

Federal Highway Bridge Program Project Application

Please send copies of the load ratings summary, accident data, any other pertinent information, and electronic photos (640 x 480 pixels minimum .JPG) with this questionnaire by the due date specified in the cover letter.

Agency Name: West Richland	Pick one of the following:
Bridge Name: Bombing Range Rd.	<input type="radio"/> Replacement Candidate
Bridge Number: 60928003	<input checked="" type="radio"/> Rehabilitation Candidate
Contact Person: Roscoe C. Slade III	<input type="radio"/> Scour Mitigation
Phone: (509) 967 - 5434	<input type="radio"/> Seismic Retrofit
Sufficiency Rating: 66.25 SD	<input type="radio"/> Painting
Structure ID: 08705200	<input type="radio"/> Deck Repair

Brief Project Description (including bridge replacement type)

Replace portion of superstructure due to aging girders.

Proposed Length: _____29_____ Width (Curb to Curb): _____36_____ **Current Year:** 17

Rehabilitation/Replacement/Seismic/Paint/Scour Projects

PE Costs (approximately 25% of total) _____ \$85,000

(Soils, Environmental, Design Documents, Plans Preparation, etc.)

Right of Way Costs _____ 0

(Purchases, Relocation and Construction Easement)

Construction Costs _____ \$308,000

(Environmental mitigation, approach costs (15%), structure costs, etc.)

Construction Engineering (18%) _____ \$55,400

Contingency (15%) _____ \$46,100

Mobilization (10%) _____ \$30,800

Inflation Factor (5% per year, based on projected Ad date below) _____ \$46,100

Total Rehabilitation/Replacement/Preventative Maintenance Project Costs:*

_____ \$571,400

If a Rehabilitation, what would be the Replacement cost for that same structure

(including PE, Right of Way, and Construction)?

_____ \$1,000,000

Project Milestones	Scheduled		Scheduled
Project Added to Local Agency TIP	M/Y 12 / 17	Right of Way Start	M/Y na /
Project Added to Regional TIP	M/Y 01 / 18	Right of Way Complete	M/Y na /
Project Added to STIP	M/Y 02 / 18	Geometric/30% Design Complete	M/Y 3 / 19
Project Definition Begin PE	M/Y 05 / 18	General Plan/60% Design Complete	M/Y 6 / 19
NEPA Kick Off	M/Y 06 / 18	Advertisement	M/Y 8 / 19
Environmental Docs Approved	M/Y 06 / 19	Contract Awarded	M/Y 10 / 19
Provide comments below		Open to Traffic	M/Y 9 / 20

BOMBING RANGE ROAD BRIDGE COMMENTS

BRIDGE BACKGROUND

The Bombing Range Road Bridge was originally constructed in 1990 with pre-stressed concrete ribdeck girders. The bridge is located at the intersection of Bombing Range Road and SR 224. This busy intersection provides access to a rapidly growing area of the City. Bombing Range Road is the only major north – south arterial through the City of West Richland with SR 224 being the main access through the City center. The City of West Richland has dramatically grown since the construction of the bridge and continues to be one of the fastest growing areas in the State. With this growth the bridge has seen a significant increase in traffic through the years. Between 2015 and 2016 there has been a 30% increase in traffic with a 3% increase in truck traffic. The bridge has been widened twice from its originally constructed width of 36 feet to nearly 75 feet on the north end and approximately 70 feet on the south end.

In 2015 the required bridge inspections were performed. The Consultant had the following recommendations:

1. Replace all asphalt deck patches and repair all spalls, cracks and delamination in the deck with a concrete repair patch product recommended for high traffic areas;
2. Post bridge load restrictions.

The following table shows the steadily increasing ADT recorded in WSDOT inspection reports:

YEAR	ADT	TRUCK %
1997	6,406	5
2007	9,317	5
2015	9,354	5
2016	12,414	8.1



BOMBING RANGE ROAD BRIDGE COMMENTS

CURRENT SITUATION

The deteriorating condition of the deck and the load posting of the Bridge are the two main issues needing immediate attention.

BRIDGE DECK

The bridge deck is in “Poor” condition. There are multiple failing patches, spalls, delaminations, and longitudinal cracking in the original ribdeck portion of the bridge deck. The ribdeck girders provide 1008 ft² of deck area, with at least 25 ft² of the deck containing patches, spalls, and/or delaminations. This 2.5% deterioration requires an NBI Deck Condition Code of “4”. The high traffic volume on the bridge has resulted in the existing repairs and patches to repeatedly fail, providing a rough transition through this intersection.

A major concern of the City is the ribdeck portion of the deck. The ribdeck does not have a wearing surface over the ribdeck girders with the girders having only a thin structural deck section of 4-inches. The spalling, patches, and delaminations are occurring directly in the top flange of the girders. While it is unknown how deep the current patches are, they are not structural in nature, meaning that the structural deck support is even less than 4 inches in these patched areas. This is not a long-term situation for this busy intersection, now carrying over 12,000 vehicles per day.



BOMBING RANGE ROAD BRIDGE COMMENTS

LOAD POSTING

The bridge requires posting for SU5, SU6 and SU7 trucks. The original ribdeck girders control the load rating and force the postings. The newer, widened sections of the bridge can carry all legal loads.

This load posting has negative impact at this intersection. The Bombing Range Road Bridge provides direct access to a rapidly growing area of the City, with regular construction taking place. The load posting has negatively impacted concrete companies, gravel companies, asphalt companies, and truss companies with a long detour and increased costs. The City has determined the long detour route around this posted bridge for SU5, SU6 and SU7 trucks has added 5.2 to 7 miles to each trip.

REHABILITATION CONCEPT

Given the increase of both vehicle and truck traffic to over 12,000 ADT over this bridge, as well as the expectation the traffic volume will steadily increase with the future growth of the City, the rehabilitation of the Bombing Range Road Bridge is necessary.

The underlying causes of the Bombing Range Road Bridge deficiencies are the original ribdeck girders. The expanded portions of the superstructure, as well as the entire substructure, have several decades of service life remaining.

The proposed rehabilitation project would remove the six existing 6-foot-wide ribdeck girders and replace them with nine newly-fabricated 4-foot wide prestressed concrete solid slab girders. A composite concrete deck with epoxy rebar would top the new girders as the new wearing surface, allowing for decades of service life to the center portion of the bridge.

The existing concrete abutments would be utilized with some modification, and the newer portions of the widened bridge would remain in place. Rehabilitation of this bridge would eliminate the issues with the deteriorating bridge deck, and allow the bridge to carry all legal loads. For the existing concrete deck that is to remain, a new concrete overlay will be placed to extend its lifespan.