



Appendix C Technical Memorandum #2 – Baseline Information

TECHNICAL MEMORANDUM #2

Date: March 20, 2015

Project #: 18078

To: Stakeholder Advisory Committee

Cc: Project Management Team

From: Kelly Laustsen, Bart Rudolph and Marc Butorac, P.E., PTOE

Project: City of Banks Bicycle and Pedestrian Master Plan

Subject: Baseline Information

This memorandum provides baseline information for the City of Banks Bicycle and Pedestrian Master Plan (BPP) project. It identifies, analyzes, and summarizes existing federal, state, and local laws, plans, and policies that might impact the development of the BPP. The intent of this memorandum is to establish familiarity with existing documents the BPP will build from. It is organized as a literature review of federal, state, and local documents. A summary of the documents reviewed is provided in Table 1 on the following page.

FEDERAL DOCUMENTS

- Americans with Disabilities Act (ADA)
 - This bill ensures pedestrians with disabilities have the opportunity to use the transportation system in an accessible and safe manner. The Federal Highway Administration (FHWA) ensures that recipients of Federal aid and State and local entities that are responsible for roadways and pedestrian facilities do not discriminate on the basis of disability in any highway transportation program, activity, service or benefit they provide to the general public and ensures that people with disabilities have equitable opportunities to use the public rights-of-way system.
 - The ADA is relevant to the BPP as it provides guidance for planning and designing pedestrian facilities for people with disabilities. For example, it includes criteria on pedestrian curb ramps and crossings.

Document		Key Application for BPP
Federal	Americans with Disabilities Act (ADA)	Guidance related to designing and planning for pedestrians with disabilities.
	Manual on Uniform Traffic Control Devices (MUTCD)	Guidance on how to properly sign and designate bicycle and pedestrian facilities.
State	Oregon Transportation Plan (OTP) (2006)	Provides high-level guidance on system plans, particularly related to goals and evaluation metrics.
	Bicycle and Pedestrian Plan (1995) <i>(Currently being updated)</i>	Provides general principles and policies for bicycle/pedestrian facilities on state highways.
	Oregon Bicycle and Pedestrian Design Guide (2011)	Designates design standards and recommendations for bicycle and pedestrian facilities on state highways.
	Statewide Planning Goal #12 (Transportation)	Provides high-level guidance for local comprehensive planning as required by state law.
	Transportation Planning Rule	Implements Statewide Planning Goal #12 and provides rulemaking regarding the required Transportation System Plans.
	Statewide Transportation Improvement Program (STIP) (2015-2018)	Identifies funding for, and scheduling of, transportation improvement projects and programs.
Local	Washington County Flood Plain and Drainage Hazard Area Development Standards (2014)	Contains provisions for developing areas in Special Flood Hazard Areas. Recreation and nature trails are permitted uses and activities.
	City Comprehensive Plan (1979, Amended 1989)	Provides the long-term vision for the city and develops policies to help implement that vision.
	City Transportation System Plan (TSP) (2010)	Identifies key issues and makes recommendations relating to transportation within the City.
	City Park and Recreation Master Plan (2010)	Identifies specific recommendations for trail system improvements.
	Banks Main Street Revitalization Plan (2014)	Provides a vision for Main Street and recommendations related to bicycle and pedestrian facilities and amenities.
	Urban Growth Boundary (UGB)	Identifies areas where future growth may occur. Housing tracks and other types of urban development are not allowed to occur outside of the UGB.
	City zoning and related ordinances	Identifies appropriate and desired land use areas within the City.
	City of Banks Design Standards (2014)	Identifies standards and requirements for designing street and bicycle/pedestrian facilities in the City.
	City Capital Improvement Program (CIP)	Identifies capital projects that are planned or scheduled in the near-term and identifies proposed funding.
	Council Creek Regional Trail (CCRT) Master Plan (2014)	A new regional trail that proposes a route through Banks to connect with the Banks-Vernonia Trail.
	Tualatin Valley Scenic Bikeway	An established bikeway that routes through Banks from the Banks-Vernonia Trail to NW Wilkesboro Road via Main Street.
	Banks-Vernonia Trail	An established trail that generates additional bicycle and pedestrian traffic in the City.
	Salmonberry Trail (Banks to Tillamook) Concept Plan (2014)	A proposed regional trail with a possible link to the Banks-Vernonia Trail outside of the City.



FEDERAL DOCUMENTS (CONTINUED)

- Manual on Uniform Traffic Control Devices (MUTCD)
 - The MUTCD is recognized as the national standard for all traffic control devices installed on any street, highway, bikeway, or private road open to public travel to ensure uniformity of traffic control devices. Part 9 of the MUTCD covers signs, pavement markings, and highway traffic signals specifically related to bicycle operation on both roadways and shared-use paths.
 - The MUTCD is relevant to the BPP as it provides guidance on how to properly sign and designate bicycle and pedestrian facilities.

STATE DOCUMENTS

- Oregon Transportation Plan (OTP) (2006)
 - The 25-year transportation plan guides statewide multimodal and modal plans and regional and local transportation system plans. As required by Oregon and federal legislation, the OTP provides overall policy direction and a framework for prioritizing transportation improvements and developing funding for them. It doesn't identify specific projects for development. Goal 1 (mobility and accessibility) is to provide a balanced, efficient and integrated transportation system that promotes transportation choices that are reliable, accessible and cost-effective. Goal 4 (sustainability) encourages conservation and communities to integrate land use and transportation choices.
 - Policy 1.2 (Equity, Efficiency and Travel Choices: It is the policy of the State of Oregon to promote a transportation system with multiple travel choices that are easy to use, reliable, cost-effective and accessible to all potential users, including the transportation disadvantaged.
 - Policy 3.2 (Moving People to Support Economic Vitality): It is the policy of the State of Oregon to develop an integrated system of transportation facilities, services and information so that intrastate, interstate and international travelers can travel easily for business and recreation.
 - The OTC provides high-level guidance on system plans, particularly related to goals and evaluation metrics. The BPP should be consistent with these goals and policies.
- Bicycle and Pedestrian Plan (1995) (*Currently being updated*)
 - This plan does not propose specific projects, but offers the general principles and policies that ODOT follows to provide bikeways and walkways along state highways. It also provides the framework for cooperation between ODOT and local jurisdictions, and offers guidance to cities and counties for developing local bicycle and pedestrian plans. Section One (policy and action plan) contains background

information, such as the importance of bicycling and walking, legal mandates and current conditions. This is followed by the goals, actions and implementation strategies ODOT proposes to improve bicycle and pedestrian transportation. Section Two (bikeway and walking planning, design, maintenance, and safety) will assist ODOT, cities and counties in designing, constructing and maintaining pedestrian and bicycle facilities.

- Since the major north-south route through Banks is a state highway, recommendations to improve bicycle/pedestrian facilities along Main Street will need to be coordinated with ODOT and be consistent with this plan.
- Oregon Bicycle and Pedestrian Design Guide (2011)
 - Appendix L of the Oregon Highway Design Manual outlines the design standards and recommendations for use on Oregon highways. ODOT encourages local agencies to use the dimensions and designs recommended in this plan, but it is recognized that local standards may exceed ODOT standards. When ODOT is constructing a bikeway or walkway in collaboration with a local jurisdiction, the more appropriate of the two designs should be used, based on the context.
 - Bicycle and pedestrian facilities on State Highways, like Main Street, must meet the design standards outlined in this document.
- Statewide Planning Goal #12 (Transportation)
 - This goal is to provide and encourage a safe, convenient and economic transportation system. It requires that a transportation plan, amongst other things, consider all modes of transportation including mass transit, air, water, pipeline, rail, highway, bicycle and pedestrian.
 - Statewide goals help guide local comprehensive planning as required by state law.
- Transportation Planning Rule
 - OR Admin Rule 660-012-0045 (Implementation of the Transportation System Plan)
 - This rule requires each local government to amend its land use regulations to implement the TSP. It also requires local governments to adopt land use or subdivision ordinance regulations that provide for safe and convenient bicycle, pedestrian and vehicular circulation. Local governments are to ensure that new development provides on-site streets and accessways that provide reasonably direct routes for pedestrian and bicycle travel in areas where pedestrian and bicycle travel is likely if connections are provided, and which avoids wherever possible levels of automobile traffic which might interfere with or discourage pedestrian or bicycle travel.



- OR Admin Rule 660-12-0060
 - This rule states that if an amendment to a functional plan, an acknowledged comprehensive plan, or a land use regulation (including a zoning map) would significantly affect an existing or planned transportation facility, then the local government must put in place certain measures, unless the amendment is allowed under certain provisions of this rule.
- The Transportation Planning Rule implements Statewide Planning Goal #12 and provides rulemaking regarding the required Transportation System Plans.
- Statewide Transportation Improvement Program (STIP) (2015-2018)
 - The Pedestrian and Bicycle Grant Program ended as a stand-alone solicitation process in 2012. The Oregon Transportation Commission (OTC) and ODOT have changed how the STIP is developed. The STIP will no longer be developed as a collection of projects for specific pools of funding dedicated to specific transportation modes or specialty programs. The STIP will now be divided into two broad categories: Fix-It and Enhance. The Enhance category will fund activities that enhance, expand, or improve the transportation system. The Fix-It category will fund activities that fix or preserve the transportation system. The Draft 2015-2018 STIP is complete, but ODOT initiated an evaluation of the new process before it is released. The 2012-2015 STIP included \$244,000 in 2012 for the planning phase of the Council creek Trail.
 - The STIP identifies funding for, and scheduling of, transportation improvement projects and programs. Bicycle and pedestrian improvements receiving federal funds must be identified in the STIP.

LOCAL DOCUMENTS

- Washington County Flood Plain and Drainage Hazard Area Development Standards (2014)
 - Article IV of the Community Development Code enforces the State of Oregon Specialty Codes pursuant to the requirement established in ORS 455. It contains provisions for developing areas in Special Flood Hazard Areas identified in the “Flood Insurance Rate Map, Washington County, Oregon” and the “Flood Insurance Study for Washington County” map.
 - Recreation and nature trails are permitted uses and activities in the Special Flood Hazard Areas. Permits for erosion control and applications for flood plain or drainage hazard area alterations may be required.
- City Comprehensive Plan (1979, Amended 1989)
 - An objective in the Recreation section states that the development of pedestrian and bicycle pathways should be promoted. A policy related to that goal states the



City will plan community recreation facilities in conjunction with existing and planned school facilities so that they complement each other in function.

- Objectives in the Transportation section state that development should occur in such a manner as to encourage and facilitate pedestrian movements and alternative modes of transportation, such as public transit and bicycling, should be encouraged and promoted. Specific policies state that in evaluating the transportation system, the City will support proposals that protect the quality of neighborhoods and the community. Another policy states that the City will require fronting on arterials to limit the points of access to minimize conflicts between local and through traffic consistent with the traffic needs of the proposed use and physical features of the subject site. Also, a policy states that the City will promote the development of a bicycle and pedestrian system to link residential areas to other land uses, especially parks, open spaces, schools, the downtown core and commercial areas.
- The comprehensive plan provides a long-term vision for the city and develops policies to help implement that vision. Bicycle and pedestrian facility improvements should be consistent with this plan.
- City Transportation System Plan (TSP) (2010)
 - The TSP recognizes that Main Street also serves as a state highway and tries to balance the needs of pedestrians, shoppers, employees, business owners, and residents with the needs of through traffic. The plan recognizes the following opportunities for bicycle and pedestrian connections:
 - Construct one or more pedestrian/bicycle overcrossings of the railroad to ensure east-west connectivity from the UGB expansion area east of the railroad to center city destinations.
 - Better connect bicycle lanes and pedestrian sidewalks within the city. Improvements should focus on connecting the existing system of bike lanes and sidewalks to improve non-motorized mobility. A north-south bike route should be established in the city in the area east of Main Street, with direct connections to the schools complex.
 - All new and modernized roadways should include bicycle and pedestrian accommodations.
 - The following concepts were developed to address the needs identified in the TSP analysis:
 - Install advanced warning signage at the intersection of Banks Road and Aerts Road to warn motorists of the reduced sight distance on the crest vertical curve, thereby improving safety conditions at the intersection.



- Reconstruct Banks Road to increase the safety for motorists, pedestrians, and cyclists traveling on Banks Road between Main Street (OR 47) and US 26.
- Establish an east/west bicycle and pedestrian circulation system to service the expanded UGB area.
- Install a bicycle/pedestrian overcrossing or undercrossing of the railroad from the area east of the Banks school complex to the eastside of Banks (UGB Expansion Area).
- The TSP identifies and addresses key issues relating to transportation within the City. The TSP should be the starting point to identify and validate future bicycle and pedestrian improvements.
- City Park and recreation Master Plan (2010)
 - This plan recommends working with the County and State to explore the possibility of extending the Banks-Vernonia Trail to the south end of town or beyond. A separated walking path is proposed in the Highway 6 right-of-way and walking trails are also proposed to extend from the existing trails west of Arbor Village to the north and south.
 - This plan identifies specific recommendations for a trail system in Banks. These recommendations should be reviewed and validated as part of the BPP.
- Banks Main Street Revitalization Plan (2014)
 - This plan recommends expanding the UGB and constructing a new westside circulator road that parallels Main Street. It also recommends Main Street safety improvements including pedestrian crossings, full curb extensions, and marked crosswalk at Banks Road and OR 47 to improve connections to the Banks-Vernonia Trail. A new sidewalk and curb at the SW corner at the Five Star complex is suggested to better delineate pedestrian and vehicle zones. An improved internal system of trails (as identified in the Banks Parks and Recreation Master Plan), traffic calming at OR 47 and Main Street, and an access management strategy to enhance the pedestrian experience is also recommended.
 - This plan provides a vision for Main Street and recommendations related to bicycle and pedestrian facilities and amenities in the area.
- Urban Growth Boundary (UGB)
 - An expansion of Banks' UGB was approved in 2013. The expansion included approximately 400 acres of land that includes the Quail Valley Golf Course.
 - Housing tracks and other types of urban development are not allowed to occur beyond the UGB. The BPP should focus on improvements within the UGB or within expected amendments.



- City zoning and related ordinances
 - The land adjacent to the north and south ends of Main Street (OR 47) are zoned commercial (C) with single-family residential (R5) and community facilities (CF) zoning in between. General industrial (I) zoning occurs along parts of the railroad and more R5 zoning is found in the southwest part of the City.
 - When developing the BPP, transportation system improvements should not be in conflict with adjacent land uses or zoning ordinances.
- City of Banks Design Standards (2014)
 - This document provides local design standards and requirements for street design, bicycle and pedestrian facilities, on-street parking standards, and other related design standards.
 - Bicycle and pedestrian facilities proposed in the BPP will need to take into consideration the local design standards to ensure conformity.
- City Capital Improvement Program (CIP)
 - Four road improvement projects are identified in FY2014-2015; all are pending grant revenue. The roads identified are Commence Street, Park Street, Wilkes Street and Woodman Avenue/Parmley Avenue.
 - The CIP identifies capital projects that are planned or scheduled in the near-term and identifies proposed funding. City funded bicycle and pedestrian projects need to be identified in the CIP before they receive city funding.
- Council Creek Regional Trail (CCRT) Master Plan (Hillsboro to Forest Grove to Banks) (2014)
 - The Implementation Strategy Report recommends a widened sidewalk along the south side of NW Banks Road to better connect the Banks-Vernonia Trailhead to the City's planned Westside Circulator Roadway (WCR). A street-adjacent multiuse trail is recommended to run parallel on the west side of the WCR and connect to Main Street, south of downtown, running parallel with a proposed road connecting the WCR to Main Street. The recommended trail would continue on the west side of Main Street (OR 47) through the Oregon 6 undercrossing.
 - The BPP should coordinate with other planning efforts, like the CCRT, so that the north-south connections through the City with the Banks-Vernonia Trailhead do not conflict with each other.
- Tualatin Valley Scenic Bikeway
 - The Tualatin Valley Scenic Bikeway is a 50-mile bikeway, which incorporates the Banks-Vernonia State Trail and routes bicyclists through Banks via Main Street (OR 47) to NW Wilkesboro Road.



- The BPP should recognize the existing routing of other established routes, like the Tualatin Valley Scenic Bikeway, and take that into consideration when developing recommendations.
- Banks-Vernonia Trail
 - The Banks-Vernonia Trail is a 21-mile paved trail connecting Banks with Vernonia via an abandoned railroad bed. Trail improvements were completed in 2010 which included improvements at the Banks trailhead.
 - The Banks-Vernonia Trailhead is an important connection point that generates substantial bicycle and pedestrian traffic. Planning efforts during the development of the BPP should focus on this important node.
- Salmonberry Trail (Banks to Tillamook) Concept Plan (2014)
 - The Salmonberry Corridor offers a potential connective trail link between the Willamette Valley and the Oregon Coast along the 86 miles of the Port of Tillamook Bay railroad. Segment 1 is the twenty-five mile easternmost segment of the corridor that connects Banks to Crochran. It is envisioned to link into the existing Banks-Vernonia Trail.
 - This trail may connect to the Banks-Vernonia Trail outside of the City limits, but could increase trail traffic and bring more bicyclists and pedestrians into the City of Banks.

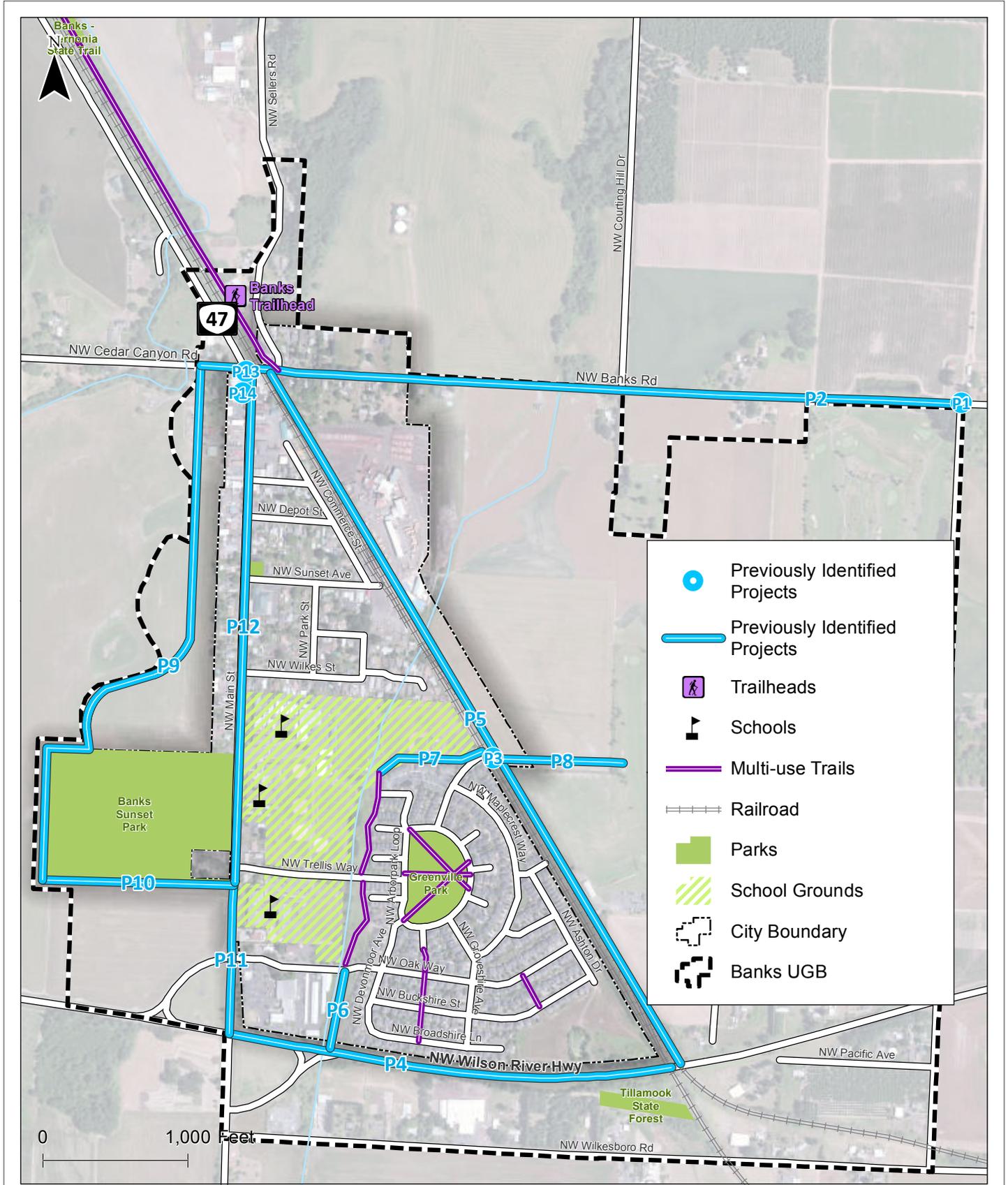
SUMMARY

Based on the document review, key bicycle or pedestrian needs/deficiencies in Banks were identified, as well as proposed projects. Each is summarized below with the relevant document(s) noted. The key projects are mapped in Figure 1. An appendix is also provided with excerpts from existing local and regional plans that include recommended improvements.

- Key needs/deficiencies already identified:
 - The railroad is a potential barrier to east-west bicycle/pedestrian connectivity from the UGB expansion area to city center destinations. (TSP)
 - Better connectivity for bicycle/pedestrian facilities are needed throughout the city. (TSP, Park & Rec Plan, Main Street Plan)
 - Several plans recommend a north-south bike route be established and/or the Banks-Vernonia Trail extended to the south end of town, but different routes are recommended. (TSP, Park & Rec Plan, CCRT)
 - Expand the UGB. (Main Street Plan)
 - Main Street is in need of safety improvements. (Main Street Plan)
 - Traffic calming treatments are needed at OR 47 and Main Street. (Main Street Plan)



- Access management strategy is needed along Main Street (OR 47). (Main Street Plan)
- Establish an east/west bicycle and pedestrian circulation system to service the expanded UGB area. (TSP)
- Key projects already identified:
 - P1 Install advanced warning signage at the intersection of Banks Road and Aerts Road. (TSP)
 - P2 Reconstruct Banks Road from Main Street (OR 47) to US 26 (TSP) with widened sidewalks. (TSP)
 - P3 Install a bicycle/pedestrian overcrossing or undercrossing of the railroad from the area east of the Banks school complex to the eastside of Banks. (TSP)
 - P4 Establish an east/west bicycle and pedestrian circulation system to service the expanded UGB area. (TSP)
 - P5 Develop a state trail connecting Banks-Vernonia Trail to Highway 6. (Park & Rec Plan)
 - P6 Extend the existing private trail on the west side of Arbor Village from Oak to Highway 6. (Park & Rec Plan)
 - P7 Develop a City Trail to connect the existing private trail on the west side of Arbor Village to the proposed pedestrian railroad crossing. (Park & Rec Plan)
 - P8 Install a separated walking path along Hwy 6. (Park & Rec Plan)
 - P9 Construct new westside circulator road. (Main Street Plan, CCRT)
 - P10 Install a separated trail along the westside circulator road and connect to Main Street (OR47) paralleling a new proposed road. (CCRT)
 - P11 Install a separated trail along Main Street, south of downtown, to the OR 6 undercrossing. (CCRT)
 - P12 Implement traffic calming along Highway 47/Main Street. (Main Street Plan)
 - P13 Install a marked crosswalk at Banks Road and Main Street (OR 47). (Main Street Plan)
 - P14 Install new sidewalk and curb at SW corner of Five Star complex. (Main Street Plan)



- Previously Identified Projects
- Previously Identified Projects
- Trailheads
- Schools
- Multi-use Trails
- Railroad
- Parks
- School Grounds
- City Boundary
- Banks UGB

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Previously Identified Projects
Banks, Oregon

Figure
1

NEXT STEPS

This memorandum was reviewed by the Stakeholder Advisory Committee (SAC) during its meeting on March 5th, 2015. SAC members were invited to comment on the memo and provide any recommended clarifications or changes. The project team reviewed the SAC's feedback and updated the memorandum accordingly, with this final copy incorporating their comments. Moving forward with the development of the BPP, this memo will be referenced for information on relevant policies and planned projects.



TECHNICAL MEMORANDUM #2 APPENDICIES

Recommendation excerpts from existing local and regional plans, including:

1. Conceptual Comprehensive Trail System Map – Banks Park and Recreation Master Plan (2010)
2. Westside Circulator Road Concept Map – Banks Transportation System Plan (2010)
3. Advanced Warning Sign Concept and Reconstruction of Banks Road Concept - Banks Transportation System Plan (2010)
4. East-West Bicycle/Pedestrian Circulation System Concept – Banks Transportation System Plan (2010)
5. Connectivity and Safety Recommendations - Banks Main Street Revitalization Plan (2014)
6. Trail Alignment Refinements - Council Creek Regional Trail Master Plan, Implementation Strategy Report (2014)

Appendix 1 Conceptual Comprehensive
Trail System Map – Banks Park
and Recreation Master Plan
(2010)

Comprehensive Trail System

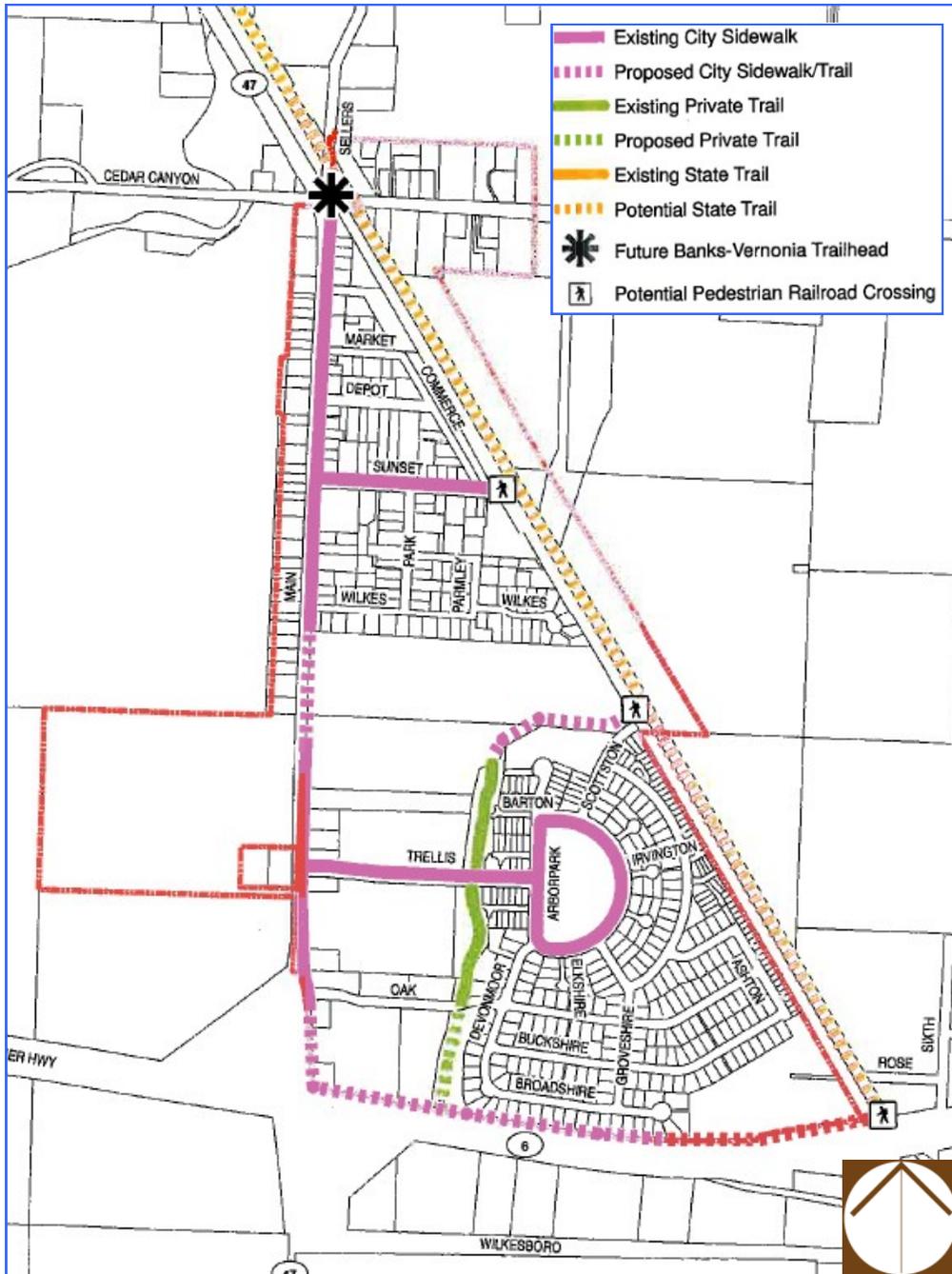


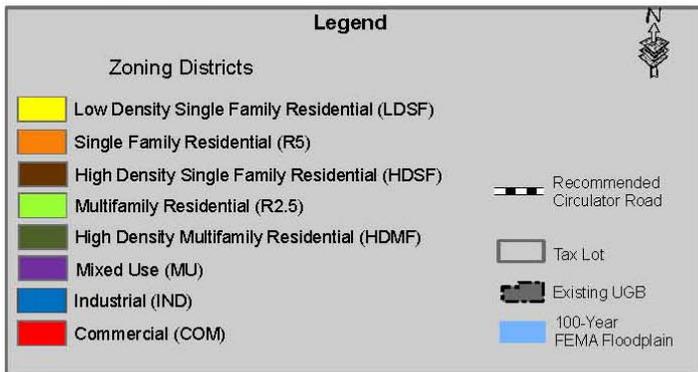
Figure 13: Conceptual Plan
Comprehensive Trail System

Appendix 2 Westside Circulator Road
Concept Map – Banks
Transportation System Plan
(2010)

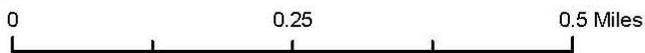
FIGURE 13: CONCEPT #8 – WESTSIDE CIRCULATOR ROAD



VICINITY MAP



Westside Circulator Road & Wilkes Rd. Extension



CH2MHILL

Appendix 3 Advanced Warning Sign
Concept and Reconstruction of
Banks Road Concept - Banks
Transportation System Plan
(2010)

Concept #4: Install advanced warning signage

Concept 4 is intended to increase safety for motorists, pedestrians, and cyclists traveling on Banks Road and those turning onto Banks Road from Aerts Road who do not have adequate sight distance based upon assumed design speed and existing conditions. The installation of advanced signing on all three legs of the intersection approach would warn motorists of reduced sight distance on the crest vertical curve, thereby improving safety conditions at the intersection. In addition to advanced signing, rumble strips for westbound Banks Road traffic just east of the crest vertical curve should be considered, and are included in the cost estimate. Existing vegetation should also be pruned and/or removed to improve sight distance conditions.

A detailed evaluation of this concept is provided in Appendix C (*Technical Memorandum 5.2: Banks TSP Alternatives Evaluation Report*). In the aforementioned memorandum, this concept is titled "Alternative 4a". Based on analysis conducted, this concept is recommended as a project to be placed on the city's transportation CIP list.

Based on planning level estimate tools, this project is estimated at \$14,000. This estimate includes the evaluation of existing signing at the site, design and construction of new advanced signing, construction of rumble strips on Banks Road east of the intersection, contingency, and engineering costs. Cost estimate details are provided in Appendix D (in the cost estimate sheets, this concept is titled "Alternative 4a").

A detailed discussion of potential transportation funding sources for this concept is provided in Section 4 of this TSP.

Concept #5: Reconstruct Banks Road

Concept 5 is intended to increase safety for motorists, pedestrians, and cyclists traveling on Banks Road between Main Street (OR 47) and US 26.

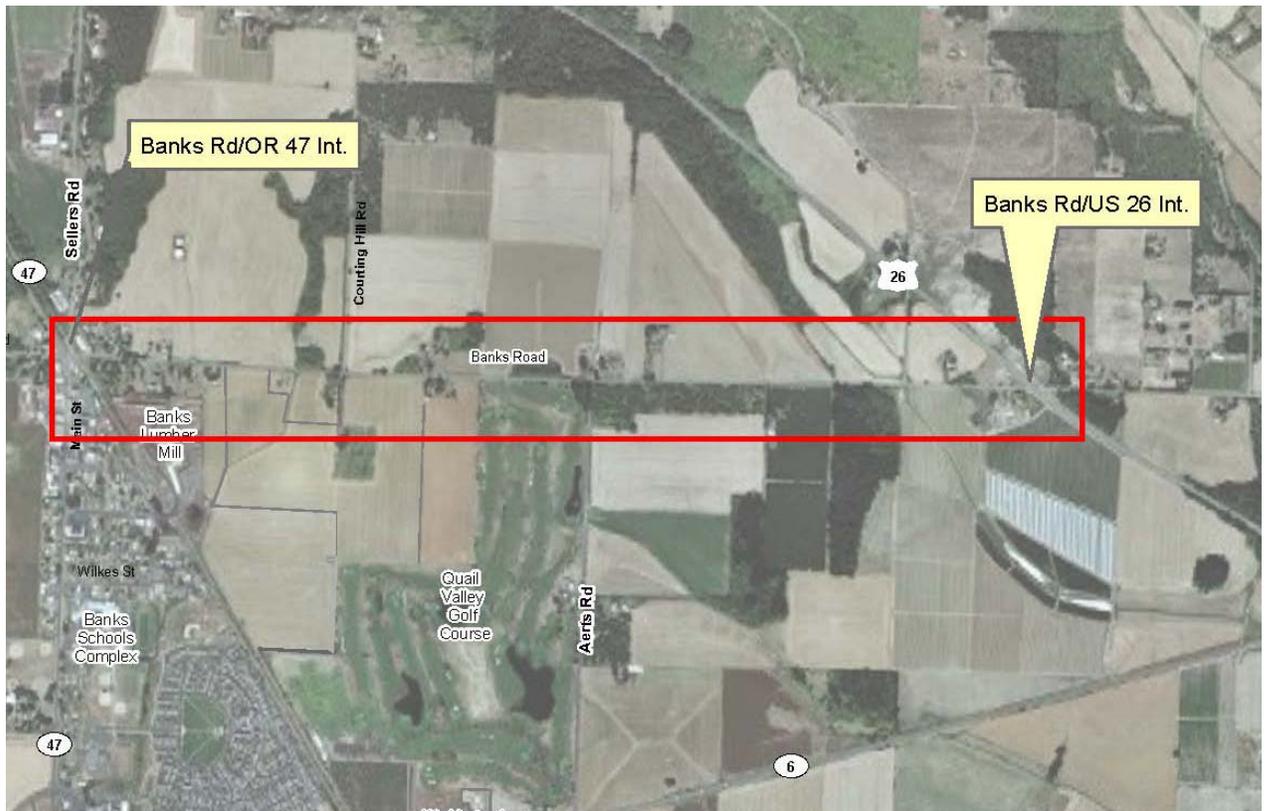
This concept entails re-grading the existing crest vertical curve at Banks Road and Aerts Road, and the sag curve 500 feet to the west of the intersection (see Figure 8), to meet a minimum 60 mile-per-hour vertical design speed sight distance requirement. This would allow drivers approaching Aerts Road from Banks Road, and drivers attempting to turn from Aerts Road, adequate sight distance. Approximately 3,800 feet of Banks Road and 100 feet of Aerts Road would be reconstructed to the Washington County Collector standard width of 36 feet. The golf course to the south of Banks Road would have retaining walls on fill. Some signs would need to be removed and replaced.

This concept would also entail widening the approximately 1.70-mile length of Banks Road between Main Street (OR 47) and US 26 (see Figure 9) to include shoulders on both sides of the road that meet Washington County Major Collector standards. It is assumed that existing usable roadway width is 20 feet, and would be widened to 36 feet. This would address the lack of adequate lane width and shoulders on Banks Road (in consideration of forecasted increases in traffic volume associated with the development of the UGB expansion areas on the east side of Banks) and the need to have a viable east-west alternative to OR 6 for accessing US 26 (so as to alleviate congestion and queuing issues at

both existing Banks access points to OR 6). This concept would significantly improve safety conditions for motorists, bicyclists, and pedestrians.

This concept would be constructed only when warranted based on future traffic conditions associated with future development of the UGB expansion areas.

FIGURE 9: CONCEPT #5 – WIDENING OF BANKS ROAD BETWEEN MAIN STREET (OR47) AND US 26



This concept is a combination of two formerly separate alternatives (titled “Alternative 4d” and “Alternative 5”) that were evaluated in *Technical Memorandum 5.2: Banks TSP Alternatives Evaluation Report*, provided as Appendix C. As noted in the aforementioned memorandum, the two formerly separate alternatives would be exceedingly more cost-effective if done in concurrence. This is the reason that the two alternatives were combined into the present concept being discussed. Based on analysis conducted in the aforementioned memorandum, this concept is recommended as a project to be placed on the city’s transportation CIP list.

Based on planning level estimate tools, this project is estimated at \$8,233,900. This estimate includes the design and construction of new roadway, new right-of-way, contingency, and engineering costs. Cost estimate details are provided in Appendix D (in the cost estimate sheets, see “Alternatives 4d and Alternative 5” for specific cost estimate elements, respective costs and overall combined cost as presented for the present concept). A detailed discussion of potential transportation funding sources for this concept is provided in Section 4 of this TSP.

Appendix 4 East-West Bicycle/Pedestrian
Circulation System Concept –
Banks Transportation System
Plan (2010)

Need:

East-west bicycle/pedestrian circulation system.

Several versions of this concept were assessed and are discussed in turn below.

The proposed bicycle/pedestrian crossing corridor as shown on Figure 15 is conceptual and would be defined through the land development process as it is funded, designed, and built.

Concept #11 Option A: Install Bicycle/Pedestrian Overcrossing of Railroad from Area East of Banks Schools Complex to Eastside of Banks (UGB Expansion Area)

As shown in Figure 15, this concept entails constructing a pedestrian/bicycle overcrossing of the railroad tracks to connect the UGB expansion area east of the tracks to the west side of Banks (at the Banks schools complex area) and would include a connecting path on the eastside to the circulator road (thereby providing a connection to the bicycle facilities on the new road). This concept would entail a temporary closure of the railroad tracks (approximately 2 nights at 6 hours a night).

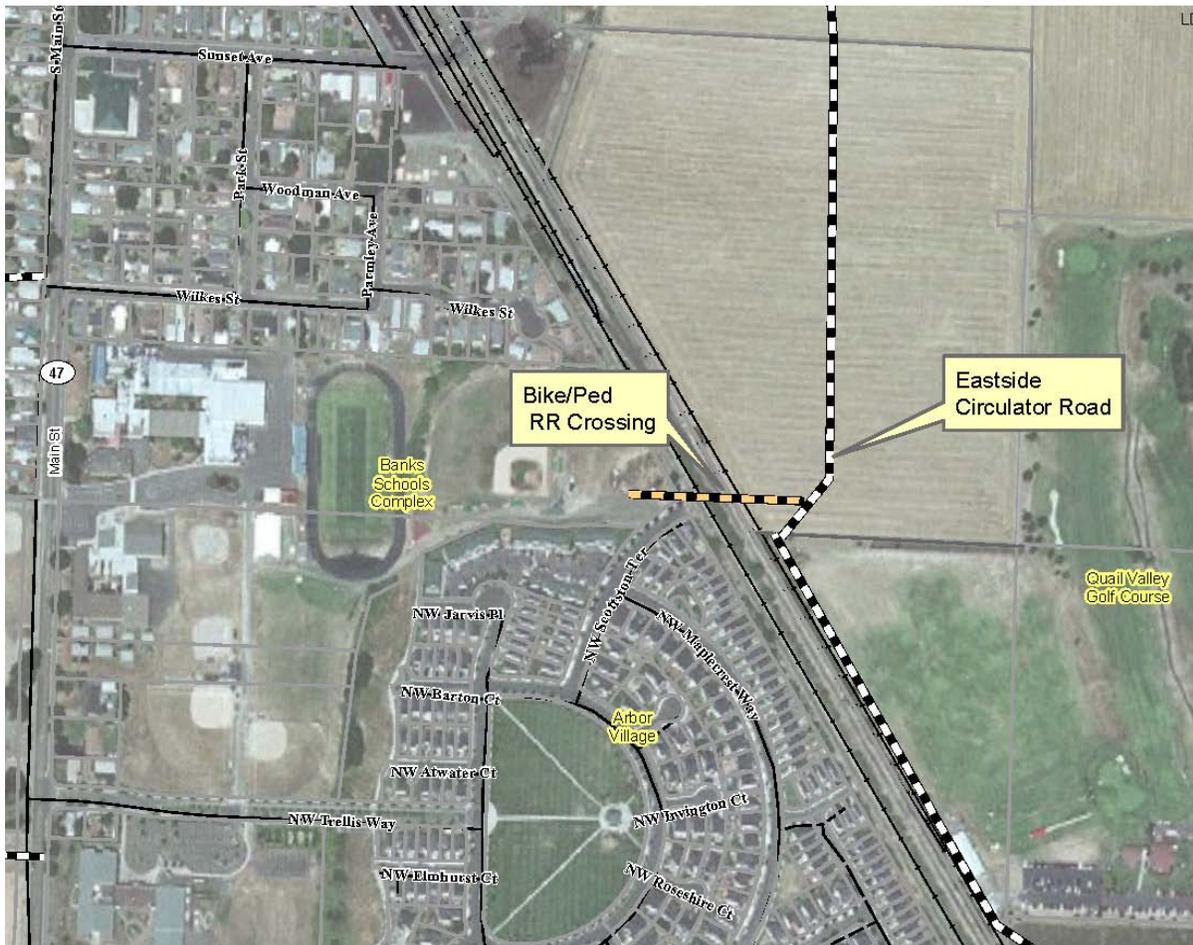
This concept addresses the need to provide safe, convenient, and reasonably direct east-west bicycle/pedestrian circulation. This concept could serve as an affordable interim step to meet this need in the event that the City determines that the longer-term objective of constructing motor vehicle crossings of the railroad with bicycle/pedestrian accommodations (see Concepts 3a and 3b) will occur at an unacceptably late future time with respect to the need for bicycle/pedestrian accommodations across the railroad (to accommodate the population in the eastside UGB expansion area).

This concept would encourage the use of alternate modes of travel between the west and east sides of Banks (assuming development of the UGB expansion areas on the east side of Banks) in keeping with City goals and objectives.

This concept would significantly improve safety conditions for bicyclists and pedestrians who would be provided with an east-west connecting route that was separated from motor vehicle traffic. This concept would be a pivotal safe route to school component.

This concept would significantly improve mobility conditions for bicyclists and pedestrians traveling to and from the UGB expansion area on the east side of the railroad tracks. This concept would enable short trips from east to west Banks and most importantly to the Banks school complex and downtown Banks – to be made conveniently by foot or bicycle.

FIGURE 15: CONCEPT #11 – BIKE/PED RR CROSSING CORRIDOR



A detailed evaluation of this concept is provided in Appendix C (*Technical Memorandum 5.2: Banks TSP Alternatives Evaluation Report*). In the aforementioned memorandum this concept is titled “Alternative 11a”. Based on analysis conducted, this concept is recommended as a project to be placed on the City’s transportation CIP list as a secondary bicycle/pedestrian bridge option IF Concept #11 Option B were not feasible, as discussed later in this report. Also, as previously noted, this concept should only be considered for implementation in the event that the City determines that the longer-term objective of constructing motor vehicle crossings of the railroad with bicycle/pedestrian accommodations (see Concepts 3a and 3b) will occur at an unacceptably late future time with respect to the need for bicycle/pedestrian accommodations across the railroad (to accommodate the population in the eastside UGB expansion area).

Based on planning level estimate tools, this project is estimated at \$5,690,800. This estimate includes the design and construction of a new pedestrian/bicycle overcrossing, new right-of-way, contingency, and engineering costs. Cost estimate details are provided in Appendix D.

A detailed discussion of potential transportation funding sources for this concept is provided in Section 4 of this TSP.

Concept #11 Option B: Install Bicycle/Pedestrian Undercrossing of Railroad from Area East of Banks Schools Complex to Eastside of Banks (UGB Expansion Area)

This concept would be in the same location and provide the same connecting points as in Concept 11 Option A (see Figure 15) but would entail an undercrossing (tunnel) connection rather than an overcrossing (bridge). This concept would necessitate a total closure of the railroad tracks for approximately 2-4 weeks.

The location for this undercrossing is optimal for the same reasons described for Concept 11, Option A.

A detailed evaluation of this concept is provided in Appendix C (*Technical Memorandum 5.2: Banks TSP Alternatives Evaluation Report*). In the aforementioned memorandum this concept is titled "Alternative 11c".

Based on analysis conducted, this concept is recommended as a project to be placed on the City's transportation CIP list as the primary bicycle/pedestrian bridge option. **However**, as previously noted, this concept should only be considered for implementation in the event that the City determines that the longer-term objective of constructing motor vehicle crossings of the railroad with bicycle/pedestrian accommodations (see Concepts 3a and 3b) will occur at an unacceptably late future time with respect to the need for bicycle/pedestrian accommodations across the railroad (to accommodate the population in the eastside UGB expansion area). In the event that the City wanted to pursue a bicycle/pedestrian bridge, but Concept 11 Option B were deemed infeasible due to the construction impacts on the railroad companies, Concept Option A would then be recommended.

Based on planning level estimate tools, this project is estimated at \$4,167,000. This estimate includes the design and construction of a new pedestrian undercrossing of the existing railroad, new right-of-way, contingency, and engineering costs. Cost estimate details are provided in Appendix D.

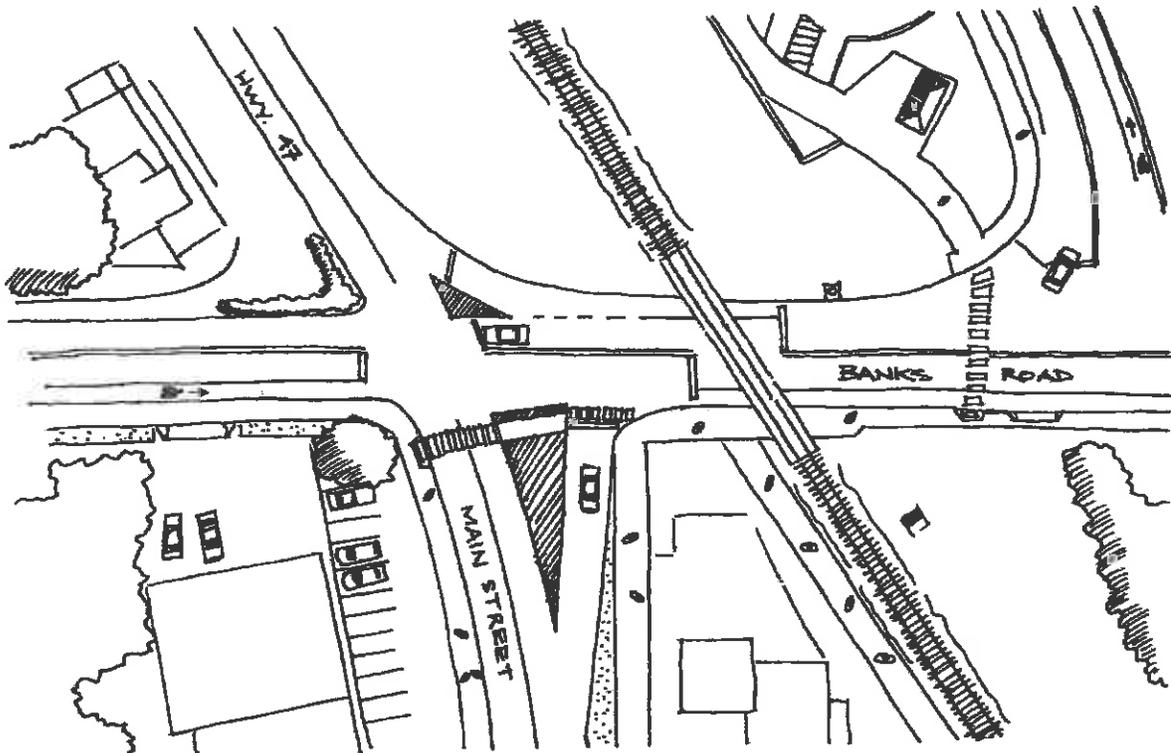
A detailed discussion of potential transportation funding sources for this concept is provided in Section 4 of this TSP.

Appendix 5 Connectivity and Safety
Recommendations - Banks
Main Street Revitalization Plan
(2014)

Connectivity and Safety

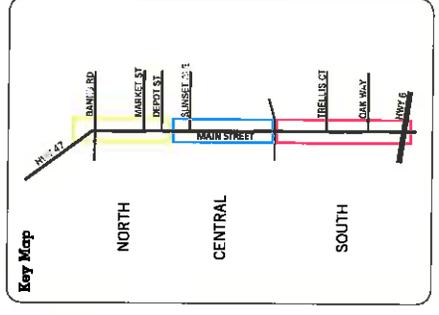
CS1. Westside Circulator Road – The Urban Growth Boundary expansion will bring construction of a new Westside Circulator Road that parallels Main Street with planned access at Cedar Canyon Road, Wilkes Street, and the perimeter of Sunset Park. With the UGB expansion, it will be possible to design a streetscape environment from the ground up that can support needed parallel bike facilities, house underground utilities, and also provide east-west connectivity to Main Street. Advance planning for the future design of the Westside Circulator Road will be necessary to ensure the road can meet Banks' current and future expectations. An additional Main Street connection at Depot Road could provide better access to the north side of Banks. Some of the shortcomings of Main Street can be mitigated with the construction of the Westside Circulator Road.

CS2. Main Street Safety Improvements – While the Westside Circulator Road could help address some challenges along Main Street, it is still essential that improvements to connectivity and safety be made in the short to medium term. Pedestrian crossings should, if possible, include full curb extensions, which make pedestrians more visible to drivers and also create space for additional furnishings and/or plantings. Other improvements at the Banks Road and Highway 47 intersection could include a signature gateway element and a marked crosswalk to improve connections to the Banks-Vernonia Trail. At the southwest corner of Banks Road and Highway 47, a new sidewalk and curb should be built at the Five Star complex to better delineate pedestrian and vehicle zones.



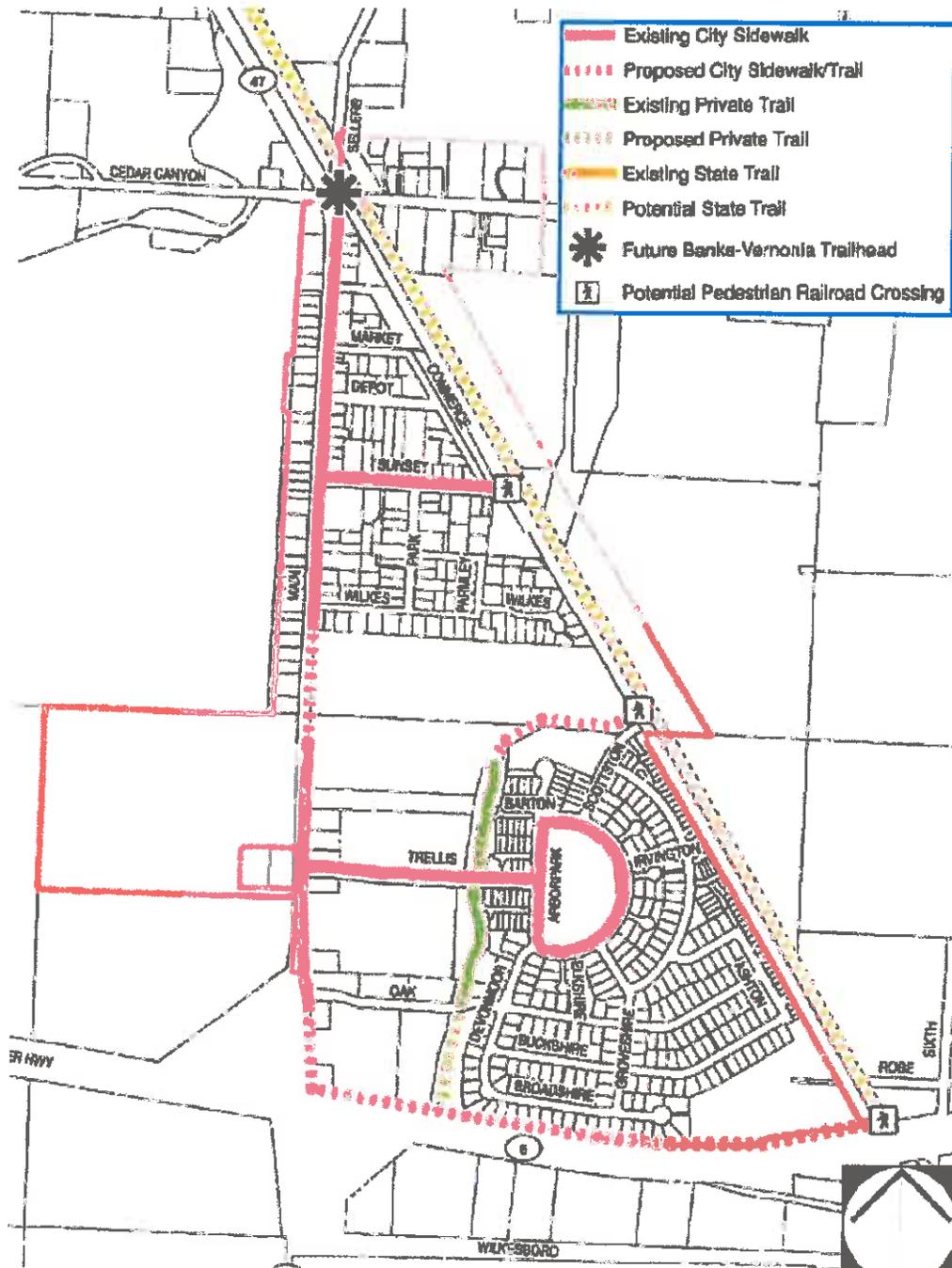
Above: Banks Main Street safety improvements at Highway 47 should include a new sidewalk at the Five Star complex, gateway treatment and crosswalks.

- Legend**
- NORTH AREA - Main Street
 - CENTRAL AREA - Main Street
 - SOUTH AREA - Main Street
 - ◆ BP2. Site Furnishings
 - ▬ BP3. Facade Improvement Program
 - ▬ CS1. Westside Circulator Road
 - ▬ Main Street Safety Improvements
 - + CS2. New Pedestrian/Bicycle Facilities
 - + CS2. Crosswalks
 - + CS2. Gateway
 - ▬ Traffic Calming along Hwy. 47 - Main Street
 - + CS3. Design Improvements
 - ▶ CS3. Speed Study
 - S S1. Comprehensive Signage Program
 - A AM1. Access Management Study
 - P PS1. Parking Study
 - E PE1. Annual Events
 - * PE2. Historical Walking Tours
 - D1. Banks Plaza
 - D2. Trailhead Dining
 - D3. Residential-Based Business Opportunities



Banks Main Street Revitalization
 Summary of Recommendations
 January 2014

Banks' internal system of trails can be improved to create backside connections to Main Street and the Banks-Vernonia Trail trailhead as described in the 2010 Banks Park and Recreation Master Plan (Refer to Figure 13: Conceptual Comprehensive Trail System). Improvements on state facilities would need to be approved by ODOT. This may include conducting a "freight mobility review" to ensure freight movement is not adversely affected.



Above: Comprehensive Trail System concept from the Banks 2010 Park and Recreation Master Plan update.

CS3. Traffic Calming along Highway 47/Main Street – Banks should also work with ODOT to determine ways to make drivers more aware of the speed reduction along Highway 47 from the north. This could entail a speed study along Highway 47. Redesign of the 0.5 mile northern approach to Banks along Highway 47 should be considered. A more prominent entry sign to announce arrival to Banks may be appropriate because the current sign 0.35 miles north of Banks Road fails to slow drivers. Another approach is the use of Transportation Demand Management (TDM) strategies (i.e. scheduling deliveries to the lumber yard at off-peak times, encouraging walking and biking for students and residents) in an effort to better disperse the number and type of trips throughout the day.



Driveway Consolidation

AM1. Access Management Study – The pedestrian experience along Main Street is diminished by numerous curb cuts and driveways that provide access to parking areas dedicated to individual buildings. Some parking lots are served by two or three driveway access points. Driveway curb cuts create slope changes along the sidewalk that make it difficult for people with mobility issues to navigate. An access management study can look into the reconfiguration and consolidation of driveways to maintain access and improve the pedestrian experience. This will benefit pedestrian safety, improve Main Street's walkability, enhance visual aesthetics and maximize the capacity of the existing roadway configuration.

Parking Study

PS1. Parking Study – As a companion piece to the recommended access management study, a parking study could quantify current supply and demand for parking along Main Street and identify locations where tenants can share parking. TGM's *Parking Management Made Easy* manual should be consulted before undertaking a parking study. Local workshops on parking management are a service of the TGM program and may be useful for Banks.

Signage

S1. Comprehensive Signage Program - In addition to, or as part of, the recommended Beautification Plan, a comprehensive signage concept could be developed. This would help create an identity for Main Street, encourage foot traffic from the Banks-Vernonia Trail trailhead through town, and promote popular Banks' destinations such as the Sunset Speedway, Log Cabin

Appendix 6 Trail Alignment Refinements -
Council Creek Regional Trail
Master Plan, Implementation
Strategy Report (2014)

SEGMENT 1: BANKS

- A** Widened concrete sidewalk section along south side NW Banks Road better connecting the Banks-Vernonia Trailhead to the City's planned Westside Circulator Roadway (WCR).
- B** Street-adjacent multiuse trail (**WEST**) paralleling west side of future WCR. Trail on west side of WCR avoids new road crossing where trail re-intersects with Main Street south of downtown. Could be developed as standard multiuse trail before road construction, or as cycle track as part of road construction.
- C** Street-adjacent trail on west side of Main Street/Oregon 47 through the Oregon 6 undercrossing. Trail surface through undercrossing is concrete, undercrossing approach trails are asphalt. Uses existing signalization/crosswalk at Oregon 6 ramp intersection, as well as ODOT property between ramp and undercrossing. Trail sections approaching Oregon 6 undercrossing and the trail section under Oregon 6 do NOT include a buffer separation. This will reduce slope cuts and retaining wall heights.

The alignment from the WCR, along Main Street and under Oregon 6 could remain on the west side and shift to the east at NW Wilkesboro Road (Segment 1) or NW Greenville Road (Segment 1).

An eastside trail alignment remains a possibility. There are no technical differences between widening the two sides of the undercrossing. The challenges to the eastside alignment are due to prior development north and south of the Oregon 6 undercrossing. An eastside trail could interfere with existing commercial development on the north side of Oregon 6 and would have to cross the presently unsignalized Oregon 6 entry ramp and NW Wilkesboro Road intersection on the south side.



City of Banks Welcome Sign



Oregon 6/Oregon 46 undercrossing looking north



Planned Westside Circulator Roadway route

Council Creek Regional Trail Master Plan

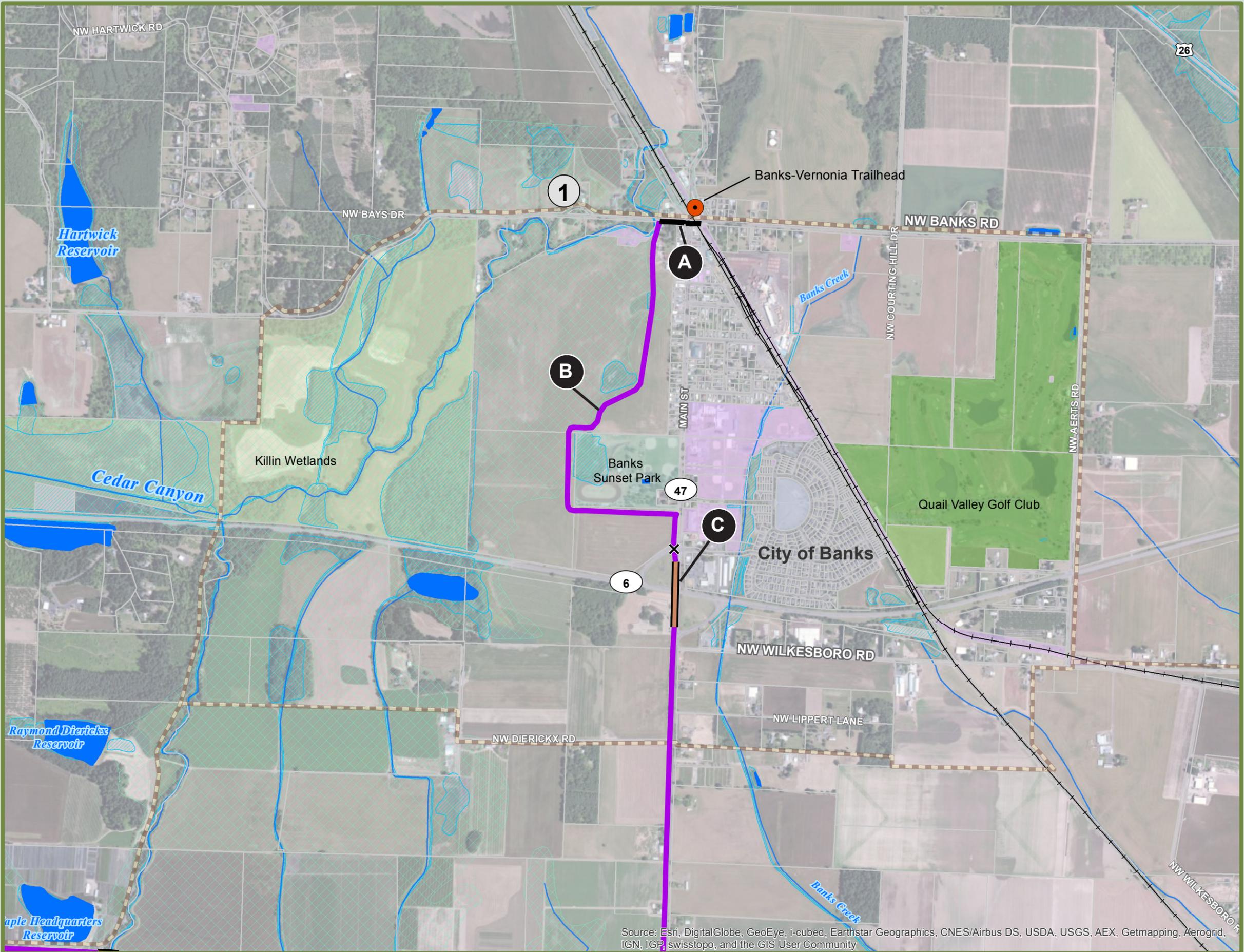
Trail Alternatives

Segment 1

Banks

October, 2014

- Trail Type**
- Multiuse Trail
 - Street-adjacent Multiuse
 - On-Street
 - Multiuse Rail-with-Trail
 - Multiuse Boardwalk
 - Community Trail
 - Flood-resistant Trail
 - Bridge or Undercrossing
- Crossing Type**
- X Collector/Arterial Road Crossing
 - X Minor Stream Crossing
 - X New Railroad Crossing
 - X Trail Segment Boundary
 - Railroad
 - BPA Corridor
 - Taxlot Boundary
 - Park
 - Natural Area
 - Private Recreation Area
 - Cemetery
 - Public Land
 - Streams
 - Waterbody
 - Wetland Area
 - FEMA 100 Yr. Flood Plain



Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community