OREGON INVENTORY OF HISTORIC PROPERTIES

SECTION 106 DOCUMENTATION FORM

Determination of Eligibility for the National Register of Historic Places Multiple Property Listing

Agency/Project: Oregon Department of Transportation/Cape Creek Tunnel Project, Key Number 11794

Name of Multiple Property Listing:

Oregon Highway Tunnels

Associated Historic Contexts:

Columbia River Highway construction (1913-22 and 1936-37)

Highway Improvement Programs (1930s and 1950s-70s)

WPA/Rustic-Style Masonry Tunnel Portals (1937-41)

Form Prepared by:

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State Historic Preservation Office Comments:

☐ Concur that this MPL form provides the information needed to evaluate related properties in determining their eligibility for listing in the National Register of Historic Places.

☐ Do Not Concur that this MPL form provides the information needed to evaluate related properties in determining their eligibility for listing in the National Register of Historic Places.

Signed _____ Date _____

Comments:

Street Address: Oregon Highway Tunnels	**City, County:** Statewide

SIGNIFICANCE AND CONTEXT:

HISTORIC CONTEXTS

Mined tunnels have been a part of Oregon's street and highway system since at least 1914. They helped make it possible for Oregonians to construct a network of roads through the state's beautiful, but often rugged, landscape. There are fifteen extant mined highway tunnels in Oregon. The tunnels are associated with one or more "property types": "Columbia River Highway construction," "Road Improvement Programs," or "Rustic-Style Masonry Portals."

The Oneonta Tunnel and the Mosier Twin Tunnels were part of the original construction of the Columbia River Highway (1913-22), the first scenic highway in the United States. They represent cutting-edge technology for World War I-era highway tunneling, when steam-powered equipment just began taking over from men and horses. The Mitchell Point Tunnel (1915), a five-windowed bore on Columbia River Highway had few rivals for its engineering and for natural-like appearance. Unfortunately, it was removed in 1966 during construction of Interstate 84. The extant tunnels convey the design, workmanship, and feeling that make the CRH significant. This was the combination of advanced engineering and landscape architecture to create "landscape engineering" in modern highway design a decade before it was employed by the National Park Service to its roads. Toothrock Tunnel, completed in the mid-1930s on the first realigned segment of the CRH, carried forward this design philosophy.

The Cape Creek Tunnel, bored through rugged terrain in 1931-32, helped provide an uninterrupted coastal route (US 101) the length of the state. The Elk Creek Tunnel, Toothrock Tunnel, Arch Cape Tunnel, West Burnside Tunnel, and Northwest Cornell Road tunnels were part of local and state road improvement programs of the 1930s, where original alignments dating from the era of horses and wagons and early automobiles were improved with modern grade and curvature standards. Likewise, the Knowles Creek (Petersen) Tunnel, from 1959, was an important part of a project to upgrade what became the Florence-Eugene Highway No. 62 (ORE 126), which connects the Oregon Coast with the southern Willamette Valley. The Vista Ridge Tunnels, completed in 1969 and 1970, represent a vital link between downtown Portland and Washington County, and the coast. The twin, tile-lined, bores, each with three travel lanes, eliminated the bottleneck Canyon Road, a route dating from pioneer days that unwittingly became a connector between the city and the postwar Sunset Highway No. 47 (US 26).

Likely because of the specialization of the work, few local contractors were able to bore tunnels. For example, the firm of A. D. Kern cut the Mosier Twin Tunnels and a decade later, as Kern and Kibbe, it cut Cape Creek Tunnel. In the period of three years, the firm of Orino-Birkemeier & Saremal bored the Toothrock Tunnel, the Arch Cape Tunnel, and the Salt Creek Tunnel. Bores for several tunnels in the Portland area—the Rocky Butte Tunnel, the West Burnside Tunnel, and the NW Cornell Road tunnels were cut at no charge to local government by Works Progress Administration laborers as part of the New Deal's local WPA employment program.

The September 1938 issue of *Public Roads: A Journal of Research*, the BPR's official periodical, ran a lengthy article entitled "Highway Tunnels in Western States." It highlighted all the cutting-edge work taking place on regional highway tunnels constructed in the 1920s and 1930s either in direct-federal projects or under the direction of state highway departments as federal-aid projects. Featured among the twenty-seven tunnels for advances in boring techniques, lighting systems, and masonry portal treatments were Oregon's Cape Creek Tunnel, Toothrock Tunnel, Salt Creek Tunnel, and Arch Cape Tunnel.

In terms of technology, advanced equipment and techniques were used on several of these Oregon tunnels. For instance, a state-of-the-art lighting system installed in the Toothrock Tunnel was the template for those used in other tunnels around the western United States, including Oregon's Arch Cape Tunnel and Salt Creek Tunnel. The US Bureau of Public Roads (BPR), the predecessor of the Federal Highway Administration, employed advanced tunnel boring techniques at Toothrock, using a "Jumbo" frame to hold drills used to create holes on the rock face for explosive charges. The BPR found great success with this method about the same time on three tunnels cut along the Big Oak Flat Road in Yosemite National Park.

The Rustic Style, popularized by Thomas Vint, shaped National Park Service architecture and landscape architecture from the late 1920s through the early 1960s. It embodied the philosophy that man-made structures are intrusions on the natural landscape. The use of careful massing and native elements, such as timber or stone, which would harmonize with the environment, could limit the impact of man-made structures on the natural landscape. The BPR worked closely with the National Park Service in developing ways to use Rustic-Style architectural elements in park road designs. Subsequently, the BPR popularized Rustic-Style elements for roads and highways outside the national parks. Numerous Rustic-Style stone-faced reinforced-concrete arch bridges were constructed along national park roads in the 1920s, 1930s, and 1940s.

The basic form of large, cut arch ring stones surrounded by a field of smaller rock was also taken to tunnel portals. Oregon has seven 1930s/1940s highway tunnels that have National Park Service Rustic-Style masonry portal walls: the Toothrock Tunnel, the Rocky Butte Tunnel, the Salt Creek Tunnel, the NW Cornell Road tunnels, the West Burnside Tunnel, and the Sunset Tunnel. They exhibit the high-quality craftsmanship of journeyman masons. Other than those in Oregon, it is believed that there were very few roadway tunnels completed in the western United States in the 1930s and 1940s with National Park Service Rustic-Style portal masonry. Those known examples are the 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.

Local agencies oversaw design work on the tunnels in the Portland area on municipal and county road networks. The BPR and the Oregon State Highway Department (OSHD) prepared plans for those tunnels on state highways. There were three common elements. The first was the role of the National Park Service's landscape architects who reviewed the masonry portal plans for proportion and materials. The second was the use of basalt from Portland's Rocky Butte Quarry for the stone for all seven masonry-portaled tunnels. The Quarry, located in northeast Portland, was widely known for its high quality rock, which has been used in local construction projects since the late 19th century. The third was the crew of masons, employed by the Oregon WPA and led by Raffale (Ralph) Curcio, a local craftsman with over two decades of experience working on masonry structures in the region. Curcio's crews laid the stone for the Rustic-Style portals and associated retaining walls and guard walls for the Rocky Butte Tunnel, the West Burnside Tunnel, the NW Cornell Road tunnels, and the Sunset Tunnel. They were likely associated with work on the Toothrock Tunnel and on the Salt Creek Tunnel.

From 1935 to 1942, the Oregon WPA found jobs for 25,000 Portlanders in engineering, construction, cultural, and service projects. The point was to employ as many people as possible, so projects were intentionally labor intensive. The Oregon WPA's largest projects include Timberline Lodge, Rocky Butte Scenic Drive, and the Portland Airport. The WPA also collaborated with the OSHD on the Wilson River and Wolf Creek highways that connected Portland with the Oregon coast. Oregon's seven 1930s/1940s Rustic-Style, masonry-portaled road tunnels represent one significant legacy of Oregon WPA craftsmanship.

Oregon's mined highway tunnels comprise a collection that spans over fifty years and demonstrates advances in methods for excavating, bracing, and illuminating tunnel bores. Several of the tunnels also form a closely linked collection that exhibits Rustic-Style portal masonry unparalleled for its quality of materials and workmanship.

ASSOCIATED PROPERTY TYPES

1. Tunnels associated with the Columbia River Highway construction
- a. Oneonta Tunnel No. 1759, 1914
- b. Mosier Twin Tunnels No. 653, 1921
- c. Toothrock Tunnel No. 4555, 1937

2. Tunnels associated with Road Improvement Programs
- a. Cape Creek Tunnel No. 3961, 1932
- b. Elk Creek (Hancock Mountain) Tunnel No. 3437, 1932
- c. Toothrock Tunnel No. 4555, 1937
- d. Arch Cape Tunnel No. 2247, 1937
- e. West Burnside (NW Barnes Road) Tunnel No. B-101, 1940
- f. NW Cornell Road Tunnel 1, No. B-124, 1940
- g. NW Cornell Road Tunnel 2, No. B-127, 1941
- h. Knowles Creek (Petersen) Tunnel No. 7139, 1959
- i. Eastbound Vista Ridge Tunnel No. 9103, 1969
- j. Westbound Vista Ridge Tunnel No. 9103B, 1970

3 Tunnels with Rustic-Style Masonry Portals
- a. Toothrock Tunnel No. 4555, 1937
- b. Rocky Butte Tunnel No. B-102, 1939
- c. Salt Creek Tunnel No. 2539, 1939
- d. West Burnside (NW Barnes Road) Tunnel No. B-101, 1940
- e. NW Cornell Road Tunnel 1, No. B-124, 1940
- f. NW Cornell Road Tunnel 2, No. B-127, 1941
- g. Sunset Tunnel No. 2552, 1941

Street Address: Oregon Highway Tunnels	**City, County:** Statewide

REGISTRATION REQUIREMENTS

In order to qualify for registration, the resources must be "mined tunnels" found on roadways in Oregon. Mined tunnels do not include "cut-and-cover" tunnels or man-made structures that take on the appearance of tunnels. For the purposes of this MPL, "roadway" includes city streets, county roads, or state highways. This document does not address railroad tunnels. The tunnels must be associated with one or more of the following property types: construction of the Columbia River Highway, road improvement programs in Oregon, or Rustic-style mortared masonry portals.

To qualify for registration, tunnels must remain faithful to their original design at time of completion. Those properties eligible for engineering significance should be considered even if alterations to form and materials exist, so long as the significant engineering design is prominent and intact. Portals executed in mortared stone should possess the very high quality of workmanship associated with regional WPA masons. Alterations to portals, lighting, lining, and signage should not take away from a property's feeling or association with its time of construction and period of significance.

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