

SAMPLE

**WRITTEN MATERIALS
GIVEN TO EVALUATION
TEAM**

**Washington Wildlife and Recreation Program
State Lands Development Category
Application Project Summary**

TITLE: Tiger Mountain State Forest Trail Bridges	NUMBER: 10-1067 TYPE: (Development) STATUS: Application Complete													
APPLICANT: Dept of Natural Resources	CONTACT: Mark Mauren (360) 902-1047													
COSTS: <table style="width: 100%; margin-top: 10px;"> <tr> <td style="width: 30%;">RCO</td> <td style="width: 20%; text-align: right;">\$247,870</td> <td style="width: 10%; text-align: right;">80 %</td> </tr> <tr> <td>Local</td> <td style="text-align: right;">\$62,000</td> <td style="text-align: right;">20 %</td> </tr> <tr> <td>Total</td> <td style="text-align: right; border-top: 1px solid black;">\$309,870</td> <td style="text-align: right; border-top: 1px solid black;">100 %</td> </tr> </table>	RCO	\$247,870	80 %	Local	\$62,000	20 %	Total	\$309,870	100 %	SPONSOR MATCH: <table style="width: 100%; margin-top: 10px;"> <tr> <td style="width: 70%;">Donated Labor</td> <td style="text-align: right;">\$53,460</td> </tr> <tr> <td>Force Acct - Labor</td> <td style="text-align: right;">\$8,540</td> </tr> </table>	Donated Labor	\$53,460	Force Acct - Labor	\$8,540
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DESCRIPTION:

This project seeks to replace one collapsed trail bridge and install two new trail bridges along a new trail connection within Tiger Mountain State Forest. The proposed bridge sites will be located on non-motorized trails. The collapsed bridge is currently closed because of safety issues, due to failed stringers. The collapsed bridge, was identified in the Mountains to Sound Greenway Trails Assessment (June 2005) as needing replacement within 2-3 years. The two new bridges are needed for a trail with a wet stream trail crossing and new trail construction requiring an additional bridge stream crossing to connect Preston RR Trail directly to NW Timber Trail in East Tiger Mountain. By installing two new bridges, utilizing an existing trail segment, and constructing 1.96 miles of new trail, these two popular trails will finally connect- reducing forest road mileage currently required to complete a popular trail loop.

Both I-90 & SR 18 provide direct travel access to Tiger Mtn. State Forest - approx. a 30 minute travel time for 52% (i.e., 3.3 million people) of the state's population. Tiger Mtn offers a great recreational opportunity; many people use the forest daily for hiking, mountain biking, and equestrian use. During a one week period last spring, over 1,250 people used the trails on the southeast side of the mountain (or about 32,500 people/season). If funding is not provided for the bridges, trail system access will be in jeopardy; public safety will decrease; and environmental damage will occur.

LOCATION INFORMATION:

Located in the Tiger Mountain State Forest off of the SR 18 in King County

COUNTY: King

SCOPE (WORK TYPES):

Obtain permits	Trail development
Trail bridge development	

PERMITS ANTICIPATED:

Archeological & Cultural Resources (EO 05-05)	Hydraulics Project Approval [HPA]
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ANTICIPATED ACREAGE:

Acres To Be Acquired	Acres To Be Developed	Acres To Be Renovated
	0.40	0.20

LAST UPDATED:

DATE PRINTED: August 13, 2010

Development Cost Estimate Summary

Dept of Natural Resources
Tiger Mountain State Forest Trail Bridges

10-1067
Development
WWRP - State Lands Development

Category / Work Type	Total Cost	Description
Worksite #1, Iverson Trail, Bridge Replacement		
Permits		
Obtain permits	\$3,000.00	SEPA, HPA, Cultural Resources 05-05
Trails		
Trail bridge development	\$46,350.00	45' length steel I-beam design trail bridge installation
Trail development	\$8,524.00	Match labor and crushed rock for trail hardening, volunteers will haul rock and construct trail re-route
Worksite Tax Amount	\$0.00	
Worksite A&E Amount	\$4,880.00	
Worksite Total Costs	\$62,754.00	
 Worksite #2, Silent Swamp Trail, Bridge Installations		
Permits		
Obtain permits	\$3,000.00	SEPA, HPA, 05-05 Cultural Resources
Trails		
Trail bridge development	\$154,500.00	Two, 75' length steel I-beam design trail bridges with concrete footings
Trail development	\$77,616.00	Match labor and crushed rock for trail hardening, volunteers will haul rock and construct trail re-route, trail design
Worksite Tax Amount	\$0.00	
Worksite A&E Amount	\$12,000.00	
Worksite Total Costs	\$247,116.00	
Project Tax Amount	\$0.00	
Project A&E Amount	\$16,880.00	
Project Total Costs	\$309,870.00	

Application Metrics

Project Sponsor: Department of Natural Resources
Project Title: Tiger Mountain State Forest Trail Bridges
Program: WWRP - State Lands Development

Project Number: 10-1067
Project Type: Development
Approval:

Project Metrics

Community Values

Connecting children with nature:

The trail bridges will be located on trails with direct access from the Tiger Summit TH. The quick access provided by Iverson RR Trail provides educational hikes for local school field trips, family hikes, and non-profit led educational hikes.

Project sustainability:

This project will provide recreationists with a long-term sustainable crossing over three fish-bearing streams within the Tiger Mountain State Forest trail system. By utilizing a steel I-beam design with concrete abutments, the bridges will last.

Completion Date

Projected date of completion:

06/30/2013

Sites Improved

Project acres developed:

0.4

Project acres renovated:

0.2

Jobs Created

Number of jobs created by this project:

1.1

Development Metrics

Worksite #1, Iverson Trail, Bridge Replacement

Trails

Trail development

Linear miles of trail :

0.19 new, 0.00 renovated

Width of the trail in feet:

4

Trail surface types:

Hardened natural surface

Linear miles of boardwalk :

0.00 new, 0.00 renovated

Trail structures :

Switchbacks

Non-motorized trail uses :

Hiking/walking, Horseback riding, Mountain biking, Snowshoeing

Number of trailheads:

0 new, 0 renovated

Trail bridge development

Number of trail bridges 15 feet and over:

1 new, 0 renovated

Bridge types :

Steel, Wood

Provide the length and width of each bridge (feet):

45' long and 5' wide.

Worksite #2, Silent Swamp Trail, Bridge Installations

Application Metrics

Trails

Trail development

Linear miles of trail :	1.96 new, 0.50 renovated
Width of the trail in feet:	4
Trail surface types:	Hardened natural surface
Linear miles of boardwalk :	0.00 new, 0.00 renovated
Trail structures :	Bridges (under 15 feet), Switchbacks
Non-motorized trail uses :	Hiking/walking, Mountain biking, Snowshoeing
Number of trailheads:	0 new, 0 renovated

Trail bridge development

Number of trail bridges 15 feet and over:	2 new, 0 renovated
Bridge types :	Steel, Wood
Provide the length and width of each bridge (feet):	Both bridges will need to be 75' long by 5' wide.

1. Public Need.

This grant application is to replace one collapsed bridge, construct two new bridges and build additional non-motorized multiple use trails in Tiger Mountain State Forest at two different worksites:

Worksite 1: a replacement bridge to allow the heavily used Iverson RR Grade Trail to re-open to equestrian use and provide a permanent stream crossing for hikers and mountain bikers. The bridge's wood stringers collapsed during the spring of 2010.

Worksite 2: construct two trail bridges and a new trail segment (1.96 miles) that will provide a connection between Preston RR Grade Trail and Northwest Timber Trail in the eastern part of Tiger Mountain State Forest.

This project will accomplish four main objectives: increase user safety, improve the non-motorized recreation experience from trails accessed from the Tiger Summit Trailhead, decrease trail maintenance needs, and provide for greater resource protection.

Background: Tiger Mountain State Forest's multiple-use trails provides residents of the Puget Sound Metropolitan area the closest access to a significant wild land trail experience, with trails open to hiking, equestrian, and mtn. biking use. The trails accessed from the Tiger Summit Trailhead offer family friendly to high fitness level opportunities, with substantial elevation changes as East Tiger Summit is at 3,000' elevation.

Tiger Mountain, as a result of few opportunities in other areas of King County, offers one of the few areas for mountain bikers and equestrian users to recreate. King County excludes mountain bicycles from Cougar Mountain. State Parks excludes horses and mountain bicycles from Squak Mountain State Park. These decisions have generated increased pressure for opportunities for more of those modes of travel in the state forest. Since 1991, there has been few additional access areas within the Tiger Mountain regional area allowing equestrian and mtn. bike trail use, including: Duthie Hill Park (King County) and a new 4 mile trail loop on USFS land near the Hanson Creek drainage, which is occasionally snowed out.

The Tiger Mountain State Forest Recreation Plan (TMRP), which involved various stakeholders, was completed in June of 1991 as a supplement to the Tiger Mountain State Forest Management Plan. The TMRP identified recreational problematic 'findings' regarding decreasing user recreational experiences and potential management challenges, as well as solutions to address the findings. Most of the goals in the TMRP have been achieved, however; increasing demand for improved recreational experiences and nearby population growth, along with few other places for some recreationists to go, have contributed to the area being heavily used. For this reason it is very important that DNR is able to have as many designated trails open at Tiger Mountain as possible, as use continues to grow. Lack of funding, which has remained a major problem for the department, makes it even more difficult to respond to the increasing demand for trail opportunities. This grant project would play an essential role in keeping trails open to help meet the current demand.

Project and Objectives:

USER SAFETY

From the Tiger Mountain Summit Trailhead hikers, mtn. bikers, and equestrian users are required to use 6.7 miles of forest roads to complete trail loops accessed from this trailhead. Users must share narrow forest roads with communication site maintenance vehicles and logging trucks during the heavy-use summer season, in order to complete trail loops. TMRP identified that shared use of the road for the public to complete the trail route creates concerns and ideally should be avoided. The growth in user visits and demand for improved recreation experiences has compounded the problem. For example, in 2009 nearly 60,000 trail users were counted on the seasonal Preston Trail, which is part of the only trail loop open to mtn. bikes. Project work at Worksite #2 will help reduce this problem by allowing people an option to complete the trail loop while using less road mileage, thereby increasing user safety. Constructing the new trail segment is consistent with the TMRP which identified the need to have such new trails.

USER EXPERIENCE

The replacement bridge component of this project at Worksite #1 will reopen the Iverson Trail for the various equestrian users, hikers and mtn. bikers who use the trail.

The Iverson Trail is the only trail connecting equestrian users, from the Tiger Summit Trailhead, to the majority of the trails open to equestrian use on South Tiger Mountain. This trail also serves as a popular trail loop for hikers, trail runners, and beginner to intermediate level mountain bikers. The new trail segment which encompasses the east side of the Iverson Trail, will more directly connect the Tiger Summit Trailhead to the new replacement bridge. At Worksite#2, the two trail bridge installations will increase the multiple use trail mileage for the popular multiple use mountain bike loop. The increase in designated multiple use trail mileage will also improve the recreation experience for mtn. bikers, and thereby reduce the chances for unauthorized mountain bike riding on 'hiking only' trails. This will reduce user conflicts.

REDUCED MAINTENANCE

The reroute at Worksite #2 will connect two existing popular trails that currently require users to utilize a forest road within Tiger Mountain State Forest. This new trail connection reduces maintenance needs and will improve user experiences by dispersing heavy trail use onto more, properly designed, trail mileage. The reroute itself will be designed in a manner that will require less maintenance over time. This reroute, and the new trail segment will bypass a poorly designed section of trail and eliminate the need to cross a stream via an existing old wood stringer bridge, that is about to collapse too. As a result, the re-route eliminates the need for future funding to replace the old wood stringer bridge.

RESOURCE PROTECTION

The new bridges will provide a safe crossing over two fish-bearing streams and reduce the need for a 'wet trail-crossing' which can cause sedimentation and detrimental impacts to fish habitat. Also the new trail segment, which will incorporate sustainable building principles, will allow for an existing trail segment in an erosion prone area to be decommissioned.

2. **Site Suitability and Project Design**

This project will protect natural resources by providing trail access over fish-bearing streams by installing three trail bridges. The bridges will eliminate the need for a 'wet trail-crossing' and reduce potential sedimentation to adjacent streams, which can be detrimental to fish habitat. The new bridges will be constructed with steel I-beams as stringers, while utilizing concrete abutments. This sustainable design will provide a crossing for many years with a lifespan much greater than that of the current wood bridges. Using steel bridges, which are common on forested trails, reduce having to pay for bridge replacements for several more decades. The locations of the bridges have been selected with help from a DNR geologist based on site conditions, including: soil, topography, and stream morphology. The bridges will be designed wide enough to allow for equestrian use, as needed.

The cost estimates for the bridges and trail construction is based on other similar DNR bridge and trail projects done in the same regional area over the last few years. If funded, DNR already has experienced permanent recreation staff that will begin working on the project immediately.

At Worksite #1, the Iverson RR Grade Trail bridge replacement, includes a trail re-route of .19 miles. The re-route will bypass .36 miles of poorly designed steep trail with erosion problems, which will be decommissioned. This project component will eliminate the need to replace a costly trail bridge located along the segment of a trail to be decommissioned.

At Worksite #2, two new trail bridge installations will help link NWT Trail and Preston RR Grade Trail together. This trail connection will be appropriately designed for non-motorized use and require reconstruction of an existing trail segment as well as construction of new trail segments. Segments of the existing Silent Swamp Trail, a trail that currently connects with two forest roads at random, will be reconstructed, while new trail will be built (approximately 1.96 miles), while other segments will be decommissioned (approximately .77 miles) due to their steep grades and/or location in slide and erosion prone areas with wet soils.

Since this new trail will be open to mountain bikes it will incorporate International Mountain Biking Association (IMBA) sustainable trail building principles, such as: the half rule, the 10% average guideline, maximum sustainable grade, grade reversals, and proper out slope. This is consistent with the TMRP finding that "some trails are in poor condition and either need to be reconstructed, relocated or abandoned."

3. **Diversity of and Compatibility of Recreational Uses**

This project will continue to provide access to non-motorized recreationists currently accessing trails from the Tiger Mountain Summit Trailhead. Hiking, trail-running, equestrian, and mtn. bike users will benefit from this project as trail opportunities will be improved. Tiger Mountain is an urban forest with a 'gateway trail system' along Interstate 90- which helps meet many public recreational demands. As mentioned in the response to question 1, there are few other places for equestrian, and mtn. bike users to recreate in King County. Gateway trails offer opportunities for kids and adults to get outside and exercise close to home. This project will help improve outdoor trail-based recreation opportunities close to millions of potential recreationists in the surrounding metro area. Furthermore, this project reopens Iverson Trail to horse use.

4. Outcome-Focused Performance Measures

Installation of the three bridges and construction of the proposed trail segments will show measurable progress toward meeting goals and objectives outlined in the TMRP, which recommends providing 15.2 miles of mtn. bike/horse/hiker trails. The new trail bridges, and trail construction linking Preston RR Grade Trail to NWT Trail, will increase the multiple-use trail mileage on Tiger Mountain from 7.6 miles to 10.3 miles, while directing people away from actively used forest roads. An increase in user safety should occur, with fewer vehicle and recreationist conflicts- once the new trail is constructed, as users will be required to travel less forest road mileage to complete a loop. Bridges will help protect fish habitat and stop sediment delivery by allowing recreation users to access trails without having to ford creeks and streams. Improving the recreation experience for mtn. bikers, by increasing designated trail mileage and improving their recreation opportunities in the area, should also reduce unauthorized mountain bike riding on 'hiking only' trails.

Timeline – Trail/Bridge Construction:

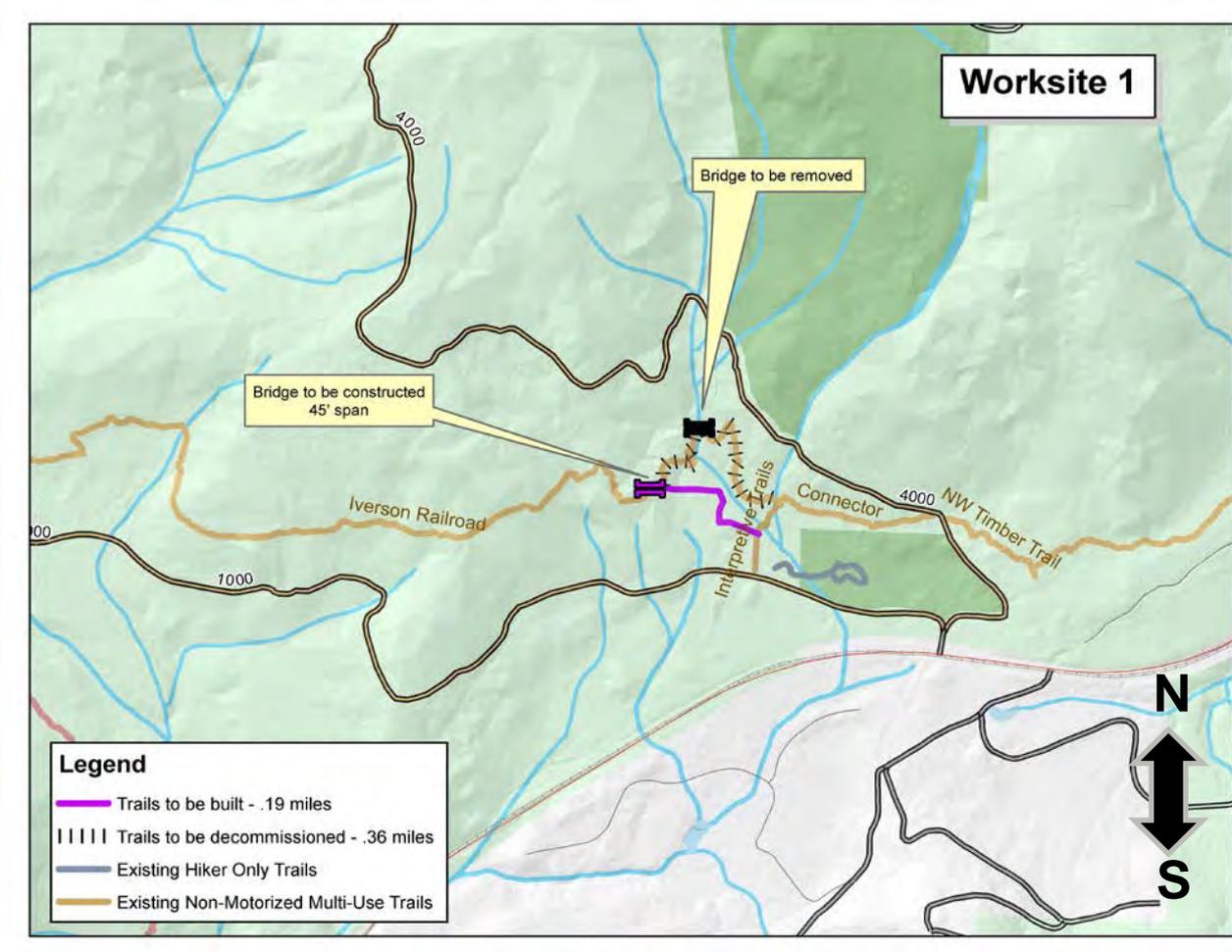
RCO	Funding/grant award	July 2011
DNR	SEPA and permits	May 2011 – Aug. 2011
DNR	Final trail/bridge specifications/contract bid	June 2011 – Dec. 2011
DNR/Contractor	Contract awarded – bridge construction	June 2012 – Oct. 2012
DNR/Contractor	Trail construction start/completion	Summer 2011 – Oct. 2012

5. Public Benefit and Project Support.

This project is consistent with the TMRP which involved input from a diverse body of stakeholders, such as conservation, recreation and local government interests. If funded, this project will improve immediate outdoor recreation opportunities and improve the local economy for the surrounding communities of Issaquah, Snoqualmie, Maple Valley and North Bend who rely on customer traffic from recreationists on their way to Tiger Mt. In addition, the Snoqualmie Unit Advisory Committee (SUAC), a diverse group of stakeholders facilitated by DNR who meets biannually, supports this grant application. This group encompasses a broad spectrum of user groups and citizens within the project area, and advises the Snoqualmie Unit DNR on recreation and forest management decisions. Also, the Mountains to Sound Greenway Trust, Evergreen Mountain Bike Alliance (EMBA), Backcountry Horseman of America, Washington Trails Association (WTA), and Issaquah Alps Trails Club support this grant application. In addition, WTA has committed to leading volunteer work parties to construct an 800'-1000' linear-foot trail re-route at Worksite #1, on the Iverson RR Grade Trail, if this grant is funded. EMBA has also committed to help construct the new trail required to connect the popular Preston RR Grade Trail and NWT Trail. These strong partnerships are crucial as the DNR is leveraging over \$53,000 in donated volunteer labor as project match.

Tiger Mountain State Forest Bridge Replacements, 10-1067D

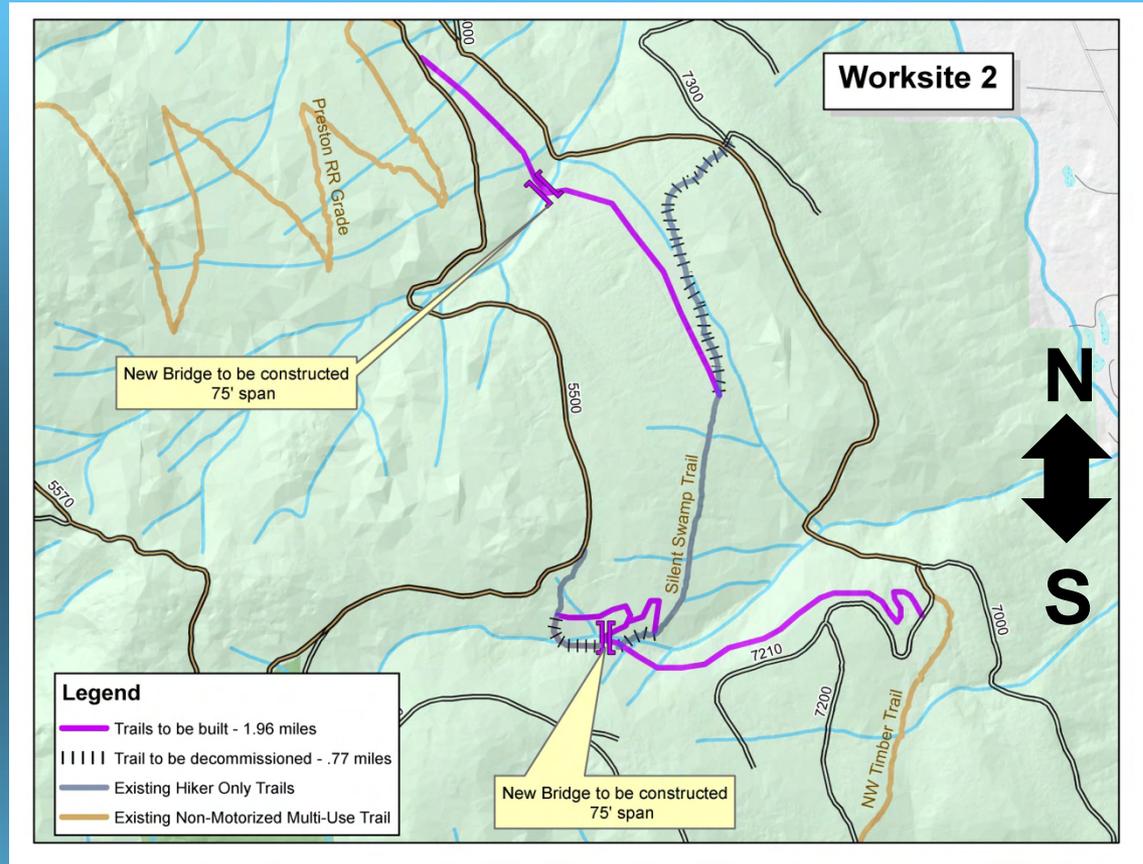
Worksite #1 Graphics- One new 45' bridge replacement and .19 miles of new trail construction



The Iverson RR Trail bridge is currently closed to equestrian use. The new bridge will allow the Iverson RR Grade Trail to re-open to horses and provide a long-term crossing for hikers and mountain bikers. The .19 mile trail re-route will eliminate a future trail bridge replacement.

Tiger Mountain State Forest Trail Bridges, Project #10-1067D

Worksite #2 Graphics- Two new 75' length bridges and 1.96 miles of new trail construction



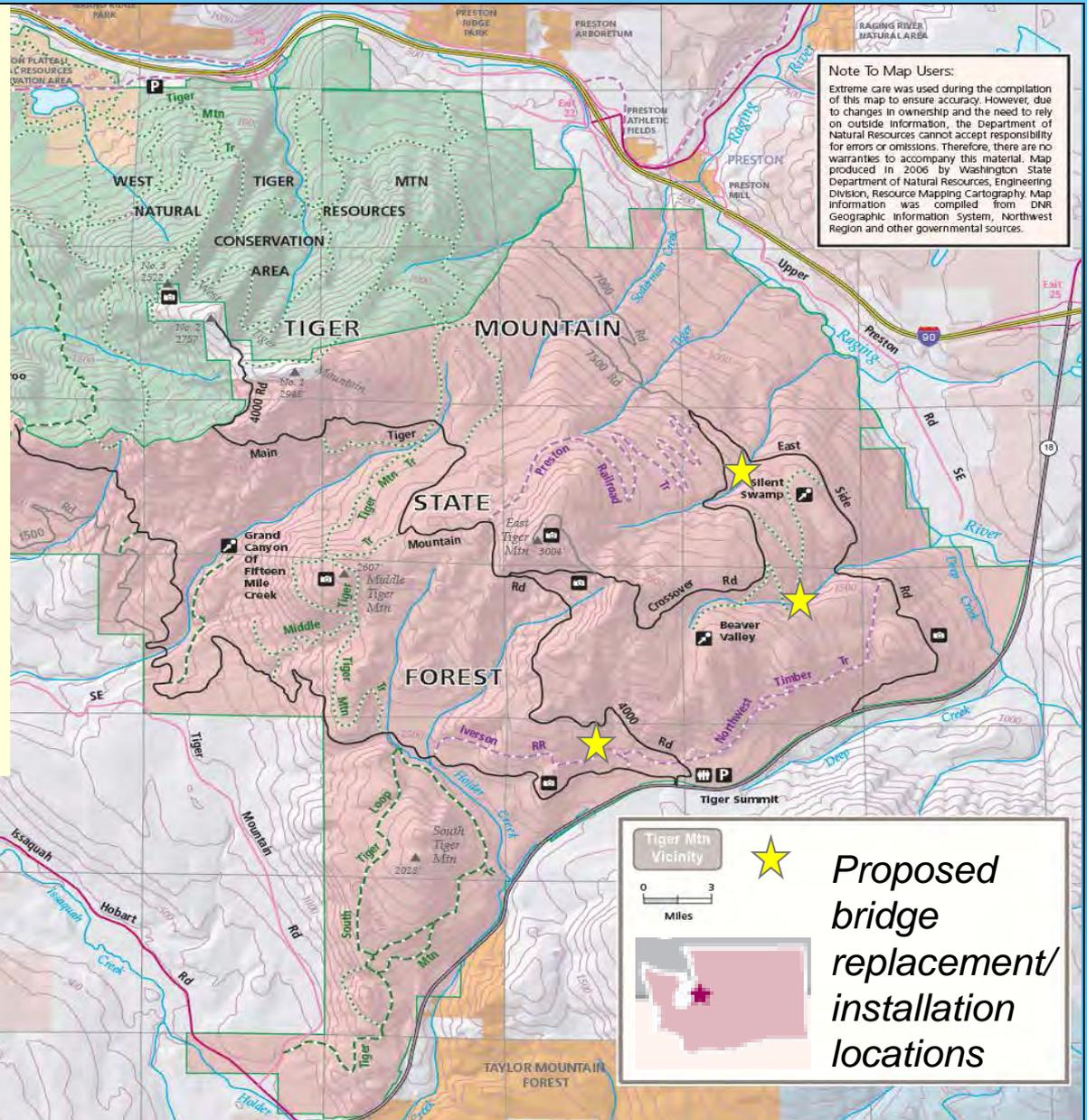
Current trail crosses through a fish-bearing stream with poor trail approach design.

Two new bridge installations, use of existing trail, and new trail construction will connect the heavily used Preston RR Grade Trail and NW Timber Trail. This new trail connection will eliminate the current requirement to travel 2.7 miles of forest road and increase safety by reducing user conflicts with vehicle traffic on the roads.

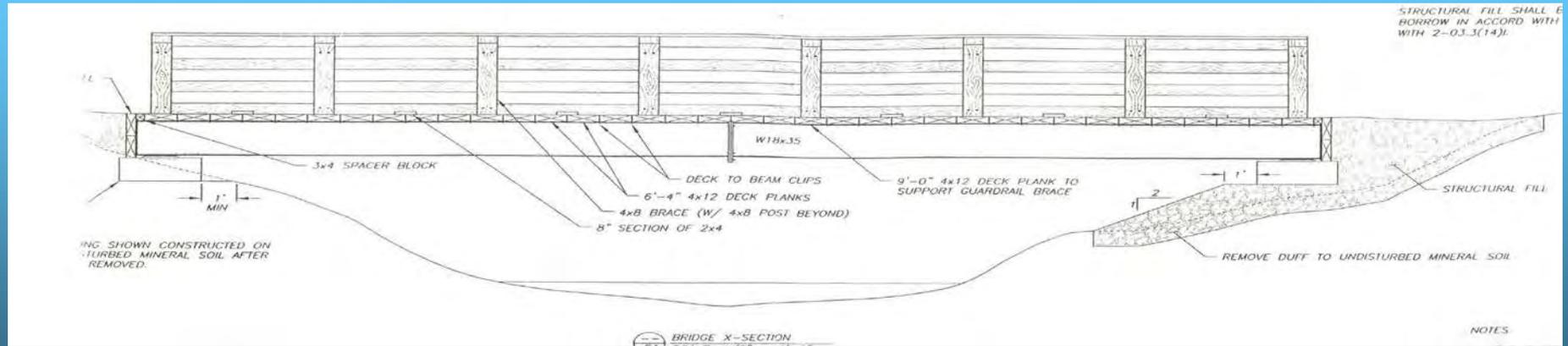
Tiger Mountain State Forest Trail Bridges, Project #10-1067D

Site Location Map:

One proposed bridge replacement is located on the heavily used Iverson Trail, while two new bridge installations are needed to connect Preston RR Grade Trail with Northwest Timber Trail. This connection will utilize segments of the existing Silent Swamp Trail. The bridges will be located on the heavily used non-motorized trail system.



Tiger Mountain State Forest Trail Bridges, Project #10-1067D



Sample Design of Bridge Type to be Constructed



The bridges will be constructed with concrete abutments and steel I-beam stringers with wood decking. This design has a very long lifespan.