OPECON INVENTORY OF HISTORIC PROPERTIES

SECTION 106 LEVEL OF EFFECT		
Agency/Project: ODOT / OR 58: Salt Creek Tunnel Lighting, Key No. 09317		
Street Address: MP 56.10, Willamette Highway #18 (OR 58)	City, County: Lane County	
Preliminary Finding of Effect:		
☐ No Historic Properties Affected ☐ No Historic Properties Adversely Affected ☐ Historic Properties Adversely Affected		
State Historic Preservation Office Comments: Concur Do Not Concur: No Historic Properties Affected No Historic Properties Adversely Affected Date Date Date		
Provide written description of the project, and its potential effects on the subject property per 36 CFR 800. Include maps, drawings, and photographs as necessary to effectively describe and discuss the project. Use continuation sheets as needed.		
INTRODUCTION		
This statement of finding discusses the effect of the proposed project on the Salt Creek Tunnel #2539 in Lane County. This tunnel was determined to be eligible for listing on the National Register on January 21, 2000 as part of the Salt Creek Tunnel Historic District, which includes the tunnel and four half viaducts (one to the west of the tunnel, three to the east).		
It is the finding of the Federal Highway Administration (FHWA), in concurrence with the Oregon Department of Transportation (ODOT), that the proposed project will have an effect on the National Register eligible Salt Creek Tunnel, but this effect is "not adverse."		
This statement of finding is made pursuant to the requirements of the National Historic Preservation Act of 1966 (36 CFR 800), Executive Order 11593, and the National Environmental Policy Act.		
PROJECT DESCRIPTION		

The proposed project will upgrade the existing lighting system in the Salt Creek Tunnel #2539. The existing low pressure sodium vapor lamps will be removed and a new lighting system will be installed in the tunnel. The existing non-historic conductors and conduits will be removed from the tunnel, in addition to the fixtures. The surface mount system will be replaced with a suspended system with all associated cabling and conduit contained in a raceway that is part of the suspended system. The proposed system will retain both daytime and night light settings, and will be arranged so that the lights are more directly above the travel lanes to improve safety. The raceway will be located directly above the eastbound travel lane in the west end of the tunnel, and approximately half way through the tunnel the raceway will cross the centerline of the tunnel to be directly above the westbound lanes in the eastern half of the tunnel. The raceway will be suspended from the tunnel lining using threaded support rods epoxy anchored into the concrete lining. Individual fixtures will have a high and low output setting, depending on the light conditions outside of the tunnel during the daytime hours. In addition the system provides dedicated nighttime fixtures.

To support the new fixtures, the relay cabinets, electrical meters, junction boxes, transformers, and associated electrical panels located in the powerhouse under the western viaduct will be replaced as part of the project. The existing hardware, located on the north and east walls of the powerhouse, will be removed and new electrical hardware will be installed on the same two walls. The electrical meters, currently located inside of the powerhouse, will be moved to the exterior of the room for better access. The meters will have vandal resistant enclosures, and will be located directly west of the door into the powerhouse.

IDENTIFICATION AND DESCRIPTION OF THE HISTORIC RESOURCE

The Salt Creek Tunnel, located at MP 56.10 on the Willamette Highway (OR 58), is a 905 foot long hardrock tunnel on a curved alignment. The tunnel features a concrete lined bore, with a 27 foot wide roadway flanked by two 39 inch sidewalks. The tunnel features rustic masonry portals with large irregular cut basalt rock face ring stones. The tunnel is one of seven Oregon tunnels featuring National Park Service rustic-style masonry portals built in the New Deal era between 1937 and 1941. Four of these tunnels, including the Salt Creek Tunnel, utilize basalt facing from the Rocky Butte quarry near Portland. The tunnel is significant under Criterion C as it embodies the distinctive characteristics of highway tunnel construction prior to WWII using Bureau of Public Roads design standards. As a part of the larger district including the viaducts, the tunnel is a good example of a Works Progress Administration, Bureau of Public Roads, and Oregon Highway

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Street Address: MP 56.10, Willamette Highway #18 (OR 58)

City, County: Lane County

(Identification and Description, continued)

and topography of the area with unique engineering and construction practices that included a curvilinear alignment and interior lighting.

The Salt Creek Tunnel has been lighted since its original construction. The system, utilizing lamps recessed into the concrete liner, was originally based on the successful scheme used in the Toothrock Tunnel of the Columbia River Highway. The Toothrock Tunnel, completed in 1937, was the first rural tunnel in North America that was illuminated for daylight driving. The lighting system at the Salt Creek Tunnel has been upgraded over the last 60 years. Originally the 2,400 volt sodium vapor fixtures were powered by a diesel generator located under the western viaduct. This was due to the isolated location of the tunnel and lack of power lines in the area. In the early 1960s, the original sodium fixtures were replaced with mercury type fixtures and the generator was removed from the powerhouse. In 1982, the lights were changed again to a low pressure 480 volt sodium vapor type fixture. The original powerhouse containing the generator is currently used for transformers and other electrical hardware for the tunnel lights. The stairs and railing leading down to the powerhouse were also altered during the 1982 re-lighting project. The original rough cut masonry railing was removed, and steel tube railings were installed on the stairs.

AVOIDANCE ALTERNATIVES CONSIDERED

Because the Salt Creek Tunnel #2539 has been determined to be potentially eligible for listing on the National Register of Historic Places, project alternatives were considered to eliminate or minimize the predicted project impacts on this historic resource. Avoidance alternatives considered include:

No-Build Alternative: While this alternative would have no effect on the Salt Creek Tunnel, it would not address the project goal of improving the lighting condition within the tunnel to improve safety.

Replace Fixtures In-Kind: This alternative is not prudent or feasible, as the existing conduit and light fixture locations do not allow for the system to be upgraded to meet the safety goal or lighting requirements of the project.

EVALUATION OF EFFECTS

Project effects to the Salt Creek Tunnel #2539 are evaluated under the Assessment of Adverse Effects set forth in 36 CFR 800.5. The project will affect this potentially eligible resource by removing the non-historic lighting system within the tunnel. The project will alter the lighting system within the tunnel, but the system is not original and is not considered a contributing feature of the historic resource. This alternative is the only option to improve the lighting condition within the tunnel. The existing system must be replaced to achieve the desired lighting requirements within the tunnel. The character of the tunnel will remain as it was historically in that the tunnel will continue to be lighted. The new lighting system will be a safer and more reliable system, and will allow the continuance of the original tunnel function. The project will introduce a new visual element into the tunnel, but the project is consistent with the historic treatment of the tunnel in that the lighting system is periodically updated and improved to increase safety. The proposed lighting system is similar in scale to the existing system, and the visual intrusion of the proposed system is minimal in that the raceway system has a low profile and is inconspicuous. The replacement of the lighting system will not diminish the integrity of the Salt Creek Tunnel's significant historic features, which include the curvilinear alignment, masonry portals, and concrete lined bore.

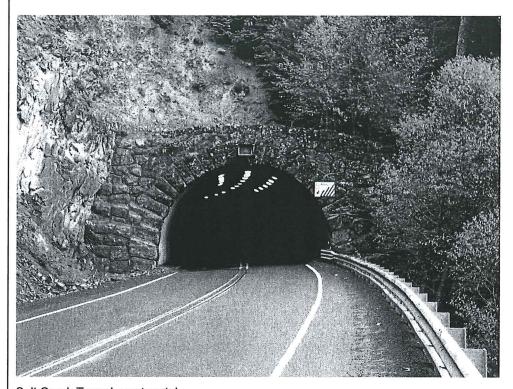
The effects to the nearby powerhouse, located under the western viaduct approaching the tunnel, are also "not adverse" according to the established criteria. The powerhouse has not served its original function for approximately 40 years, as the generator was removed when the original fixtures were replaced in the early 1960s. Since that time, the powerhouse has been used as a location for the electrical hardware required for the lighting system. The powerhouse will continue in this use, and the characteristics of this structure will not be altered as a part of the proposed project. According to the Criteria of Adverse Effect, the proposed project will have "no adverse effect" on both the powerhouse and the Salt Creek Tunnel.

CONCLUSION

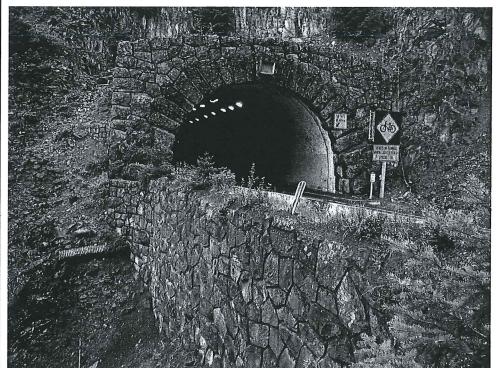
It is the determination of the FHWA and ODOT that the proposed project has an effect on the National Register eligible Salt Creek Tunnel #2539, but the effect is "not adverse" according to the criteria set forth in 36 CFR 800.5.

Surveyor/Agency: Alex McMurry / ODOT Cultural Resources	Date Recorded:June 2004	106 Effect Pg 2

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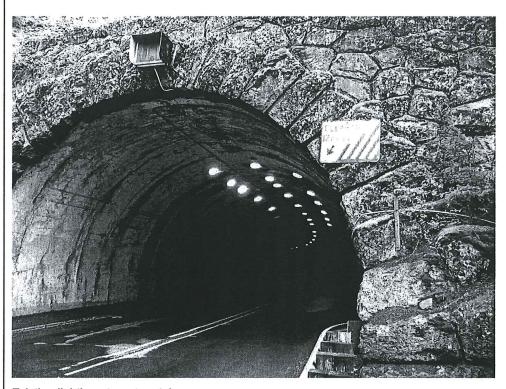


Salt Creek Tunnel, west portal.

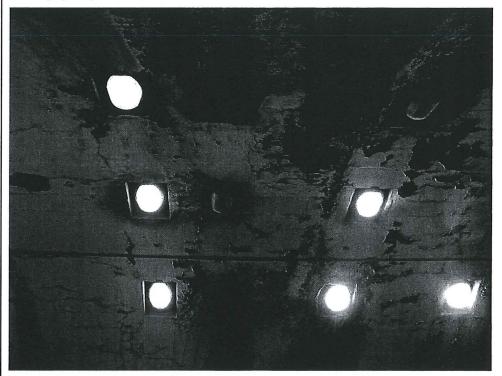


Salt Creek Tunnel, east portal.

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Existing lighting at west portal.

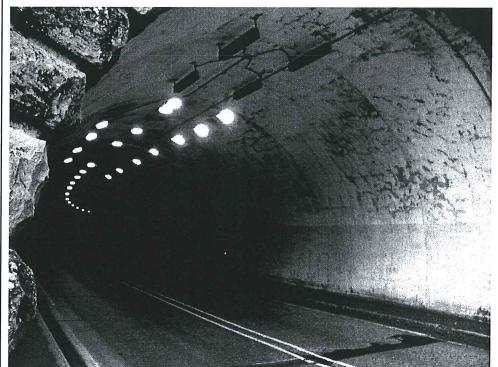


Typical existing lighting installation, with surface mount conduit and fixtures.

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Existing lighting system looking east near center of tunnel.

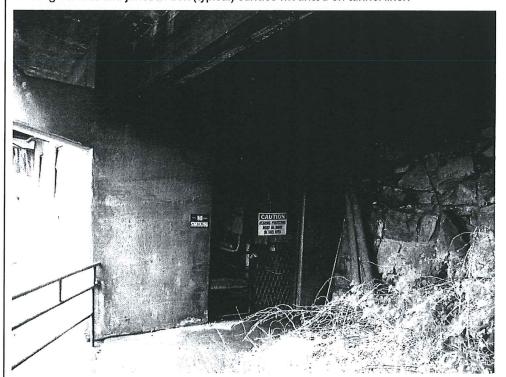


Existing lighting and de-icing system at east portal.

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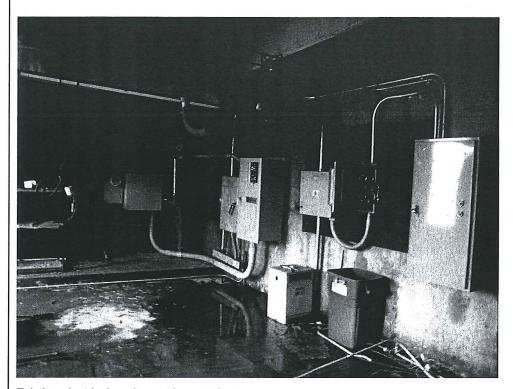


Existing conduit and junction box (typical) surface mounted on tunnel liner.

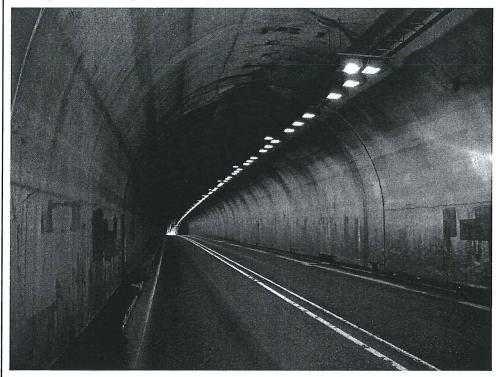


Powerhouse, view from southeast.

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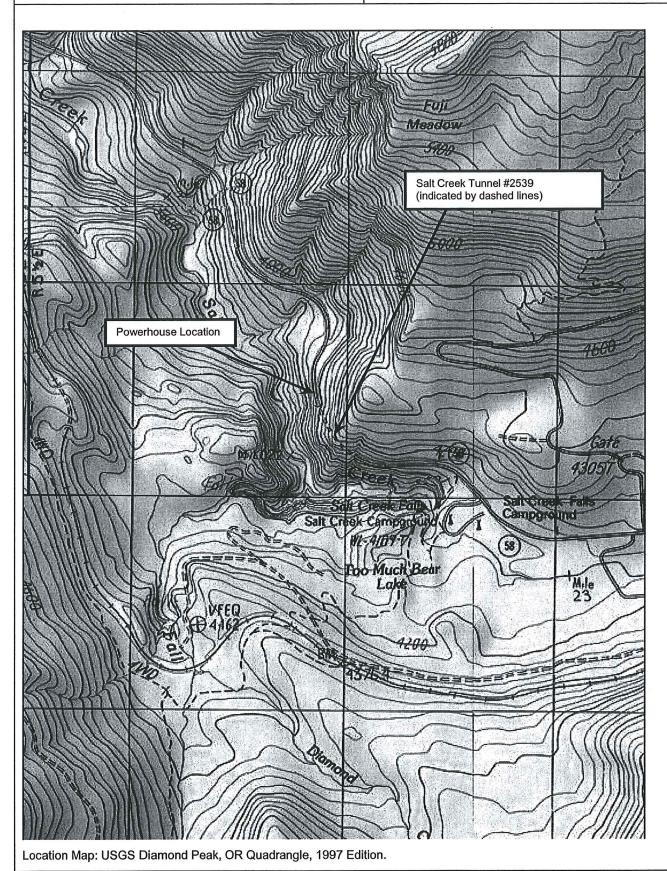


Existing electrical equipment in powerhouse.



Suspended lighting system proposed for Salt Creek Tunnel. (Peterson Tunnel shown, system also installed in the Toothrock Tunnel)

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Oregon Department of Transportation

DETERMINATION OF ELIGIBILITY FOR THE NATIONAL REGISTER

Property Name: Salt Creek Tunnel (No. 02539) Historic District

Date of Construction: 1939 - 1940

Address: M.P. 56.01 - 56.18 Willamette Highway, ORE 58

County: Lane

Willamette Pass vicinity

Original Use: Tunnel

Current Use: Tunnel

Style: National Parks Service Rustic

Theme: Transportation

Primary Significance: Salt Creek Tunnel Historic District is significant as one of only seven highway tunnels (with associated features) built in Oregon between 1937 and 1941 with Work Progress Administration (WPA) funds using National Park Service Rustic-style masonry design features.



Physical Description: Salt Creek Tunnel (No. 02539) is 275.8 m (905 ft) in length on a curved alignment with a vertical clearance of 3.911 m (12 ft 10 in) at the road gutter and roadway width of 8.23 m (27 ft). It has a concrete lining, recessed lights, and two .99 m (39 in) wide concrete sidewalks. The portals are of a National Parks Service rustic design that features large irregular cut basalt rock face ring stones. The half-viaduct on the west end is 68.58 m (225 ft) long. The east end half-viaducts, starting near the portal, are 76.2 m (250 ft), 38.1 m (125 ft) and 55.34 m (175 ft) long. The guardrails along the outside of the road on the east end half-viaducts are of a parapeted masonry design. A small concrete diesel power room is located under the west half-viaduct with concrete stairs and metal tube railing leading to the power room.

In my opinion, the property X meets does not mee	et the criteria for listing in the National Register of Historic Places.
Christine G. Cuman	1-21-00
Signature of Certifying SHPO Official/Title	Date

Comments/Request for Additional Information:

Statement of Significance

The Salt Creek Tunnel (No. 02539) Historic District includes: the tunnel, the four associated half viaducts (Nos. 07185, 07186, 07187, 07188), the rockwalls near the portals, the masonry guard rail on the three east end half-viaducts, and the power house under the west viaduct. It qualifies for eligibility for the National Register under Criterion C, by embodying distinctive characteristics of a highway tunnel and viaduct construction before World War II using the Bureau of Public Roads (now the Federal Highway Administration) design standards. The tunnel is significant as one of only twelve (12) highway tunnels built in Oregon between 1914 and 1941, and as one of only seven (7) tunnels in Oregon that features the National Parks Service rustic-style masonry portals. The district is also a good example of a Work Progress Administration (WPA), Bureau of Public Roads, and Oregon Highway Division cooperative effort that combined the duel needs of proving an important transportation route though the Cascade Mountains with a recreational/scenic drive. It is a successful design that harmonizes the natural materials and topography of the area with unique engineering and construction practices that included a curvilinear alignment and interior lighting.

Location

Salt Creek Tunnel Historic District is located in Lane County, Oregon in the Willamette National Forest on Highway 58 (Willamette Highway) at mile point 56 approximately 98.15 km (61 miles) south east of Eugene. It is within viewing distance of Salt Creek Falls and near the Willamette National Forest Salt Creek Falls (day use only) recreational site. Salt Creek, a tributary of the Middle Fork Willamette River has been called Salt Creek since pioneer days because of the salt springs along the stream used as licks by deer.

Physical Description

Salt Creek Tunnel (No. 02539) is 275.8 m (905 ft) in length on a curved alignment, with a vertical clearance of 3.91 m (12 ft 10 in) at the gutter and a roadway 8.23 m (27 ft) wide. It has concrete lining, recessed lights and two .99 m (39in) concrete sidewalks. The portals are of a National Parks Service rustic design that features large irregular cut basalt rockface ring stones. There are 27 rustic cut ring stones on each portal. The stones are irregularly shaped approximately 1.83 m (6 ft) long, 762 mm (30 in) wide and 813 mm (32 in) high. Memos from the Bureau of Public Roads 1938 files indicate that the ring stones and the large buttress stones were quarried from Rocky Butte near Portland. The other rocks above the ring stones appear to be of a different quality and smaller size and are of a different grade of stone or may be from a different quarry.

The half-viaduct on the west is 68.58 m (225 ft) long. The east end half-viaducts starting nearest the east portal are 76.2 m (250 ft), 38.1 m (125 ft) and 55.34 m (175 ft) long. The concrete half-viaducts were built in 1939-40 and are elevated roadways supported by piers that are built into the side of the hill to accommodate a 9.14m (30 ft) roadbed. Like the tunnel, the half-viaducts were built from plans provided by the U.S. Bureau of Public Roads. Parapeted masonry guardrails are located along the outside edge of the road on the east end half-viaducts. The guardrail stones, which are of a difference appearance and grade than the portal rock stones, are approximately 610 mm (2-ft) wide by 610 mm (2 ft) high and 1.51 m (5 ft) long. It is two courses high with a concrete mortar.

A small rectangular concrete diesel plant power room was constructed in 1939 below and under the west half-viaduct to house the generator needed to power the lights for the tunnel. It is approximately 7.62 m (25 ft) by 6.10 m (20 ft) in size. Concrete stairs and metal tube railing are located near the west portal end of the viaduct to access the power room.

Alterations

The tunnel is in near original condition. Over the last 60 years the main change appears to be the lighting system. The original lights were 2,400 volts sodium fixtures that were altered in the early 1960s with mercury type fixtures. They were changed again in the early 1980s when they were converted to 480-volt sodium fixtures. The masonry guardrail along the half-viaducts on the east end has deteriorated and is in poor condition because of spawling probably caused by the wet/freeze/thaw weather conditions. A concrete GM barrier was placed in front of the masonry guardrail nearest the east portal for safety. The rockwall on the west end was replaced by steel rail and timber post guardrail in 1995. The power

The Historic Background

plant room is no longer used as a diesel plant but is used for general tunnel maintenance purposes. The stairs and railing leading to the powerhouse were altered in the 1980s for safety.

The Salt Creek Tunnel was originally called the Willamette Highway Tunnel. The tunnel, the associated half-viaducts, and guardrails were an Oregon Forest Highway project, and part of the U.S. Highway 58 project that formed a link between U.S Highway 97 at Crescent, and U.S. Highway 99 near Eugene. The Willamette Highway was begun in 1923 and dedicated in the fall of 1940. The U.S Bureau of Public Roads drew up the tunnel plans and supplied the specifications. The bid was awarded to Sam Orino of Portland on December 27, 1937; Mr. Orino had constructed four tunnels for the Oregon State Highway Department and the Bureau of Public Roads between 1935 and 1938. R.A. Mack, resident engineer, supervised the engineering work on the job for the Bureau of Public Roads. Excavation work on the west tunnel approach began on December 28, 1937. The tunnel was driven upgrade 4.4 percent from the west portal, elevation 1211.58 m (3,975 ft), towards the east portal, elevation 1223.47 m (4,014 ft). It was bored upon a curve of 4 degrees 36 minutes (typical tunnels were located on tangents). The tunnel was driven through basalt of varying physical structure and timber was required for support in fractured sections. The entire bore was concrete lined. The contractor employed an average crew of 30 men during the 24-hour day. The crew consisted of 10 drillers, 7 timbermen, 8 men on excavation, 2 carpenters, 2 mechanics, and 1 blacksmith. The method of construction was to drill, blast, and remove tunnel spoil by gasoline powered shovels and trucks. The tunnel was ventilated during construction with large fans for air supply and to prevent a high concentration of carbon monoxide that might harm the workers. As a matter of interest, because of concerns expressed by state and federal agencies about ventilation and fire protection during the construction of the Salt Creek (Willamette) tunnel, the State Industrial Accident Commission wrote a new code which incorporated workman safeguards developed for this project.

Bennett & Taylor Construction company was awarded the contract for the grading and the half-viaducts. H. D. Farmer, Sr. Highway Engineer served as inspector with W. D. Keller, Chief Engineer, and R. I. Thomas, Associate Highway Engineer serving as the resident engineers. The half-viaducts were started in September of 1939 followed by the construction of the masonry guardrail, which began May 1940. Personnel of the U.S. Bureau of Public Roads Portland office designed the rustic rock portals. A number of sketches and models of both portals were prepared and reviewed by landscape architects from the National Park Service before the final selection was made. Local rock of the caliber need for the ring stones and buttress masonry was unavailable locally so rock from the Rocky Butte quarry near Portland was specified. The lighting system was based on the scheme used in the Tooth Rock Tunnel on the Columbia River Highway (the first rural highway tunnel in the West equipped with portal day light illumination). However, sodium vapor lamps were used at the Salt Creek Tunnel instead of a combination of incandescent and sodium vapor lamps and the fixtures were set flush into the concrete rather than hanging from the ceiling. Because of the isolation of the area, a diesel plant was incorporated into the project to power the lights and was housed in a poweroom along with tanks under the west viaduct.

Historic Context

Salt Creek Tunnel is one of fifteen (15) mined hardrock highway tunnels located in Oregon (12 built between 1914 and 1941, and 3 built between 1958 and 1970). The State of Oregon owns eleven (11) tunnels, the remaining four (4) are owned by the City of Portland. There are nine (9) tunnels with rustic stone portals, seven (7) of which were designed and built using Bureau of Public Roads plans using WPA funds. The other two are associated with the Columbia River Highway and predate the New Deal tunnels.

The seven (7) Oregon tunnels featuring National Park Service rustic-style masonry portals built between 1937 - 1941 include:

- 1. Toothrock Tunnel, I-84, 1937
- 2. Rocky Butte Tunnel, Rocky Butte Drive, Portland, 1939
- 3. Salt Creek Tunnel, OR 58, 1939
- 4. Sunset Tunnel, US 26, 1940

- 5. West Burnside Street Tunnel, Portland, 1940
- 6. NW Cornell Road Tunnel 1, Portland, 1941
- 7. NW Cornell Road Tunnel 2, Portland, 1941

Research indicates that the portal rock for the Toothrock, Rocky Butte, Salt Creek and Sunset tunnel portals came from Rocky Butte quarry near Portland. According to David Lewis and Kathy Schutt, authors of the "Rocky Butte Scenic Drive National Register Historic District Nomination," many of the masons who completed the rock work at Rocky Butte, including the tunnel portals, were some of the same Italian masons who worked on the Historic Columbia River Highway in the 1910s and 1920s, as well as the portals on the two NW Cornell Road tunnels, the West Burnside tunnel, and on Timberline Lodge in the 1930s and 1940s. Because many of the same key tunnel experts were employed on all of the Oregon's WPA tunnels it is considered likely that the same Italian masons constructed Salt Creek Tunnel portals.

The seven (7) tunnels built between 1937 and 1941 were constructed with Works Progress Administration (WPA) dollars and were designed using standard plans from the U.S. Bureau of Public Roads. Comparing photos of the portals for all seven structures shows a striking resemblance—yet none are identical. In the late 1930s, the federal government was overseeing construction of over two-dozen highway tunnels in the west. Only a few of them were in settings that lent themselves to rustic-style portal designs. These include the two Big Oak Flat Road tunnels in Yosemite National Park, the East Side Highway Tunnel in Mount Rainier National Park the Zion-Mount Carmel Tunnel in Zion National Park and the Tieton Reservoir Tunnel in Washington state. With seven rustic faced tunnels, it appears that Oregon has one of the best collections of 1930/1940s highway tunnels with the National Park Service rustic-style portal masonry in the country.

Context

For more information please refer to attached Table HIGHWAY TUNNELS OF OREGON.

Sources:

Ash, S. H. and James Westfield, Jr.

"Ventilation Practice at the Willamette Highway Tunnel, Oregon Forest Highway Project 21-J2, K1, "1938.

Lewis, David & Kathy Schutt

"Rocky Butte Scenic Drive Historic District Nomination, SHPO Files, Salem, 1991

McArthur, Lewis, L.

Oregon Geographic Names, 5th ed., Western Imprints, Oregon Historical Society, 1982

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ODOT Engineering Antiquities Inventory, 1981

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ODOT Bridge Section Records

Smith, Norman, Dykman

Historic Highway Bridges of Oregon, Oregon Department of Transportation, Salem, 1985.

Stephens, John H.

Towers, Bridges and other Structures, Sterling Publishing Co., Inc. New, 1976.

U.S. Department of Agriculture,

"A Journal of Highway Research," Vol. 19, No. 7, September 19. 1938.

U.S. Bureau of Public Roads

"Memorandum Review for the District Engineer", from R.B McMinn and H.D. Farmer, December 5, 1938.

Researcher:

Date:

Rosalind Meldrum Keeney, Cultural Resources Specialist, Oregon Department of Transportation

October 1999



Department of Transportation

Technical Services Branch **Environmental Services Section** RECEIVED 1158 Chemeketa Street, NE

Salem, OR 97301-2528 Telephone: (503) 986-3477

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JUN 1 4 2004

STATE HISTORIC PRESERVATION OFFICE

File Code:

June 9, 2004

James Hamrick Assistant Director for Heritage Conservation **Deputy State Historic Preservation Officer** Oregon State Historic Preservation Office 725 Summer Street NE Salem, OR 97301

Subject:

Section 106 Documentation Salt Creek Tunnel Lighting Willamette Highway, OR 58 **Lane County** Key No. 09317

Dear Mr. Hamrick,

One Section 106 Finding of Effect is forwarded for your review and concurrence. The historic resource documented is the 1939 Salt Creek Tunnel #2539. This tunnel was determined eligible for inclusion in the National Register of Historic Places in January of 2000.

The Salt Creek Tunnel is significant as one of seven hardrock tunnels in Oregon with rustic-style masonry portals built during the New Deal era. The tunnel is significant under Criterion C as it embodies the distinctive characteristics of highway tunnel construction prior to World War II using Bureau of Public Roads design standards. The significant characteristics of the tunnel are its irregular cut basalt masonry portals, a curvilinear alignment, and a full concrete lining of the bore. While the tunnel has been lighted since its original construction, the lighting system has been periodically updated and replaced over time.

The proposed project will replace and upgrade the existing lighting system within the tunnel to improve safety within the tunnel. The existing surface mount system, installed in 1982, will be removed and a suspended system will be installed. Electrical hardware upgrades will also be performed as part of the project. The electrical hardware is currently housed in the powerhouse located under the approach viaduct to the west of the tunnel. The replacement hardware will be placed in the same location.

Section 106 Documentation Salt Creek Tunnel Lighting Willamette Highway, OR 58 Lane County Key No. 09317 Page 2 of 2

Based on a preliminary application of the Criteria of Adverse Effect (36 CFR 800.5), ODOT and FHWA believe that the proposed project would have an effect on this potentially eligible historic resource, but this effect is "not adverse". We request your concurrence on the attached Finding of Effect for this resource.

Your prompt attention to this coordination request is appreciated. If you have any questions about this Finding of Effect, please contact Alex McMurry at (503) 986-2822.

Sincerely,

James B. Norman

Cultural Environment Unit Manager

Attachments:

Section 106 Finding of Effect: Salt Creek Tunnel #2539 Section 106 Determination of Eligibility: Salt Creek Tunnel #2539 (Signed January 21, 2000)

Copies to:

Rosalind Keeney, ODOT Cultural Resources Team Leader Brian Bauman, ODOT Region Environmental Coordinator Karl Wieseke, ODOT Project Leader Alex McMurry, ODOT Cultural Resources Specialist Key No. 09317, File Type E: Cultural Resources