally planned, and convey the integrity of the road as a scenic highway.

Physical History

Prehistory - 1904

An east-west connection over the Cascades in the area of Mount Rainier has probably existed for thousands of years. Prehistoric evidence reveals that a trail route at Chinook Pass linked Mount Rainier on the west side to the American River drainage and Yakama territory on the east side (Burtchard 1998: 118 quoting Smith 1964: 229-238). The Chinook Pass Trail (FS1996-11), also known as the Yakima Trail, is believed to have been in use for nearly 4,000 years for foot travel and later for horse travel (Burtchard 2003: personal interview). The Chinook Pass Trail served as a circulation link to hunting grounds as well as places of cultural importance, revealed by prehistoric archeological findings at Tipsoo and Deadwood Lakes, at subalpine elevation. A 1915 park map indicates the alignment of the Chinook Pass Trail up the American River drainage, over Chinook Pass, north of Tipsoo Lakes, west to Cayuse Pass, and north northwest along the Klickitat Creek drainage towards Sunrise Ridge. In 1917, the Yakama people used this trail for the last time, due to NPS enforcement of rules prohibiting hunting in the park.

Early Road and Trail Development, 1904-1930

The earliest road surveys on the east side of Mount Rainier National Park were performed in 1904 when the Army Corps of Engineers surveyed a 17-mile wagon road along “the most practical route from the east into the park.” The route followed the American River up to the Cascade Crest, over Shriner’s Peak into the Ohanapecosh River valley, then up Olallie Creek, over Cowlitz Divide into Cowlitz Park, to later connect with Paradise (Mills 1976: no page). The early “round-the-mountain” road concept, proposed by Corps Engineer Hiram Chittenden in 1907 may be traced to this period of early survey work. This concept was abandoned in the late 1920s, due to changing philosophies about the appropriate amount of road development in national parks and the immense difficulty of building a road on the steep topography of the west and north sides of the park. However, proposals for a connection between Paradise on the park’s south side and Cayuse Pass on the east side continued. In spite of the pressing need, the lack of funds and difficulties in locating a feasible route meant the southeast region of park would be the last quadrant to receive vehicular access.

Therefore, at the turn of the century the southeast corner of the park was difficult to access and initially this lack of accessibility restricted development. However, in the 1910s, pressure for access to the mineral hot springs at Ohanapecosh increased as the area gained in popularity. A wagon road that ran along the Ohanapecosh River valley provided the only major access to the hot springs. By 1915 several trails led from the Ohanapecosh Hot Springs to other areas in the park including Longmire and Paradise. One of these was the East Side Trail, developed between 1913 and 1915 connecting the hot springs from points south, up the east bank of the Ohanapecosh River to the Chinook Creek drainage, west to the Owyhigh Lakes and north to Sunrise Ridge into the White River Valley (Mills 1976: no page). It appears that the East Side Highway was most likely developed along the alignment of this trail as far as Deer Creek, as maps beginning in the 1950s show the East Side Trail re-routed to the west banks of the Ohanapecosh River and Chinook Creek. Another trail, first documented by staff at the Rainier National Forest in 1908, connected Lewis (Packwood) to the Cascade Crest via Summit Creek.

North-South Connector
In the 1920s while NPS staff were discussing the feasibility of the "round the mountain" road concept, the State was proposing a link from the Pacific Coast Highway south of Chehalis with Lewis (Packwood)

before running north up the Ohanapecosh River through USFS land and connecting with the Naches Pass Highway (later the Mather Memorial Parkway) at Cayuse Pass (HAER No. WA-124 1992: 3). The route would upgrade portions of the Cowlitz-Naches Road, an existing un-engineered roadway south of the park boundary. During this period, sporadic development on the east side of the mountain and the construction of roads on Rainier National Forest land raised concerns that the NPS mission was threatened. For example, although the Ohanapecosh springs were outside the park, Superintendent Tomlinson complained that thousands of new visitors would be visiting a corner once seen by a few hundred, and the Park had no facilities for their accommodation. By the late 1920s, considerable improvements were made to the roads approaching the southeast corner of the park. In 1926 the BPR reconstructed State Road 5 from the Pacific Highway in southwest Washington to Ohanapecosh with an 18' road width that was surfaced with crushed rock as far as Lewis. Similarly, the National Forest Road between Lewis and Clear Fork was reconstructed in 1928 (Unrau 1990: 14).

With the development of Longmire and Paradise in the south, Yakima Park (Sunrise) in the east, and improvements to the southeast approach roads, the need for a connector road in the southeast corner of the park increased. The new route was required to serve patrol, maintenance and administrative staff as well as visitors. With the completion of the McClellan Pass Highway (renamed Naches Pass Highway and later renamed Mather Memorial Parkway), Mount Rainier National Park Supervisor Dewitt Reaburn recognized the potential influence of such a road within the park when he predicted, "…this link would spur road supporters to press for the extension of the government road [Nisqually Road] to Paradise to connect with the new road at Cayuse Pass" (HAER WA-25: 2).

However, it was to be an inspection tour of Mount Rainier National Park by Mather in 1928 that paved the way for the extension of the park boundary on the east side, and subsequent construction of the East Side Highway. Mather was particularly interested in seeing the construction of the final eight miles of the Naches Pass Highway (Mather Memorial Parkway). As early as 1921, Mather had advocated for improved inter-park travel, preservation of scenery for the enjoyment of travel, and limiting private development in scenic areas (Carr 1998: 147). In the early 1920s, when Congress was appropriating funds for roads within national forests, but not national parks, Mather attempted to exert an influence over the design of roads outside of park boundaries. Mather believed that roads within national forests neighboring parks should be scenic and be laid out using "landscape engineering" principals, as well as park roads. Mather and his NPS staff coined the term landscape engineering to refer to the design of roads using a naturalistic approach, in order to blend roads with surrounding scenery. The NPS worked tirelessly with the BPR at Glacier National Park in the mid 1920s to hone the approach to landscape engineering in the design of scenic highways.

In 1926, Mather succeeded in forging an agreement with BPR for the construction of roads in national parks. The Memorandum of Agreement gave NPS landscape engineers (landscape architects) ultimate control of the naturalistic design style of park roads. By the time Mather visited the Naches Pass Highway under construction in 1928, the NPS had developed landscape engineering standard specifications to be used by the BPR in national park road construction. Mather's ulterior interest in the road was probably widely acknowledged by the time. Also, while inspecting the road under construction, Mather strenuously argued with the USFS, BPR and Washington State Department of Highways that measures should be taken to preserve the 75-mile stretch of scenic forest belt between Enumclaw and Naches, in order to preserve the scenic quality of travel approaching the park (McIntyre 1952: 1). Since master planning had begun in the park in 1926, the NPS had explored the idea of acquiring national forest lands east of the park, to expand the park boundary to the crest of the Cascade Mountains. As a consequence, these lands included the USFS land running along Ohanapecosh Creek which was to become the site of the East Side Highway.

East Side Highway Design and Construction, 1931-1940

In 1927, the NPS surveyed the east portion of the park, presenting engineers with the necessary information to begin design work on the road in earnest. When the final alignment was chosen for the East Side Highway it conformed to the latest park road standards and took advantage of engineering technologies that had been developed by the NPS Division of Landscape Architecture. The boundary expansion brought the entire 13.8-mile stretch of the proposed East Side Highway into the park, including Ohanapecosh Hot Springs to the south and as far east as the Cascade Crest. The proposed route was based on a 24' roadbed that followed the natural contours of Laughingwater, Cougar (Panther), Dewey, and Deer Creek drainages. In sections requiring slope stabilization the roadbed was reduced to 22', with the fill side remaining at 12' and the cut side reduced to 10'. The latest road construction techniques were applied to the East Side Highway. For instance, superelevations were constructed in order to improve the ride including a long section adjacent to the Ohanapecosh Creek and a segment that spanned Dewey Creek, and in many instances, superelevations with large culverts underneath took the place of bridges.

Oversight of the road construction was provided by BPR engineers who contracted the work out to 11 private firms. Due to the size and scale of the ensuing work BPR divided the construction of the East Side Highway into four separate projects referred to as 5-A, 5-B, 5-C, and 5-D. Groundbreaking began in 1931 with project 5-A, from the southeast entrance up to Cougar Creek (Panther Creek). This was followed by phase two, project 5-C, from north end of project 5-A up to Stafford falls. In 1935, construction began on the north section of the road with project 5-B, from Cayuse Pass down to the beginning of the proposed tunnel. The final phase began in 1936 with project 5-D, from Stafford falls up to and including the construction of the tunnel. Construction of the tunnel required access from both sides and therefore this phase was left until last. The NPS landscape architects requested that the BPR preserve natural and scenic features along the roadway including extant vegetation such as old growth firs and cedars in the shoulder of the road prism. The NPS also provided design specifications for some of the structures including Deer Creek Bridge and masonry guardwalls (Type 2). The collaboration also involved design specifications for the portals of the tunnel, the finishing of rock cuts and the construction of buttresses, as well as the design and location of pullouts. The specifications for culverts, inlets, drains, log cribbing, hand laid rip-rap and retaining walls were provided by BPR.

Project 5-A
Groundbreaking began in 1931 on Project 5-A with funding for the clearing and grading provided by the PWA and various emergency appropriations (Unrau 1988: 14). Engineer C. G. Polk managed the first phase. This 4.9-mile section of road construction began at the southeast entrance of the park (1,784') rising in elevation to the south side of the proposed Cougar Creek Bridge (2,254'). The initial effort involved 5.3 miles of clearance work including instructions to the contractors that they should preserve specimen trees and habitats up to the edge of the road prism. The grading commenced in 1932 and was completed the following year. During grading work a temporary log stringer bridge was constructed at Laughingwater Creek, crossing the deep-forested gorge. This structure was replaced by a three-span continuous concrete girder deck bridge in 1935. (In 1995, Laughingwater Creek bridge was replaced with a double span, steel girder bridge.) In spite of being open to traffic as early as 1933, it was not until 1937 that a macadam surface was laid in conjunction with road project 5-C.

Situated in a broad valley containing the only non-glacial river in the park, Ohanapecosh Creek, the road passed through lowland forest, showcasing magnificent old growth trees aged up to 600 years including Hemlock, Cedar, White Pine and Fir (Franklin 1988: Plate 2). The alignment was designed to closely parallel the river along its east bank, occasionally bringing its eastern channel into view. In this section

along the valley floor the road wound gently on an undulating slope that ranged between 0.5% and 5.0%. Due to the proximity of the river in this section and extensive upslope drainage, several straight or gently curving stretches of roadbed were constructed on superelevations of approximately 7' or less. One year after groundbreaking on the East Side Highway, BPR in consultation with the NPS constructed a 2.7-mile section of State Route 5 (Highway 12) approaching the southeast entrance to the park. By 1933, visitors began accessing Ohanapecosh Hot Springs via a continuous 11-mile road from Lewis (Packwood) and the park constructed a ranger station on the east side of the road to meet the expected increase in visitors.

Project 5-C
Engineer Polk also oversaw the second phase of construction, Project 5-C, from south of Cougar (Panther) Creek Bridge (2,254') up to Stafford Falls (2,940'). This phase began with the construction of a log stringer bridge over Cougar Creek and the road continued along the east bank of the Ohanapecosh River. The grading for this 3-mile section of road construction was completed in 1935. The first bridge over Cougar Creek was constructed with cedar logs on concrete footings according to BPR standards, before being replaced with a concrete structure in 1939. A superelevated alignment was constructed on either side of the bridge, possibly to preserve the old growth forest that extended up the creek. Due to the major rock cuts required for the upper section of this phase, a stone guardwall and retaining wall measuring nearly 0.25 miles were constructed on the fill side of the road. To construct the wall, locally-obtained stone was used in order to match the color of the rock cuts opposite. The final section of this phase was the construction work around Stafford Falls. A narrow drainage meandering approximately 60' down to a small pool on the cut side of the road was skillfully crafted to merge with a deeply fissured and angular rock cut. As with other scenic areas along the roadway a pullout on the fill slope was constructed opposite Stafford Falls. This pullout also marked the end of the 0.25-mile long guardwall and was typical of the spherical shaped parking areas that were located throughout the park. The macadam road surfacing for this phase was completed in conjunction with phase one, project 5-A, in 1937.

Featuring numerous rock cuts and superelevations, this section passed through a younger stretch of lowland forest – a particularly ancient old growth stand that included cedar, fir, and hemlock as large as 6.5' in diameter. This section of road made a noticeable gain in elevation rising at a steady 6% to the Shriner's Peak trailhead, which afforded the first expansive views of Mount Rainier. After Shriner's Peak trailhead the road hugged the steep slopes of solid rock creating an open character that afforded broad views down into the valley floor.

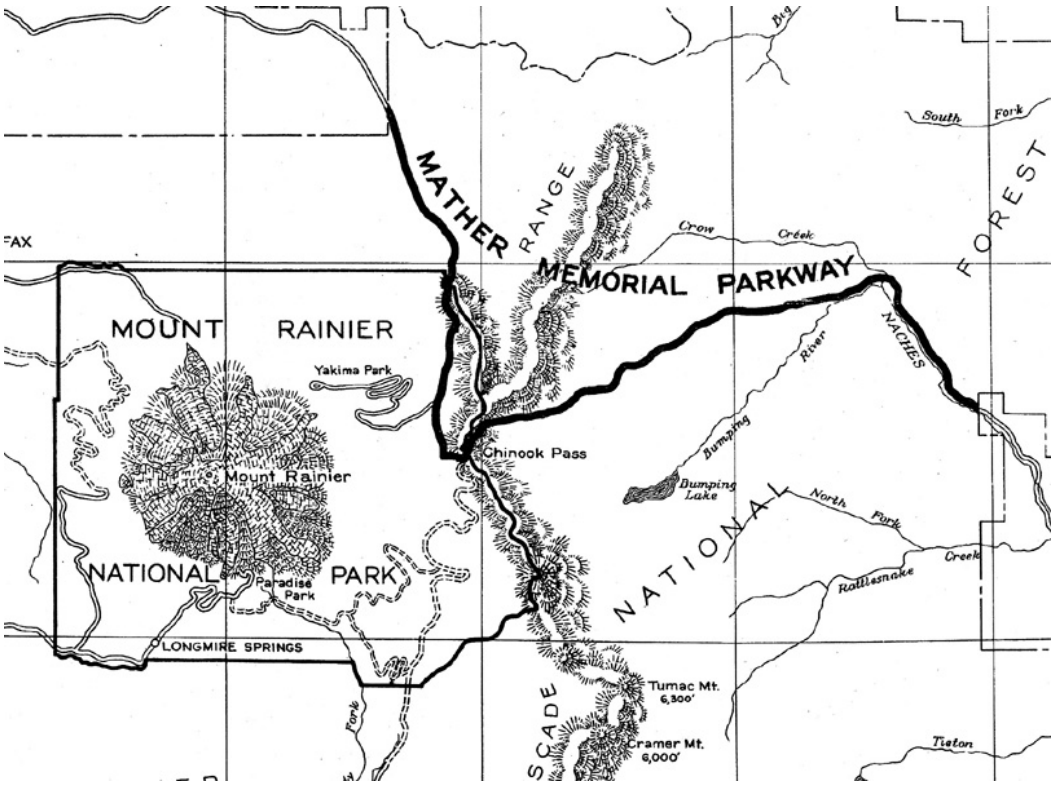
Project 5-B
Engineer Polk was replaced by W. T. Utz for the third phase of the project. Construction of this section led from the Mather Memorial Parkway junction at Cayuse Pass (4,687') to a large outcropping that was the site of the proposed tunnel (3,930'). The grading for this section of road was finished in 1935, probably after the grading for project 5-B had been completed. However the 2.6 miles of road were not surfaced until 1940, the year the road was officially opened. One of the major construction features of this section was a 15' high superelevation spanning Dewey Creek in a broad curve that followed the natural contours of the drainage. The creek was directed through a box culvert of approximately 10' in height. An arched-ring ashlar masonry headwall extended at angles to the culvert to serve as a retaining wall for the superelevated roadbed and enclosed either side of the large concrete box culvert. Small sections of road were protected by masonry guardwalls (Type 2), designed by the NPS Division of Landscape Architecture. Other sections of the road required earth cuts, especially towards the top of the pass. The earth cuts were specified with a 12' road prism and a 6' shoulder.

From the north side of the tunnel the road gradually ascended into the mid-elevation or montane forest

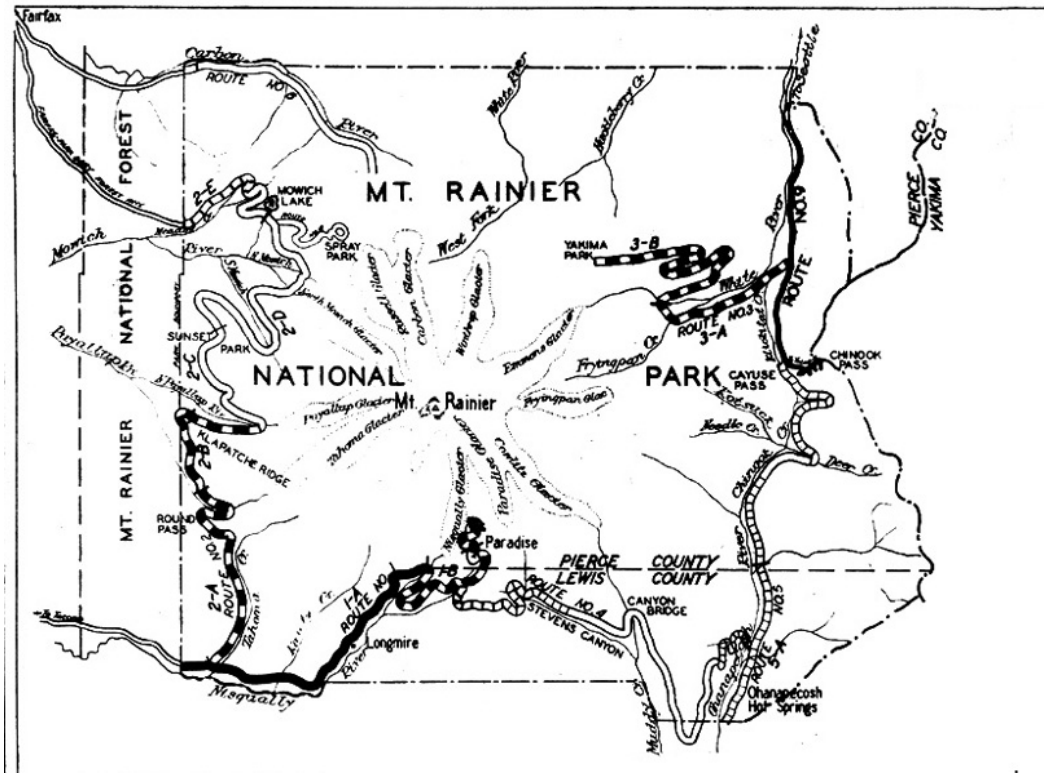
through a series of prominent superelevations and small rock cuts. Approximately 1.3 miles north of the tunnel, a 0.3-mile long retaining wall and guardwall were built to support the road against a steep rock cut. Opposite the wall and running its entire length, the tall, heavily-fractured rock cut towered above the road. The road continued to wind along the east side of Chinook Creek, at the start of the subalpine forest zone, before ending at the junction with the Mather Memorial Parkway. This steep section of road climbed constantly with a slope of between 2.2% and 6.0%. In the final broad curve up to Cayuse Pass, a large downslope parking area followed by a 0.5-mile long upslope pullout served as parking for winter sports enthusiasts, as well as snow removal areas for highway maintenance. (In the late 1940s and 1950s, a ski tow operated from this parking area just south of Cayuse Pass on the East Side Highway up to Tipsoo Lake Developed Area.)

Project 5-D
Construction of the final 3.240-mile segment of road between Stafford Falls (2,940') and the tunnel was overseen by Engineer, G. B. Forrest. The grading for this section of the road was completed by 1938 with construction of the Deer Creek Bridge and the East Side Highway Tunnel completed in 1939. Built on a curve, Deer Creek Bridge was a rustic style arched-ring deck structure with massive anchoring pylons constructed of reinforced concrete with native cut stone facing on the arch, parapet, and abutment walls. The NPS Division of Plans and Design provided construction drawings under a separate contract that included specifications for every facing stone and the construction of a sidewalk on the east side of the structure. A parking area was built at the northeast end of the bridge, which included a guardwall on the fill side of the lot, measuring approximately 150' long and 32" wide. The major portion of the tunnel contract was completed using typical BPR specifications including the concrete lining. The NPS designed the tunnel portals; the stone veneer of locally obtained rock was the same in design style as Deer Creek Bridge. Historic photos show the construction techniques required to complete the tunnel including a ramp that led up the cut side of the road, enabling masons to complete the ashlar masonry portals, which merged the tunnel with the surrounding bedrock. BPR completed the road surfacing for this phase in 1940, in conjunction with Project 5-B.

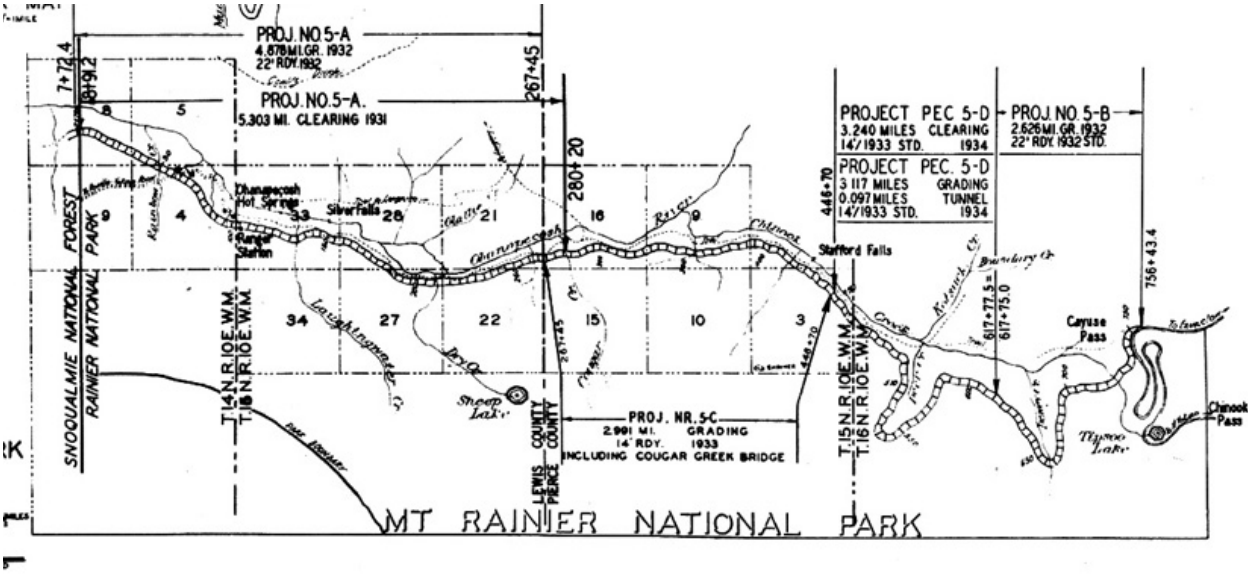
Passing through the montane forest of Pacific silver fir and rising to the subalpine forest, the alignment of this segment of the road climbed 1000' in elevation at an average of 6%. The Deer Creek Bridge was a major attraction on the East Side Highway and provided excellent views of the creek below. Continuing north the road emerged from dense vegetation and afforded expansive views of the Ohanapecosh Valley and Mount Rainier's eastern flank. The tunnel, buried under a massive rock outcrop, offered a brief pause from the scenic views of Mount Rainier; pullouts on either side of the tunnel allowed the visitor to enjoy the views at their leisure.



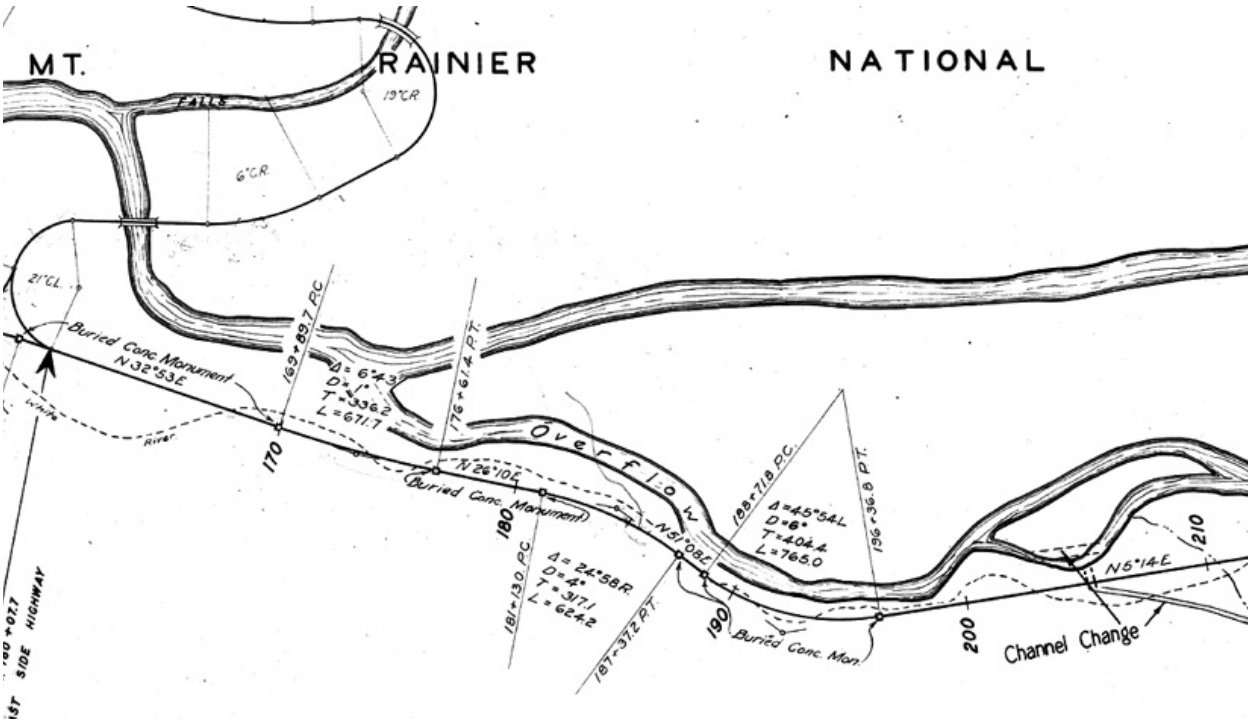
Historic plan showing proposed route for the East Side Highway. The road is shown as a double dashed line in the southeast section of the park, 1920. (Mount Rainier National Park Archivies, hereafter MORA Archives, PH1)



Historic plan showing the master plan for park roads at Mount Rainier National Park, 1934. (MORA Archives, PH1)



Historic drawing showing grading projects on the East Side Highway, 1934. (MORA Archives, PH3)



Historic drawing showing the alignment of the East Side Highway. The alignment afforded visitor access to views of the Ohanpecosh River, 1937. (MORA Archives, PH2)

Historic photo showing completion of cut and fill project before revegation by CCC members, 1934. (MORA Archives, n4230)

Historic photo showing rock cut and retention of trees adjacent to the road, 1937. (MORA Archives, twc2763)

Historic photo showing log stringer bridge over Couger (Panther) Creek, 1935. (MORA Archives, twc278)

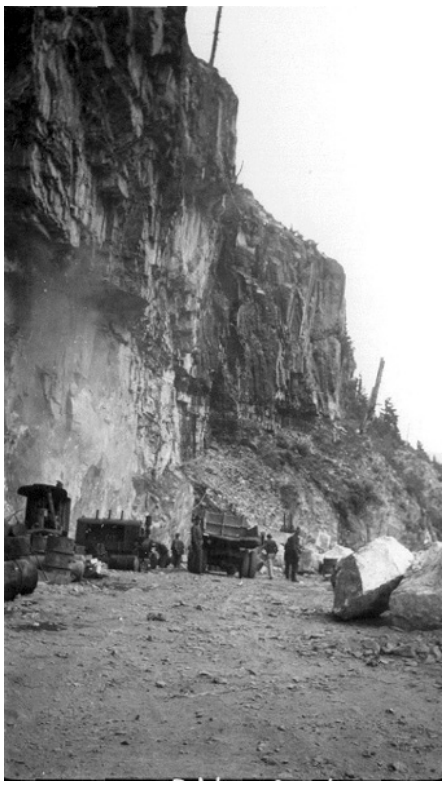
Historic photo showing the bridge over Laughingwater Creek after completion in 1935. (MORA Archives, ps2017)

Historic photo showing Deer Creek Bridge during construction, 1939. (MORA Archives, ps4056)

Historic photo showing Deer Creek Bridge. The turnout at right provided visitors a view of the bridge, 1940. (MORA Archives, ps 2288)

Historic photo showing early construction of the East Side Highway Tunnel, 1938. (MORA Archives, ps2105)

Historic photo showing construction of the north portal of the East Side Highway Tunnel, 1939. (MORA Archives, ps2255)



Historic photo showing construction of one of the rock cuts on the East Side Highway. Stone material from the rock cut was retained for construction of the bridges and guardwalls, 1939. (MORA Archvies, ps2250)

Historic photo of a wooden navigational sign at the intersection of the East Side Highway and Mather Memorial Parkway, 1940. (MORA Archives, ps2310)

Maintaining the East Side Highway, 1941-2003

On June 16, 1940, Superintendent Tomlinson officially opened the East Side Highway in a ribbon cutting ceremony at the north portal of the recently completed tunnel. According to Tomlinson, the opening of the East Side Highway was "the most important development within Mount Rainier National Park since the opening of the Yakima Park Section of the reserve in 1931." On the opening day an estimated 5,000 people used the road and the road continued to be a popular route as campgrounds in the southeast section of the park were filled beyond their designed capacity. The completion of the road also led to Cayuse Pass increasing in popularity as a winter recreation destination. From 1946 to 1950 rope tows were operated in this area and Tomlinson noted the skiing was "as equally good as Paradise." However, due to competition from nearby ski resorts the popularity of the destination declined in the early 1950s.

Despite opposition from Washington State Department of Highways, the NPS began fee collection at Ohanapecosh in 1952. This was in line with NPS Director Drury's decision in 1940 that fees should be collected once the White Pass Road was opened to traffic. While studying how to collect the fees, the park decided not to build an entrance station at Cayuse Pass because of the difficulty in finding funds for its construction and operation, including a supply of water and electricity to the structure. Therefore, entrance fees were only collected at Ohanapecosh for both north and south bound traffic. The dispute with Washington State Department of Highways was eventually resolved when the Secretary of the Interior Douglas McKay issued instructions to discontinue fee collection on the East Side Highway in 1955. The decision was based on the notion that commuters mostly used the road rather than park visitors.

After discontinuing the collection of fees, park officials asked the Washington State Department of Highways for maintenance assistance on the East Side Highway. Despite reluctance to cooperate by the state, the park agreed to do winter maintenance near Cayuse Pass on a reimbursable basis (Unrau 1988: 20). Eventually Washington Department of Highways told the park that they would maintain the road if the NPS agreed to complete alterations to bring the road up to state standards including paving the entire road with asphalt. The NPS was able to make the alterations through funds provided by the Mission 66 program in 1957. However, although Washington Department of Highways requested a 28' roadbed the park limited surfacing to a maximum width of 26'. Other projects made possible by Mission 66 included further development of the Ohanapecosh Campground and the replacement of the Panther Creek Bridge with a concrete bridge. The Ohanapecosh improvements included upgraded access roads to and within the campground and the construction of two lawn-covered island medians along the East Side Highway, approximately 250' long by 10' wide. Construction of the new bridge across Panther Creek began in July 1957. The structure was designed by BPR in collaboration with the NPS. The reinforced concrete and steel girder bridge included steel, cast in place concrete curbing and sidewalk.

In the late 1950s, the completion of Stevens Canyon Highway was the final piece in the development of the park's road system based on the 1930s master plan. The new road connected with the East Side Highway from the west, near the Ohanapecosh Hot Springs area. Visitors could now enter the east portion of the park via the East Side Highway and drive to Paradise or Longmire along the Stevens Canyon Highway. In 1964 the Stevens Canyon Highway was widened at the junction with East Side Highway to include a turning lane and pullout extending for 0.2 miles. There appears to have been few changes to the road in the 1970s except for the construction of a new entrance arch at the southeast boundary of the park. The Park based the design of this structure on the log portal located at the Nisqually entrance. As a result of inspections by WSDOT and the Federal Highway Administration in 1987 respectively, the State determined that the Laughingwater Creek Bridge should be replaced. The deterioration of the concrete had been recorded since 1951 and the new reinforced concrete bridge

veneered with simulated stone was completed in 1992.

In 1997 the East Side Highway was included in the National Historic Landmark District (NHLD) designation for Mount Rainier National Park. The NHLD nomination noted that the centerline of the road still followed the original alignment of the road and the majority of the historic structures had been retained. The report stated "the road can be said to have excellent integrity overall to the period of significance" (NHLD Toothman: 7).

Contemporary photo showing the spectacular scenery of the East Side Highway. (MORA, 2004)

Analysis And Evaluation

Summary

The East Side Highway is an example of an early national park scenic highway, and an integral part of the extant early master plan for the park. The highway is distinguished by outstanding engineering achievements and features of naturalistic design. The period of significance for the East Side Highway cultural landscape spans the years 1931-1941, reflecting the period when the NPS coordinated the design and construction of the road, and from which the extant landscape characteristics and features date. The historic character of the road is evident in the remaining landscape characteristics and features: spatial organization, circulation, buildings and structures, land use, topography, vegetation, views and vistas, small scale features, archeological sites, and natural systems and features. These patterns and their surviving features remain much as they were originally planned and continue to convey the significance of the road as a scenic highway.

The alignment of the East Side Highway, along with the location of the turnouts, bridges, tunnel, and other features, were carefully chosen in keeping with the principles of naturalistic landscape design to maximize visitor experience. The alignment was chosen to emphasize views, protect natural resources, minimize cut and fill, maintain moderate grades, and create an overall pleasurable experience for motorists.

The historic circulation patterns of the highway are intact today, evident in the extant features of the road. As a seasonal state highway, it connects US Highway 12 and areas south of the park to State Route 410 and areas north and east of the park, as well as to the Stevens Canyon Highway within the park. In addition to through-circulation, the road provides access to the Ohanapecosh campground and visitor center and several trailheads. Enlarged turnouts at these trailheads provide day-use and overnight parking for hikers. Numerous other turnouts along the corridor provide places for motorists to pause and view the surrounding terrain, as well as the bridges and other architectural elements of the road.

Structures built during the historic period in conjunction with the construction of the East Side Highway are an integral part of the cultural landscape, revealing the naturalistic and rustic design philosophy of the road. The bridges, tunnel portals, guardwalls, and retaining walls along the road corridor were designed by landscape architects to minimize the visual impact of the structures and accentuate the picturesque qualities of the natural surroundings. Use of native materials, along with strict design principles and construction standards, ensured the structures blended with the scenery, matching the color and character of natural rock outcrops and surrounding terrain. The consistency in design and materials among the different structures along the road creates a visual unity and helps define the character of the road landscape. Today, many of the original structures remain, including the Deer Creek bridge, the tunnel, and several guardwalls and retaining walls.

The topography of the East Side Highway continues to reveal the naturalistic design principles and showcase the state of 1930s highway technology. The extent of cut and fill required for the construction of the road bench defines the limit of disturbance and thus the boundary of the cultural landscape. The constructed features associated with the grading of the road – the rock cuts, carved waterfalls, retaining walls, and tunnel – stand out for their aesthetic and engineering merits and help define the character of the road.

Vegetation is a major character-defining feature of the East Side Highway cultural landscape. Lush, old-growth forest envelops the southern portion of the road in a deep green canopy, where large specimen trees retained during the construction of the road hug the travel lanes and hemlock and vine maple cling

to the rock cuts. In the northern portion of the road, higher elevation and steeper slopes support a more open forest. Structures, such as the bridges and tunnel, are surrounded by trees and shrubs, helping them blend into the natural environment. Historic vegetation patterns, including many of the historic specimen trees, remain today and continue contribute to the historic character of the road.

Like many of the scenic roads that traverse the dramatic terrain of Mount Rainier National Park, the East Side Highway provides visitors spectacular views of surrounding mountains, ridges, valleys, and rivers, as well as built features like bridges, retaining walls, rock cuts, and man-made waterfalls. Framed and sweeping views, as well as a constantly changing perspective, were achieved through careful consideration of the road's horizontal and vertical alignment. During the 1930s, views were actively maintained by clearing vegetation or creating a frame within which the scene was gathered. Today, views and vistas continue to be a major component of the experience of driving the highway.

Small-scale features on the East Side Highway were designed and constructed in the 1930s as part of the overall effort to blend the road with its surroundings. The features were designed with an appropriate scale and used local native materials where possible. The road retains many of the historic culverts that were designed and constructed during the period of significance. The high level of the craftsmanship of the mortared-stone headwalls, as well as their placement in the landscape, reveal the aesthetic standards that guided the design and construction of the road.

Two archeological sites exist within the road corridor: the site of Ohanapecosh Ranger Station and Road Trace and the Cayuse Pass Ski Area. Based on their close association with the historic development of the road they contribute to the significance of the East Side Highway.

The response to natural nystems is evident in all aspects of the design of the East Side Highway. In keeping with the tenets of naturalistic landscape engineering, the road was designed to fit the natural landscape, minimizing cut and fill, grading slopes to blend with the surrounding topography, and emphasizing views of rivers, canyons, and mountains. The sensitivity with which the design of the road responds to the natural systems and features in the landscape is evident today in the alignment, dimensions, materials, and craftsmanship of the of the highway and its associated features.

Locations of contributing and non-contributing features are noted in miles, beginning with milepoint (MP) 0.000 at the park's southernmost entrance near Ohanapecosh. The end point is where the East Side Highway meets Mather Memorial Highway (HWY 410) at milepoint (MP) 13.800.

The cultural landscape of the East Side Highway retains the integrity of its location, design, setting, materials, workmanship, feeling, and association. The overwhelming completeness of the landscape characteristics and the extant patterns and features of the highway reveal the historic character and effectively convey the significance of the landscape. The East Side Highway, as evaluated in the summer of 2004, is in poor condition, with clear evidence of deterioration to segments of the roadbed, guardwalls, and culverts due to natural forces and human use.

Landscape Characteristics And Features

Spatial Organization

The alignment of the East Side Highway, along with the location of the turnouts, bridges, tunnel, and other features, were carefully chosen in keeping with the principles of naturalistic landscape design to maximize visitor experience. The alignment was chosen to emphasize views, protect natural resources, minimize cut and fill, maintain moderate grades, and create an overall pleasurable experience for

motorists. Although individual segments of the road have been modified since the historic period, the overall alignment and the spatial organization of the road and its associated features are intact and retain integrity.

The East Side Highway enters the southeast corner of the park on the east side of the Ohanapecosh River, following the river for approximately 6 miles to the confluence of Chinook and Boulder Creeks before following Chinook Creek for 7.8 miles to Cayuse pass and the junction with the Mather Memorial Highway (HWY 410). The southern portion of the road, from the park entrance to the confluence, is characterized by a series of long straight sections between gentle curves as it climbs gently along the east side of the river valley. The road corridor is narrow, framed on either side by mature specimen trees preserved during the construction of the highway. Numerous turnouts provide motorists opportunities to pause along the route and partake of the views. 2.4 miles from the park boundary, the road crosses Laughingwater Creek, and at 5.2 miles, it crosses Panther Creek. Aside from a short section north of the East Side Highway entrance arch that climbs at a 5% slope, the slopes on this southern portion of the road are mild, and generally do not exceed 2.5%.

Six miles from the park boundary, the road begins to climb more steeply, following Chinook Creek. Rising steadily at 6% through several radial curves and cuts across steep rock faces, the road climbs through montane and subalpine forests to a small area of subalpine meadow at the intersection with the Mather Memorial Parkway. At mile point 9.7, the road crosses Deer Creek, and at 11 miles, it passes through a 512-foot tunnel.

When the East Side Highway was constructed, the roadbed width was specified at 24 feet. Where slope stabilization was required, the width was reduced to 22 feet, with a 12-foot lane on the fill side and a 10-foot lane on the cut side. In 1957 the entire length of the road was paved with asphalt and the road bed widened to 26 feet, including a 2-foot paved shoulder on each side. Intersections at Ohanapecosh and the Mather Memorial Parkway were further widened, with islands added between the lanes of travel at the Ohanapecosh intersection. The Stevens Canyon Highway was completed in 1964, intersecting with the East Side Highway at mile point 2.9. In several places the road alignment was further altered by the addition or modification of turnouts and superelevations to accommodate greater travel speeds. Despite these modifications, today's visitors are provided very much the same driving route and visual experience as was had during the historic period. The spatial organization of the East Side Highway cultural landscape is largely intact and retains integrity.

Contemporary photo showing the steep slopes and sharp curves of the norther portion of the road. (MORA, 2003)

Circulation

Since its inception, the East Side Highway has served the primary purpose of circulation within and through the park. As a seasonal state highway, it connected US Highway 12 and areas south of the park to State Route 410 and areas north and east of the park, as well as to the Stevens Canyon Highway within the park. In addition to through-circulation, the road provided access to the Ohanapecosh campground and visitor center and several trailheads. Enlarged turnouts at these trailheads provided day-use and overnight parking for hikers. Numerous other turnouts along the corridor provided places for motorists to pause and view the surrounding terrain, as well as the bridges and other architectural elements of the road. These circulation patterns are intact today and contribute to the significance of the landscape.

The circulation features of the East Side Highway include the 13.8-mile road itself, with travel lanes and paved shoulders, turnouts, parking areas, trailheads, and intersections. The horizontal and vertical alignments of the road are discussed in the spatial organization section, and the typical cross sections of the road are discussed in the topography section. The remaining circulation elements and features are discussed in this section.

[Note:Locations of contributing and non-contributing features are noted in miles, beginning with milepoint (MP) 0.000 at the park's southernmost entrance near Ohanapecosh. The end point is where the East Side Highway meets Mather Memorial Highway (HWY 410) at milepoint (MP) 13.800.]

General Design Principles

Collaboration between landscape architects and civil engineers working on the highway began in the early 1930s. The technical aspects of the road, such as grading, drainage, slope stabilization, and surfacing were managed by the civil engineers. The landscape architects were responsible for integrating a variety of aesthetic qualities associated with the selection of viewpoints, turnouts, and the protection of natural features. The landscape architects were also primarily responsible for developing appropriate designs for the structural features along the road such as Deer Creek Bridge, the tunnel portals, guardwalls, and retaining walls. This collaboration combined characteristics of the naturalistic and rustic design styles with the latest technology in highway construction and led to road alignments and elevations that afforded visitors access to the most spectacular features along the road, while maintaining a safe and enjoyable driving experience.

Turnouts

Historically, turnouts for automobiles along the road were no more than widened areas of the shoulder which accommodated one or two cars. These were typically less than 100 feet long and roughly lens shaped. Larger turnouts associated with viewpoints, trailheads, or feature attractions provided short-term parking for about five cars. These were generally deeper and more defined, sometimes with a perimeter of large stones to mark the edge.

Some turnouts were located to provide access to specific points of interest, such as views or features. For example, a large turnout at the north end of Deer Creek Bridge provided parking for visitors to view the bridge and the creek below. Turnouts were also located on each end of the tunnel, and one was placed adjacent to one of the waterfalls carved into a rock cut. Several turnouts were associated with viewpoints to the river or up the surrounding canyons, providing rare views of Mount Rainier. Many of the turnouts, however, appear to be, at least in part, a byproduct of construction processes. Most of the rock cuts, for example, have an associated turnout directly across from them. Located on the fill side of the road, these turnouts correspond to a widening of the road bench to accommodate excess fill material. While these

turnouts are not associated with specific features of interest along the road, they provided numerous opportunities for motorists to leave the travel lanes to rest, view the scenery, or to allow other vehicles to pass, contributing to the overall fluidity of traffic flow. Additionally, since these are often across the road from rock cuts, they contributed to the character of the highway.

Today, historic turnouts are numerous along the roadway. Most of the historic turnouts can be identified with either a view, a feature of interest, or a topographic characteristic. They can be further identified by their relatively small size and lens shape. The angle of entrance to and exit from the turnouts are typically sharper, requiring drivers to slow before leaving the travel lanes. Larger historic turnouts are typically deeper to accommodate more parked cars without being proportionally longer. Some of these historic turnouts, however, have been altered or expanded, and several new turnouts have been constructed since the historic period. These non-contributing turnouts are often longer than their historic counterparts, with a more trapezoidal shape and a shallower entrance and exit angle. In some cases, historic turnouts have been enlarged, either by road crews or by vehicle traffic on the shoulders. In at least one place, two historic turnouts have merged into one. New turnouts are associated with intersections at Ohanapecosh, Stevens Canyon Highway, and Mather Memorial Parkway. While the proliferation of these longer turnouts threatens the narrow road corridor and the historic character of the road, the overall scale, location, and number of turnouts on the East Side Highway reveal historic patterns and help convey the significance of the cultural landscape.

Locations of contributing turnouts:
MP00.001, MP00.234, MP00.890, MP00456, MP01.104, MP01.318,
MP01.496, MP01.710, MP02.166, MP02.598, MP02.600, MP03.014, MP03.620, MP04.210, MP04.910, MP05.182, MP05.258, MP05.326, MP05.772, MP05.958, MP06.456, MP06.636, MP07.088, MP07.438, MP08.026, MP08.202, MP08.472, MP08.494, MP08.832, MP09.016, MP09.116, MP09.770, MP10.412, MP10.558, MP10.770, MP11.046, MP11.158, MP11.314, MP11.626, MP11.752, MP11.864, MP12.206, MP12.652, MP13.202, MP13.338, MP13.520, and MP13.662.

Location of non-contributing turnout:
MP00.011, MP00.178, MP03.284, MP03.474, MP06.400, and MP09.480.

Trailheads

Several of the turnouts on the highway provide parking and access to the trails in the area. As part of park-wide planning, the NPS advocated the separation of circulation routes with different functions in the 1930s. Foot trails were separated from vehicular circulation routes and developed areas by distance, topography, and vegetation. Visual intrusions and intersections were kept to a minimum. Trailheads and access points along the roads were deemphasized, adhering to naturalistic design standards.

Trailheads and trail access points along the East Side Highway reflect these historic patterns. Trails in the vicinity of the highway include the East Side Trail, which runs parallel to the road from Ohanapecosh to Tipsoo Lake, the Shriner Peak trail, trails to Silver Falls and the Grove of the Patriarchs, and trails that connect to the Wonderland Trail and the Pacific Crest Trail. Where these trails intersect the road, enlarged turnouts provide parking and access.

Locations of contributing trailheads:
MP01.500, MP08.908, and MP13.340.

Location of non-contributing trailhead/trail:
MP06.410

Intersections

Naturalistic design principles and a desire to facilitate traffic movement motivated designers to create intersections that flowed from one road to the other. Use of a wye intersection between the East Side Highway and Mather Memorial Parkway permitted entry and exit from the connecting road without making a stop or sharp turn. Although this intersection was paved after the historic period, it retains integrity and contributes to the cultural landscape. A small historic intersection with a side road leading to a sewage disposal facility is also representative of historic intersection design on the East Side Highway. Small and inconspicuous, the intersection does not detract from the naturalistic scene and contributes to the cultural landscape.

The intersection at Ohanapecosh, constructed during the historic period to provide access to the hot springs and campground, was rehabilitated in the 1950s as part of Mission 66. The new intersection features long grassy islands to the north and south of the intersection, asphalt curbs, drop inlets for drainage, and long turnouts and turning lanes. The intersection with Stevens Canyon Highway was completed in the 1950s as well and followed highway design standards of the time. Neither the intersection at Ohanapecosh nor the one at Stevens Canyon Highway are compatible with the naturalistic design principles that guided the design of the East Side Highway, and both intersections are non-contributing features.

Locations of contributing intersections:
MP01.130 and MP01.940.

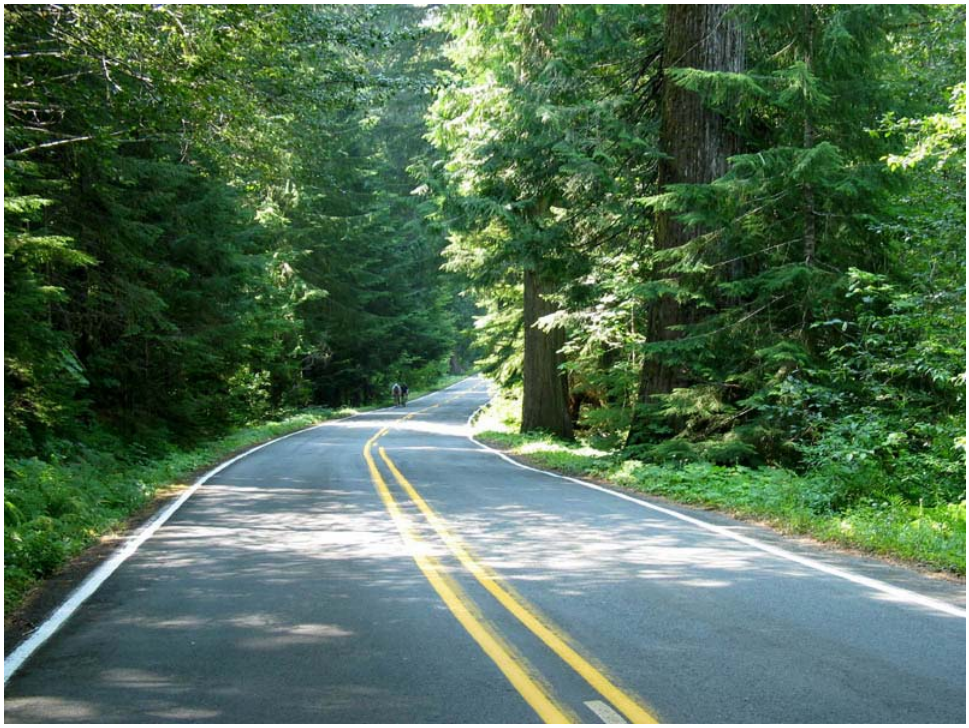
Location of non-contributing island/median:
MP01.032

Traffic Control/Speed

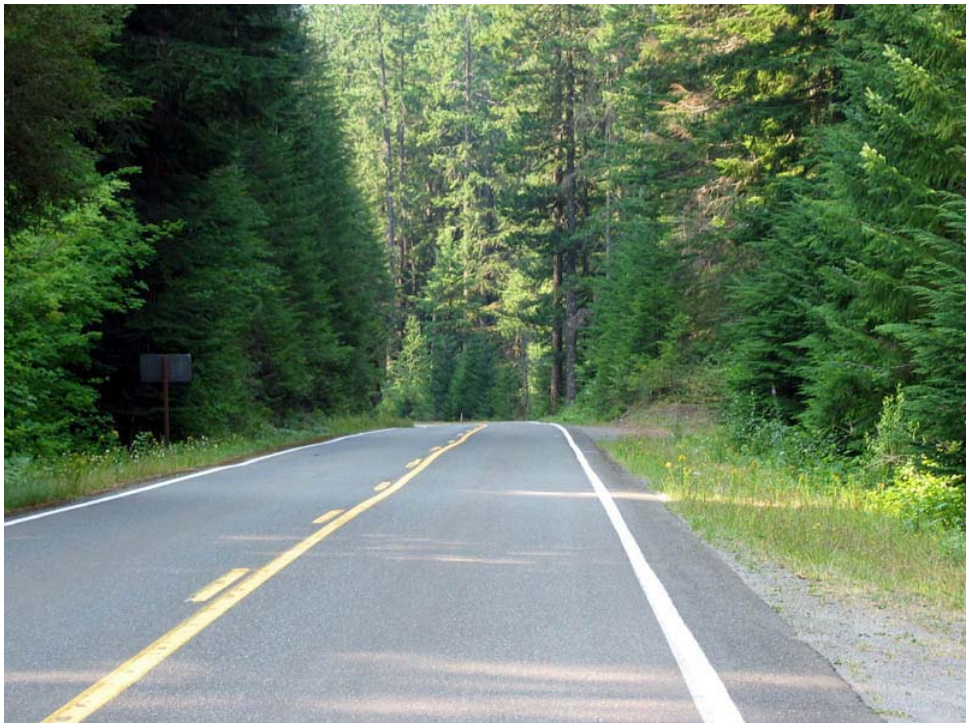
As a state highway, efficient traffic flow through the area was a primary goal for road planners. With few intersections between the park boundary and Mather Memorial Parkway, traffic moved steadily along the length of the road. On the southern portion of the road, where grades were gentle and curves were slight, traffic speed was higher and more constant. As the road climbed up Chinook Creek, however, the steeper grade, sharp curves, and dramatic side slopes, rock cuts, and drop-offs encouraged a slower, less constant speed. This likely produced a driving experience of awareness, engagement, and anticipation, keeping the driver in a “keen state of expectancy” (Ricksecker), and fostering a deeper connection to the natural landscape.

Since the historic period, the road has been paved and widened in places to a uniform width of 24 feet, including two 11-foot travel lanes and two 1-foot paved shoulders. Travel speed in the southern portion of the road has increased from 35 miles per hour to 45 miles per hour. On the northern portion, however, the tight curves and dramatic character of the road keep speeds relatively low. Despite an increase in average speed along the road, the overall patterns of vehiclular speed and traffic control remain and contribute to the cultural landscape.

Contemporary photo showing road with paved travel lanes, paved shoulders, and painted lines. The road serves both vehicular and bicycle travel. (MORA, 2004)



Contemporary photo showing narrow road corridor and gentle curves on southern portion of the highway. (MORA, 2004)



Contemporary photo showing the road character on the southern portion of the road. Overtime, gravel shoulders have widened the road corridor, changing the historic character. (MORA, 2004)

Contemporary photo showing a paved turnout that was constructed during the period of significance and retains its character and compact shape. (MORA, 2003)

Contemporary photo showing historic turnout with specimen trees.

Contemporary photo showing historic turnout. (MORA, 2003)

Contemporary photo showing a turnout that has been widened and lengthened since the historic period. (MORA, 2003)

Contemporary photo of the parking lot at the site of the former ski area. (MORA, 2003)

Contemporary photo showing the Shriner Peak trailhead. (MORA, 2004)

Characteristic Feature	Type Of Contribution	LCS Structure Name	IDLCS Number	Structure Number
(2) Intersections	Contributing			
(3) Trailheads	Contributing			
(47) Turnouts	Contributing			
(1) Island/Median	Non-Contributing			
(1) Trailhead/Trail	Non-Contributing			
(6) Turnouts	Non-Contributing			

Buildings And Structures

Structures built during the historic period in conjunction with the construction of the East Side Highway are an integral part of the cultural landscape, revealing the naturalistic and rustic design philosophy of the road. The bridges, tunnel portals, guardwalls, and retaining walls along the road corridor were designed by landscape architects to minimize the visual impact of the structures and accentuate the picturesque qualities of the natural surroundings. Use of native materials, along with strict design principles and construction standards, ensured the structures blended with the scenery, matching the color and character of natural rock outcrops and surrounding terrain. The consistency in design and materials among the different structures along the road creates a visual unity and helps define the character of the road landscape. Today, many of the original structures remain, including the Deer Creek bridge, the tunnel, and several guardwalls and retaining walls. Together, these structures help convey the design intent and aesthetic character of the historic highway and contribute to the significance of the cultural landscape.

[Note:Locations of contributing and non-contributing features are noted in miles, beginning with milepoint (MP) 0.000 at the park's southernmost entrance near Ohanapecosh. The end point is where the East Side Highway meets Mather Memorial Highway (HWY 410) at milepoint (MP) 13.800.]

Deer Creek Bridge

Deer Creek Bridge (located at MP09.738) was designed by NPS landscape architects in 1936 and was completed by 1939. The bridge, measuring approximately 268 feet long and 39 feet wide, is a concrete-arch deck design with native volcanic stone facing on the arch, parapet, and abutment walls. The stepped concrete abutments, also veneered in masonry, rest on solid stone foundations. The bridge facing comprises rough-cut stones of various sizes and shapes mortared with recessed joints approximately 1 inch wide. The arch ring stones were individually specified with regard to size and shape, ensuring an irregular, hand-crafted effect. The overall character of the bridge is that of a substantial and grounded structure, integrated with, and growing out of, the natural landscape.

Since the historic period, the bridge has undergone minor updates, primarily to the road surface. In 1958, the East Side Highway, including Deer Creek Bridge, was paved with asphalt and painted with yellow center lines and white fog lines. It was likely at this time that the original sidewalk and stone curb on the west side of the bridge were removed. The periodic resurfacing of the road for maintenance and safety reasons does not adversely affect the integrity of the structure. In some places, the stone facing is becoming separated from the concrete core and is need of repair. Despite this, the bridge, including the concrete arch, the stone facing, the stepped abutments, and the foundations, is overwhelmingly intact and contributes to the historic character of the road.

East Side Highway Tunnel

The East Side Highway tunnel (located at MP11.062) was completed in 1939 through close collaboration between the NPS and the BPR. The 512-foot tunnel, located at mile point 11 between Deer and Dewey Creeks, is a reinforced concrete arch structure with masonry-clad portals. BPR engineers designed and coordinated the construction of the tunnel, including the concrete arch and drainage features. NPS landscape architects provided plans and specifications for the ashlar stone portals on either end of the tunnel. The design of the stone portals are similar to that of the Deer Creek Bridge, with rough-cut, irregularly-shaped stones and recessed masonry joints. The stones are substantially sized, with some exceeding 6 feet in width, giving the portals a grand scale compatible with the surrounding terrain. The portals are recessed into the surrounding rock outcrops, and with the use of native stone, blend seamlessly into the surrounding hillside. Native vegetation around the edge of the portals further blur the

lines between human design and natural landscape. The tunnel and its two portals have changed very little since the historic period, appearing today much as they did the day the road opened in 1940.

Guardwalls and Retaining Walls

Three stone guardwalls (located at MP07.576, MP08.996, and MP12.358) were built in the construction of the East Side Highway. Stylistically similar to the other stone structures along the road, the guardwalls are constructed of large, heavy, hewn stones with recessed mortar joints. The structural design and dimensions of the guardwalls follow conventions developed in the 1920s by NPS landscape architects as part of a set of standardized architectural details used on road projects throughout the park. The guardwalls on the East Side Highway were specified as type 2 stone guardwalls, crenelated with 5-feet-6-inch-long battered crenels and 12-foot-long merlons. Measured from the road surface, the walls are 2 feet high at the top of the crenels and 18 inches high at the merlons. The walls are 18 inches wide, and their lengths range from 237 feet to 1,457 feet. The walls are generally composed of two irregular courses, with the stones roughly dressed and of varying sizes and shapes. The top stones are dressed square with bossed edges to create a continuous flat top. The guardwalls are constructed of native stone matching the rock cuts on the opposite side of the road, creating visual unity, and further emphasizing the rustic design style.

Each of the three guardwalls on the East Side Highway is built atop a retaining wall that supports the roadbed, dropping as much as 25 feet to the fill bank below. The retaining walls are made from the same stone as the guardwalls, though a little more roughly hewn, creating one continuous wall to the top when viewed from the fill side. The height of the retaining walls vary with the undulating topography below.

Today, the historic guardwalls and retaining walls are generally in good condition, retaining most of their original fabric and design integrity. Over the years, the stones have weathered and discolored and have grown moss and lichens on their mottled surfaces, contributing to the naturalistic effect and increasing the cohesion with the natural surroundings. In some places, however, repairs have been made to the walls with incompatible materials such as granite and bright white mortar. While these repairs are generally successful in replicating the scale, dressing, and overall design of the original fabric, the imported materials contrast sharply with the darker, mottled native stone, detracting from the historic scene of the road. More repairs are needed in other places, as some of the stones have loosened or rotated outward, threatening the structural integrity of the walls. Despite these changes, the guardwalls and retaining walls retain their historic integrity and help convey the significance of the cultural landscape.

Non-contributing structures

Two of the original bridges built in the construction of the East Side Highway have been replaced since the historic period. The original bridge over Panther Creek (MP05.215), a log stringer bridge that began to show signs of decay by 1947, was replaced with a reinforced concrete and steel girder bridge in 1957. Built in conjunction with the Mission 66 rehabilitations, the design of the bridge reflects the aesthetic sensibilities characteristic of the 1950s, with simple, modern lines and a lack of ornamentation. The steel guardrails are composed of three horizontal rails that curve down into the curb at the ends.

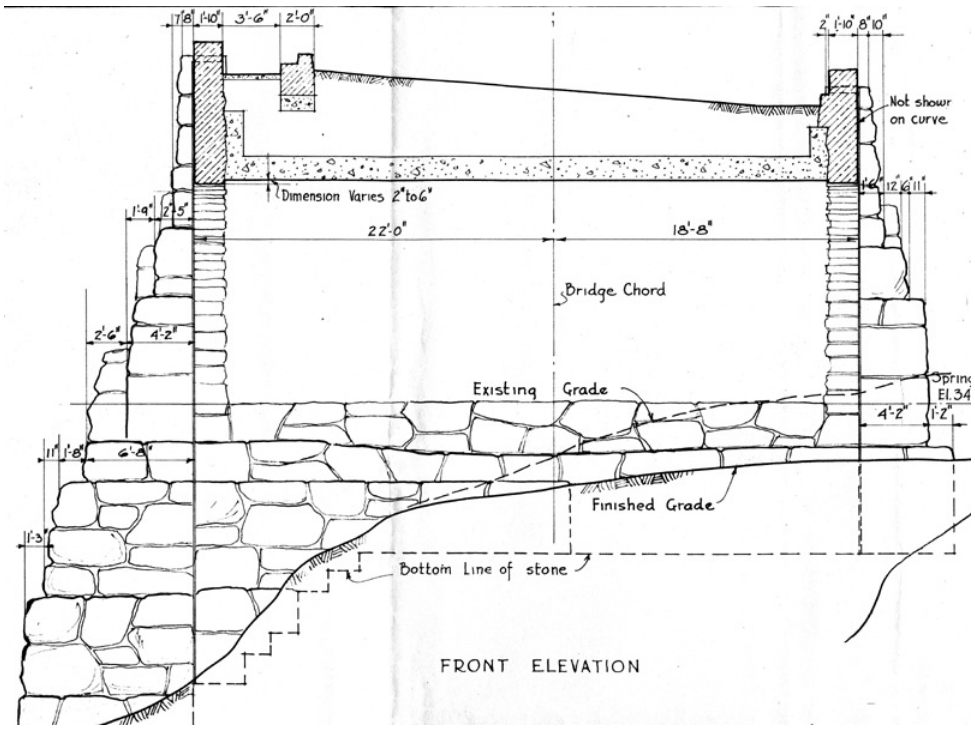
The first bridge spanning Laughingwater Creek (MP05.215), completed in 1935, was a reinforced concrete bridge designed as a three-span, tee-beam structure with granite guardwalls facing the road. Tests performed during the 1980s revealed chemical precipitants leaching from the bridge, with exfoliation and cracks in the tee-beams. The failing bridge was replaced in 1995 with a 396-feet-long reinforced concrete bridge. The new bridge has simulated stone guardwalls made of cast concrete using

a formliner. The concrete, formed to simulate cut masonry, is uniform in color with a small number of stone shapes repeated along the length of the guardwalls.

An entrance arch (MP00.001) was constructed at the southeast park boundary in 1976. Built with peeled cedar, the structure was similar in design to the Nisqually entrance arch. The log portal is a non-contributing feature, but compatible with the rustic design style used for similar structures built along the East Side Highway during the period of significance.

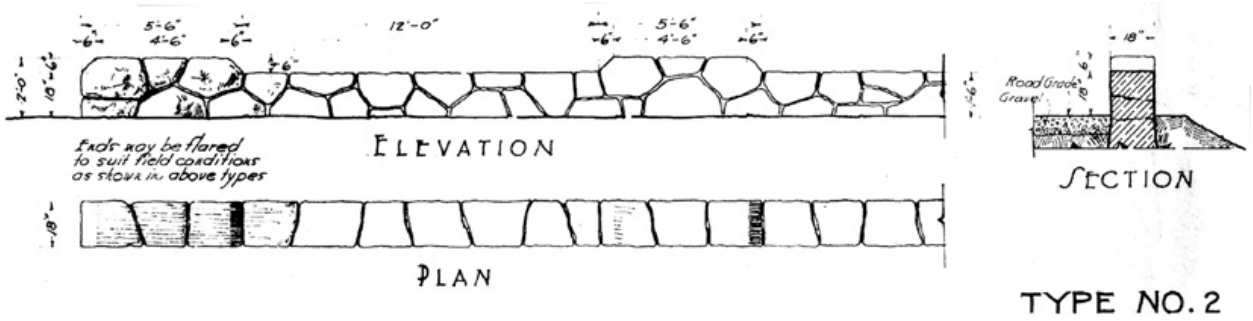
Despite the replacement of the two bridges, the extant historic structures along the East Side Highway present a unified expression of historic design principles and continue to convey the design intent and significance of the historic road.

Contemporary photo of Deer Creek Bridge. (MORA, 2004)



Historic drawing showing a cross-section of the Deer Creek Bridge. (MORA Archives)

Contemporary photo showing the south portal of the East Side Highway tunnel. (MORA, 2004)



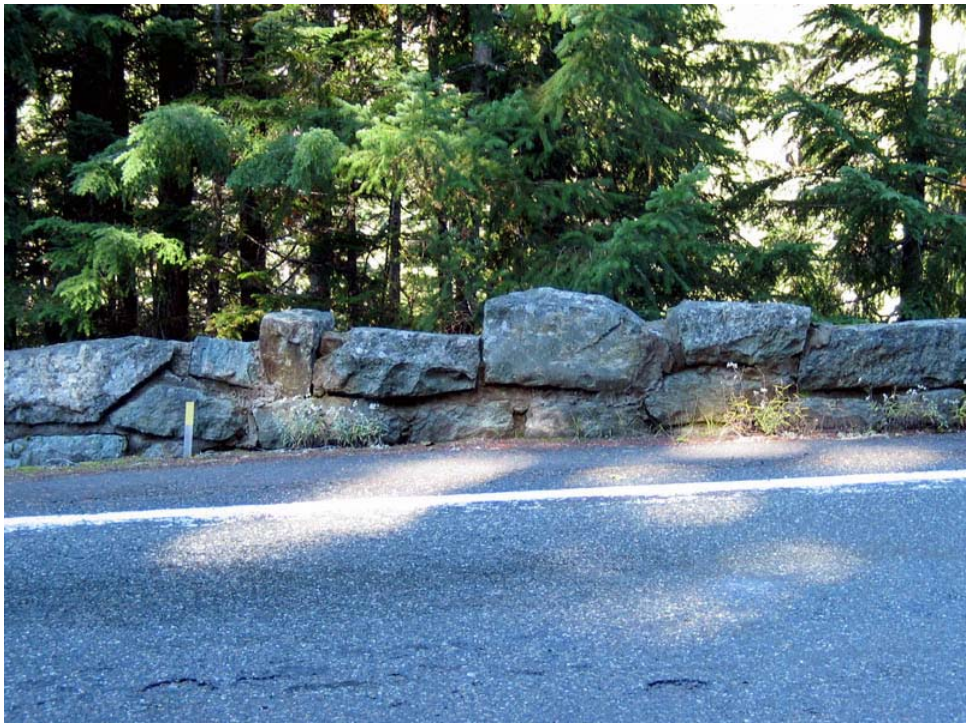
Historic drawing of a type 2 crenulated guardwall found on the East Side Highway. (MORA Archives)

Contemporary photo of a guardwall crenel on the East Side Highway. (MORA, 2004)

Contemporary photo of a guardwall and retaining wall on the East Side Highway. (MORA, 2004)

Contemporary photo of a guardwall on the East Side Highway showing modern repairs using incompatible stone. (MORA, 2004)

Contemporary photo of a guardwall on the East Side Highway showing recent repairs using incompatible granite. (MORA, 2004)



Contemporary photo of a guardwall on the East Side Highway showing incompatible repair using historic stone material. (MORA, 2004)

Contemporary photo of a guardwall on the East Side Highway showing a recent repair with compatible stone material. (MORA, 2004)

Contemporary photo of the Laughingwater Creek Bridge. (MORA, 2004)

Contemporary photo of the entrance arch at the southern park boundary on the East Side Highway. (MORA, 2003)

Characteristic Feature	Type Of Contribution	LCS Structure Name	IDLCS Number	Structure Number
(3) Type 2 Guardwalls with Retaining Walls	Contributing			
Deer Creek Bridge	Contributing			
East Side Highway Tunnel	Contributing			
Core Ten W Guardwall	Non-Contributing			
Entrance Arch	Non-Contributing			
Laughingwater Creek Bridge	Non-Contributing			
Panther Creek Bridge	Non-Contributing			

Land Use

The East Side Highway was designed by landscape architects and civil engineers to perform a dual role as a connector route and a scenic park road. As part of the state highway system, the road contributed to a regional circulation system while providing circulation between points within the park. As a scenic park road, the East Side Highway offered a pleasurable driving experience to park visitors. The East Side Highway today retains these uses, which continue to contribute to the cultural landscape.

All primary uses within the road corridor are directly related to vehicular circulation. As a seasonal state highway, it connects US Highway 12 and areas south of the park to State Route 410 and areas north and east of the park and to the Stevens Canyon Highway within the park. In addition to through-circulation, the road provides access to the Ohanapecosh campground and visitor center and several trailheads. Enlarged turnouts at these trailheads provide day-use and overnight parking for hikers. Numerous other turnouts along the corridor provide places for motorists to pause and view the surrounding terrain, as well as the bridges and other architectural elements of the road. These extant land-use patterns, evident today in the road and its associated features, correspond closely to the uses intended and in place during the historic period, and reinforce the historic character of the road.

Topography

The rugged and steep terrain through which the East Side Highway winds necessitated substantial earth-shaping for the road's construction. In places, the construction of the road bench was achieved with minimal cutting and filling and modest rock cuts. In other places, the road clings to the side of a steep canyon, with massive rock cuts, stone retaining walls, and hundreds of feet of fill slope. Where the slope could not be carved to accommodate the road, it was pierced with a tunnel. Great care was taken in siting the highway to maximize the views, while minimizing excavation and keeping the grade below 6.25 percent. Superelevations, relatively new technology in the 1930s, provided a more comfortable ride and higher travel speeds. The constructed features associated with the grading of the road – the rock cuts, manipulated waterfalls, retaining walls, and tunnel – stood out for their aesthetic and engineering merits and helped define the character of the road. The topography of the East Side Highway continues to reveal the naturalistic design principles and showcase the state of 1930s highway technology, effectively conveying the significance of the cultural landscape.

[Note:Locations of contributing and non-contributing features are noted in miles, beginning with milepoint (MP) 0.000 at the park's southernmost entrance near Ohanapecosh. The end point is where the East Side Highway meets Mather Memorial Highway (HWY 410) at milepoint (MP) 13.800.]

Road construction in mountainous areas typically requires substantial earth-moving. A variety of techniques were used on the East Side Highway to create a stable bench for the roadway, including tunneling, half-bench construction, through-cuts, through-fills, vertical rock cuts, and retaining walls. The extent of disturbance to the terrain and vegetation during construction was determined by the amount of excavation required to create the road bench. While this was achieved in some places with small amounts of excavation, in other sections steep slopes required high rock cuts and wide fill slopes. The limit of disturbance in these areas may be as far as 100 feet from the centerline of the road.

As the highway climbs from the park boundary in the south to Cayuse Pass, it follows the river valleys of the Ohanapecosh River and Chinook Creek. For the length of the road, the respective rivers remain on the left side of the road, from the perspective of a northbound driver. Thus as it climbs, the road traverses a right-to-left side slope, with the cut side on the right and the fill on the left. To minimize disturbance to the natural landscape, half-bench construction was used on much of the road, balancing cut and fill. In these areas, rock and soil cut from the hillside to create half the bench is used to fill below the cut, creating the other half. In some sections, however, creating a steady grade across an undulating landscape required that the road be cut through outcrops or filled through low areas. These sections are evident where the road is flanked on both sides by earth or rock in the case of a through-cut, or where the grade drops off on both sides of the road in the case of a through-fill.

The highway can be divided into two sections based on the type of terrain it traverses and the engineering challenges the road builders faced in excavating a road bed. For the first six miles, the road follows the relatively flat valley floor of the Ohanapecosh River, where the road profile climbs at an average grade of 2.5%. The road follows natural benches or the flat river bottom for much of this section resulting in a moderate cross-slope and relatively narrow limits of disturbance. Cross sections of through-cuts and through-fills can also be found in this section. The rock cuts in this area are modest, averaging 10 to 30 feet high, and are often obscured by vegetation. The overall effect is that human manipulation of the land is generally inconspicuous.

Beyond the confluence of the Ohanapecosh River and Chinook Creek, the road begins to climb more steeply, with grades averaging 6%. The road is aligned higher on the steep slopes, at times 600 feet above the creek. Dramatic rock cuts, steep side slopes, and more open vegetation reveal both the natural

terrain and the manipulation of the topography. Notable topographic features include the tunnel, which bores 512 feet through an outcrop, a 1,400-foot section of guardwall with towering rock cuts on one side and panoramic views on the other, and numerous waterfalls carved into the hillside.

Profile
From the southeast entrance, the road gains 656 feet to an elevation of 2,442 feet at the confluence of the Ohanapecosh River and Chinook Creek. Except for a short section just north of the entrance arch where the road climbs at 5%, the grade in the southern portion of the road does not exceed 2.5%. Northward from the confluence, the road climbs 2,245 feet at grades ranging from 2% to 6%.

Cross section
As most of the road traverses a cross-slope, the cross section that characterizes most of the road is a half-bench construction, with a cut slope, a ditch, a raised roadbed, and the fill slope. In these sections, the ditch is only on the cut side of the road, with culverts conveying water across the roadbed to the fill side. In order to keep a steady grade across an undulating landscape, in short sections the road is either cut through outcrops or filled through low areas. In the case of cuts-through, cut slopes and ditches flank both sides of the raised roadbed. Culverts convey water from the higher side to the ditch on the lower side. Where the road is filled through low areas and drainage gullies, the roadbed is built on fill banks, often buttressed with riprap. There are no ditches on either side of these filled sections, and water is typically conveyed across the road by large culverts at the bottom of the fill slope.

Water conveyance
In the lower portions of the road, water conveyance is relatively straightforward, with the water collecting in the ditch on the uphill side and being conveyed to the fill side by small to medium culverts. Historically, these culverts had catch basins in front of their headwalls to catch sediment and debris. These catch basins are largely filled-in today, often resulting in an accumulation of debris in front of the culvert, obstructing water flow. In the upper portions of the road, steep slopes and seasonally heavy runoff required special consideration to prevent flooding. The road designers employed a number of tactics to detain debris and keep the culverts clear. In addition to catch basins in front of the culvert headwalls, additional basins were constructed in the ditch just upstream from the culvert, with alternating widening and constriction of the ditch to catch debris. In some cases the channel of the ditch was diverted just before the culvert, directing the water first into the side of the headwall, slowing water and catching debris. Finally, where steep rock cuts close to the edge of the road prevented adequate space to catch debris, drainage gullies and waterfalls from the cut slope were offset from the culverts by several feet, to further reduce debris accumulation in and in front of the culverts.

Rock cuts
The steep and rocky terrain necessitated numerous rock cuts in the construction of the East Side Highway. Beyond sheer utility, however, the rock cuts were intended as a featured design elements of the road, contributing considerably to the character of the landscape. Great effort was made to create rock cuts that appeared natural. Workers carved the rock to blend in with surrounding terrain, varying the surface of the rock, utilizing natural fissures to create natural cleavage, and removing tool marks. The rock cuts in general are characterized by irregular outcrops and diagonal banding, although the style and design of the cuts were varied along the road. Three major forms of rock cuts are found along the highway: battered, in which the rock slopes back from the road, vertical, and overhanging. Many of the rock cuts, especially along the lower portion of the road, are well-vegetated, some to the point of being nearly obscured. However, rather than detracting from the historic character of the features, the vegetation contributes to it, reflecting the goals of the designers to disguise the rock cuts as natural rock outcroppings. In contrast to the cuts on the lower portion, those on the upper half of the road are generally high and rugged with little vegetation on them, matching the higher-elevation terrain around

them. As a whole, the rock cuts are a strongly unifying element of the road and contribute to its historic character.

Locations of contributing rock cuts:
MP00.002, MP00.818, MP01.290, MP01.706, MP02.048, MP02.049, MP02.124, MP03.020, MP03.668, MP03.672, MP06.922, MP07.092, MP07.437, MP07.464, MP07.554, MP07.826, MP08.032 Rock, MP08.254, MP08.480, MP10.320, MP11.820, MP11.900, MP12.258, and MP12.294.

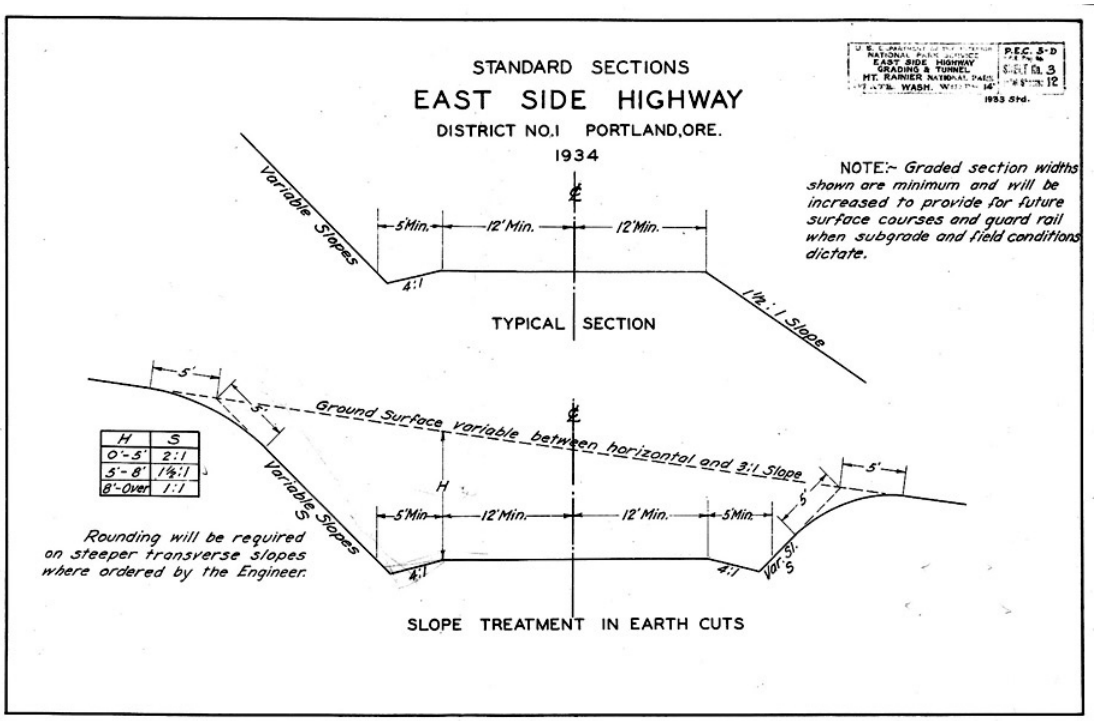
Waterfalls
Where rock cuts corresponded with natural drainage and creeks, the road-builders created waterfalls and sculpted creek beds to convey the water in an aesthetically pleasing way and provide points of interest for motorists. The waterfalls were carved into the rock following naturalistic and picturesque design principles, resulting in features that are nearly indistinguishable from natural waterfalls. While each waterfall is unique, differing stylistically and structurally from the others on the road, certain principles were used to guide the design of the waterfalls with almost formulaic consistency. At the top of each waterfall, the water was channelized into a 2- to 8-inch channel using a cut or gap in the rocks. Often the water was divided into two channels, with most of the water directed to the main channel and the remaining water into the other. The water then cascaded over a sheer drop of a few inches to several feet before splashing onto ledges, being collected into small pools, and channelized into another cascade. This pattern of cascade, splash ledge, and pool was often repeated several times in one waterfall, with the water being divided and rejoined as it made its way down the rock face. When viewed from the front, the paths of the water zigzag down the rock face, with each cascade offset from the last. The waterfalls range in size from small fingers that splash down next to the road to multi-channeled falls that tumble tens of feet over the rock cuts. The larger waterfalls were carved into the hillside, creating a sort of grotto and allowing water and debris room to collect before entering the culverts. These typically are associated with turnouts, providing a place for visitors to pause to view them.

There are ten contributing waterfalls along the East Side Highway. Two are of the largest category, with deep grottos, small pools, and view turnouts. Three are medium-sized, with some water flow for most of the year, but without the large grottos or collection pools. These are closer to the road and intended to be viewed primarily from the car. Five are of the smallest category: small drainages that may dry up during the summer. These are adjacent to the road and often blend into the surrounding hillside. The waterfalls in general are in good condition and continue to showcase the technical and artistic skill of the designers and craftsmen that built the road. Some of the smaller falls are partly or mostly obscured by vegetation and debris, making them inconspicuous from the road. In addition to the ten contributing waterfalls, there are a number of drainages that are covered in rocks and debris. These may have originally been carved waterfalls, but the debris currently prevents evaluation.

Locations of contributing waterfalls:
MP07.445, MP08.100, MP08.270, MP08.474, MP11.865, MP11.901, MP11.905, MP12.160, MP12.200, and MP12.250.

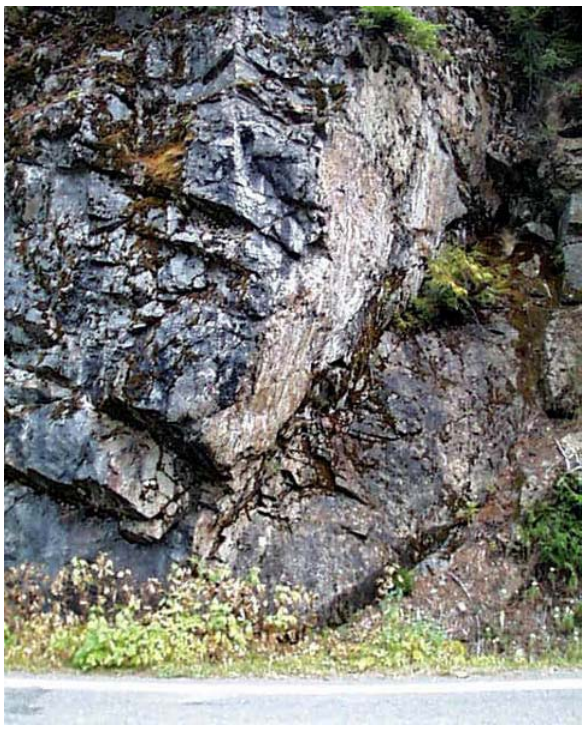
Contemporary photo of the East Side Highway showing a typical half-bench cross section. (MORA, 2004)

Contemporary photo of the East Side Highway showing the road shoulder in the relatively flat southern portion of the road. (MORA, 2004)

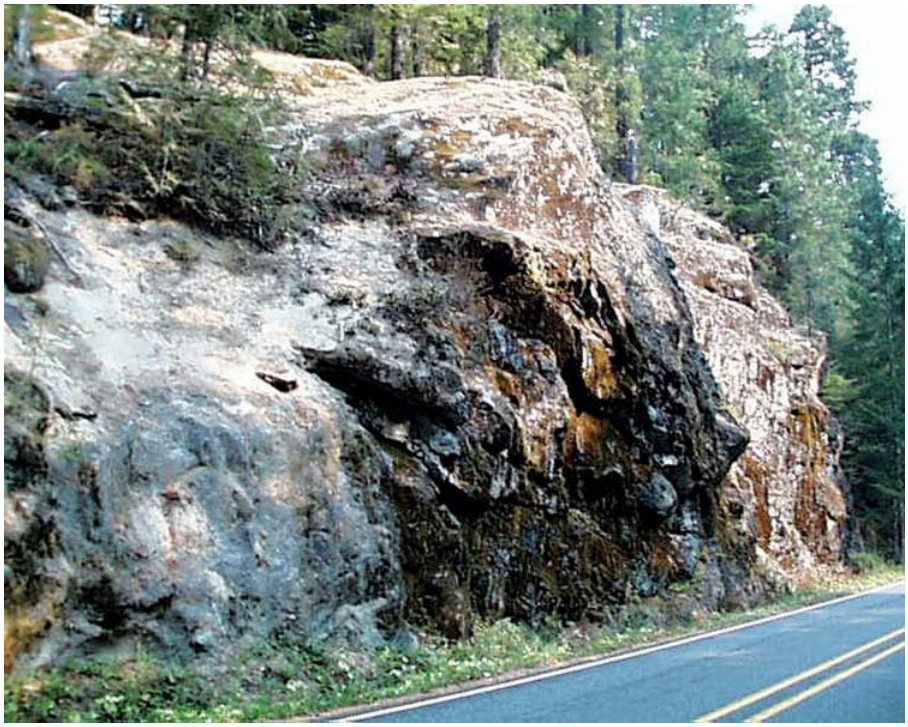


Historic drawing showing typical cross sections of the East Side Highway.

Contemporary photo showing a cut through a natural rock outcropping. (MORA, 2004)

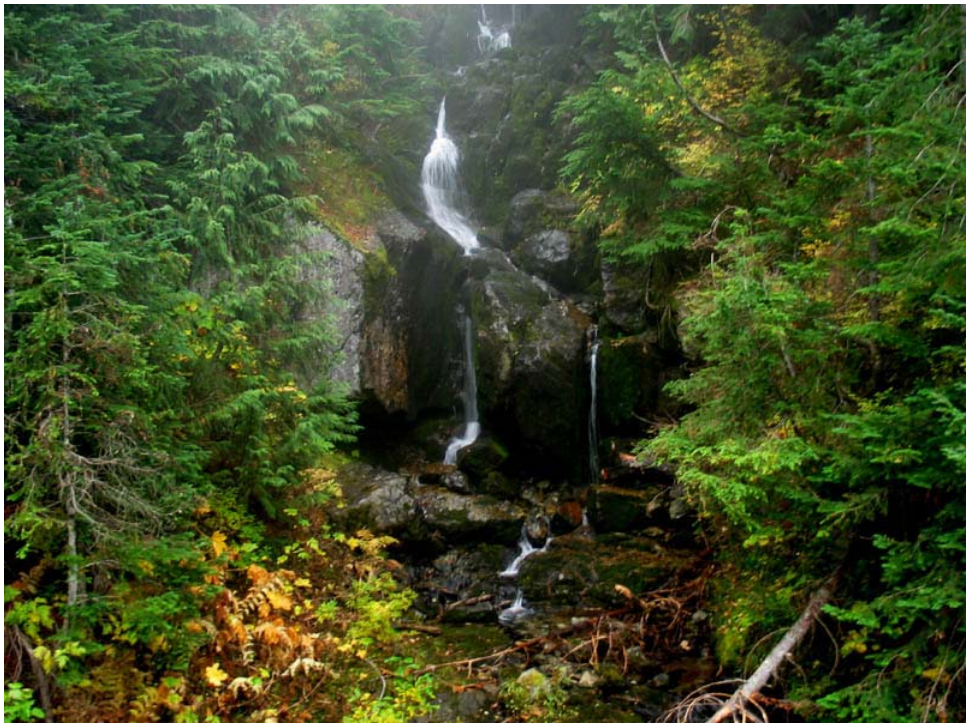


Contemporary photo of an overhanging rock cut on the East Side Highway. (MORA, 2004)



Contemporary photo showing a vertical rock cut on the East Side Highway. (MORA, 2004)

Contemporary photo showing a battered rock cut on the East Side Highway. (MORA, 2004)



Contemporary photo showing a carved waterfall on the East Side Highway. (MORA, 2004)

Contemporary photo of a carved waterfall and its associated rock cut on the East Side Highway. (MORA, 2004)

Contemporary photo of a carved waterfall on the East Side Highway. (MORA, 2004)

Contemporary photo showing water conveyance in a ditch on the East Side Highway. The water is diverted just before the culvert to trap sediment and debris. (MORA, 2004)

Contemporary photo of a ditch and culvert on the East Side Highway. Constrictions in the ditch create small pools to trap sediment and debris. (MORA, 2004)

Characteristic Feature	Type Of Contribution	LCS Structure Name	IDLCS Number	Structure Number
(10) Waterfalls	Contributing			
(24) Rock Cuts	Contributing			

Vegetation

Vegetation is a major character-defining feature of the East Side Highway cultural landscape. Lush, old-growth forest envelops the southern portion of the road in a deep green canopy, where large specimen trees retained during the construction of the road hug the travel lanes and hemlock and vine maple cling to the rock cuts. In the northern portion of the road, higher elevation and steeper slopes support a more open forest. Structures, such as the bridges and tunnel, are surrounded by trees and shrubs, helping them blend into the natural environment. Designers of the road were aware of the contribution vegetation made to the desired naturalistic aesthetic and considered the vegetation carefully during design and construction. Historic vegetation patterns are evident today as they contribute to the historic character of the road.

The composition and character of the plant communities of the East Side Highway corridor change considerably from the southern park boundary near Ohanapecosh to Cayuse Pass. The southern portion of the road, from the southern park boundary to about the confluence of the Ohanapecosh River and Chinook Creek, winds through dense lowland forest. Western hemlock is the dominant species in the lowland forest, with strong associations of Douglas fir and western red cedar. Old growth trees are found throughout this area, including specimens that are up to 800 years old. In moist areas along the Ohanapecosh River corridor, a well-developed shrub layer of vine maple and devil's club dominates, with a variety of herbaceous plants filling out the river washes and gravel bars. Throughout this forest, the understory is less diverse, with sword fern as a dominant species. Other plant communities exist within this framework, influenced by soils, hydrology, and microclimates. Several disturbed areas, for example, have been colonized by red alder.

Beyond the sixth mile point, the forest opens up to light and views. Here, higher elevation and steeper slopes support a montane forest community dominated by silver fir, with associations of noble fir, Alaska yellow cedar, and western hemlock. In areas of a steep side slope, such as the areas around the guardwalls, sizable rock cuts are bare or sparsely vegetated, as are much of the fill slope areas below the road. Singular or small groups of silver fir trees and bleached-white snags filter and frame views. In wetter areas, around the creeks and drainage gullies, dense thickets of alder, shrubs, and herbaceous plants soften the edges of the roadways.

Near the top of Cayuse Pass, the vegetation is characterized by subalpine forest community. Soils are generally moist to wet, with a heavy snowpack, sometimes lasting into the summer. Dominant trees include subalpine fir, mountain hemlock, silver fir, and Alaska yellow cedar. The dominant understory species include Cascade azalea and several species of huckleberry. As the road approaches the intersection with the Mather Memorial Parkway, it passes through a subalpine meadow, characterized by low-growing herbaceous vegetation, with scattered clusters of mountain hemlock and subalpine fir. During the brief growing season of July and August, meadow flowers create a colorful display.

Designers of the East Side Highway gave careful consideration to the vegetation when determining the alignment of the road, cut and fill, the design and treatment of structures, and post-construction rehabilitation. During construction, minimal clearing and earth-moving ensured the preservation of the forest character. Special effort was made to preserve vegetation close to road. Specimen trees and small groups of trees were retained, sometimes inches from the travel lanes, for aesthetics, slope stabilization, and for bearings during construction. These trees, typically on the shoulder of the road or on the fill bank of major rock cuts, were generally surveyed ahead of time and noted on the site plans. After construction, disturbed areas such as fill slopes and rock cuts were revegetated by the Civilian Conservation Corps (CCC) to stabilize the slopes and restore the naturalistic effect.

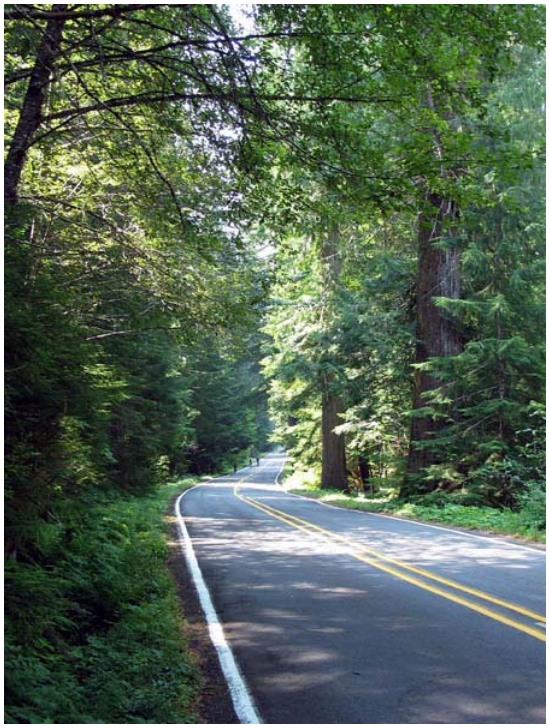
Today, vegetation continues to contribute to the historic character of the road. The large-scale patterns of vegetation and the evolution of the forest character as the road climbs to the pass are intact. Many of the specimen trees along the roadside and on the fill slopes remain, as do the patterns of vegetation on the rock cuts, fill slopes, road shoulders, and around structures. In some places, especially on the southern portion of the road, the road corridor has been widened somewhat since the historic period through the reduction in shoulder vegetation. This has been caused in part by maintenance clearing of vegetation and an increase in gravel and sand on the shoulders. Some of the historic turnouts have been enlarged, either by design or by migrating gravel and the action of cars pulling in and pulling out. These, along with non-historic turnouts have also resulted in a wider road corridor. Despite these changes, the vegetation of the East Side Highway retains its historic character and continues to contribute to the significance of the cultural landscape.

[Note:Locations of contributing and non-contributing features are noted in miles, beginning with milepoint (MP) 0.000 at the park's southernmost entrance near Ohanapecosh. The end point is where the East Side Highway meets Mather Memorial Highway (HWY 410) at milepoint (MP) 13.800.]

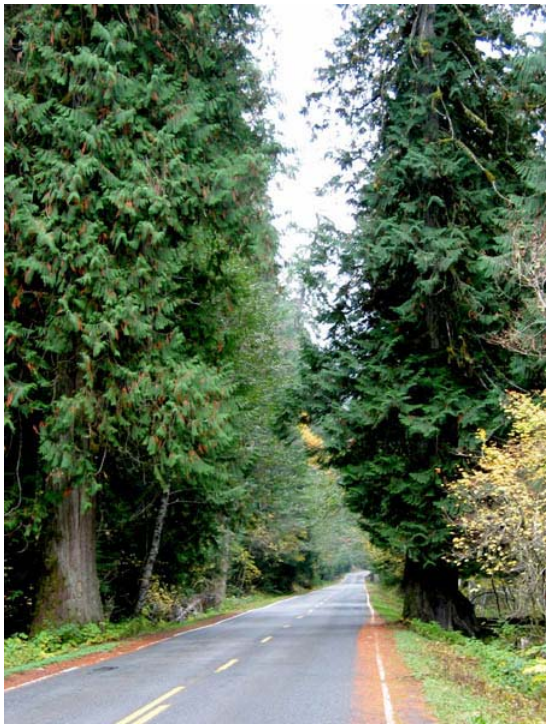
Locations of contributing specimen trees:
MP03.645, MP03.698, MP03.969, MP04.096, MP04.106, MP04.146, MP04.560, MP05.024, MP07.080, MP07.100, MP07.101, MP07.250, MP07.415, MP07.420, MP07.700, MP07.750, MP08.250, MP08.300, MP08.350, MP08.450, MP08.451, MP08.920, MP10.850, MP12.155, MP12.360, MP12.375, MP12.600, and MP12.920.

The following is a partial list of plant materials associated with the forest zones found along the East Side Highway corridor (Franklin, et. al., 1988):

Abies amabilis (Pacific silver fir)
Abies lasiocarpa (subalpine fir)
Abies procera (noble fir)
Acer circinatum (vine maple)
Alnus rubra (red alder)
Berberis nervosa (Oregon grape)
Chamaecyparis nootkatensis (Alaska yellow cedar)
Gaultheria shallon (salal)
Lysichitum americanum (skunk cabbage)
Oplopanax horridum (devil's club)
Polystichum munitum (sword fern)
Pseudotsuga menziesii (Douglas fir)
Rhododendron albiflorum (Cascades azalea)
Thuja plicata (western red cedar)
Tsuga heterophylla (western hemlock)
Tsuga mertensiana (mountain hemlock)
Vaccinium alaskaense (Alaska huckleberry)
Xerophyllum tenax (common beargrass)



Contemporary photo showing specimen trees on the East Side Highway. Specimen trees were often retained in an inside curve of the road. (MORA, 2004)



Contemporary photo showing two specimen trees flanking the East Side Highway. (MORA, 2004)

Contemporary photo of a speciment tree on the fill on the northern portion of the East Side Highway. (MORA, 2004)

Contemporary photo showing vegetation around the south portal of the East Side Highway Tunnel.

Characteristic Feature	Type Of Contribution	LCS Structure Name	IDLCS Number	Structure Number
(29) Specimen Trees	Contributing			

Views And Vistas

Like many of the scenic roads that traverse the dramatic terrain of Mount Rainier National Park, the East Side Highway provides visitors spectacular views of surrounding mountains, ridges, valleys, and rivers, as well as built features like bridges, retaining walls, rock cuts, and man-made waterfalls. Views were designed as part of the sequential experience of the road, becoming more dramatic as the road climbed to Cayuse Pass. Framed and sweeping views, as well as a constantly changing perspective, were achieved through careful consideration of the road's horizontal and vertical alignment. Areas with radial turns, such as Dewey Creek and Deer Creek kept the traveler "in a keen state of expectancy as to the new pleasures held in store" (Ricksecker). During the 1930s, views were actively maintained by clearing vegetation or creating a frame within which the scene was gathered. Today, views and vistas continue to be a major component of the experience of driving the East Side Highway, retaining their historic character and contributing to the significance of the cultural landscape.

Views change dramatically in both character and number as the road climbs from the southeast entrance of the park to Cayuse Pass. For the first six miles of the road, dense forest and gentle grades limit views out of the road corridor. What views are in this section are short views down the fill bank to the Ohanapecosh River. These views are typically inconspicuous from the roadway and are often missed at travel speed. Turnouts, however, provide opportunities for visitors to stop and enjoy the views of the river. At these turnouts, cool air and the sound of water often accompany the views, enhancing the overall visitor experience.

The quality of the views changes abruptly as the road begins to climb along Chinook Creek. Here, the road is aligned higher on the steep side-slope and further away from the creek, providing the first views of the valley below and the surrounding ridges. It is also at this point that the first fleeting glimpses of Mount Rainier can be had. The road designers made effective use of the topography to maximize views. Views up the valleys that run radially from the peak of Mount Rainier are noteworthy, as they offer rare views of the mountain itself. Important views are revealed at key points along the route, such as when rounding a curve or emerging from the tunnel. As the road traverses the massive rock cuts adjacent to the stone guardwalls, travelers are treated to broad panoramic views of the surrounding terrain. Many of these views are visible from the roadway and are appreciated from the car at travel speed. Others are framed views are framed from a discrete vantage point and are best seen from a turnout.

View points were also designed to showcase the naturalistic architecture of the structures along the road. Turnouts were located at the ends of the bridges, tunnel, rock cuts, and guardwalls. A large turnout at the north end of the Deer Creek Bridge affords a view of the bridge and the creek below. At two instances, turnouts offer close-up views of waterfalls that were shaped and enhanced during construction of the road in conjunction with rock cuts. Also, turnouts at either end of the tunnel enable visitors to view the portals, the rock cuts, and panoramas of the valley below. These views, often combining views of the structure with views of the natural scenery, highlight the grand scale of engineering, the naturalistic design, and the blending of architecture and nature.

Today, the overall patterns of views from and associated with the road are very much intact. Most of the views on the upper portion of the road are self-sustaining, due to steep fill slopes and high elevation. In some places, the views have been obscured or are being threatened by fast-growing vegetation, like red alder. This is especially true in the lower portion of the road where growth rates are higher, and areas on the upper portion where disturbance and microclimate have allowed alder to colonize. The view of Deer Creek Bridge from the turnout just north of it is nearly obscured by deciduous shrubs. Despite these changes, however, the historic patterns of views and vistas along the East Side Highway remain and contribute to the significance of the cultural landscape.

[Note:Locations of contributing and non-contributing features are noted in miles, beginning with milepoint (MP) 0.000 at the park's southernmost entrance near Ohanapecosh. The end point is where the East Side Highway meets Mather Memorial Highway (HWY 410) at milepoint (MP) 13.800.]

Locations of contributing viewpoints:
MP02.410, MP03.700, MP04.900, MP05.200, MP05.775, MP06.639, MP07.090, MP07.439, MP07.440, MP07.500, MP08.000, MP08.481, MP08.482, MP09.788, MP09.950, MP10.500, MP11.050, MP11.160, MP11.258, MP12.100, MP12.500, MP12.680, and MP13.252.

Contemporary photo showing a close view of Panther Creek from the Panther Creek Bridge. (MORA, 2004)

Contemporary photo showing the view of Mount Rainier from a turnout on the East Side Highway. This photo demonstrates the road designers' use of natural topography to reveal rare views of Mount Rainier. (MORA, 2004)

Contemporary photo showing a framed view of surrounding peaks from a turnout on the East Side Highway. (MORA, 2004)

Contemporary photo showing a panoramic view of the valley and mountains from the East Side Highway at the northern-most guardwall. (MORA, 2004)

Characteristic Feature	Type Of Contribution	LCS Structure Name	IDLCS Number	Structure Number
(23) Viewpoints	Contributing			

Small Scale Features

Small-scale features on the East Side Highway were designed and constructed in the 1930s as part of the overall effort to blend the road with its surroundings. The features were designed with an appropriate scale and used local native materials where possible. During the early years of the road, several types of small-scale features, including wooden park signs and concrete culverts with stone headwalls, collectively contributed to the function and aesthetic of the road. The road retains many of the historic culverts that were designed and constructed during the period of significance. However, the high-elevation winter snow conditions have affected most of the original wooden small-scale features and some of the masonry features. In some cases, these small-scale features have been replaced with compatible features. In other cases, the historic features have been replaced with incompatible contemporary features.

[Note:Locations of contributing and non-contributing features are noted in miles, beginning with milepoint (MP) 0.000 at the park's southernmost entrance near Ohanapecosh. The end point is where the East Side Highway meets Mather Memorial Highway (HWY 410) at milepoint (MP) 13.800.]

Culverts

The natural topography and hydrology of the road bench and surrounding area of the East Side Highway necessitated extensive use of culverts to facilitate drainage of rainwater and small streams. For most of the length of the road, runoff from uphill slopes was collected in an open ditch on the cut side of the road. This water was then conveyed across the road through culverts placed at regular intervals. At points where the road crossed drainage gullies and perennial streams, the roadbed was through-filled above grade and fitted with large reinforced concrete pipes or box culverts in order to avoid the expense of bridge building and potential for flood damage. The same principles of naturalistic design and use of native materials that guided the design and construction of the East Side Highway informed the location and design of the culverts and their headwalls. Both the inlets and the outlets of the culverts were concealed from view from the roadway with topography and vegetation. Culvert headwalls were constructed of mortared native stone of varying size and shape so that they would blend with the landscape. Many of the historic culverts constructed with the East Side Highway are extant and continue to contribute to the cultural landscape.

Culverts along the highway can be divided into two major categories: smaller pipe culverts that convey surface runoff from the ditch across the road, and larger pipe or box culverts that accommodate perennial and intermittent streams and drainage gullies. Of the smaller culverts, well over a hundred still manage drainage across the road. These are typically 12- to 18-inch concrete or corrugated metal pipes with mortared stone inlet headwalls 2-4 feet high and 6-10 feet wide. The stonework is not as fine as that of the bridges and guardwalls, but a regard for aesthetics is nonetheless evident. Stones were either shaped or chosen to create a flat facade, but are otherwise irregularly shaped and coursed. Mortar joints are .5 to 1 inch wide and not recessed. All stones used in the headwalls were quarried locally, enforcing the indigenous character of the structures. The outlets of the smaller culverts typically do not have headwalls, but are instead imbedded in riprap and concealed with vegetation. In some cases, the outlets are entirely concealed beneath large stones in the riprap fill slope. Today these culverts are for the most part in fair to good condition. The headwalls are covered in moss and vegetation, fallen trees, and leafy and woody debris. Some damage is apparent to the headwalls themselves, with stones and mortar pieces damaged or missing.

Several larger culverts along the highway convey streams and seasonal drainage across the road. Designed to accommodate seasonally large volumes of water, these are large pipe or box culverts with

substantial stone headwalls on one or both the inlet and outlet sides, angled wing walls, and concrete or rock lined channels. The headwalls on each end double as retaining walls adding structural support to the road. Although some of these headwalls display a level of craftsmanship and design approaching that of the larger structures like the guardwalls and bridges, these culverts were not intended to be seen from the road.

The culvert at Dewey Creek is a concrete box culvert with stone headwalls at both ends and angled retaining walls. The culvert is 6 feet high and 7 feet wide measured from inside the box. The mortared stone headwalls are approximately 9 feet high and 20 feet wide including the large angled wing walls. While the concrete culvert ceiling is flat, the stone openings are arched with arch ring stones above.

Locations of contributing culverts:
MP00.210, MP00.434, MP00.536, MP00.666, MP00.838, MP00.918, MP00.984, MP01.154, MP01.248, MP01.532, MP01.538, MP01.672, MP01.802, MP01.886, MP02.010, MP02.086, MP02.240, MP02.578, MP02.612, MP02.718, MP03.224, MP03.518, MP03.694, MP03.804, MP04.106, MP04.148, MP04.234, MP04.546, MP04.570, MP04.652, MP04.786, MP04.938, MP04.958, MP05.030, MP05.376, MP05.432, MP05.982, MP06.392, MP06.534, MP06.556, MP06.800, MP06.864, MP06.930, MP06.968, MP07.028, MP07.238, MP07.316, MP07.350, MP07.382, MP07.444, MP07.548, MP07.550, MP07.630, MP07.682, MP07.752, MP07.874, MP07.936, MP08.090, MP08.158, MP08.256, MP08.826, MP08.964, MP09.054, MP09.264, MP09.398, MP09.476, MP09.544, MP09.634, MP09.774, MP09.840, MP09.858, MP09.910, MP09.932, MP09.982, MP10.012, MP10.134, MP10.182, MP10.236, MP10.254, MP10.306, MP10.326, MP10.370, MP10.410, MP10.446, MP10.484, MP10.602, MP10.906, MP10.986, MP11.180, MP11.364, MP11.468, MP11.518, MP11.566, MP11.648, MP11.692, MP11.774, MP11.822, MP11.882, MP11.902, MP11.992, MP12.056, MP12.068, MP12.082, MP12.104, MP12.260, MP12.296, MP12.822, MP12.976, MP13.148, MP13.208, MP13.234, MP13.282, MP13.364, MP13.432, MP13.478, MP13.512, and MP13.596.

Locations of non-contributing culverts:
MP00.078, MP00.304, MP00.482, MP02.346, MP02.400, MP08.444, MP08.478, MP08.606, MP08.762, MP09.350, MP11.950, MP12.532, and MP13.750.

Locations of undetermined culverts:
MP02.980, MP03.322, MP04.362, MP04.990, MP05.806, MP07.140, and MP07.840.

Signs

The original signs on the East Side Highway were constructed by the NPS. These routed wood signs were eventually replaced with more durable signs in the 1970s. The existing signs along the road include trailhead signs, WSDOT signs, mile markers, and park information signs. They are not part of the original road design and do not contribute to significance of the road.

Gates

Two contemporary metal, double leaf gates were installed by the NPS: the first is located north of the Stevens Canyon Highway intersection and the second is near the intersection with the Mather Memorial Parkway. These gates enable the East Side Highway to be closed at either end during winter and in unsafe driving conditions. These gates are utilitarian and are not rustic in character. They are incompatible with the historic character of the road and do not contribute to its significance.

Contemporary photo showing a typical culvert and stone headwall on the East Side Highway. (MORA, 2004)

Contemporary photo showing a culvert headwall with angled wing walls. (MORA, 2004)

Contemporary photo showing the box culvert and headwall of the Dewey Creek culvert. (MORA, 2004)

Contemporary photo showing the double culvert at Chinook Creek on the East Side Highway. The culvert is being obstructed by debris. (MORA, 2004)

Characteristic Feature	Type Of Contribution	LCS Structure Name	IDLCS Number	Structure Number
(14) 28-36" culverts	Contributing			
(2) Culverts of unknown size	Contributing			
(5) Double 24-36" culverts	Contributing			
(96) 18-24" culverts	Contributing			
Dewey Creek Box Culvert	Contributing			
(1) 36" Culvert	Non-Contributing			
(1) Drop Inlet	Non-Contributing			
(2) Contemporary metal, double leaf gates	Non-Contributing			
(3) 48" Culverts	Non-Contributing			
(5) 18-24" culverts	Non-Contributing			
Signs	Non-Contributing			
(7) Culverts	Undetermined			

Archeological Sites

Two archeological sites exist within the road corridor. Based on their close association with the historic development of the road they contribute to the significance of the East Side Highway.

Site of Ohanapecosh Ranger Station and Road Trace

At the time of writing, this site has not been documented by the park archeologist. The former Ohanapecosh Ranger Station was built in 1934, and was located directly across the East Side Highway from the entrance to the Ohanapecosh Campground. The historic entrance to Ohanapecosh, on the west side of the highway, is also discernable just north of the new intersection. Above-ground features include the graded roadbed and three timber posts. The site has reverted to forest, although the vegetation is thinner and younger than the surrounding forest.

Cayuse Pass Ski Area

A parking area associated with an experimental ski area from the 1940s is located at the north end of the East Side Highway. The parking area has been retained and is still used by visitors, although it has been considerably enlarged since the period of significance. Park archaeologists have made attempts to locate the alignment of a historic rope tow lift and associated structures within the vicinity of the parking area. However, no artifacts have been uncovered at the time of writing. A deep depression on the western side of the parking lot is possibly the location of a former tow rope anchor.

It is possible that additional archeological sites have yet to be identified along the East Side Highway. The archeological sites associated with the road have the potential to yield important information about the land use, occupation, and building of the cultural landscape during the period of significance.

Characteristic Feature	Type Of Contribution	LCS Structure Name	IDLCS Number	Structure Number
Cayuse Pass Ski Area	Contributing			
Site of Ohanapecosh Ranger Station and Road Trace	Contributing			

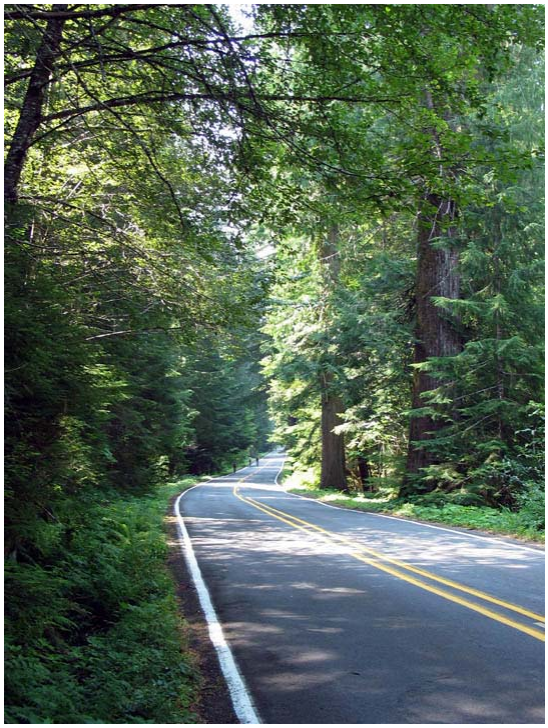
Natural Systems And Features

The East Side Highway is a pleasure road designed to showcase the natural scenery of lower slopes of Mount Rainier. In keeping with the tenets of naturalistic landscape engineering, the road was designed to fit the natural landscape, minimizing cut and fill, grading slopes to blend with the surrounding topography, and emphasizing views of rivers, canyons, and mountains. The sensitivity with which the design of the road responds to the natural systems and features in the landscape is evident today in the alignment, dimensions, materials, and craftsmanship of the of the highway and its associated features. The landscape characteristic of Natural Systems and Features retains integrity and contributes to the cultural landscape of the East Side Highway.

The natural landscape through which the East Side Highway winds is one of jagged peaks and ridges cut by deep valleys, creeks, and rivers. The road follows the narrow river valleys of the Ohanapecosh River and Chinook Creek as it climbs from an elevation of 1,784 feet at the southern park boundary to 4,687 feet at Cayuse Pass. For the first 6 miles, the road climbs gently, closely following the braided channel of the Ohanapecosh River. Through this section, the road follows the topography with easy curves and slight superelevations. Lush forest and tall firs, cedars, and hemlocks enclose the roadway, opening occasionally to offer close views of the river. Large trees close to the roadside that were preserved during construction of the road still line the highway. Rock cuts are modestly scaled and well-vegetated, making them somewhat inconspicuous. Turnouts are generally associated with either rock cuts or views down the fill bank to the river.

Beyond the confluence of the Ohanapecosh River and Chinook Creek, at about mile point 6, the road begins to climb more steeply. The alignment for this section of the road is further from the creek, high on the steep side-slope of the canyon. This alignment and the more sparse montane forest contribute to a more open, exposed character and offer frequent sweeping views of the surrounding canyons and ridges. Travel speed is lower in response to sharper winding turns and the exposed nature of the slopes. Long, bare rock cuts tower over the roadway on the cut side, while on the fill side, guardwalls, retaining walls, and riprap slopes drop hundreds of feet down the hillside. Stones used in the construction of structures such as the bridges and tunnel were quarried locally, giving the structures an indigenous character. In most cases, the stones in the guardwalls were taken from the rock cut directly opposite, creating exceptional visual unity.

Since the historic period, modifications to the road corridor have altered the historic character of the highway. Widening of the road at intersections and an increase in the number and size of turnouts have decreased the enclosure originally provided by the dense forest. Wider, graveled shoulders and vegetation clearing on the roadside have also created a more open character in places. Two of the original bridges – Laughingwater Creek and Panther Creek – have been replaced since the historic period using non-native materials such as concrete, steel, and cast-concrete simulated stone veneer. Also, the guardwalls have been repaired in places using non-native stone, which contrasts with the adjacent native stone. Despite these changes, the road as a whole retains its overall historic character and landscape scale, as well as its relationship to the natural landscape and its systems and features.



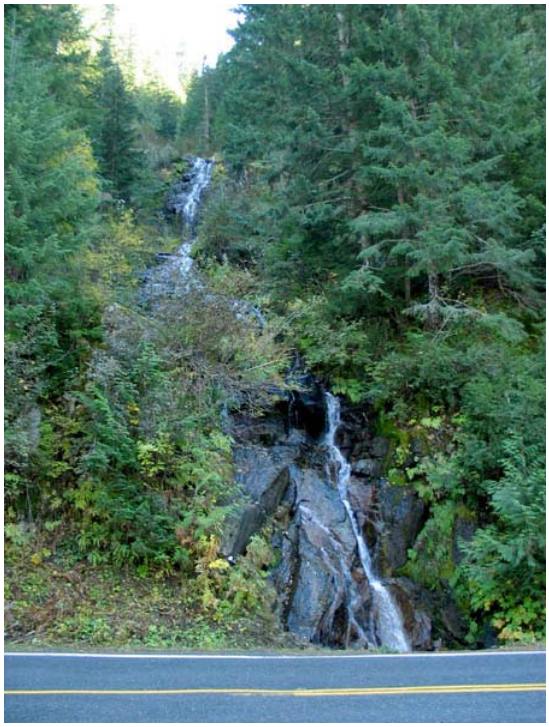
Contemporary photo showing the character of the lowland forest on the southern portion of the East Side Highway. (MORA, 2004)

Contemporary photo showing the Ohanapecosh River adjacent to the East Side Highway. (MORA, 2004)

Contemporary photo showing the mountainous terrain on the northern portion of the East Side Highway. (MORA, 2004)

Contemporary photo showing the steep slope and a rock cut on the northern portion of the East Side Highway. (MORA, 2004)

Contemporary photo showing the rugged peaks surrounding the East Side Highway. (MORA, 2004)



Contemporary photo showing a natural drainage creek that was carved and enhanced during the construction of the East Side Highway. (MORA, 2004)

Contemporary photo showing an alpine meadow near the northern terminus of the East Side Highway. (MORA, 2004)

Management Information

Descriptive And Geographic Information

Historic Name(s): Highway 123, Eastside Highway, and East Side Road

Current Name(s): Highway 123, Eastside Highway, and East Side Road

Management Unit: N/A

Tract Numbers: N/A

State and County: Pierce County, WA
State and County: Lewis County, WA

Size (acres): 167.00

Boundary UTM

Boundary UTM(s):

Source	Type	Datum	Zone	Easting	Northing
GPS-UnCorrected	Line	NAD 27	10	610338	5183530
GPS-UnCorrected	Line	NAD 27	10	610501	5181950
GPS-UnCorrected	Line	NAD 27	10	610452	5178950
GPS-UnCorrected	Line	NAD 27	10	613236	5189960
GPS-UnCorrected	Line	NAD 27	10	612767	5187660
GPS-UnCorrected	Line	NAD 27	10	612076	5187590
GPS-UnCorrected	Line	NAD 27	10	611026	5186460
GPS-UnCorrected	Line	NAD 27	10	612318	5188880
GPS-UnCorrected	Line	NAD 27	10	608800	5174650
GPS-UnCorrected	Line	NAD 27	10	612149	5190660
GPS-UnCorrected	Line	NAD 27	10	609361	5175960
GPS-UnCorrected	Line	NAD 27	10	611329	5191270
GPS-UnCorrected	Line	NAD 27	10	610178	5177460
GPS-UnCorrected	Line	NAD 27	10	610219	5185100

GIS File Name:

GIS File Description: The UTMs for the boundary start at a point-of-beginning on the centerline of the East Side Highway where it crosses the Mount Rainier National Park boundary and are given at one-mile intervals along the centerline. The final UTM is located at the intersection of the East Side Highway and the Mather Memorial Parkway, 0.8 miles from the previous UTM.

National Register Information

National Register Documentation: Entered -- Inadequately Documented

Explanatory Narrative:

The East Side Highway and its associated features and surrounding landscape were described in the 1997 National Historic Landmark District nomination. However, the nomination does not adequately document the landscape characteristics and features along the road. This CLI expands the description of the road's setting, providing greater detail and reevaluates the boundary.

NRIS Information:

NRIS Number:	97000344
Primary Certification:	Listed In The National Register
Primary Certification Date:	2/18/1997
Other Certifications:	Designated National Landmark
Other Certification Date:	2/19/1997
Name In National Register:	Mount Rainier National Park

National Register Eligibility: Eligible -- Keeper

Explanatory Narrative:

The road was included in the National Historic Landmark District, which was listed on the National Register in 1997. This CLI will be submitted to the Washington SHPO in 2005 for consensus determination on the additional descriptions of contributing features and proposed changes to the boundary.

Date of Eligibility Determination: 2/18/1997

National Register Classification: District

Significance Level: National

Contributing/Individual: Contributing

Significance Criteria: C -- Inventory Unit embodies distinctive characteristics of type/period/method of construction; or represents work of master; or possesses high artistic values; or represents significant/distinguishable entity whose components lack individual distinction

A -- Inventory Unit is associated with events that have made a significant contribution to the broad patterns of our history

Period Of Significance

Time Period: 1931 - 1941 AD

Historic Context Theme:	Creating Social Institutions and Movements
Historic Context Subtheme:	Recreation
Historic Context Facet:	General Recreation
Historic Context Theme:	Expressing Cultural Values
Historic Context Subtheme:	Landscape Architecture
Historic Context Facet:	The 1930's: Era Of Public Works

Historic Context Theme:	Expressing Cultural Values
Historic Context Subtheme:	Landscape Architecture
Historic Context Facet:	The Automobile Age And Suburban Development

Area Of Significance:

Category:	Landscape Architecture
Priority:	1
Category:	Architecture
Priority:	2
Category:	Engineering
Priority:	3

National Historic Landmark Information

National Historic Landmark Status:	Yes
Date Determined Landmark:	2/18/1997
Landmark Theme:	National Park Service landscape architecture and National Park Service master planning

World Heritage Site Information

World Heritage Site Status:	No

Cultural Landscape Type and Use

Cultural Landscape Type:	Historic Designed Landscape

Current and Historic Use/Function:

Use/Function Category:	Transportation
Use/Function:	Road-Related
Detailed Use/Function:	NPS Class VI Restrictive Road
Type Of Use/Function:	Both Current And Historic
Use/Function Category:	Recreation/Culture
Use/Function:	Outdoor Recreation
Detailed Use/Function:	Outdoor Recreation-Other
Type Of Use/Function:	Both Current And Historic

Ethnographic Information

Ethnographic Survey Conducted: No Survey Conducted

Adjacent Lands Information

Do Adjacent Lands Contribute? No

Adjacent Lands Description:

General Management Information

Management Category: Must Be Preserved And Maintained

Management Category Date: 2/18/1997

Explanatory Narrative:
The East Side Highway meets this management category because it is an inventory unit that is nationally significant as defined by National Historic Landmark criteria. The highway was determined to be a contributing structure within the Mount Rainier National Historic Landmark District (NHLD) in February, 1997.

Condition Assessment And Impacts

The criteria for determining the condition of landscapes is consistent with the Resource Management Plan Guideline definitions (1994) and is decided with the concurrence of park management. Cultural landscape conditions are defined as follows:

Good: indicates the landscape shows no clear evidence of major negative disturbance and deterioration by natural and/or human forces. The landscape's cultural and natural values are as well preserved as can be expected under the given environmental conditions. No immediate corrective action is required to maintain its current condition.

Fair: indicates the landscape shows clear evidence of minor disturbances and deterioration by natural and/or human forces, and some degree of corrective action is needed within 3-5 years to prevent further harm to its cultural and/or natural values. If left to continue without the appropriate corrective action, the cumulative effect of the deterioration of many of the character-defining elements will cause the landscape to degrade to a poor condition.

Poor: indicates the landscape shows clear evidence of major disturbance and rapid deterioration by natural and/or human forces. Immediate corrective action is required to protect and preserve the remaining historical and natural values.

Undetermined: Not enough information available to make an evaluation.

Condition Assessment: Poor

Assessment Date: 09/30/1998

Date Recorded: 09/30/1998

Park Management Concurrence: Yes **Concurrence Date:** 7/25/2005

Level Of Impact Severity: Severe

Stabilization Measures:
Stabilization is deferred pending treatment.

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Impact:

Type of Impact: Exposure To Elements

Internal/External: Internal

Description:

Features along the road show signs of wear and tear due to freeze/thaw action, land slides, and snow pack load.

Type of Impact: Structural Deterioration

Internal/External: Internal

Description:

Masonry structures are rotating, have missing stones, or the mortar is cracking. Mortar in masonry structures is soft and brittle due to poor aggregate mix. The road pavement is showing signs of deterioration including slumping, alligator cracking and soft spots.

Type of Impact: Deferred Maintenance

Internal/External: Internal

Description:

Culverts are blocked resulting in loss of headwalls and infill of organic material in the catch basins.
Vegetation has grown over time and is encroaching on historic views and vistas.

Agreements, Legal Interest, and Access

Management Agreement: None

Explanatory Narrative:

NPS Legal Interest: Fee Simple

Explanatory Narrative:

Public Access: Other Restrictions

The road is closed in winter and during periods of unsafe driving conditions.

Treatment

Approved Treatment: Rehabilitation

Approved Treatment Document: Other Document

Document Date:

Explanatory Narrative:
Treatment document is the Federal Highway Administration Rehabilitation Plan.

Approved Treatment Completed: No

Approved Treatment Cost

LCS Structure Approved Treatment Cost: $0

Landscape Approved Treatment Cost: $12,000,000

Cost Date: November 1, 2004

Level of Estimate: B - Preliminary Plans/HSR-CLR

Cost Estimator: Other Center

Explanatory Description: Cost estimator is the Federal Highway Administration.

Stabilization Costs

LCS Structure Stabilization Cost: $0

Landscape Stabilization Costs: $0

Cost Date:

Level Of Estimate:

Cost Estimator:

Explanatory Description: Stabilization is deferred pending treatment.

Documentation Assessment and Checklist

Documentation Assessment: Poor

Documentation:

Document:	Administrative History
Year Of Document:	1996
Adequate Documentation:	No
Document:	Historic Resource Study
Year Of Document:	1981
Adequate Documentation:	No
Document:	Other
Year Of Document:	1952
Amplifying Details:	History of Mount Rainier
Adequate Documentation:	No
Document:	Other
Year Of Document:	1988
Amplifying Details:	Historical Overview and Preliminary Assessment of Rockworks, Bridges, and Roadway-Related Appurtenances.
Adequate Documentation:	No
Document:	Resource Management Plan
Year Of Document:	1990
Adequate Documentation:	No

Appendix

Bibliography

Citations:

Citation Author:	Brockman, Frank C.
Citation Title:	Flora of Mount Rainier
Year of Publication:	1947
Publisher:	Washington D.C.: National Park Service
Source Name:	PWRO-SEA
Citation Type:	Both Graphic And Narrative
Citation Location:	PWRO-SEA, MORA

Citation Author:	Carr, Ethan
Citation Title:	Wilderness By Design: Landscape Architecture and the National Park Service
Year of Publication:	1998
Publisher:	National Park Service
Source Name:	Library Of Congress/Dewey Decimal
Citation Number:	SB482.A4C37 1998
Citation Type:	Narrative
Citation Location:	LOC, WASO, PWRO-SEA

Citation Author:	Catton, Theodore
Citation Title:	Wonderland, An Administrative History of Mount Rainier National Park
Year of Publication:	1996
Source Name:	CRBIB
Citation Number:	017248
Citation Type:	Narrative
Citation Location:	PWRO-SEA, MROA, HFC

Citation Author:	Comp, T. Allan
Citation Title:	Historic Building Inventory, Mount Rainer National Park
Year of Publication:	1983
Source Name:	CRBIB
Citation Number:	004284
Citation Type:	Narrative
Citation Location:	PWRO-SEA, WASO

Citation Author:	Franklin, Jerry F. and C.T. Dyrness
Citation Title:	Natural Vegetation of Oregon and Washington, General Technical Report PNW-8.
Year of Publication:	1973
Publisher:	Portland: U.S. Department of Agriculture
Source Name:	PWRO-SEA
Citation Type:	Both Graphic And Narrative
Citation Location:	PWRO-SEA

Citation Author:	Franklin, Jerry F., et al.
Citation Title:	The Forest Communities of Mount Rainier National Park, Scientific Monograph Series No. 19
Year of Publication:	1988
Publisher:	Washington D.C.: National Park Service
Source Name:	PWRO-SEA
Citation Type:	Both Graphic And Narrative
Citation Location:	PWRO-SEA, MORA

Citation Author:	Good, Albert H., ed.
Citation Title:	Park and Recreation Structures, 3 vols
Year of Publication:	1938
Publisher:	Washington D.C.: National Park Service
Source Name:	PWRO-SEA
Citation Type:	Both Graphic And Narrative
Citation Location:	PWRO-SEA, WASO, HFC

Citation Author:	McClelland, Linda Flint
Citation Title:	Presenting Nature: The Historic Landscape Architecture of the National Park Service, 1916 to 1942
Year of Publication:	1993
Publisher:	Washington D.C.
Source Name:	PWRO-SEA
Citation Type:	Both Graphic And Narrative
Citation Location:	PWRO-SEA

Citation Author:	McIntyre, Robert N
Citation Title:	Short History of Mount Ranier National Park
Year of Publication:	1952
Source Name:	CRBIB
Citation Number:	011743
Citation Type:	Narrative
Citation Location:	U.S. Department of the Interior, National Park Service

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Citation Author:	Moir, William H.
Citation Title:	Forests of Mount Rainier National Park: A Natural History
Year of Publication:	1989
Publisher:	Seattle: Pacific Nortwest National Parks and Forests Association
Source Name:	PWRO-SEA
Citation Type:	Both Graphic And Narrative
Citation Location:	PWRO-SEA

Citation Author:	National Park Service
Citation Title:	Mount Rainier National Park Roads and Bridges. Washington, D.C.: Historic American Engineering Record.
Year of Publication:	1994
Publisher:	Washington D.C.: Historic American Engineering Record
Source Name:	HAER
Citation Number:	HAER WA-35
Citation Type:	Narrative
Citation Location:	PWRO-SEA, WASO, LOC

Citation Author:	Schiltgen, Lora J.
Citation Title:	Managing a Rustic Legacy: A Historic Landscape Study and Management Plan for Longmire Springs Historic District, Mount Rainier National Park
Year of Publication:	1986
Source Name:	CRBIB
Citation Number:	015606
Citation Type:	Narrative
Citation Location:	PWRO-SEA, MORA, WASO

Citation Author:	Staff
Citation Title:	Resource Management Plan, Mount Rainier National Park
Year of Publication:	1990
Source Name:	CRBIB
Citation Number:	015743
Citation Type:	Narrative
Citation Location:	HFC

Citation Author:	Thompson, Erwin N
Citation Title:	Mount Rainier National Park, Washington, Historic Resource Study
Year of Publication:	1981
Source Name:	CRBIB
Citation Number:	011441
Citation Type:	Narrative
Citation Location:	U.S. Department of the Interior, National Park Service

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Citation Author:	Unrau, Harlan D.
Citation Title:	Historical Overview and Preliminary Assessment of Rock Work, Bridges, and Roadway-Related Appurtenances Along State Highways 410 and 123 in Mount Rainier National Park
Year of Publication:	1988
Source Name:	CRBIB
Citation Number:	014609
Citation Type:	Narrative
Citation Location:	WASO

Supplemental Information

Title: Map and drawing files

Description: Located at the Mount Rainier National Park archives and collections.

Title: Photographic Collections, 1920s-1940s

Description: Located at the Mount Rainier National Park archives and collections.

Title: Superintendent's Annual Reports, 1906-1966

Description: Located at the Mount Rainier National Park archives and collections.
