



Salmonberry Trail Valley Segment Base Conditions Report



Prepared for
Oregon Parks and Recreation Department

August 2017

Prepared by
Parametrix

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Prepared for

Oregon Parks and Recreation Department

725 Summer Street, N.E., Suite C
Salem, Oregon 97301

Funded by

Washington County Visitors Association

12725 SW Millikan Way, Suite 210
Beaverton, Oregon 97005

Prepared by

Parametrix

700 NE Multnomah, Suite 1000
Portland, OR 97232-4110
T. 503.233.2400 T. 360.694.5020 F. 1.855.542.6353
www.parametrix.com

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TABLE OF CONTENTS

1. KEY FINDINGS.....	1-1
2. BACKGROUND.....	2-1
2.1 Important Context	2-1
3. PRIOR PLANNING EFFORTS	3-1
3.1 Salmonberry Corridor Preliminary Feasibility Study	3-1
3.2 Salmonberry Trail Concept Plan and Atlas	3-3
4. STUDY AREA.....	4-1
4.1 Study Subareas	4-2
5. VALLEY STUDY ELEMENTS.....	5-1
6. BASE CONDITIONS.....	6-1
6.1 Inventory Approach.....	6-1
6.2 Field Reconnaissance.....	6-1
6.3 Built Conditions	6-8
6.3.1 Communities.....	6-8
6.3.2 Property Ownership and Boundaries	6-10
6.3.3 Rail Features and Conditions	6-11
6.3.4 Other Transportation Modes.....	6-21
6.3.5 Parks and Open Spaces.....	6-27
6.3.6 Significantly Altered Landforms.....	6-28
6.4 Natural Conditions.....	6-28
6.4.1 Wetlands (and Non-Wetland Waters).....	6-28
6.4.2 Streams.....	6-29
6.4.3 Floodplains.....	6-31
6.4.4 Topography.....	6-31
6.4.5 Unstable Slopes	6-31
6.4.6 Hazardous Materials.....	6-32
6.4.7 Historic and Archeological Resources.....	6-32
7. REGULATORY CONSTRAINTS.....	7-1

LIST OF FIGURES

Salmonberry Trail Valley Segment Study Area	4-2
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LIST OF TABLES

6-1 Bridge and Trestle Crossings.....	6-19
7-1 Possible Permit Requirements.....	7-1

TABLE OF CONTENTS (CONTINUED)

LIST OF PHOTOGRAPHS

6-1	Stored rail cars between Manning and Banks	6-2
6-2	Only extended clear section of rail (near Banks).....	6-3
6-3, 6-4, 6-5, and 6-6	Examples of encroaching vegetation	6-4
6-7	Disappearing crossing of NW Cochran Road	6-5
6-8	Relatively clear areas near Scofield crossing	6-6
6-9	Dense blackberry growth.....	6-7
6-10	Historic Timber Fire Station	6-8
6-11	NW Bacona Road in Buxton	6-9
6-12	Manning church	6-9
6-13	At the Banks-Vernonia Trailhead in Banks	6-10
6-14	Encroaching waterslide.....	6-13
6-15 and 6-16	Additional examples of encroaching vegetation	6-13
6-17	Previously undocumented damage east of Walcott Tunnel	6-15
6-18 and 6-19	Major new landslide near the OR 47 Trestle	6-16
6-20 and 6-21	Low rail berm.....	6-16
6-22	Banks-Vernonia Trail alongside the Salmonberry Corridor	6-17
6-23 and 6-24	Williams Creek Trestle	6-19
6-25	East entrance to Walcott Tunnel	6-20
6-26	Interior of Walcott Tunnel	6-20
6-27	Reehers Camp entry	6-21
6-28	NW Timber Road.....	6-22
6-29	NW Strassel Road.....	6-23
6-30	US 26 Bridge.....	6-23
6-31	View from Fisher Road/OR 47 Intersection	6-24
6-32	Banks-Vernonia Trail near Manning	6-25
6-33	Manning Trailhead.....	6-26
6-34	Old Shelter at Reehers Camp.....	6-27
6-35	Camp Creek Trestle.....	6-30
6-36	Trestle across West Fork Dairy Creek	6-31
6-37	West Fork near OR 47	6-31

APPENDICES

- A Valley Segment Base Conditions Maps
- B Preliminary Geotechnical Evaluation of Rehabilitation of the Walcott Tunnel
- C Valley Segment Property Ownership Maps
- D Notes from meeting with representatives of Oregon Equestrian Trails NW Chapter
- E Preliminary Landslide Hazard Assessment

1. KEY FINDINGS

The following key conditions, and other information, are reviewed in more detail in this Salmonberry Trail Valley Segment Study (Valley Study) Base Conditions Report. Subsequent analysis in the course of the Trail Alignment and Type and Trailhead Assessment phases of this Valley Study may refine or change these preliminary conclusions with respect to key conditions.

Please refer to the base maps and other illustrations included in this Base Conditions Report for additional information. An interactive web map has also been produced. This web map may be refined and updated during this Valley Study as additional evaluation and analysis are conducted. This web map is available for viewing in *draft* form at:

<http://parametrix.maps.arcgis.com/apps/webappviewer/index.html?id=5e05f40d35ae4c278a16a506cb0bb802>

The conditions observed in the field that, in no particular order, stood out in the course of developing this Base Conditions Report are:

1. **Encroaching vegetation has significantly impaired access to, and the preliminary inventory of, nearly all sections of the Valley Segment rail corridor** and, if not managed, may eventually cause the rail berm to deteriorate in a manner that could increase the cost of building the Salmonberry Trail (Trail).
2. There are **only a handful of significant building or use encroachments** into the rail right-of-way.
3. **The width of the rail right-of-way is generally either 80 feet or 100 feet**, although there is considerable variation in the sections between the west end of the study area and Buxton.
4. **New (likely limited) damage to the rail berm may have occurred since the 2015 Salmonberry Trail Concept Plan atlas was produced.** One recent set of landslides between Oregon 47 (OR 47) and Stub Stewart State Park can be characterized as severe.
5. **Bridge and trestle conditions appear to not have not appreciably worsened** since the 2008 Federal Emergency Management Agency (FEMA) and Port of Tillamook Bay (POTB) rail line assessments.
6. **Access to and through the Walcott Tunnel is increasingly becoming more limited and unsafe** due to encroaching vegetation and the advancing deterioration of tunnel entrances, walls, and ceiling.
7. **The required new connecting trail from the area of the existing Reehers Camp trailhead to the rail corridor may have to be extended farther west** due to steep slopes and streams near the west end of the study area.
8. There generally appears to be **enough area within the rail right-of-way to build a 14-foot-wide multiuse trail cross section** as per State standards, without having to use structures such as retaining walls. The one possible exception is for some rail corridor sections between Buxton and Banks where the existing rail berm is elevated and has an 8- to 9-foot-wide crown.
9. Excluding rail corridor sections between Buxton and Banks (see point 8 above), **a parallel 14-foot-wide equestrian trail cross section, per Oregon Equestrian Trails preferred specifications, can be built** through about 75 percent of the rail corridor. An equestrian trail through the balance of the upper rail corridor would require retaining walls, narrowed buffers, and/or a reduced-width pathway.

10. Within the rail corridor, despite often steep surrounding topography, **the future Trail will feature low grades well under Americans with Disabilities Act (ADA) maximum limits.**
11. Local conditions suggest that the **bypass options included in the 2015 Concept Plan atlas may have little or no competitive advantage** over use of the rail corridor.
12. **Roadway access to the rail corridor is limited**, particularly from the west end of the study area to the vicinity of Buxton. In addition to the potential trailheads that will be evaluated as part of this Valley Study, emergency access points should be considered.
13. **Future Trail development may be most impacted by water bodies, wetlands, and/or floodplains in two sections:** (1) Reehers Camp and the Nehalem River at the west end of the study area and (2) along the West Fork Dairy Creek between Stub Stewart State Park and Banks.

2. BACKGROUND

An 84-mile-long section of rail right-of-way owned by the Port of Tillamook Bay (POTB) is being planned for redevelopment as a multiuse cross-regional bicycle and pedestrian trail connecting coastal Tillamook County to the upper Tualatin Valley in rural western Washington County. Rail service on this right-of-way ceased in 2007 (except for the Oregon Coast Scenic Railroad excursion train service that currently runs between the Cities of Garibaldi and Wheeler on the Oregon Coast, and a pedal-powered coastal “rail rider” service between the Cities of Bay City and Tillamook).

A major winter storm in 2007 caused significant damage at multiple points along the rail corridor, particularly for 16 miles within the Coast Range and the Salmonberry River Canyon. POTB elected not to repair the rail line, which had previously been rebuilt after a major 1996 storm event. Freight traffic on the rail line had also been in significant decline for many years, even as the cost of maintaining and replacing aging rail infrastructure increased.

A regional coalition of governments, local businesses, other economic development interests, and bicycle and walking advocates was formed to examine the feasibility of multiuse trail development within the rail right-of-way. This group was eventually reconstituted as the multi-jurisdictional Salmonberry Trail Intergovernmental Agency (STIA). STIA now has the overall responsibility for planning, managing, and eventually building the Trail, in cooperation with state agencies and local governments, as well as with cooperating private and nonprofit entities.

Among many allied efforts, STIA has determined to secure funding to complete detailed master plans for the Trail. For this purpose, the proposed Trail was broken into four segments: Coast, River, Canyon, and Valley. The Coast Segment Study was completed in early 2017 with funding allocated from Tillamook County’s lodging tax awarded through action of the Tillamook County Board of Commissioners. This Valley Study is the second in the segment planning series. Funding for the Valley Study comes from an allocation of Washington County lodging tax awarded by the Washington County Visitors Association. Expectations are that detailed planning for the Canyon and River Segments, perhaps combined into a single planning effort, will be initiated in 2018.

The Oregon Parks and Recreation Department (OPRD) has been assigned project management responsibility for the planning of these four segments, and to date has been securing private consulting assistance to help meet these responsibilities. The segment plans will provide the essential preliminary design and alignment specifications, costs, and other analysis that will be essential in conducting future engineering and permitting, and for securing construction funding. Building the Trail will take many years, if not decades.

2.1 Important Context

1. **Mile Posts** – Throughout all the various Salmonberry Trail planning efforts (see the following Prior Planning Efforts chapter of this report), the rail corridor is measured by mile posts. Mile posts (MP) were established by the original rail operators. As the Salmonberry rail corridor is part of a larger multistate rail system, the MP numbers reflect a much longer designated rail corridor, which extends to San Francisco, California. In this report, MPs and associated locations are most frequently referenced or listed west to east. The MP numbers decrease west to east. Thus, the Gales Creek Trail which crosses the rail corridor in the lower east side Coast Range is at MP 796. After 21 miles traveling down the corridor east and southeast and entering the Tualatin Valley, the mile post at the north end of the City of Banks is MP 775.

- 2. Overall Salmonberry Corridor Length** – The various Salmonberry plans, press releases, grant applications, progress reports, etc., produced in the last 8 years refer to the total length of the rail corridor being considered for the Salmonberry Trail as between 82 and 87 miles, with 84 or 86 miles being most often cited. The Trail’s stated end points have slightly varied in the different plans, particularly near the City of Banks. Adding up the designated segment lengths in some of these documents also results in differing totals. For FEMA and POTB assessments conducted after the 2007 storm, the full corridor is defined as MP 770.5, NW Cornelius Schefflin Road (southeast of Banks), to MP 859, Tillamook Airport.

The cumulative length of all four Trail segments being considered in the current segment studies is, however, MP 859 (Tillamook Airport) to MP 775 (immediate south side of NW Banks Road) or 84 miles in total. The last 4.5 miles through Banks to NW Cornelius Schefflin Road is no longer included. The recently planned Council Creek Regional Trail will have its northern terminus at the Banks Trailhead (MP 775) of the Banks-Vernonia (BV) State Trail, and will provide the equivalent regional multiuse trail access to communities south and east of Banks.

- 3. Valley Segment Length** – The Valley Segment was generally defined in prior plans as a 25-mile-long segment from Cochran Pond (MP 800) to the north end of the City of Banks (MP 775). The Valley Segment study area for this current planning effort differs from these prior plans. Between Cochran Pond and Reehers Camp (approximately MP 795.5) there are increasingly significant and frequent 2007 storm damage points, and the determination was made to combine most of these last Valley Segment miles into the even more heavily damaged Canyon Segment. Damage points from the 2007 storm, and other damage within the Valley Segment over the last 8 to 10 years, are documented in the 2015 Concept Plan atlas (see the summary in Chapter 3 of this Base Conditions Report).
- 4. Modifications to Valley Segment Study Area** – The originally scoped Valley Segment study area included only the 20.5 miles of rail corridor from Reehers Camp (approximately MP 795.5) to Banks. The statement of work for the Valley Study defines the west endpoint of the study area as “near Reehers Camp.” The July 2017 field reconnaissance conducted as part of Valley Study start-up activities found that local topographic conditions may make the most direct connections between Reehers Camp (a possible Salmonberry Trail trailhead) and the rail corridor extremely difficult and expensive. See Chapter 4 of this Base Conditions Report for more details on how trail connections at the west end of the study area may be handled.

3. PRIOR PLANNING EFFORTS

Two earlier Salmonberry Trail planning efforts included the areas being considered in this Valley Study: the 2013 Salmonberry Corridor Feasibility Study (Feasibility Study) and the 2015 Salmonberry Trail Concept Plan and atlas (Concept Plan). These two efforts included the entire 84-mile-long rail corridor from the Tillamook Airport south of the City of Tillamook in coastal Tillamook County to the north end of the City of Banks in rural Washington County.

Both the Feasibility Study and Concept Plan included construction cost estimates that should, in general, be *disregarded* at this point. The recently completed (2017) Coast Segment Planning Study (Coast Study) found these earlier estimates to be orders of magnitude too low. This disparity is a function of the greater detail applied to Trail specifications in the Coast Study, as well as the inclusion of cost estimates for engineering and permitting. The Coast Study also more precisely identified requirements for special structures and other solutions needed to widen the rail berm cross section for Trail development in compliance with existing environmental and access regulations.

Similar higher cost estimates are expected as an outcome of this Valley Study. In addition, the Trail cross sections included in the Concept Plan will be referenced in developing Valley Study Trail solutions, but will be modified or replaced based on Valley Study conclusions.

3.1 Salmonberry Corridor Preliminary Feasibility Study

The Feasibility Study considered a variety of re-use options for the former POTB-owned rail corridor: rail-only, multiuse rail-*with*-trail, multiuse rail-*to*-trail, horse-hiking, and hiking. The Feasibility Study divided the rail corridor into four segments. The most eastward segment in the Feasibility Study was named Segment A: Banks (MP 775) to Cochran (MP 800). All of the current Valley Segment study area is within the Feasibility Study's Segment A.

Some key issues and data noted in the Feasibility Study's description of Segment A that may inform the current Valley Study are summarized below. Please keep in mind that the information below in plain text reflects statements in the final published Feasibility Study (or Concept Plan). This information may no longer be wholly accurate for a variety of reasons. Information or data identified in course of developing this Base Conditions Report that clarifies, refines, or changes Feasibility Study (or Concept Plan) statements is in *italics*. These factors notwithstanding, the Feasibility Study, and especially the Concept Plan and atlas, are valuable reference documents and were used frequently in developing this Base Conditions Report.

- **Right-of-Way Width** – Rail right-of-way width starts at 60 feet in Banks (MP 775), widens to 80 feet at MP 777, and then to 100 feet at Williams Creek near Buxton (MP 782). The Feasibility Study also noted that there are wider rail right-of-way sections in three locations: MP 781 (Buxton), MP 785 (Scofield), and MP 793 (Timber).

A review of POTB records found that the rail right-of-way from MP 775 (Banks) to MP 777 is actually 80 feet wide. Also, POTB right-of-way records indicate that there are many more areas of wider right-of-way than just at Timber, Scofield, and Buxton.

- **Rail Grade and Alignment** – The rail alignment from Banks to just past Buxton is relatively direct and flat with grades at 1 percent. Between Buxton and Timber (MP 793) the rail corridor gains 650 feet, with grades sometimes reaching 3 percent.

The Feasibility Study provides no information on the physical locations of the rails within the right-of-way (nor does the subsequent Concept Plan). This Base Conditions Report provides some of that information.

- **Bridges/Trestles/Tunnels** – The Feasibility Study noted that 11 bridges or trestles in Segment A require minor repairs, citing a 2008 FEMA structural engineering assessment of the rail infrastructure. The Feasibility Study does not specifically cite the location of these structures within Segment A. The Walcott Tunnel is also noted in the Feasibility Study.

The 2008 FEMA assessment is a key resource for the Valley Study. This assessment cataloged 16 bridges or trestles and one tunnel (Walcott) between Reehers Camp and Banks.

- **Natural Setting** – The Valley Segment begins in flat farmlands with minimal natural features other than remnant woodlands. The rail corridor also crosses or follows the West Fork Dairy Creek. Several species of salmonids are present in the West Fork. North of Buxton, the rail corridor begins to climb and eventually enters the upper Nehalem River Watershed. Private timberlands and state forest surround this portion of the corridor, and a "variety of forest animal species may be present."

Between Buxton and Banks, the dominant landscape consists of valley floor farmlands, remnant woodlands, and stream corridor riparian areas. Rural residential uses, small communities, commercial uses, farming, logging, and evolving agricultural and forest management practices over the past decades have greatly altered the natural ecosystems in the study area.

- **Land Uses** – Between the unincorporated community of Buxton and the City of Banks, the land uses are a mixture of farm and rural residential structures and activities. Between the unincorporated communities of Timber and Buxton, the Feasibility Study states that the primary use is commercial forest lands. Past Timber, the rail corridor enters the Tillamook State Forest at MP 794. The Feasibility Study implies that there may be private structure and use encroachments into the rail right-of-way, particularly around Timber. The use of fencing to separate the future Trail from other land uses is also suggested.

There are also a fair number of large lot residential uses and small farms between Timber and Buxton, particularly along NW Strassel Road and NW Scofield Road. July 2017 field examinations found few significant encroachments. The Valley Study will include a visual atlas illustrating possible visual and security screening options.

- **2007 Storm Damage** – The Walcott Tunnel is cited by the Feasibility Study as having the most damage within the Valley Segment. The 2008 FEMA-WH Pacific structural repair estimate for the tunnel (including landslide clearing) was \$5.638 million. The FEMA assessment also identified minor repairs to 11 bridges/trestles.

In the same year as the FEMA-WH Pacific report, a PBS Engineering geotechnical site assessment completed for POTB cited \$1.143 million for cleanup and remediation for conditions outside of the tunnel. The factors considered in arriving at these two estimates appear to at least partly overlap. This Valley Plan will develop a unified cost estimate for repair and re-use of the Walcott Tunnel for Trail purposes.

- **Encroaching Vegetation** – The Feasibility Study noted that since rail service ceased in 2007 that the corridor is increasingly obstructed by overgrown vegetation and downed trees.

The July 2017 field reconnaissance conducted as part of the Valley Study found that many of the conditions cited in the Feasibility Study (and the subsequent Concept Plan) have only worsened since the 2012 to 2013 period in which the Feasibility Study was developed, particularly with respect to encroaching vegetation. Photography included in the 2008 FEMA and PBS reports shows a rail corridor with significantly less vegetation overgrowth than was observed in July 2017.

- **Trail Options** – The Feasibility Study described rail-with-trail development as Moderately Difficult to Difficult. Multiuse trail (without rail and using a paved 10-foot-wide surface), horse-hiking trail (soft surface), and hiking trail (soft-surface pathway down to 2-foot width) options are termed as having "minor challenges." The Feasibility Study stated that the "POTB Rail right-of-way is sufficiently wide to support a 10-foot-wide asphalt trail atop the existing ballast." The Feasibility Study also noted that the rail corridor closely parallels and abuts the existing Banks-Vernonia Trail between Banks (MP 775) and Manning (MP 779), and suggests using this existing trail for the first 4 miles of the Salmonberry Trail.

This Valley Study will examine the feasibility of a paved 10-foot-wide multiuse pathway with 2-foot-wide gravel shoulders. Contrary to the statements in the Feasibility Study, the existing fill and ballast constituting the rail berm is not always sufficiently wide to accommodate a 10-foot-wide paved pathway, much less the added 2-foot-wide shoulders required for State-standard multiuse trails. Cost estimates for the bicycle/pedestrian facility will also include a soft-surface treatment, although using a soft surface will limit the range of possibilities for construction funding. The possibilities for a parallel equestrian trail within the rail right-of-way will also be examined as part of this Valley Study.

3.2 Salmonberry Trail Concept Plan and Atlas

The Concept Plan, and its atlas, was published in 2015 and maps the entire Salmonberry rail corridor between the Tillamook Airport (MP 859) and the City of Banks (MP 775). The atlas is organized as a series of map tiles. The Concept Plan divided the future Trail into four segments:

- Tualatin Valley
- Salmonberry Canyon
- Nehalem River
- Tillamook Coast

The Concept Plan's Tualatin Valley Segment is identical to that defined in the Feasibility Study. This segment is illustrated on Concept Plan Map Tiles 1 to 13. *As noted earlier, this 2017 Valley Study shifts detailed planning for up to 2 or 3 of the rail corridor miles between Cochran Pond and Reehers Camp (Map Tiles 12 and 13) to the future Canyon Segment Study.*

Nearly all the key issues for the Valley Segment that are cited in the Feasibility Study (see preceding section of this report) are again cited in the Concept Plan. To these Feasibility Study-identified issues, the Concept Plan adds the following information and statements. Information or data identified in the course of developing this Base Conditions Report that clarifies, refines, or changes these following Concept Plan statements is in italics.

- **Trailheads** – The Concept Plan illustrates new trailhead options at Manning (MP 779) that would replace or add to the existing trailhead (Map Tiles 3 and 3A); identifies the existing BV Trail

trailhead on NW Bacon Road in Buxton as possibly being used to reduce demand pressure on the Manning Trailhead (Map Tile 5); and illustrates new and separate bicycle/pedestrian and equestrian-only trailheads in the community of Timber (MP 793, Map Tiles 10, 10A, and 10B).

The possible Manning and Timber trailheads will be further analyzed by this Valley Study, as well as a trailhead expansion in Banks and a potential new trailhead at Reehers Camp. Use of the Buxton Trailhead to effectively reduce demand at the Manning Trailhead would minimally require clear signing at both trailheads, and a designated on-street bicycle/pedestrian connector to one of two intersections of NW Fisher Road and the Salmonberry rail right-of-way (MP 780.7 or 781.3) within the community of Buxton. The Concept Plan illustrated the MP 781.3 route. This connector will be evaluated as part of this Valley Study, but no alterations or improvements to the existing Buxton Trailhead will be proposed.

- **Bypass Alternatives** – Three bypass alternatives are described in the Concept Plan.
 1. A slightly under one-mile-long “temporary” bypass on a widened shoulder of OR 47 (MP 781.5 to MP 782.5) until “the Williams Creek Trestle can be restored and re-surfaced.”
 2. Seven-mile-long “temporary” shared-use solution along NW Strassel Road and NW Timber Road to bypass the Walcott Tunnel until it can be repaired.
 3. Potential new bypass and connector trail aligned off of the rail right-of-way just east of Timber near Castor Creek (see Figure 2). This trail would eliminate an approximate 1.5-mile-long rail corridor oxbow from the Salmonberry Trail route.

All three of these options will be further analyzed as part of this Valley Study.

- **Catalyst Projects** – The Concept Plan identifies five potential “catalyst projects” between Reehers Camp and Banks.

These Concept Plan catalyst projects are not within the scope of this Valley Study as such. Nonetheless, three of the Concept Plan-listed catalysts—Manning Trailhead, Highway 47 bridge/trestle modifications, and Timber Trailhead—are included in this Valley Study for other purposes.

4. STUDY AREA

The study area for the Salmonberry Trail’s Valley Segment is defined in the formal statement of planning work as the sections of rail right-of-way from “near to” Reehers Camp (approximately MP 796 to MP 795.5) to NW Banks Road and the Banks-Vernonia Trailhead in the City of Banks, Oregon (MP 775). Reehers Camp is an Oregon Department of Forestry–operated campground in the Tillamook State Forest. Reehers Camp also features extensive equestrian facilities, and a large trailhead/gravel parking lot outside and west of the campground. The Banks Trailhead is the southern terminus of the Banks-Vernonia Trail.

Field reconnaissance conducted as part of the Valley Study start-up found that local topographic conditions *may* make the most direct possible connection(s) between Reehers Camp and the rail corridor extremely difficult and expensive. The primary advantages of staying with a “near to Reehers” trail connection are the proximity of the existing trailhead facility and possible future trailhead expansion options, as well as not having to build a long new connector trail along NW Cochran Road.

These factors notwithstanding, the crossing of steep slopes and the Nehalem River (and possibly Step Creek) significantly complicates a “near to” solution. The most direct possible connections would probably require significant trail switchbacks, bridges, and paving to meet ADA grade standards and to avoid adverse stream impacts.

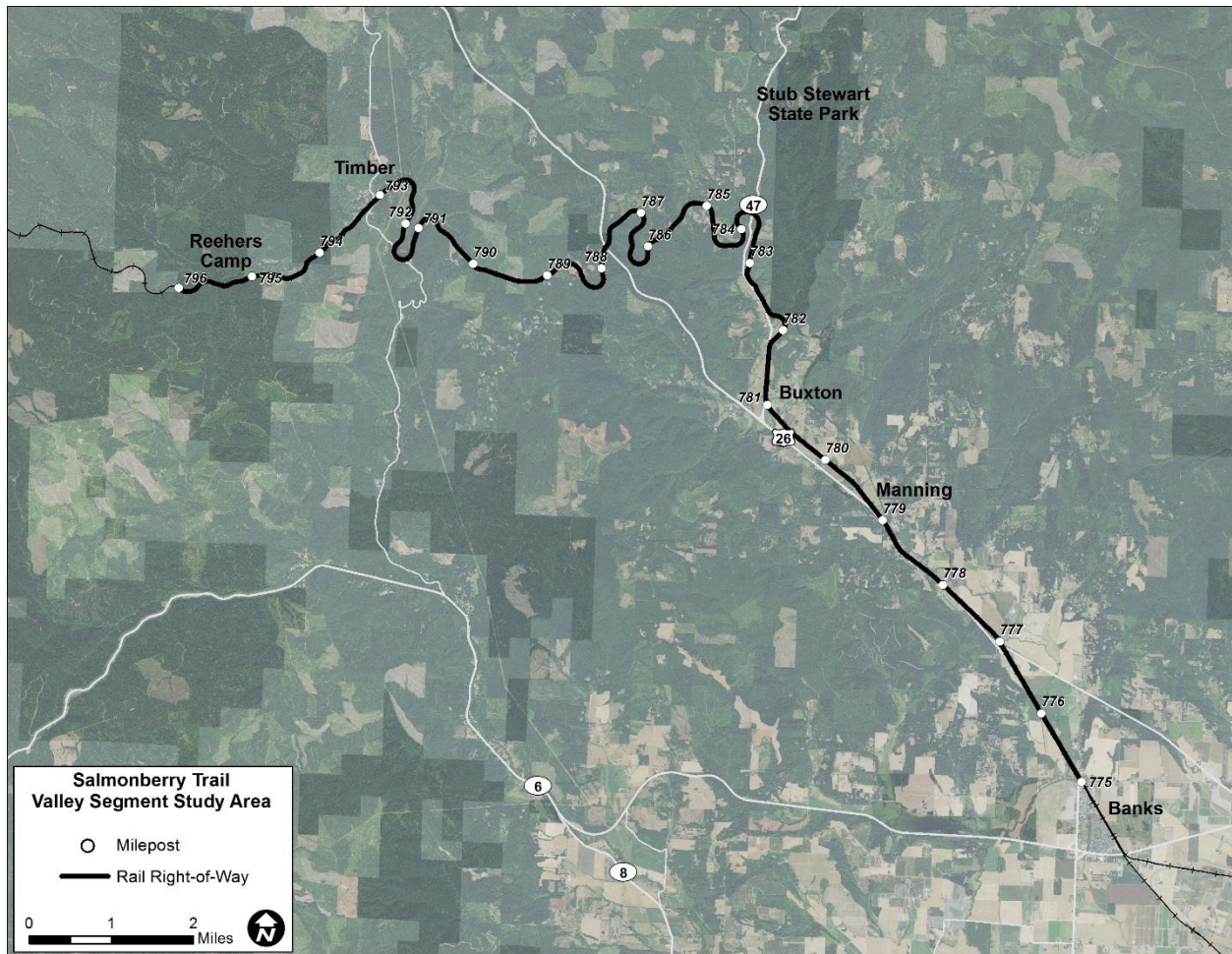
With these challenges in mind, four other possible connection points were tentatively identified as part of the July 2017 field reconnaissance. These possible additional connections, if selected, would increase the length of the study area, as measured along the rail right-of-way, by approximately 0.5 to 1.8 miles.

- **Public Lands** – Gales Creek Trail (MP 796) *or* a NW Cochran Road crossing of the rail right-of-way (MP 797.28).
- **Private Lands** – The vicinity of MP 796.7, either using an existing (but unpermitted) gravel timber road crossing of the right-of-way *or* by building a new connector trail from NW Cochran Road to the vicinity of this MP.

These four additional connection options would require development of a new ADA-compliant 10-foot-wide paved multiuse trail along NW Cochran Road from the existing Reehers Camp trailhead/gravel parking lot (or any other new trailhead facility in this area as may eventually be defined by this Valley Study) to the rail right-of-way connection point. Lateral trail connections between the road and the rail right-of-way may also be required. The exception is the MP 797.28 option where the road itself crosses the rail line.

This road-adjacent connecting trail would cross in and out of public and private lands (see Appendix C), and could be anywhere from 1 to 2 miles long depending on the selected rail right-of-way connection point. The Gales Creek Trail option would require the shortest connecting trail section along NW Cochran Road but would involve the rebuilding and paving, and probable realignment, of a large section of the Gales Creek Trail to meet State and ADA multiuse trail standards.

These possible study area modifications notwithstanding, the entire study area would still be within Washington County. The rail right-of-way enters Washington County above Cochran Pond (MP 800), then briefly re-enters Tillamook County below Cochran Pond, before meandering back into Washington County at approximately MP 797.4.



Salmonberry Trail Valley Segment Study Area

4.1 Study Subareas

To facilitate the reporting and mapping of the outcomes of this Valley Study, the study area is divided into eight subareas:

1. Cochran Road Crossing of Rail Corridor (MP 797.28) to MP 794.56.
2. MP 794.56 to west of Walcott Tunnel (MP 790), including the community of Timber.
3. Walcott Tunnel to US 26 (MP 787.7), including the tunnel and existing rail bridge crossing of US 26.
4. US 26 to West Fork Dairy Creek (MP 783), including the existing rail bridge/trestle crossing of OR 47.
5. MP 783 to NW Fisher Road near Buxton (MP 780.7), including the community of Buxton.
6. MP 780.7 to Manning (MP 778.9), including the community of Manning.
7. MP 778.9 to US 26/OR 47 Interchange (MP 776.99).
8. MP 776.99 to north end of City of Banks (MP 775).

5. VALLEY STUDY ELEMENTS

The Valley Study includes the following elements:

- **Public engagement activities**, including four stakeholder advisory committee meetings, two landowner workshops, production of a visual atlas of trail screening options for use by landowners, meeting with equestrian advocates, and presentations to the STIA Board of Directors.
- **Development of Trail alignment solutions and design recommendations** for the entire study area, based on State regional multiuse standards – 10-foot-wide asphalt paved pathway with 2-foot-wide gravel shoulders.
- **Pre-engineering assessments of the 16 existing rail bridges and trestles** in the study area for the feasibility of converting these structures to meet State regional multiuse trail standards.
- **Plan-level assessment of repairs and upgrades needed to convert the 1,417-foot-long Walcott Tunnel** (MP 789.48) to meet State regional multiuse trail standards.
- **Assessments and recommendations for upgrading existing trailheads or developing new trailheads** at Reehers Camp (including a new connector trail from Reehers Camp to the rail right-of-way), Timber, Manning, and Banks.
- **Analysis of selected alternatives or connectors** as described and/or mapped in the Concept Plan to bypass the following sections of the rail corridor: Castor Creek Cutoff (MP 792.5 to MP 790.75), NW Timber Road and NW Strassel Road (MP 791.5 to MP 788.5), OR 47 Cutoff (MP 782.25 to MP 781.69), and NW Bacona Road to NW Fisher Road (BV Trail Buxton Trailhead to MP 781.2).
- **Feasibility assessment and recommendations for accommodating a parallel and abutting equestrian trail** within the Valley Segment’s rail right-of-way, including sharing modified bridges/trestles/tunnel with bicycle and pedestrian traffic.
- **Development of comprehensive plan-level multiuse bicycle/pedestrian Trail construction cost estimates** including engineering, design, and permitting, removal of existing rail infrastructure, rail trestle and bridge conversions or replacement, and Walcott Tunnel rehabilitation. Other Valley Study cost estimates will include paving of NW Cochran Road out to Reehers Camp (*if* a trailhead in Reehers Camp is recommended), a parallel soft-surface equestrian trail with buffer, and a soft-surface bicycle/pedestrian pathway option for the entire Valley Segment.

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6. BASE CONDITIONS

6.1 Inventory Approach

The approach to creating a Base Conditions inventory for the Valley Segment involved three key elements. Maps illustrating Base Conditions can be found in Appendix A, Figures 1 to 8.

1. **Review of prior Salmonberry Corridor plans, assessments, and records.** These included the 2013 Feasibility Study, 2015 Concept Plan and atlas, an internal POTB inventory (unpublished) of rail corridor features such as right-of-way widths (known informally as the Bridge Book), and structural and geotechnical assessments conducted on behalf of POTB and FEMA by the IBIS Group and PBS Engineering.
2. **Evaluation of the most recent aerials, GIS, and lidar records covering the study area.** The ages of these records range from 2008 to 2016.
3. **A field reconnaissance starting west of Reehers Camp at the Gales Creek Trail crossing of the rail corridor (MP 796) and ending at the City of Banks on the south side of NW Banks Road (MP 775).** This reconnaissance was conducted on July 6, 7, and 10, 2017. The area from the crossing of the rail corridor by a NW Cochran Road secondary road (MP 797.28) and the Gales Creek Trail's intersection with NW Cochran Road was viewed where possible from the road on July 6. An additional field trip specific to the Walcott Tunnel was conducted on August 15, 2017. The report on this tunnel trip is included as Appendix B.

6.2 Field Reconnaissance

Reconnaissance Team – The makeup of the reconnaissance field team varied from day to day, but included the Valley Segment consultant's lead trail engineer, lead trail planner, and GIS specialists, and a geotechnical engineer. The OPRD Salmonberry Trail project manager and the consultant's project manager also participated for selected sections. The reconnaissance was primarily conducted on foot by the field team. The team's lead engineer and GIS analyst were present for all walked sections. *Note: This team, except for the geotechnical engineer, was identical to the team for the Coast Segment Study.*

While rail right-of-way sections were being walked, a one- or two-person "shuttle" team visited and evaluated possible bypass and connector routes (excluding the Castor Creek Cutoff which was viewed by the field team from the rail right-of-way), and also assessed the existing BV Trail trailheads at Buxton, Manning, and Banks. Possible rail right-of-way access points from local roadways were also examined by the shuttle team.

Finally, the shuttle team took the opportunity, while waiting for the field team to arrive at rendezvous points, to informally talk with local residents, businesses, and officials in Timber, Buxton, and Banks, and with bicyclists and hikers at trailheads and along the BV Trail.

Reconnaissance Challenges – The field reconnaissance was planned for three business days. There was an expectation that encroaching vegetation and damage within the rail right-of-way, and to the rail berm fill after 10 years of no railway usage and few repairs, would slow field progress. Pre-field reconnaissance spot visits were made to select areas to develop a preview of possible challenges. Nonetheless, the field reconnaissance was significantly slower and more complicated than anyone had anticipated. The following factors slowed progress and/or limited data collection:

- **Remoteness** – In the upper 10 to 12 miles of the Valley Segment, the remoteness of many rail right-of-way sections from accessible roadways and/or the natural vegetation and topography that had to be crossed to reach the right-of-way made access very challenging.
- **Degradation** – Landslides and other storm damage from 2007, plus additional damage and deterioration of rail infrastructure and rail bed fill since the 2007 storms, and other factors such as downed trees, greatly slowed the walking pace.
- **Blocked Rail Line** – From Manning to within a mile of the City of Banks, flatbed rail cars are stored on the rail line. This circumstance, combined with higher elevation rail berm fills with steeper side slopes, a narrow 8- to 9-foot-wide rail bed crown, encroaching vegetation, and drainage ditches and streams on either side of the rail, made consistent access difficult. This Salmonberry right-of-way section was therefore often observed from the abutting and parallel BV Trail.



Photograph 6-1. Stored rail cars between Manning and Banks

- **Vegetation** – Most significantly, the ubiquitous and ever-increasing encroachment and growth of many species of vegetation into the rail right-of-way, and especially within existing rail line cross sections, made passage very slow and in some places impossible. Blackberries clogging valley floor sections of the rail right-of-way proved particularly hazardous. Vegetation severely limited the field team’s ability to accurately assess (or even see) factors such as rail berm fill conditions and width, culvert and drainage function, and topographic variations.

The only rail cross sections relatively free of major vegetation encroachments were typically short sections where local landowners (and in one case, OPRD) had done some clearing, or where roads crossed the rail right-of-way. The only fully clear section of any length was the last mile of the rail right-of-way before entering the City of Banks. Presumably this area is kept clear to ensure that the stored rail cars (see above) can be easily and quickly removed if needed.



Photograph 6-2. Only extended clear section of rail (near Banks)

- **Bridges and Trestles** – On a positive note, all existing study area bridges and trestles were safely passable. The Walcott Tunnel was also passable, but the deterioration of this 1,417-foot-long structure is clearly ongoing and increasingly severe. Passage through the tunnel is currently ill-advised.

Reconnaissance Outcomes – Observations and findings from the 3-day reconnaissance trip are embedded in many sections of this Base Conditions Report and/or illustrated on base maps and other illustrations and photographs. As noted earlier, encroaching vegetation significantly limited field observations in many areas. Aerial photography, GIS, and lidar records will be used to complete any data gaps during the Trail Alignment and Type Analysis phase of this Valley Study.



Clockwise from upper left, Photographs 6-3, 6-4, 6-5, and 6-6. Examples of encroaching vegetation

In addition, there were three areas that were extremely difficult to access at all. Based on any concerns with Trail alignment or cost recommendations though these areas, additional visits may have to be scheduled depending the completeness of aerial/GIS/lidar information.

- **MP 797.28 to MP 796 (east of Cochran Pond at NW Cochran Road crossing of rail corridor to Gales Creek Trail)** – This area is outside of the original study area boundary and is also beyond the west limit of the possible study area expansion that was initially contemplated in advance of the field reconnaissance. With no prior information on conditions along this right-of-way section, and at the time no experience in making passage through the right-of-way’s vegetation-congested areas, plus observations made early on July 6 in driving along local roadways, the walking of this section was deferred. If one of the connecting trail options west of the Gales Creek Trail is deemed most viable as part of the upcoming Trail Alignment and Type Analysis phase, this particular section of rail may have to be revisited.



Photograph 6-7. Disappearing crossing of NW Cochran Road

- **MP 787.7 (US 26) to MP 784.9** – This rail right-of-way section is partly along NW Scofield Road. The rail right-of-way crosses NW Scofield Road in two places (MP 785.29 and MP 784.9). The field team reached US 26 in mid-afternoon on the second day of the field reconnaissance (July 7) after traveling only 4 miles in 6 hours. This US 26 to OR 47 area promised to have similar encroaching vegetation conditions to those experienced earlier in the day, particularly after the shuttle team examined the abovenamed two rail crossings.

In addition, there were no documented damage points or trestles in this section, although the Concept Plan illustrated tributaries of Cummings Creek crossing through culverts under the rail line in 10 places (plus two more culvert crossings or other streams). Based on field reconnaissance experience up to this point, it was deemed unlikely that these culverts could be observed due to dense vegetation.

With these circumstances in hand, the decision was made to defer what would probably have been a 3- to 4-hour effort. The field team was, however, dropped off at MP 784.9 (the most easterly rail crossing on NW Scofield Road) and walked the rail right-of-way from this point to the bridge over OR 47 (MP 783.55). This section of right-of-way, at least in part, appeared to have been intermittently cleared by adjacent farmers.



Photograph 6-8. Relatively clear areas near Scofield crossing

- **MP 781 to MP 779.27 (Buxton to near Manning)** – In advance of the field reconnaissance, spot inspections raised some hope that this section of the rail corridor would be less overgrown than were upper study area sections. However, except for areas at road or driveway crossings, this generally proved *not* to be the case. The dominant invasive vegetation was blackberry. This rendered some areas along this 1.7-mile-long section virtually impassable and significantly slowed progress in other sections. The field team was, at times, forced to step outside of the rail right-of-way and into farmed field edges to move forward. All six rail trestles between Buxton and Manning were, however, reached and inspected.



Photograph 6-9. Dense blackberry growth

Encroaching vegetation and other damaged areas (such as landslides) should be a serious concern to the future engineers, builders, and operators of the Trail. Recommendations and estimates in this Valley Study regarding current conditions, needed repairs, infrastructure replacement or upgrades, and/or re-use of existing structures, may be obsolete by the time of actual Trail construction. The problems with accessing and viewing many right-of-way sections (as discussed above) also mean that some findings and data coming out of the Valley Study should be considered only as starting parts, subject to further inspection, survey, and assessment at the time of design and construction.

Having observed the amount of post-2007 storm vegetation encroachment and damage within the rail right-of-way, a program of regular vegetation management and right-of-way inspection is highly recommended.

6.3 Built Conditions

Built conditions generally include features and structures that have been built or placed within the study area as a result of human occupation. These include current infrastructure such as rails, roads, developed parks, utilities, and so forth. Built conditions also include major human-induced land alterations, such as mineral extraction, and physical encroachments into the rail right-of-way. Built conditions that do not have a measurable impact on the feasibility of converting the rail right-of-way to a multiuse paved trail are generally *not* recorded or inventoried.

6.3.1 Communities

There are four named communities with residential populations along the study area rail right-of-way. The State of Oregon has adopted rules permitting the continuance of rural unincorporated communities. Designation allows the continuation or establishment of certain low intensity and essential services such as schools, churches, gas stations, lodging, post offices, restaurants, grocery stores, etc.

The balance of the rail right-of-way also passes many other home sites and farmsteads that are not associated with a named community within unincorporated Washington County.

- **Timber (MP 793)** – The population of unincorporated Timber is about 130, with approximately 60 homes (data from 2000). Timber currently has no active business or institutional uses, except for a Banks Fire District station. There is also an older historic fire hall and a closed post office. The post office is currently being refurbished by a new private owner and is planned for reopening as a contract post office, bike repair shop, and small B&B lodging.



Photograph 6-10. Historic Timber Fire Station

- **Buxton (MP 781)** – This unincorporated community includes a private school, a restaurant (which from outside appearances may be out of business), a Banks Fire District station, and two churches. There is no post office. No information on the current population or the number of dwelling units could be found.



Photograph 6-11. NW Bacona Road in Buxton

- **Manning (MP 779)** – This unincorporated community has a small operating lumber mill and one church, but all other commercial and institutional enterprises appear to have ceased operation. There is no post office. No information on the current population or the number of dwelling units could be found. There is a large vacant school building close to the church, and there are some commercial enterprises nearby on the opposite side of OR 47.



Photograph 6-12. Manning church

- **Banks (MP 775)** – Bank is an incorporated city with a population of 1,775. The city has an active lumber mill and a variety of commercial enterprises, a golf course, and a new school. Banks is at a nexus of planned and existing regional multiuse trails. The City’s current economic development goals include “becoming a key hub and destination on the regional trail system.” The BV State Trail’s developed Banks trailhead is at the north end of town. This trailhead will also be the north terminus of the planned Council Creek Regional Trail which will come right up Main Street, and is the planned south end of the Salmonberry Trail.



Photograph 6-13. At the Banks-Vernonia Trailhead in Banks

6.3.2 Property Ownership and Boundaries

As this Base Conditions phase of the Valley Study was being initiated, a process of rail banking for the entire 84-mile-long corridor was nearing completion. Rail banking is a legal mechanism for transferring rail right-of-way for the purpose of establishing a recreational trail.

Detailed property boundaries are mapped on Figures 1 to 8. A list of adjacent property owners has been provided to OPRD for the purposes of notifying adjacent property owners of the two landowner workshops planned in the course of this Valley Study. Boundaries/ownerships are derived from the most recent records available from GIS data and Washington County assessment records. “Adjacent” is generally defined as a tax lot, or series of tax lots in common ownership, with at least one shared boundary with the rail right-of-way. Some tax lots that share a boundary with a minor linear right-of-way or remnant parcel abutting the rail corridor are also included. Tax lots separated from the rail right-of-way by state or federal highway right-of-way (US 26 and OR 47) are *not* included.

A second set of maps (Appendix C, Figures 9 to 16) distinguishes public lands (state forest, OPRD, local parks, etc.) from privately held lands. These maps are intended to provide an overview with respect to

potential ownership impacts on planned Trail improvements (trailheads, connector trails, etc.) that may be considered by the Valley Study for location outside of the rail right-of-way.

6.3.3 Rail Features and Conditions

6.3.3.1 Rail Right-of-Way Width

The width of the POTB rail right-of-way generally varies between 80 and 100 feet. POTB has provided detailed records of the widths and associated lengths of the rail right-of-way sections.

One-hundred-foot Sections – From the west end of the study area past Reehers Camp (MP 798.7) to MP 781.6 near Buxton, the rail right-of-way is typically 100 feet wide. In contrast to the Buxton to Banks section (see below), there are, however, frequent and variable areas of wider right-of-way along these 15+ miles.

Typically, these wider sections would have accommodated rail sidings, passenger train stops, and industrial customer loading facilities (or were planned for such); or helped to mitigate more complicated rail development challenges brought on by the extremes of local topography or features such as streams. The following wider rail right-of-way sections in this upper study area are mapped on Figures 1 to 5:

- MP 798.7 (west of Reehers Camp)
- MP 795.5 to MP 794.6 (Reehers Camp area)
- MP 793.5 (vicinity of Timber)
- West of Walcott Tunnel (MP 790.5 to MP 790)
- Immediately east of Walcott Tunnel to MP 789
- MP 788.02 and MP 787.9 (two trestles near US 26)
- Vicinity of MP 787
- Between the two rail crossings of Scofield Road (MP 785.29 and 784.9)
- At a tributary of Cummings Creek (MP 784.14)
- At a tributary of West Fork Dairy Creek (MP 782.75)

Eighty-foot Sections – From near to the community of Buxton (approximately MP 781.6) to the City of Banks (MP 775) the rail right-of-way is generally 80 feet wide. This right-of-way width is consistent except for near the intersection of OR 47 and NW Fisher Road (MP 781.2). On the south side of NW Fisher Road at approximately MP 781, there is an undeveloped section of right-of-way projecting eastward into Buxton, perhaps to accommodate a once-planned spur rail line. On the north side of NW Fisher Road there is widened right-of-way siding with rails still in place (see Figure 5).

6.3.3.2 Rail Location within Right-of-Way

GIS records provide some indication of the general location of the rail infrastructure within the right-of-way. These are approximate locations only, subject in all cases to survey. Based on GIS records

Note: All described and mapped rail right-of-way and rail infrastructure locations included in this Base Conditions Report are subject to confirmation by future survey and engineering.

overlaid on recent aerial photographs, the actual rail line appears to be off-center within the rail right-of-way in the following upper sections of the study area:

- West of MP 796
- MP 795.5 to MP 794.3 (Reehers Camp area)
- West of Walcott Tunnel (MP 790.5 to MP 790)
- OR 47 to MP 783

The rail line between Buxton and Banks appears, based on GIS records and aerial photography, to generally be down the centerline of the rail right-of-way.

6.3.3.3 Right-of-Way Encroachments

Records initially provided by POTB indicated that there are no unpermitted private crossings or permanent building or structure encroachments into or across the rail right-of-way. The one significant building observed as being within the right-of-way—the Manning Gospel Church at MP 778.63—is listed by POTB as permitted.

An examination of recent aerial photography for the study area, when overlaid with GIS-based tax lot boundaries, indicated that the above characterization of POTB records is generally correct. The July 2017 field reconnaissance also generally verified this, although there were some exceptions (see below).

Structures

- There are numerous utility and public and private access crossings of the right-of-way within the study area, as documented in the POTB-provided lists of right-of-way leases and encroachments.
- As noted earlier, the only habitable permanent building that was found clearly encroaching into the rail right-of-way is the Manning Gospel Church at MP 778.13. Based on POTB records, this is a permitted encroachment covered by a lease.
- There may be some minor permanent building encroachments in Timber, although a survey will be required to determine if and to what degree. No building encroachments are documented in records provided by POTB.
- There are certainly some encroachments of easily movable objects or materials (small pre-fab or built-in-place storage sheds, recreational vehicles, abandoned cars, junk piles, etc.) in the rail right-of-way. These were mostly observed in Timber, but also occur in other areas.
- There are dirt roadways heading northeast along both sides of the rail right-of-way from MP 793 (Timber). These roadways are clearly within the rail right-of-way and appear to provide physical access to several private homes and other uses.
- The most significant encroachment not previously documented by POTB is a very large and elaborate homemade waterslide between the Williams Creek Trestle and MP 782. The waterslide is anchored to the existing rail line within the 100-foot-wide rail right-of-way and drops steeply downhill on a recently constructed wooden structure to a large home on private property. The waterslide appeared (as of July 7) to be in the final stages of construction. This encroachment has been reported to POTB.

- Finally, just northwest of Manning, a rudimentary and perhaps seasonal agricultural water pump has been installed on West Fork Dairy Creek under the rail trestle at MP 779.27. The location and features of this installation suggest it may *not* be a permitted water appropriation. This encroachment has been reported to POTB.



Photograph 6-14. Encroaching waterslide

Vegetation

The single most defining condition along the rail right-of-way is the amount, size, density, and diversity of plant species that have grown up within the rail right-of-way and between the rails in less than 10 years. The density and extent of vegetation was a significant challenge in observing conditions in the course of the July 2017 field reconnaissance. For example, the Concept Plan identified a need for a major culvert repair at Step Creek (MP 795.5). The field team was not able to observe this culvert at stream level.



Photographs 6-15 and 6-16. Additional examples of encroaching vegetation

For more information on vegetation encroachments, see Section 6.2 of this Base Conditions Report for findings and observations from the July 2017 field reconnaissance.

6.3.3.4 Rail Infrastructure

Of most importance to future Valley Segment Trail development is the condition of the rail berm fill and the 16 bridges and trestles. Any need for structural repairs or replacement could greatly increase Trail development costs, although given that the bridges and trestles are built to withstand very heavy rail equipment loads, any near-term deterioration to the point that the structures couldn't support bicycle and pedestrian traffic is not likely.

The Valley Study is scoped to deliver a rail-to-trail solution within the study area. In other words, all rail infrastructure—rails, ties, switching equipment—will be removed (and sold as surplus, if possible). The exceptions are the 16 rail bridges or trestles within the study area. These structures will be separately assessed as part of the Trail Alignment and Type Analysis phase of this Valley Study for re-use as part of the future Trail.

Existing trestles and bridges will therefore be primarily evaluated for the feasibility of replacing the rail infrastructure with a wider platform to carry bicyclists and pedestrians, and potentially equestrian traffic, as part of the new Trail. In simplest terms, this would involve removal of rails, ties, and maintenance catwalks and replacement with new and wider decking, plus safety rails, atop the existing substructures.

Existing rail infrastructure may also have historical significance. This aspect is discussed further under the Historic and Archeological Resources section of this Base Conditions Report.

6.3.3.5 Rail Berm Conditions

Review of Concept Plan—Mapped Damage Points

The 2015 Concept Plan illustrates several areas where rail infrastructure and/or the rail berm fill was damaged in the late 2007 storm or by subsequent events between 2008 and 2014. Concept Plan damage points, and other damage found during the 2017 field reconnaissance, are located on Figures 1 through 5. The Concept Plan rates the varying degrees of damage as Mild, Moderate, or Severe, but does not define these terms.

Other than the areas described below, the 2017 field reconnaissance did not find any other significant rail berm fill damage. Although, as stated elsewhere in this report, encroaching vegetation made a full inspection very difficult.

- **MP 795.6 (west of Reehers Camp) – Mild.** The Valley Study field inspection found some minor landslide material across the tracks. This could be new damage or, given the proximity, is probably the same event as the Concept Plan—mapped damage point.
- **MP 795.5 (Step Creek) – Moderate.** The Concept Plan atlas notes the need to repair or replace a 380-foot-long fish passage culvert. The 2017 field inspection found no damage to the berm fill over top of this culvert, nor any other evidence (ponding of the creek, debris, etc.) that the culvert wasn't functioning for water passage. There may however be benefits from a new or repaired culvert for fish passage purposes, but such is beyond the scope of this Valley Study.
- **MP 794 – Mild.** The 2017 field inspection found no particular evidence of this Concept Plan—recorded damage.
- **MP 791.65 – Mild.** Review of recent aerial photography suggests that this damage point may have been the result of a small landslide. No evidence was found in 2017. The damage point is

quite close to a rural residential property. The owners, who appear to be maintaining the right-of-way clear of vegetation along their frontage, may have also taken care of landslide removal.

Additional Field Reconnaissance Observed Damage Points

The 2017 field reconnaissance found additional damage points which may be the result of two consecutive winters (2016 and 2017) of heavy rainfall or of gradual deterioration or other storms over the last 10 years. This new damage is characterized below in the same manner as with the Concept Plan-mapped damage points. Absent a clear definition of same, however, these characterizations are only comparative to those damage points mapped in the Concept Plan atlas that could be observed in the field, and therefore are somewhat subjective.

- **MP 790 and Walcott Tunnel west entrance – Mild.** Two small landslides.
- **MP 789.2 (east of Walcott Tunnel) – Moderate.** The rail berm fill has partly collapsed at this point, leaving rails and ties cantilevered over or hanging in the air. This area did not, however, appear to be within any sort of perennial drainage, so the damage may be the result of a landslide occurring under the rails. Plus, some new gravel and rock has been placed along this section, but otherwise there is no evidence of other activities such as rail tie repairs or vegetation clearing, so the origin and purpose of the new rock is something of a mystery.



Photograph 6-17. Previously undocumented damage east of Walcott Tunnel

- **MP 783.4 (east and south of OR 47 trestle) – Severe.** The reconnaissance field team found a major landslide (approximately MP 783.4) near the east end of the long and very high OR 47/West Fork Dairy Creek trestle. This landslide and rockfall extend over the rail right-of-way and the rail line for approximately 200 linear feet. Our field assessment suggested that the cost

of stabilization through this area that would allow for safe Trail development could approach \$450,000. See Section 6.5.4 of this Base Conditions Report for more information.

Aerial photography (no date) reproduced in the Concept Plan atlas suggests that some landslide activity may have already been underway at the time the Concept Plan was developed. Most of this landslide, however, appears to be quite recent and may still be active, perhaps having been triggered or made worse by major 2016 and 2017 winter storm events.



Photographs 6-18 and 6-19. Major new landslide near the OR 47 Trestle

- **MP 783 – Moderate.** This landslide area is smaller than the MP 783.4 slide, but also appears to be recent and with similar slope and soil conditions. This landslide could also be ongoing and growing, and may in fact be part and parcel of the larger landslide event to the north.

6.3.3.6 Rail Berm Width and Height

Generally

The width and height of the rail berm fill may have a material impact on the feasibility and costs of Trail development. Except for the rail corridor between Buxton to Banks, however, the berm fill is primarily low elevation or essentially at-grade with the immediately surrounding landscape. The crown of the berm is often indistinct due to the original low elevation and/or from minor edge deterioration and major vegetation encroachment over the last 10 years.



Photograph 6-20 and 6-21. Low rail berm

Except perhaps for the Buxton to Banks section (see below), it appears that nearly all areas of the existing rail berm fill can be easily widened to accommodate a 10-foot-wide paved bicycle/pedestrian pathway with 2-foot-wide shoulders.

Buxton to Banks

Starting south of the Buxton area and continuing all the way to Banks, the berm fill is generally higher elevation than in the upper sections of study area. The higher elevation rail berm crown is 8 to 9 feet wide, similar to the rail berm crown in many parts of the Coast Segment. The resulting steeper side slopes of these higher berms, combined with the limitations imposed by the immediately surrounding landscape (including drainage courses and ditches, and wetlands and streams) will require more, and more expensive, improvements to achieve a 14-foot-wide bicycle/pedestrian cross section.



Photograph 6-22. Banks-Vernonia Trail alongside the Salmonberry Corridor

These conditions suggest that the widening of the parallel BV Trail, particularly between Manning and Banks, may be a preferable and considerably less expensive alternative to constructing 4 miles of a new, separate parallel trail pathway within the Salmonberry rail corridor. This solution was recommended in both the 2013 Feasibility Study and 2015 Concept Plan.

Equestrian Trail

Accommodating a parallel equestrian trail, based on the stated preferences of equestrian advocates (see equestrian meeting notes attached as Appendix D to this Base Conditions Report), would require 8 feet of width for a two-way horse trail, plus 6 feet more of buffering from adjacent bicyclists and hikers.

The July field reconnaissance *preliminarily* found that approximately 75 percent of the rail corridor between *Reehers Camp and Buxton* would have enough extra buildable *physical* space to accommodate a 14-foot-wide equestrian trail cross section immediately abutting the 14-foot-wide bicycle/pedestrian

cross section. Others sections of equestrian trail between Reehers Camp and Buxton may have to be accommodated by using a narrowed buffer and/or reduced width pathway, or even eliminating the equestrian-bicycle/pedestrian buffer altogether. The field team estimated that the physical area available within the rail corridor for siting both trails side by side was never less than approximately 20 feet wide.

From Buxton to Banks, and especially Manning to Banks, the same conditions that may limit a new bicycle/pedestrian trail atop the Salmonberry rail berm would apply equally to an equestrian trail. For the parallel section of the BV Trail in this area, equestrians are currently accommodated along the east edge of the paved pathway. Shoulders on this section of the BV Trail are very narrow to essentially nonexistent.

At least between Manning and Banks, widening the BV Trail to accommodate Salmonberry-related bicycle and pedestrian traffic and converting the Salmonberry rail berm for equestrian use may be practical and cost-effective solutions.

6.3.3.7 Rail Bridges and Trestles

Three reference documents were reviewed to determine the number, type, and probable conditions of bridges and trestles in the study area. There are 16 rail bridges or trestles identified in these three documents. All 16 bridges and trestles were inspected during the Valley Study's 2017 field reconnaissance.

- POTB's Bridge Book (undated internal document)
- FEMA's IBIS Report (conducted in 2008)
- POTB's PBS Report (also conducted in 2008)

The POTB and FEMA reports include notations and assessments on existing bridge and trestle conditions. This information will be used as a baseline for the Valley Study. There was no significant new bridge or trestle damage, or any problematic deterioration, observed during the July 2017 reconnaissance when compared to the 2008 FEMA assessment. The possibility of new bridge and trestle damage was a concern in advance of the 2017 field inspection, especially considering the severity of 2016 and 2017 winter storms.

Bridge and trestle locations, lengths, and place names (if applicable) are listed in Table 6-1. This table was adapted from FEMA records. Some crossing names, mile post numbers, and one creek name have been corrected. A more complete description of bridge and trestle conditions and the possible modifications to accommodate bicycle/pedestrian use will be provided as part of the Trail Alignment and Type Analysis phase of this Valley Study.

Table 6-1. Bridge and Trestle Crossings

Milepost (MP)	Length (feet)	Description
775.2	75	West Fork Dairy Creek
775.92	60	Unnamed Drainage
776.99	45	Unnamed Drainage
779.27	144	West Fork Dairy Creek
779.44	135	West Fork Dairy Creek
780.06	178	West Fork Dairy Creek
780.18	30	Unnamed Drainage
780.45	30	Unnamed Drainage
780.81	75	Mendenhall Creek
782.13	225	Williams Creek
783.55A	508	OR 47 Timber Trestle
783.55B	70	OR 47 Steel Bridge
783.91	291	Camp Creek
784.14	120	Dry Gully
787.7	55	US 26 Steel Bridge
788.02	225	Cummings Creek



Photographs 6-23 and 6-24. Williams Creek Trestle

6.3.3.9 Walcott Tunnel

The Walcott Tunnel is located on either side of MP 789.48 and is 1,417 feet long. The tunnel's floor is approximately 18 feet wide at the west end and 16 feet wide at the east end. Ceiling height, being sized to accommodate freight and passenger trains, is more than adequate to allow passage by bicyclists and mounted equestrians.

The 2015 Concept Plan did not provide a degree of damage characterization for the Walcott Tunnel damage, as was provided for bridges and trestles. The Concept Plan atlas illustrates an unstable slope at the west end of the tunnel and construction spoils at the east end, and states the need for repairs to the tunnel ceiling for safety.

The July 2017 field reconnaissance observed evidence of two small landslides between MP 790 and the west tunnel entrance, as well as the continued presence of some wood railroad wastes (ties, etc.) at the east entrance. Shotcrete stabilization at the west tunnel entrance and timber shoring at the east tunnel entrance are deteriorating. Soils and rock appear to be coming down from the slopes over the top of and to either side of both entrances. The July 2017 site visit also observed significant water seepage within the tunnel and advancing deterioration to the tunnel's interior walls and ceiling. Large slabs and other fragments of shotcrete litter the tunnel floor.

The July 2017 field reconnaissance assessment is that the tunnel's current damage condition should be characterized as Severe. A second inspection visit to the tunnel was conducted on August 15, 2017. The report of this inspection is included as Appendix B. Our field assessment was that the tunnel could be reused for Trail purposes, albeit at considerable expense.

Even at this Base Conditions phase, we strongly recommend that POTB erect barriers to block unauthorized Walcott Tunnel entry, and also post signage at all probable rail right-of-way access points within 2 miles of either end of the tunnel informing visitors that the right-of-way is off-limits and that the tunnel is dangerous and blocked.



Photograph 6-25. East entrance to Walcott Tunnel



Photograph 6-26. Interior of Walcott Tunnel

6.3.4 Other Transportation Modes

6.3.4.1 Vehicular Roadways

Major and local roadways, as well as permitted rail crossings, are mapped and named on Figures 1 to 8. There are also several “roads” mapped in the Concept Plan atlas that nominally appear to provide access to the rail right-of-way, but that are essentially impassable or undeveloped. In the upper half of the study area above Buxton, built roadways only occasionally cross or closely parallel the rail right-of-way. In addition to formal trailhead access, consideration should be given to identifying emergency access points at regular intervals if possible.

The following are the most significant study area roadways *usable* in their current configuration for Trail planning, building, and future access purposes:

- **NW Cochran Road** – A secondary road off of NW Cochran Road crosses the rail right-of-way within the extended study area at MP 797.28. NW Cochran Road eventually crosses to the north side of the Nehalem River over a bridge in the vicinity of the Gales Creek Trail (MP 796), then roughly parallels the Nehalem River and the rail right-of-way for 3 miles, passing Reehers Camp and entering community of Timber (MP 793). Another secondary road off of NW Cochran Road (possibly a section of Round Top Road or a private logging road) crosses the rail right-of-way at MP 796.7. NW Cochran Road has a gravel surface until it approaches the community of Timber.

Road grading has buried the rails in both the abovenoted rail crossing locations, and signing, if there ever was any, has been removed. Some potential safety issues with NW Cochran Road in wet winter conditions and from heavy use by log trucks were observed in a pre-project visit to this area, especially in the more-traveled section between Reehers Camp and Timber.



Photograph 6-27. Reehers Camp entry

- **NW Timber Road/NW Strassel Road Trail Bypass** – NW Timber Road is roughly half of a 7-mile-long route that, along with NW Strassel Road, is proposed as an on-street bypass in the Concept Plan. This bypass is characterized in the Concept Plan as an interim solution if the rehabilitation of the Walcott Tunnel is delayed or cannot proceed. A 3-mile-long Salmonberry Trail section would be bypassed by this 7-mile-long on-road option. From its intersection with NW Cochran Road in Timber, NW Timber Road heads southeast and briefly comes close to the rail right-way near MP 791.57.

After 3.25 miles, as measured from the community of Timber, NW Timber Road intersects with NW Strassel Road. NW Strassel Road then turns northeast and after approximately 3.75 miles twice comes close to the rail right-of-way (between MP 789 and MP 788). The Concept Plan illustrates this area as the approximate end of this possible bypass.

- **NW Timber Road** – NW Timber Road consists of two 11-foot-wide paved driving lanes. Shoulders are narrow to nonexistent with only a few areas sufficiently wide to accommodate safe vehicle pull-outs. Steep slopes, both downhill and uphill from the sides of the roadway, limit possibilities for additional road or shoulder widening (or a new bike lane) without considerable improvements and expense. NW Timber Road also frequently changes grade and winds around curves making for very short sight lines. As this roadway approaches the intersection with NW Strassel Road, the grade flattens and the surrounding landscape widens out to some degree.



Photograph 6-28. NW Timber Road

- **NW Strassel Road** – NW Strassel Road is the other half of the Concept Plan’s interim on-street bypass solution around the Walcott Tunnel. NW Strassel Road is typically about 24 feet wide with limited shoulders. The entire route is gravel and is heavily washboarded for many stretches. This roadway was not visited in the winter so typical wet road conditions are not known at this time. In contrast to NW Timber Road, most of NW Strassel Road, once past the

initial climb from the intersection with NW Timber Road, cuts through a wider and flatter landscape.

There are also many more homes and farmlands along NW Strassel than is the case with NW Timber Road. Widening of shoulders or creation of bike lanes would therefore be more feasible and economic than with NW Timber Road, although if this roadway is maintained with a gravel surface, the usefulness to bicyclists (and walkers) would be somewhat limited.



Photograph 6-29. NW Strassel Road

- **US 26** – The rail line crosses over US 26 on a 55-foot-long steel bridge at MP 787.7.



Photograph 6-30. US 26 Bridge

- **NW Scofield Road** – This circuitous gravel roadway connects US 26 to OR 47. There are several homes and small farms on NW Scofield Road and two permitted rail right-of-way crossings (MP 785.29 and MP 784.9). Road grading, presumably since active rail service ceased, has buried the rail lines at both crossings, and only one crossing is currently signed as such (MP 785.29).
- **OR 47** – The rail line crosses over OR 47 at MP 783.55 on a 70-foot-long steel bridge that immediately transitions to a very high 508-foot-long timber trestle over the West Fork Dairy Creek (see the cover of this Base Conditions Report). The rail and the highway then run parallel to each other, but are separated by the West Fork Dairy Creek and a substantial elevation difference until about MP 782.85. At this point, OR 47 crosses the West Fork Dairy Creek and shortly thereafter the rail right-of-way swings briefly eastward and away from OR 47. The rail line crosses Williams Creek on a 225-foot-long trestle that is within Stub Stewart State Park. The rail right-of-way then returns (at MP 781.69) to closely parallel OR 47 at-grade almost all the way to the OR 47/US 26 intersection.
- **NW Bacona Road/NW Fisher Road** – These two roadways connect the BV Trail at BV Trail Mile 7 to the community of Buxton and also to OR 47 or US 26 (see Figures 5 and 6). NW Bacona Road intersects with NW Fisher Road at an oblique angle on the north side of the developed portions of Buxton, and then heads uphill to the existing BV Trail Buxton Trailhead.

One branch of NW Fisher Road crosses through a small residential area and then heads downhill on a curve to intersect with the rail right-of-way at MP 781.2 and OR 47. NW Bacona Road and this portion of NW Fisher Road are identified in the 2015 Concept Plan as a “potential short-term connection to the BV Trail” for “on-road bike use.”



Photograph 6-31. View from Fisher Road/OR 47 Intersection

The other branch of NW Fisher Road heads due south from NW Bacona Road, passes a small number of Buxton business and institutional uses, first crosses Mendenhall Creek and then the rail right-of-way (MP 780.7), and in approximately another 750 feet intersects with US 26.

All these road sections are paved with two 12-foot-wide travel lanes with limited shoulders. The section of NW Fisher Road approaching US 26 has very distinctly demarcated pavement and shoulder edges. The pavement edges and shoulders for the section approaching OR 47 blend more into adjacent properties.

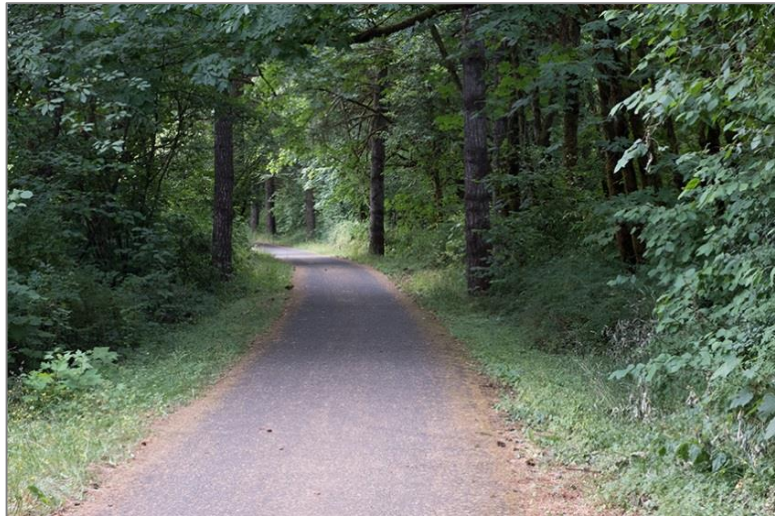
- **US 26** – The rail right-of-way again approaches US 26 near MP 781. From this point, the rail and the highway (this section of highway is numbered both US 26 and OR 47) run parallel, starting with about a 750-foot separation, and then gradually converging. By MP 779 (Manning), the rail, the highways, and the BV Trail are all essentially abutting each other.
- **OR 47** – Near MP 777, OR 47 and US 26 again diverge into separate routes. The rail right-of-way, BV Trail, and OR 47, however, continue to be closely abutting and parallel from this point all the way to the BV Trail Banks Trailhead and the City of Banks (MP 775).
- **NW Banks Road** – This roadway separates the Banks trailhead from the north end of downtown Banks. State-owned (OPRD and/or ODOT) properties with the potential to accommodate a BV Trailhead expansion are immediately south of NW Banks Road and between the rail line and OR 47. The City of Banks and Washington County are currently working on new solutions to the OR 47/NW Banks Road intersection, which may include a traffic roundabout.

6.3.4.2 Trails and Trailheads

Major Trails

- Among major existing trails within the study area, the **Banks-Vernonia (BV) State Trail** has the most significant potential impact on the future Salmonberry Trail. The BV Trail is 21 miles long and follows a converted rail right-of-way between the incorporated cities of Banks and Vernonia. The BV Trail is typically a paved 8-foot-wide surface and crosses 13 former rail bridges or trestles that have been modified for bicycle and pedestrian traffic.

For the 4 miles between Manning (MP 779) and Banks (MP 775), the BV Trail and the Salmonberry rail right-of-way are closely parallel. These two trail routes diverge in Manning. At Manning, the paved BV Trail is about 8 feet wide. About halfway to Banks, the trail pavement width increases to 10 feet.



Photograph 6-32. Banks-Vernonia Trail near Manning

Both the Feasibility Study and Concept Plan suggest that, rather than building a new multiuse trail in the Salmonberry rail corridor between Manning and Banks, the widening of the BV Trail would be the most logical and cost-effective alternative.

- The **Council Creek Regional Trail** is a 15-mile-long planned facility that will start at the existing BV Trailhead in Banks and then pass through Banks, Verboort, Forest Grove, Cornelius, and into downtown Hillsboro.
- The **Gales Creek Trail** is a 12.7-mile-long soft-surface hiking trail within the Tillamook State Forest. The north end of this trail is just west of Reehers Camp and connects to the graveled parking area and trailhead with day-use picnic tables that is adjacent to Reehers Camp. The Gales Creek Trail may be considered as an option for connecting Reehers Camp to approximately MP 796 of the Salmonberry rail right-of-way. Slopes in this area would, however, require a major rebuild and paving of the Gales Creek Trail to meet ADA requirements.

Trailheads

There are three developed trailheads on the sections of the BV Trail close to the Salmonberry corridor. These trailheads are near Buxton, in Manning, and at the north end of the City of Banks. The Manning and Banks Trailheads will be evaluated as part of this Valley Study.



Photograph 6-33. Manning Trailhead

Connecting Trails

Further up the BV Trail, between about BV Trail Mile 7 and Salmonberry Trail MP 781 and MP 782 (near Buxton), there may be opportunities to develop a connecting trail or shared-use roadway link between these two regional multiuse trail facilities. The BV Trail and the Salmonberry rail right-of-way briefly come within 1,000 feet of each in this area, and other sections of these two trails are only separated by Stub Stewart State Park.

1. The Concept Plan suggests an on-street connection using NW Bacon Road and NW Fisher Road through Buxton (see the earlier discussion in this Base Conditions Report). This connection is being evaluated as part of this Valley Study.

2. Another connection possibility between these two regional multiuse trails is to use the existing park trail system within Stub Stewart State Park. The Concept Plan makes some conceptual suggestions for trail improvements and connections along these lines.
3. A third option is a new trail within Stub Stewart built for the specific purpose of connecting the two regional trails. Subsequent to publication of the 2015 Concept Plan, OPRD produced a trail alignment concept that takes a new trail under or near the Williams Creek Trestle that connects to the Salmonberry corridor at approximately MP 782.25. There is already an informal but somewhat overgrown trail that goes under the Williams Trestle. This OPRD option will be described as part of the Trail Alignment and Type Analysis phase of this Valley Study.

6.3.5 Parks and Open Spaces

6.3.5.1 Active Recreation Parks and Campgrounds

- The **former Banks-Vernonia rail right-of-way**, including widened sections of open space in Manning and around the Buxton Trestle (there is a developed trailhead in this location), is owned by OPRD. OPRD operates the BV Trail. The BV Trail enters Stub Stewart State Park at approximately BV Trail Mile 7.
- **Stub Stewart State Park** is the largest designated public park in the study area. The park encompasses 1,800 acres. The Salmonberry rail right-of-way follows the southwest boundary of this linear park, and the BV Trail enters the northeast edge of the park. There are approximately 25 miles of trails within the park, plus 6 miles of cross-country and free-ride mountain bike trails. The park also has over 100 campsites. These existing facilities, along with the park's equestrian improvements (horse trails, a horse camp, horse trailer parking, and corrals) suggest that linking the Salmonberry and BV Trails can only increase bicycle, pedestrian, and equestrian use of the park.
- **Reehers Camp** is located in the Tillamook State Forest on NW Cochran Road, approximately 2.5 miles west of the community of Timber. The camp is on the north side of the Nehalem River and about 1,000 feet north of the Salmonberry rail right-of-way (approximately MP 795.5).

The Oregon Department of Forestry owns and operates this facility, which features 10 horse campsites, 6 regular campsites, and a graveled day-use trailhead/parking lot with picnic tables. A variety of soft-surface hiking and horse trails connect through Reehers Camp and provide for both local and long-range access through the state forest.



Photograph 6-34. Old Shelter at Reehers Camp

6.3.5.2 Designated Open Spaces

- **OPRD Banks-Vernonia (BV) Trail Parcel (near BV Trail Mile 5)** – This large parcel is undeveloped except for where the BV Trail bisects the property. An edge of this OPRD parcel comes within 500 feet of the Salmonberry rail right-of-way near MP 780 (the BV and Salmonberry Trail corridors are 1,500 to 2,000 feet apart at this point). A short bridge over the West Fork Dairy Creek could link the Salmonberry Trail to this parcel. A connecting trail would then be possible to the BV Trail. Connecting trails and routes, except at Reehers Camp and near the community of Buxton, are, however, outside of the scope of this Valley Study.
- **US 26** – OPRD owns four large linear parcels spanning both sides of US 26 in the vicinity of the rail bridge at MP 787.7. Some of the OPRD property nearest to the bridge crossing may be useful in constructing connecting stairs or ramps allowing easier user or emergency access to the future Trail. Topographic conditions would not accommodate an actual trailhead.
- **Tillamook State Forest** – From MP 800 (Cochran Pond), the Salmonberry rail corridor moves in and out of public and private timber lands until exiting the Tillamook State Forest at about MP 794.

6.3.6 Significantly Altered Landforms

This category includes abandoned roadways, logged clearcuts, cleared farm fields, mineral extraction sites, and water impoundments created by dams or weirs. These sites are inventoried and mapped on Figures 1 to 8 only to the extent that they may contribute to unstable conditions in the study area that could potentially produce landslides, erosion, flooding, vegetation encroachment, or other circumstances that could increase maintenance costs or cause damage to future Trail infrastructure. For example, the July 2017 field reconnaissance noted frequent evidence of historical or recent landslides and found two major landslides covering the rail line near OR 47 that were previously undocumented.

The Unstable Slopes section of the Natural Conditions section of this report (see below) provides information on unstable slopes as currently documented (2015) by the Oregon Department of Geology and Mineral Industries (DOGAMI). More information is included in Appendix B.

6.4 Natural Conditions

Natural Conditions include water bodies, landforms, and other natural features. Natural conditions that do not have a measurable impact on the feasibility of converting the rail right-of-way to a multiuse paved trail are *not* inventoried.

6.4.1 Wetlands (and Non-Wetland Waters)

Wetlands (and non-wetland waters) are illustrated on Figures 1 to 8. Except for streams (see Section 6.4.2 of this Base Conditions Report), there are no non-wetland waters (ponds, etc.) that directly impact or restrict any portion of the rail corridor within the study area.

Mapped wetlands are based on existing records. At the time of Trail construction, full wetland evaluations may be required. Significant wetland areas that might impact Trail development and/or generate more complex environmental permitting include:

- **Nehalem River between MP 796 (Gales Creek Trail) and MP 795** – These wetlands do not directly impact the rail right-of-way or any development in the rail right-of-way. However, a directly connecting trail from the Reehers Camp to the rail corridor would have to cross these wetlands. Steeper topography already limits connection solutions in this section, and wetland (and stream) impacts only further limit viable Trail alignment choices.
- **MP 781 (Buxton Area)** – There is a large area of what appears to be agricultural wetlands between the rail right-of-way and the OR 47/US 26 intersection in this vicinity. These wetlands do not appear to enter or cross the rail right-of-way. Nonetheless, at the time of Trail construction, a wetland delineation (and permitting) may be necessary.
- **MP 779.5 (Manning Area)** – Another large wetland that appears to be created by agricultural activity is bounded by the rail right-of-way and US 26 just north of Manning. This wetland does not appear to enter or cross the rail right-of-way. Nonetheless, at the time of Trail construction, a wetland delineation (and permitting) may be necessary.
- **MP 777 (OR 47/US 26)** – There is what appears to be a small wetland within the OR 47/US 26 interchange that was likely created by the roadway structures altering drainage patterns (it could also be a small remnant wetland). The rail right-of-way is on the opposite side of OR 47, so this wetland should have no impact on development of the future Trail.

6.4.2 Streams

The most significant streams draining the study area include the following:

- **Step Creek** – This stream is a tributary of the Nehalem River and crosses under the rail corridor through a 380-foot-long culvert. The Concept Plan identified the need for major culvert repairs in this location, although the July 2017 field reconnaissance did not observe any conditions that would suggest that the culvert has failed or is obstructed.
- **Nehalem River** – The rail corridor is on the south side of the Nehalem River from the approximate end of the extended study area (MP 797.28) through to the Gales Creek Trail (MP 796) and then on to Timber (MP 793). This upper reach of the Nehalem River is relatively narrow. Connecting trail solutions between Reehers Camp or the Gales Creek Trail and the rail corridor may require a new bicycle/pedestrian bridge(s) crossing the river and/or Step Creek.
- **Castor Creek** – The rail corridor does not cross the main stem of this creek, but a Concept Plan–proposed bypass/cutoff trail would follow the stream corridor and cross over a Castor Creek tributary. The Concept Plan did not illustrate or describe any crossing treatment for the proposed cutoff trail, but with a drop of at least 100 feet from the rail right-of-way to the stream bed in this location, a new trail bridge would probably be required.
- **Bergholzer Creek** – Two tributaries of this creek cross under the rail corridor through culverts at MP 789.5 just outside of the east entrance to the Walcott Tunnel.
- **Strassel Creek** – This creek crosses under the rail corridor in a culvert at MP 788.75.
- **Cummings Creek** – The rail corridor crosses upper Cumming Creek tributaries 10 times between MP 786 and MP 787.8. Culverts are used for all these crossings.

- **Camp Creek** – The primary significance of this creek to future Trail development is the re-use of the 291-foot-long Camp Creek Trestle at MP 783.91 (this creek and structure is named Canyon Creek in FEMA records). A tributary of Camp Creek also crosses under the rail in a culvert at MP 785. Another Camp Creek tributary crosses the rail right-of-way at MP 784.3.



Photograph 6-35. Camp Creek Trestle

- **Williams Creek** – This stream is a tributary of the West Fork Dairy Creek. The primary significance of this creek to future Trail development is the re-use of the 225-foot-long Williams Creek Trestle at MP 782.13 (this creek is named Durrian Creek in FEMA records).
- **Mendenhall Creek** – The primary significance of this creek to future Trail development is the re-use of the 70-foot-long Mendenhall Trestle (MP 780.81).
- **West Fork Dairy Creek** – Dairy Creek and its West Fork are major tributaries of the Tualatin River. West Fork Dairy Creek closely follows the alignment of OR 47, as well the Salmonberry rail right-of-way, from Stub Stewart State Park to the City of Banks. From the rail bridge/trestle crossings of OR 47 and the West Fork Dairy Creek at MP 783.55, West Fork flows between OR 47 and the rail corridor until meandering over to the west side of OR 47 around MP 783. This area is heavily forested. From MP 783, the rail corridor crosses the West Fork Dairy Creek five times south of Stub Stewart State Park. This last reach flows through agricultural lands.

Regulatory and construction issues with the West Fork Dairy Creek and its tributaries and associated floodplains (see the following Floodplains section of this report) will complicate development of the Trail.



Photograph 6-36. Trestle across West Fork Dairy Creek



Photograph 6-37. West Fork near OR 47

6.4.3 Floodplains

No documentation of 100-year floodplain areas above MP 783 (near south end of Stub Stewart State Park) was found.

There are, however, extensive 100-year floodplains within the study area along the lower 8 miles of the rail corridor (MP 783 to MP 775). These floodplains are all associated with the West Fork Dairy Creek Watershed (see Figures 1 to 8). Along with the West Fork Dairy Creek main stem, and numerous named and unnamed smaller tributary creeks and some associated wetlands, this overall watershed system may have significant regulatory and construction impacts on future Trail development.

6.4.4 Topography

Topography within the study area is illustrated on Figures 1 to 8. Eighty-foot intervals are shown. The project has also produced maps down to a range of 2- to 10-foot intervals for detailed Trail alignment analysis purposes. These maps are in electronic form and are not reproduced in this Base Conditions Report as they would be too detailed to be readable.

6.4.5 Unstable Slopes

The Base Conditions mapping of unstable slopes within the study area is based on DOGAMI records. Currently available DOGAMI records do not identify any lands within the study area as having High to Very High potential slope instability, although base maps do show some of these zones near the study area (see Figures 1, and 6 to 8). There are however many Low to Moderate landslide potential areas documented by DOGAMI. Separate mapping has been produced by this project showing these Low to Moderate areas, but for readability purposes these zones are *not* included on the maps included this Base Conditions Report. As part of this Valley Study, a review of additional information on landslide potential was conducted. This is included as Appendix E.

This DOGAMI information has been augmented by other records. See Appendix E. Existing geologic literature indicates that 4 landslides have occurred within 2,500 feet of the rail alignment in the study area. Lidar evaluation conducted as part of this Valley Study found an additional 60 previously unidentified landslides. Six (6) potential rockfall hazard areas were identified through on-site

observations along cut slopes. Of these 70 identified landslides, approximately 36 intersect the rail line, and 24 appear capable of affecting the proposed Trail alignment with continued movement. The general landslide types identified include rotational slumps, earthflows, and debris flows.

What is known is that the 2007 storm caused several landslides, and the recent field reconnaissance found evidence of additional landslides that have occurred since 2007. The potential for future landslides in the upper 12 to 13 miles of the study area is of particular concern in developing the Trail.

For example, an active set of landslides and rockfalls across the rail line appears to be ongoing between MP 783.5 (West Fork Dairy Creek crossing) and MP 783 (see Figure 4). Mitigation concepts developed in the field include rock scaling, tree removal, and debris haul and disposal. The preliminary estimate of hazard mitigation is \$50,000 to \$60,000. Additional hazard reduction may require draped wire mesh and rock bolts estimated at \$400,000 to \$500,000.

6.4.6 Hazardous Materials

Oregon Department of Environmental Quality (DEQ) records were reviewed for known hazardous materials or spills within the study area. None were reported. The only documented DEQ environmental cleanup site near the study area is within the City of Banks. This particular site, however, is some 1,500 linear feet outside of the study area.

A separate brownfields assessment for the Salmonberry Corridor is nearing completion, but this assessment only applies to areas within Tillamook County.

6.4.7 Historic and Archeological Resources

The former rail line through the Salmonberry Corridor and the Valley Segment has significant historic value. The Pacific Rail and Navigation rail line (known as PR&N or “Punk, Rotten, and Nasty”) was completed in 1911, and initially provided freight and passenger service to the Portland area. By 1927, passenger services were being reduced.

There are two primary references regarding the PR&N’s history and remaining historical resources: *Punk Rotten and Nasty* by Paul Clock (2001) and a 2009 National Register of Historic Places Evaluation Report commissioned by POTB.

A search of the records of the Oregon State Historic Preservation Office (SHPO) found *no* documentation or designation of historic or archeological resources within the Valley Segment. This notwithstanding, SHPO has indicated that a State Clearance Form (No. 358.653) will have to be filed before any changes can be made to study area bridges and trestles or to the Walcott Tunnel.

7. REGULATORY CONSTRAINTS

Permitting to build the Salmonberry Trail will involve multiple agencies. Valley Segment alignment options may frequently cross or closely abut streams, wetlands, floodplains, and other regulated natural resources. For example, the West Fork Dairy Creek is crossed by the rail right-of-way no fewer than seven times in less than 9 miles.

The Trail will cross or follow the Upper Nehalem River, numerous tributary streams of the Nehalem and Tualatin Rivers, and some associated wetlands. As such, the Trail will likely extend into occupied habitat for threatened and endangered aquatic and anadromous species. For example, Step Creek, a tributary of the Upper Nehalem River at the western edge of the study area near Reehers Camp, is habitat for listed coho salmon.

The protection of such water resources and species, and any crossing structures or culverts required to build the Trail, are regulated under state and federal laws. Upwards of 10 or more environmental permits, approvals, and other processes may be necessary to qualify for state or federal funding and/or to allow construction of the Trail to proceed. Federal funding may potentially require more detailed assessments for the built and natural environments. Unlike the coast segment of the Trail, however, U.S. Coast Guard and U.S. Army Corps of Engineers navigable waters and Oregon Department of State Lands–owned submersible waters do not occur in the Valley Segment. Therefore, permits related to navigable waterways will probably not be necessary.

The most likely state, federal, and local permits needed for Trail construction are listed below. There may also be other regulations and permits to be addressed. Issues involving rail banking are discussed elsewhere in this Base Conditions Report. Washington County (and perhaps the City of Banks) construction, fire safety, emergency, and/or land use and zoning codes may apply.

As the rail right-of-way is by reason of conventional rail line grade requirements entirely under the 5 percent maximum stipulated by ADA standards, the ADA can be easily satisfied in building the new Trail. The exception could be if one or more of the off-rail right-of-way bypass options being analyzed by the Valley Segment Study becomes a preferred alternative. This will be determined as part of the Trail Alignment and Type Analysis phase of this study.

Table 7-1. Possible Permit Requirements

Regulation or Permit Type	Reviewing Agency	Applicability
Waters and Wetlands		
Clean Water Act (CWA) Section 404 Permit	U.S. Army Corps of Engineers	Required for fill within waters of the United States, including wetlands and streams.
Oregon Removal and Fill Permit	Oregon Department of State Lands	Required for removal or fill within waters of the State, including wetlands and streams.
CWA Section 401 Water Quality Certification	Oregon Department of Environmental Quality	Required for fill within waters of the United States and prior to issuance of Section 404 CWA permit from the Corps of Engineers.
Oregon 1200-C Construction Permit	Oregon Department of Environmental Quality	Required for construction sites disturbing one acre or more.

Regulation or Permit Type	Reviewing Agency	Applicability
Local natural resources overlay zones for development	Various city and county development departments	Required for local development permits. Land use consistency statement is a necessary element for approvals from Department of Environmental Quality and Department of State Lands.
Fish and Wildlife		
Endangered Species Act Section 7 Consultation	National Marine Fisheries Service and U.S. Fish and Wildlife Service	Required when a federal action (federal funding or a permit) may affect a species or its habitat listed under the federal Endangered Species Act. Listed species and habitats would likely include Oregon Coast coho salmon, northern spotted owl, marbled murrelet, streaked horned lark, Fender’s blue butterfly, Nelson’s checker-mallow, Kincaid’s lupine, water howellii, and Willamette daisy.
Magnuson-Stevens Fishery Conservation Management Act	National Marine Fisheries Service	Required when federal actions may adversely affect Essential Fish Habitat, defined as those waters and substrate necessary to specific fish (including coho salmon) for “spawning, breeding, and feeding, for growth to maturity.” This process is usually conducted in tandem with Endangered Species Act consultation.
Migratory Bird Treaty Act	U.S. Fish and Wildlife Service	Requires that all entities refrain from actions to pursue, hunt, take, kill, sell, purchase, transport, or receive any migratory birds (including parts, nests, eggs, or other products, manufactured or not). This includes destruction of active nests during vegetation clearing or other construction activities. An incidental take permit process is being reviewed, but is not available at this time.
Oregon Fish Passage Act	Oregon Department of Fish and Wildlife	Requires the owner of any artificial obstruction in waters in which native migratory fish are currently or were historically present to address fish passage during new construction, major replacement, or abandonment. Requires approval of fish passage plan for new or modified bridges and culverts.
Archaeological and Historic Resources		
Section 106 National Historic Preservation Act	Oregon State Historic Preservation Office	Requires federal agencies that fund or approve project to assess effects on historic properties, and includes coordination with tribes that may attach religious or cultural importance to them.
Other Processes		
National Environmental Policy Act	All Federal Agencies	Required for federal agency actions to assess potential effects on the built and natural environment. Documentation ranges from a categorical exclusion checklist to a multi-year, multi-stakeholder environmental impact statement.