

October 19, 2021

RE: Westland Irrigation District and Umatilla County Infrastructure Modernization Project

Dear Stakeholder,

Westland Irrigation District (the District) and Umatilla County (the County) are seeking federal funding through the Natural Resources Conservation Service's (NRCS's) Watershed Protection and Flood Prevention Program, Public Law 83-566 (PL 83-566). This funding would be invested to modernize irrigation canals, laterals, and other infrastructure throughout the District and within the County. As a part of this effort, they are starting public scoping about a potential project and its associated resources. The purpose of this letter is to:

- transmit the Scoping Document for this project,
- advise you about the public comment period from October 19, 2021 to December 2, 2021, and
- advise you about how to submit comments on the proposed project.

Federal investments through PL 83-566 need to comply with both the program's requirements as outlined in the Principles, Requirements, and Guidelines for Water and Land Related Resources Implementation Studies (PR&G) and the National Environmental Policy Act (NEPA) process. NRCS is the lead federal agency managing the NEPA process for the Westland Irrigation District and Umatilla County Infrastructure Modernization Project.

Public scoping is the first step in the NEPA process and is required under PL 83-566. Under this step, NRCS releases a Scoping Document to resource agencies, interested stakeholders, and the public to inform them of the need for NEPA and PR&G analysis, and to learn of any information or concerns relevant to the analysis. The Scoping Document identifies the proposed project and framework for analyzing resources that have the potential to be affected by the proposed project.

The District, the County, and NRCS will discuss the Scoping Document during a virtual public scoping meeting to be held on November 2, 2021. The purpose of this meeting is to collect both NEPA-related comments and comments on PR&G-specific analysis regarding which resources should be included moving forward as well as the appropriate level of analysis. NRCS will use the comments gathered during public scoping to inform the next step in the NEPA and PL 83-566 program process.

Comments in response to the issues discussed during the meeting and/or review of the Scoping Document are due December 2, 2021. Comments and questions can be emailed to: westland.id.comments@gmail.com or mailed to Farmers Conservation Alliance at 102 State Street, Hood River, OR 97031.

Westland Irrigation District and Umatilla County thank you for your interest in the infrastructure modernization project and look forward to your participation.

Sincerely,

Curtis Engbretson, District Manager

John Shafer, Umatilla County Commissioner

Westland Irrigation District and Umatilla County Infrastructure Modernization Project

Watershed Plan-Scoping Document

Umatilla Watershed

Umatilla County, OR

October 19, 2021

Prepared by Farmers Conservation Alliance for United States Department of Agriculture, Natural Resources Conservation Service – Lead Federal Agency in cooperation with Westland Irrigation District and Umatilla County

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Abbreviations

WID or District	Westland Irrigation District
BMP	Best Management Practice
CFR	Code of Federal Regulations
NEPA	National Environmental Policy Act
NRCS	Natural Resources Conservation Service
OWRD	Oregon Water Resources Department
PL 83-566	Watershed Protection and Flood Prevention Program, Public Law 83-566
Plan-EA	Watershed Plan-Environmental Assessment
PR&G	Guidance for Conducting Analysis Under the Principles, Requirements, and Guidelines for Water and Land Related Resources Implementation Studies and Federal Water and Resource Investments
SHPO	State Historic and Preservation Office
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
Reclamation	Bureau of Reclamation
FCA	Farmers Conservation Alliance

1 Introduction

Westland Irrigation District (herein referred to as WID or the District) and Umatilla County (herein referred to as the County) are the Sponsoring Local Organizations (co-sponsors) seeking federal funding through the Natural Resources Conservation Service's (NRCS) Watershed Protection and Flood Prevention Program, Public Law 83-566 (PL 83-566). PL 83-566 was authorized by Congress in 1954. The co-sponsors are seeking funding to implement an infrastructure modernization project within Umatilla County, Oregon that would improve the District's agricultural water management as well as address key issues associated with the area's aquifer and declining groundwater supply.

WID is in north-central Oregon, just west of the cities of Hermiston, Stanfield, and Echo. The District was officially formed in 1917 and is part of the Bureau of Reclamation's (Reclamation) Umatilla Project South Division (WID 2017). The District uses approximately 30 miles of canals, ditches, and pipelines to irrigate roughly 14,700 acres serving 266 water user accounts. The District relies on two water sources, the Umatilla River and McKay Reservoir, both of which depend on runoff from winter snowpack and precipitation. In the spring and early summer, the District draws live streamflow from the Umatilla River. After the Umatilla River reaches its low summer flow, the District fulfills patron demand by switching to supplemental storage water that has filled McKay Reservoir throughout the year. Of the four largest irrigation districts in the Umatilla Basin, WID is the only district that does not have access to Columbia River water to provide season-long water for its patrons, and, therefore, must rely solely on winter snowpack and precipitation. Modernizing aspects of WID's water distribution system and building infrastructure to access and begin using Columbia River water would increase system efficiency, improve water supply reliability, and help address local water resource concerns (see Section 3.1).

Umatilla County is in north-central Oregon and includes the cities of Hermiston, Stanfield, Umatilla, and Pendleton (which is within the County but not located near the proposed project). The County encompasses the entirety of WID boundaries. The County has an interest in ensuring that water supplies within the County are adequate for agriculture, the environment, and the community. As such, they've engaged in long-term planning for water resources since the 1980s. The County has been a key player in the committees and task forces behind the one-to-one exchange of Umatilla River water for Columbia River water, assessing groundwater supplies in the area's deep basalt Critical Groundwater Area, and identifying solutions to meet the long-term water goals of diverse water uses and users in the region. Through more than a decade of groundwater monitoring and study, the Ordinance Alluvial Aquifer, located within the County, has been identified as an area that would benefit from aquifer recharge. The County is interested in accessing Columbia River water to 1) promote economic growth in the area by providing a reliable supply of water to industry, 2) support the local, shallow Ordinance Aquifer, which was previously identified as being a productive water recharge site, and 3) collaborate with WID to support agriculture.

The National Environmental Policy Act (NEPA) of 1969 and other applicable laws require a complete analysis of the environmental effects of the proposed project, as well as the consideration of additional alternatives. The Principles, Requirements, and Guidelines for Water and Land Related Resources Implementation Studies and Federal Water Resource Investments (PR&G) require

additional analyses such as an economic analysis and inclusion of effects to ecosystem services to meet the requirements of the program. NRCS, as the lead federal agency, will be meeting the requirements of both NEPA and the PR&G simultaneously through the Watershed Planning process. This Scoping Document and the associated scoping meeting meet NEPA and PR&G requirements for public participation. The scoping process is part of a systematic approach to obtain input from stakeholders about the project and to ensure that significant decision-making factors are addressed. The scoping process helps to ensure that the level of analysis for the proposed project is appropriate and helps to anticipate any significant impacts that may result in the need for an Environmental Impact Statement (EIS) or whether an Environmental Assessment (EA) should be prepared. At this time, it is anticipated that a Draft Watershed Plan-EA would be prepared following scoping.¹

The Draft Plan-EA will describe the proposed project in detail; look at alternatives to meet the purpose of and need for the project; analyze the potential effects of the project on cultural, social, and environmental resources in the vicinity; and analyze the potential costs and benefits of the proposed project. NRCS will release the Draft Plan-EA for public and agency comment upon completion.

2 Consultation and Participation

2.1 Sponsors, Local Partners, Agencies, and Tribal Participation

The scoping process is a collaboration between the District, Umatilla County, NRCS, partners, agencies, tribes, and other stakeholders. It is intended to provide transparency, ownership, and cooperation towards a solution that meets the purpose and need for action (Section 3). There will be additional opportunities for input during the subsequent Watershed Planning process and the development of the Draft Plan-EA.

The project sponsors are the parties involved in scheduling the process, facilitating communication, project design and development, and document writing. The project is co-sponsored by WID and Umatilla County. NRCS is the lead agency managing the NEPA process.

2.2 Permits and Compliance

The project sponsors seek federal funding through PL 83-566. Through the NEPA process, NRCS will identify how the project would comply with all relevant state and federal permitting and regulations, including Section 106 of the National Historic Preservation Act (managed by the State

¹ NRCS requirements and guidelines are provided in the 2015 NRCS National Watershed Program Manual (NRCS 2015) and the 2014 NRCS National Watershed Program Handbook (NRCS 2014). Additional requirements are found in the 2013 Principles and Requirements for Federal Investments in Water Resources (NRCS 2013) and Interagency Guidelines and Agency Specific Procedures established in Departmental Manual 9500-013. These documents comprise the Guidance for Conducting Analysis Under the Principles, Requirements, and Guidelines for Water and Land Related Resources Implementation Studies and Federal Water and Resource Investments (PR&G; USDA 2017). The PR&G revised and replaced the 1983 Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies. The PR&G constitutes comprehensive policy and guidance for federal investments in water resources.

Historic and Preservation Office [SHPO]), Section 7 of the Endangered Species Act (managed by the National Oceanic and Atmospheric Administration Fisheries and the U.S. Fish and Wildlife Service [USFWS]), and Sections 404 and 401 of the Clean Water Act (managed by Oregon Department of State Lands and the U.S. Army Corps of Engineers). Permits that are not received during the NEPA process would be received prior to beginning construction of the proposed project.

2.3 Mitigation

Mitigation for environmental, historical, or other social effects will be considered and described in the Draft Plan-EA when the potential effects to these resources have been identified; consultation with the appropriate agencies will be conducted to agree on any mitigation plans.

3 Purpose and Need for Action

The purpose of this project is Agricultural Water Management,² through improved water delivery and supply reliability to District water users, water conservation along District infrastructure, and groundwater recharge. The District and the County have identified the need to improve water delivery reliability, reduce operational inefficiencies in District infrastructure, and reduce local aquifer depletion. Current District operational inefficiencies include inability to maximize water delivery when using McKay Reservoir's limited water supply.

3.1 Watershed Problems and Resource Concerns

The District relies on the Umatilla River and the McKay Reservoir to provide season-long water for its patrons. These sources depend entirely on snowpack and precipitation. Changing weather patterns have decreased the spring runoff that feeds the Umatilla River, which causes the District to call on McKay Reservoir's limited water supply earlier in the season to meet patron demand. The spring runoff and precipitation that are needed to fill McKay Reservoir have also decreased due to changing weather patterns. Because WID often does not have enough water stored in McKay Reservoir to fulfill its patrons' irrigation season allotments, some patrons switch to groundwater irrigation to finish their crops. This pumping of groundwater contributes to local aquifer depletion and a reduction in aquifer water quality in critical groundwater areas.

Shallow and deep groundwater aquifer systems underly the Umatilla Basin. These aquifers, which are part of the Columbia River Basalt Group, are derived from a series of lava flows that occurred millions of years ago. The shallow alluvial aquifers contain groundwater that generally moves freely throughout the aquifer. The deep basalt aquifer system contains groundwater that is confined to interflow zones between the thick, layered basalt. The groundwater contained in these aquifers has been in decline since 1960, only 10 years from the start of groundwater irrigation in the Umatilla Basin. Due to groundwater pumping that exceeds long-term natural recharge, the Oregon Water Resources Department (OWRD) designated four Critical Groundwater Areas in the Umatilla Basin. The County recognizes that the local aquifer groundwater supply and groundwater quality, due to

² Agricultural Water Management is an authorized purpose of the PL 83-566 program (NRCS 2014).

high nitrate levels that exceed safe drinking water levels, are strained by agricultural and community demands. The County is committed to understanding and identifying solutions to address the region's groundwater issues.

The following opportunities could be realized through the implementation of the project:

- Improve irrigation water management and delivery to WID patrons by improving conveyance efficiencies
- Improve water supply reliability for WID patrons
- Improve local aquifer water quality and water quantity by reducing groundwater irrigation and increasing aquifer recharge
- Provide pressurized deliveries to patrons
- Assist in providing reliable streamflow late in the irrigation season in the Umatilla River and its tributaries
- Reduce the operations and maintenance involved in delivering irrigation water to WID patrons

4 Scope of the Environmental Assessment

NRCS, WID, and Umatilla County are conducting public scoping as a part of the project's NEPA and PR&G requirements. Public scoping seeks to identify issues of economic, environmental, cultural, and social importance that have the potential to be affected by the proposed project.

Following the scoping process, a Plan-EA will be drafted to determine if the proposed project meets NEPA requirements³ as well as program and environmental review requirements specific to NRCS and federal investments in water resources projects.¹

5 Affected Environment - Existing Conditions

5.1 Project Location and Project Area

The District serves 266 water user accounts across approximately 14,700 irrigated acres in Umatilla County. The project area is defined as the area where the WID and Umatilla County Infrastructure Modernization Project would occur, much of which sits above the local, shallow Ordinance Aquifer. The project area consists of the District infrastructure that would be modernized (i.e., upgraded or improved), areas where new District and County infrastructure would be built, and associated rights-of-way and/or easements where construction would take place and/or be staged.

³ NEPA requirements include the Council on Environmental Quality regulations for implementing NEPA (40 Code of Federal Regulations [CFR] 1500–1508); the U.S. Department of Agriculture's (USDA) NEPA regulations (7 CFR Part 650); NRCS Title 190 General Manual Part 410; and the NRCS National Environmental Compliance Handbook Title 190 Part 610 (May 2016).

5.1.1 Current Infrastructure and Water Rights

WID operates more than 30 miles of pipelines and open canals (Figure 5-1). The District has water rights to the Umatilla River and stored water for supplemental irrigation from McKay Reservoir.

The District conveys water through a combination of open canals and buried pipelines. WID serves water to most of its patrons through open canals; however, the District also owns and operates five pump stations, which serve approximately 3,400 acres of the 14,700 total irrigated acres through buried pipelines.

Due to the uncertainty of the District's water supply (Section 3), the District has taken measures to efficiently manage the available water by recording use through flowmeters and/or staff gages along each withdrawal point of the Westland Main Canal. The District also has installed telemetry equipment to remotely monitor canal flow, pump station output, and control gate structures. These measures ensure that, to the best of the District's ability, WID can deliver adequate and equitable water to its patrons.

During the early season runoff, when Umatilla River streamflow is high, the District can meet its patrons' water demands even though water loss occurs via seepage from the canal; however, meeting that demand later in the season is more challenging (M. Wick, former District Manager, personal communication). Seepage loss from the canals in the early season is thought to be a benefit to the local aquifers and groundwater supply. After the Umatilla River reaches its summer low flow, the District tries to fulfill patron demand by switching to supplemental storage water that has filled McKay Reservoir throughout the year. Changing climate conditions have caused the District to call on McKay Reservoir's limited water supply earlier in the season, and the seepage loss of the District's open canals creates a challenge for water management. Often, WID does not have enough stored water in McKay Reservoir to deliver a full season allotment to all its patrons, so some users draw from groundwater wells to finish their crops. This stresses the aquifer's groundwater supply and groundwater quality in critical groundwater areas.

The co-sponsors have each secured, or are in the process of securing, water rights that would allow Columbia River water rights to be utilized for future irrigation, aquifer recharge, and economic resiliency projects. By using Columbia River water, the District would add a new water source for their irrigation water supply, and the County would be able to supply water for aquifer recharge and industrial users. Columbia River water rights, however, are required to be mitigated by a one-for-one exchange with Umatilla River water. The District and County are in the process of securing mitigation water for use of Columbia River water through a variety of mechanisms including on-farm conservation measures and water leasing programs.

5.1.2 Climate and Topography

Average annual precipitation in the project area is 10.5 inches, with only 1.12 inches of rain falling during the summer months (June, July, and August). Summer high temperatures typically exceed 90 degrees Fahrenheit. The typical growing season in the District is about 173 days (IWW 2006). Irrigated lands vary in elevations from approximately 400 feet to 620 feet above sea level. Most of the project area is flat, with slopes of 0 to 5%, although some areas have slopes of up to 25%.

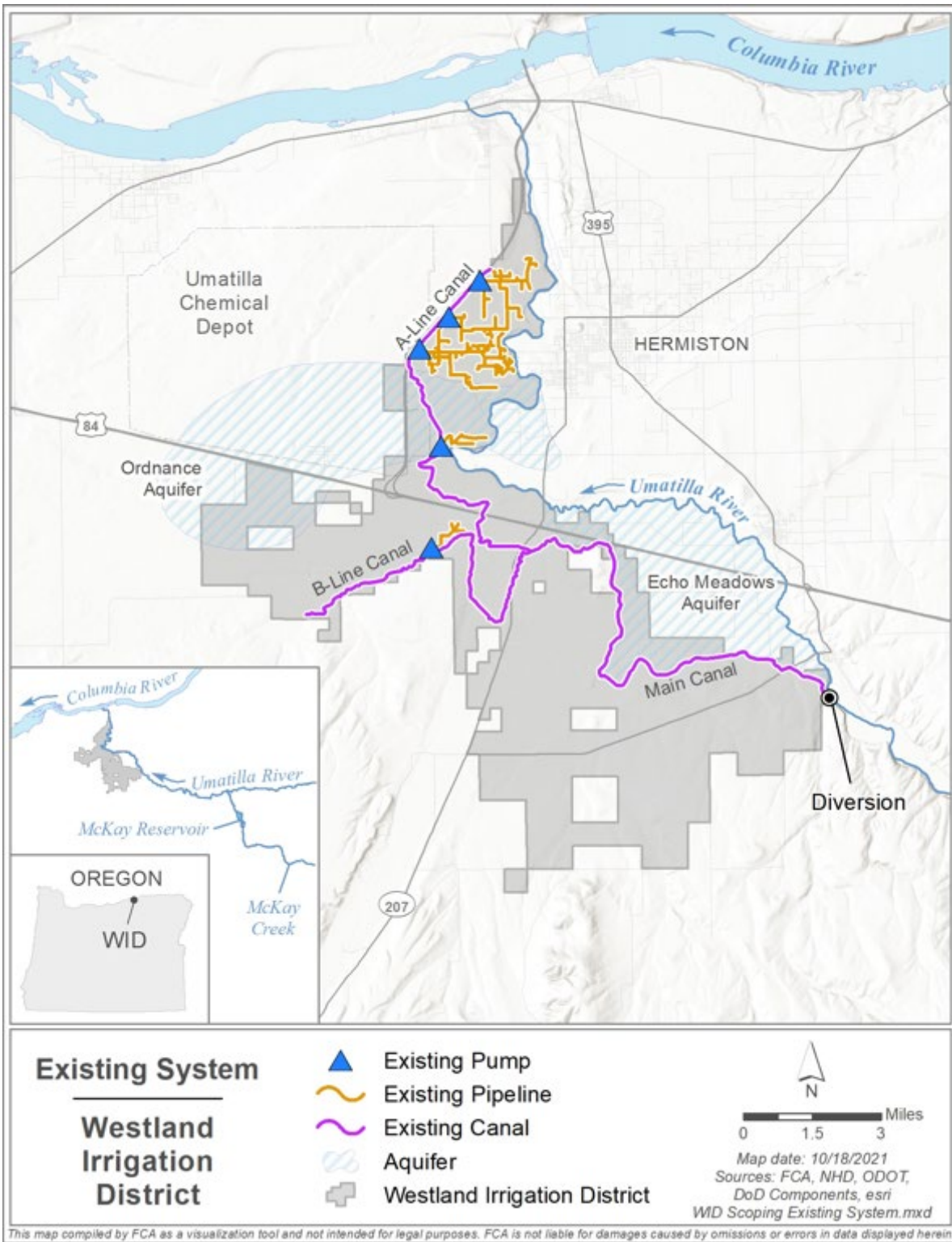


Figure 5-1. Westland Irrigation District's current infrastructure.

5.2 Resource Issues, Project-Related Effects, and Proposed Measures

Table 5-1 provides an overview of the potential effects to resources, identified to date, and the co-sponsors' proposed measures to avoid adverse environmental effects during the construction and operation of its proposed infrastructure modernization project.

Table 5-1. Overview of Currently Identified Resource Issues, Proposed Analysis, and Mitigation Measures to be Included in the Draft Watershed Plan-Environmental Assessment.

Resource	Potential Effects to be Analyzed	Proposed Analysis and Mitigation Measures
Geology and Soils	Potential effects from the erosion of exposed and disturbed soils (both surface and backfill) on soil resources and proximate surface waters	Review NRCS and other available soil survey and geology maps. Develop and implement an Erosion and Sediment Control Plan. Incorporate best management practices (BMPs) during and post construction.
Cultural Resources	Potential effects of the construction and operation of the proposed project on historic resources that are, or may be eligible, for inclusion in the National Register of Historic Places	Survey the project area and consult with SHPO prior to project construction. Develop and implement a Historic Properties Management Plan to provide a formal framework for the future treatment of all known historic properties within the area of potential effects that are eligible to be listed on the National Register of Historic Places.
	Potential effects of the construction of the proposed project on archeological resources	Analyze previous archeological reports and potential effects and consult with SHPO prior to project construction. Develop and implement an Unanticipated Discoveries Plan.
Vegetation	Potential for noxious weed distribution during and post construction	Incorporate noxious weed suppression BMPs during construction.
	Potential effects on sensitive and/or rare plant species	Review state and federal listings specific to the project area. Determine measures based on species presence.
Fish	Potential effects on general fish populations and their habitats	Communicate with USFWS and Oregon Department of Fish and Wildlife and review available literature. No measures proposed at this time.

Resource	Potential Effects to be Analyzed	Proposed Analysis and Mitigation Measures
	Potential effects on threatened and endangered species	Review state and federal listings specific to the project area and region. Determine measures based on species presence.
Wildlife	Potential effects on general wildlife	Review available literature and communicate with USFWS and the Oregon Department of Fish and Wildlife. Incorporate BMPs during construction.
	Potential effects on threatened and endangered species	Review state and federal listings specific to the project area. Determine measures based on species presence.
	Potential effects on birds covered under the Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act	Review state and federal listings specific to the project area and communicate with USFWS. If there is the potential to effect Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act species through vegetation clearing or construction activities, follow seasonal restrictions and incorporate BMPs during construction.
Surface Water	Potential effects on surface water quality	Develop and implement an Erosion and Sediment Control Plan. Incorporate BMPs during construction.
Groundwater	Potential effects on groundwater resources	Review literature and consult with local experts.
Wetlands, Riparian Areas, and Floodplains	Potential effects on wetlands	Review the National Wetlands Inventory Database and available literature. If jurisdictional wetlands are identified, consult with the U.S. Army Corps of Engineers and Oregon Department of State Lands. No measures proposed at this time.
	Potential effects on floodplains	Present the proposed project to the Umatilla County Flood Administrator to determine potential effects; mitigation measures would be determined based on project effects.
	Potential effects on riparian areas	Review available literature and interview local experts. No measures proposed at this time.

Resource	Potential Effects to be Analyzed	Proposed Analysis and Mitigation Measures
Land Use and Recreation	Potential effects of project construction, operation, and maintenance on agricultural, residential, and other land uses near the project	Review spatial and zoning data and available literature. No measures proposed at this time.
	Potential effects of project construction, operation, and maintenance, including dust and noise, on recreation resources near the project	Review spatial data to determine presence of trails and parks with the potential to be affected. No measures proposed at this time.
Environmental Justice	Potential effects of project construction and implementation on minority, low income, tribal, or indigenous community	Review socioeconomic data and spatial data. No measures proposed at this time.
Socioeconomic Resources	Potential effects of project construction, operation, and maintenance on the local economy in Umatilla County	Prepare a National Economic Efficiency and a Regional Impact Analysis, as required by NRCS, to determine the effect of the alternatives on the region's economy.
	Potential effects of project construction and completion on property values in the project area	Review available literature. No measures proposed at this time.
Public Health and Safety	Potential effects on the danger of drowning in canals and flood damage to properties below open canals	Review available literature. No measures proposed at this time.
Ecosystem Services ¹	Potential effects on provisional, cultural, and regulating ecosystem services	Review available literature. No measures proposed at this time.
Economic Benefits and Costs ¹	Analyze the economic costs and benefits of the project	National Economic Efficiency Analysis

Notes:

1. These resources are not required under NEPA, they are required to be analyzed under the PR&Gs.

6 Alternatives

6.1 Formulation Process

To determine the most viable alternatives to meet the project's purpose and need, NRCS, WID, and Umatilla County are considering the needs of the water users; goals for conservation and restoration; funding available for the County, the District, and the water users; and the status of the District's previous improvements.

6.2 Description of Alternatives Considered

During the scoping process, the following Alternatives will be analyzed to determine if they should be studied in detail or eliminated from further study. They will be evaluated based on the criteria in the PR&G. Pursuant to this guidance, alternatives that become "unreasonable due to cost, logistics, existing technology, social, or environmental reasons," do not achieve the Federal Objective and Guiding Principles or are unable to address the purpose and need for action may be removed from consideration.

6.2.1 No Action Alternative (Future without Project)

Umatilla County: Because the County has already raised some funds outside of the PL 83-566 program, under the No Action Alternative, the County would move forward with building a Columbia River Pump Station and approximately 3.1 miles of the Mainline Pipe. The County has already secured Columbia River water rights. That water would be pumped from the Columbia River and would be used to serve industrial users (Figure 6-1). Groundwater recharge at the Ordinance Alluvial Aquifer recharge site would not occur. The timing of the County installing this infrastructure would be expected to begin as soon as the final engineering is completed.

The No Action Alternative would include the following infrastructure construction:

- A Columbia River Pump Station at approximately RM 282 on the Columbia River
- 3.1 miles of Mainline Pipe to bring Columbia River water to industrial users

Westland Irrigation District: Under the No Action Alternative, the District would continue to operate and maintain its existing canals and pipelines in their current condition. This alternative assumes that modernization of the District's infrastructure would not be reasonably certain to occur, as funding at the scale necessary to modernize the District's remaining infrastructure is not anticipated from other sources. The No Action Alternative would be a continuation of the District's standard operations and maintenance.

No infrastructure connecting WID to the Mainline Pipe to source water from the Columbia River would occur. As a result, Columbia River water would not be withdrawn for agricultural purposes, the District would maintain their existing water rights for McKay Reservoir and the Umatilla River.

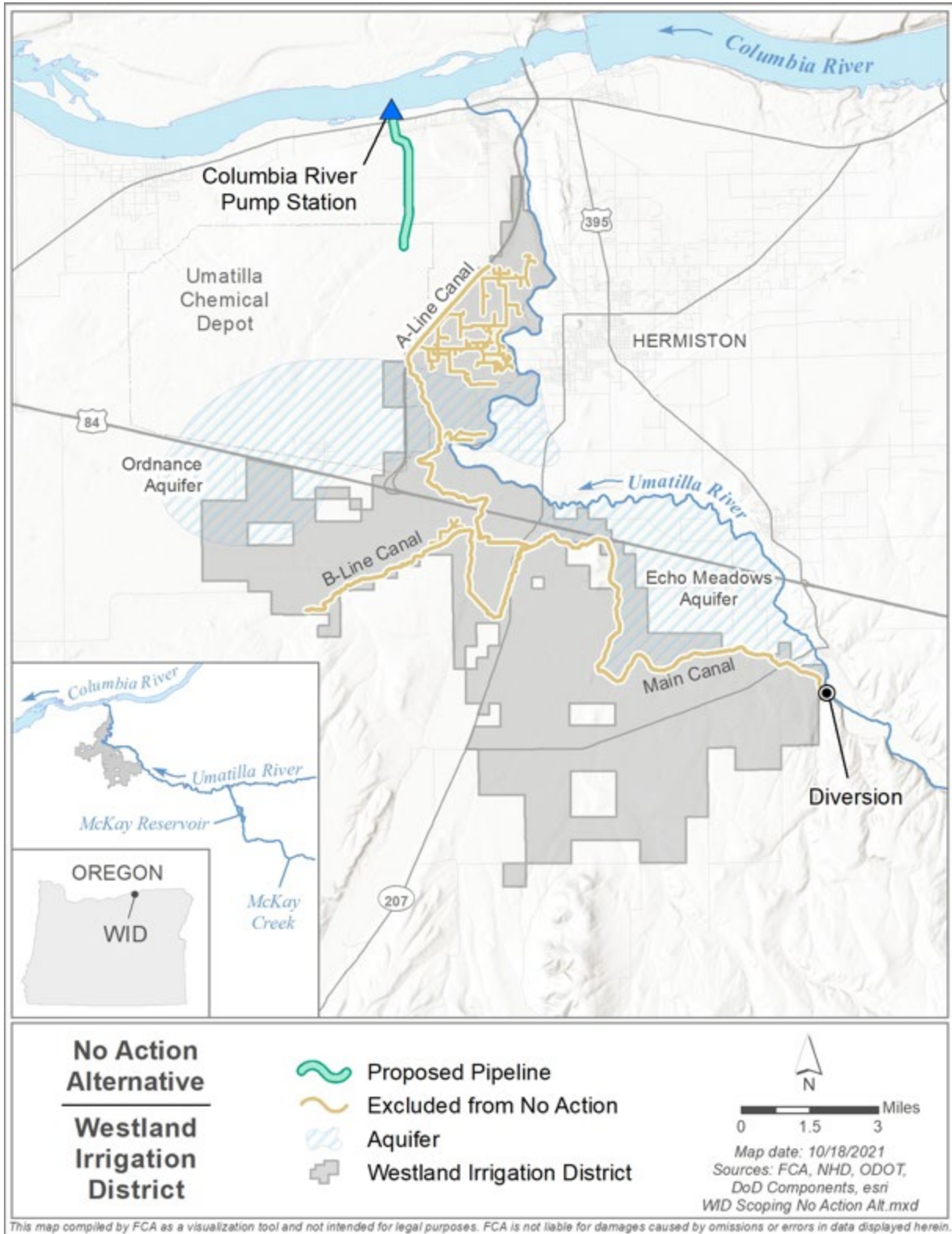


Figure 6-1. No Action Alternative.

6.2.2 Modernization Alternatives 1 and 2

Broadly, two Modernization Alternatives are being considered. Both Modernization Alternatives would conserve water, improve operational efficiency, and install one or more sites for targeted aquifer recharge. Under both Modernization Alternatives, the County would be responsible for the Columbia River Pump Station and the Mainline Pipe bringing Columbia River water to industrial users and for the Ordinance Alluvial Aquifer recharge. Under both Modernization Alternatives, the District would tie into the Mainline Pipe to connect the District's existing delivery system to the County's infrastructure.

Modernization Alternative 1 would modernize WID's Lower A-Line Canal. Modernization Alternative 2 would modernize the entirety of WID's existing delivery system, including the Main (or Westland) Canal, B-Line Canal, and the Upper and Lower A-Line Canal.

Modernization Alternatives 1 and 2 would both include one or more targeted groundwater recharge sites to help sustain groundwater levels in the Ordinance Alluvial Aquifer or Echo Meadows Aquifer, both local aquifers underlying the District and County. In both alternatives, targeted recharge for the Ordinance Alluvial Aquifer would occur during the winter,⁴ spring, and early summer.⁵ Alternatives that propose piping *outside of* existing canal alignments (1a and 2a) would allow open canals to continue supplementing the shallow aquifer or aquifers via seepage when the District is diverting live flow from the Umatilla River during the spring and early summer. Alternatives that propose piping *within* existing canal alignments (1b and 2b) and canal lining (2c) would eliminate aquifer recharge from seepage altogether. Targeted water recharge sites, in addition to the site proposed for the Ordinance Alluvial Aquifer recharge, were included for Alternatives 1b, 2b, and 2c to mitigate the potential effects of eliminating seepage from open canals to the Ordinance or Echo Meadows alluvial aquifers.

6.2.2.1 Modernization Alternative 1a and 1b

Modernization Alternative 1a

Under Modernization Alternative 1a, the County would install the Columbia River Pump Station and the Mainline Pipe that would bring Columbia River water for industrial and agricultural purposes as well as groundwater recharge. WID would tie into the County's Columbia River Pump Station project, to supplement the District's existing water supply from McKay Reservoir, using a combination of pressurized pipelines and open canals.

During the spring, live flow from the Umatilla River would be diverted into open canals and delivered to turnouts as described in the No Action Alternative. Seepage from open canals would continue to supplement the shallow aquifers underlying the District and County, while some of the District's diversion is lost to evaporation. When live flow in the Umatilla River dwindles mid-summer, stored water from McKay Reservoir would be delivered via open canals up to the

⁴ Winter Ordinance Alluvial Aquifer recharge would occur at a rate of up to 45 cfs (or 90 acre-feet/day).

⁵ Spring and early summer Ordinance Alluvial Aquifer recharge would occur at a rate that is dependent on the availability of live flow in the Umatilla River and when the District does not need Columbia River water for irrigation.

boundary of Alternative 1a's project area, allowing continued seepage in the Main Canal, B-Line, and Upper A-Line. The Columbia River Pump Station would provide pressurized deliveries to the Lower A-Line, eliminating seepage and evaporation in those canals between mid and late summer. Excavating new trenches for the pipeline adjacent to the A-Line open canal would increase the cost of construction.

Modernization Alternative 1a (Figure 6-2) would include the following infrastructure construction:

- A Columbia River Pump Station at approximately RM 282 on the Columbia River (County)
- 6.6 miles of Mainline Pipe to bring Columbia River water to the Ordinance Alluvial Aquifer Recharge Basin (County)
- 0.4 miles of a District tie-in from the Mainline Pipe to WID's A-Line Canal (WID)
- 4.6 miles of a pressurized pipeline *adjacent to* the A-Line Canal (WID)

Modernization Alternative 1b

Modernization Alternative 1b would include the same infrastructure and water supply regime as Modernization Alternative 1a; however, a pressurized pipeline would be placed within the current A-Line Canal alignment. Constructing the pipeline within the existing open canal of the A-Line would eliminate seepage and evaporation from the Lower A-Line. Constructing the pipeline within the existing A-Line open canal would also reduce the construction cost of piping relative to Alternative 1a because a new alignment would not be necessary. Because no water deliveries via the Lower A-Line would be conveyed through open canal, recharge to the Ordinance Alluvial Aquifer via seepage would be reduced. (Conversely, water conservation would be increased relative to Alternative 1a.) Targeted aquifer recharge sites along the Lower A-Line Pipeline, which would connect to the Ordinance Alluvial Aquifer, would be investigated to mitigate the impact that piping within open canals would have on groundwater levels.⁶

Modernization Alternative 1b would include the following infrastructure construction:

- A Columbia River Pump Station at approximately RM 282 on the Columbia River (County)
- 6.6 miles of Mainline Pipe to bring Columbia River water to the Ordinance Alluvial Aquifer Recharge Basin (County)
- 0.4 miles of a District tie-in from the Mainline Pipe to WID's A-Line Canal (WID)
- 4.6 miles of pressurized pipeline *constructed within* the A-line Canal (WID)
- Targeted water recharge site or sites along the Lower A-Line Pipeline to augment the Ordinance Alluvial Aquifer in the spring and early summer with live flow from the Umatilla River (WID)

⁶ The District has identified one potential location for targeted aquifer recharge to the east of the Lower A-Line; however, its connectivity to the underlying aquifer is unknown.

6.2.2.2 Modernization Alternative 2a, 2b, and 2c

Modernization Alternative 2a

Modernization Alternative 2a (Figure 6-3) would include all the County's and District's infrastructure pieces outlined in Modernization Alternative 1a.

The District would extend piping outside of the District's existing canals, as proposed in Modernization Alternative 1a, to the entirety of WID's existing delivery system: the Main Canal, B-Line Canal, and A-Line Canal. Piping would be constructed outside of existing canal alignments to allow for seepage to augment the Ordinance and Echo Meadows alluvial aquifers when the District is diverting live flow from the Umatilla River. Seepage and evaporation would be eliminated completely during the mid-to-late summer by conveying water deliveries via pipe when the District switches its water supply to stored water from McKay Reservoir and pumped deliveries from the Columbia River Pump Station.

Modernization Alternative 2a would include the following infrastructure construction:

- A Columbia River Pump Station at approximately RM 282 on the Columbia River (County)
- 6.6 miles of Mainline Pipe to bring Columbia River water to the Ordinance Alluvial Aquifer Recharge Basin (County)
- 0.4 miles of a District tie-in from the Mainline Pipe to WID's A-Line Canal (WID)
- 10.0 miles of pressurized pipeline *adjacent to* the A-line Canal (WID)
- 8.9 miles of pressurized pipeline *adjacent to* the B-Line Canal (WID)
- 11.5 miles of pressurized pipeline *adjacent to* the Main Canal (WID)

Modernization Alternative 2b

Modernization 2b would include all the County's and District's infrastructure pieces outlined in Modernization Alternative 1b.

The District would extend piping within existing canals, as proposed in Modernization Alternative 1b, to the entirety of WID's existing infrastructure: the Main Canal, B-Line Canal, and A-Line Canal. Because no water deliveries would be sent through open canals, seepage to the Ordinance and Echo Meadows alluvial aquifers would be reduced. (Conversely, water conservation would be increased relative to Alternative 2a.) Targeted aquifer recharge sites along the District's delivery infrastructure that would connect to the Ordinance or Echo Meadows alluvial aquifers would be investigated to mitigate the impact that piping within open canals may have on groundwater levels.⁷

Modernization Alternative 2b would include the following infrastructure construction:

⁷ For example, the Umatilla Basin Aquifer Recovery Project (HDR, IRZ & GSI YEAR) identified three locations along the north and east side of the Main Canal that could be utilized for recharge, in addition to the site east of the Lower A-Line identified by the District.

- A Columbia River Pump Station at approximately RM 282 on the Columbia River (County)
- 6.6 miles of a Mainline Pipe to bring Columbia River water to the Ordnance Alluvial Aquifer Recharge Basin (County)
- 0.4 miles of a District tie-in from the Mainline Pipe to WID's A-Line Canal (WID)
- 10.0 miles of pressurized pipeline *constructed within* the A-line Canal (WID)
- 8.9 miles of pressurized pipeline *constructed within* the B-Line Canal (WID)
- 11.5 miles of pressurized pipeline *constructed within* the Main Canal (WID)
- Targeted water recharge site or sites along the Lower A-Line Pipeline to augment the Ordnance Alluvial Aquifer in the spring and early summer with live flow from the Umatilla River (WID)

Modernization Alternative 2c

Modernization Alternative 2c would include the same infrastructure as proposed in Modernization Alternative 1b, with the addition of canal lining by the District in the Main Canal, B-Line Canal, and Upper A-Line Canal. The combination of piping the Lower A-Line Canal within existing canal alignments and lining the District's remaining unlined canals would reduce or eliminate seepage to the Ordnance and Echo Meadows alluvial aquifers. Tested aquifer recharge sites, such as those mentioned in Modernization Alternative 2b, would be investigated to mitigate the impact that Modernization Alternative 2c would have on groundwater levels.

Modernization Alternative 2c would include the following infrastructure construction:

- A Columbia River Pump Station at approximately RM 282 on the Columbia River (County)
- 6.6 miles of a Mainline Pipe to bring Columbia River water to the Ordnance Alluvial Aquifer Recharge Basin (County)
- 0.4 miles of a District tie-in from the Mainline Pipe to WID's A-Line Canal (WID)
- 4.6 miles of a pressurized pipeline *constructed within* the A-line Canal (WID)
- 8.9 miles of lining in the B-Line Canal (WID)
- 11.5 miles of lining in the Main Canal (WID)
- Targeted water recharge site or sites along the Lower A-Line Pipeline to augment the Ordnance Alluvial Aquifer in the spring and early summer with live flow from the Umatilla River (WID)

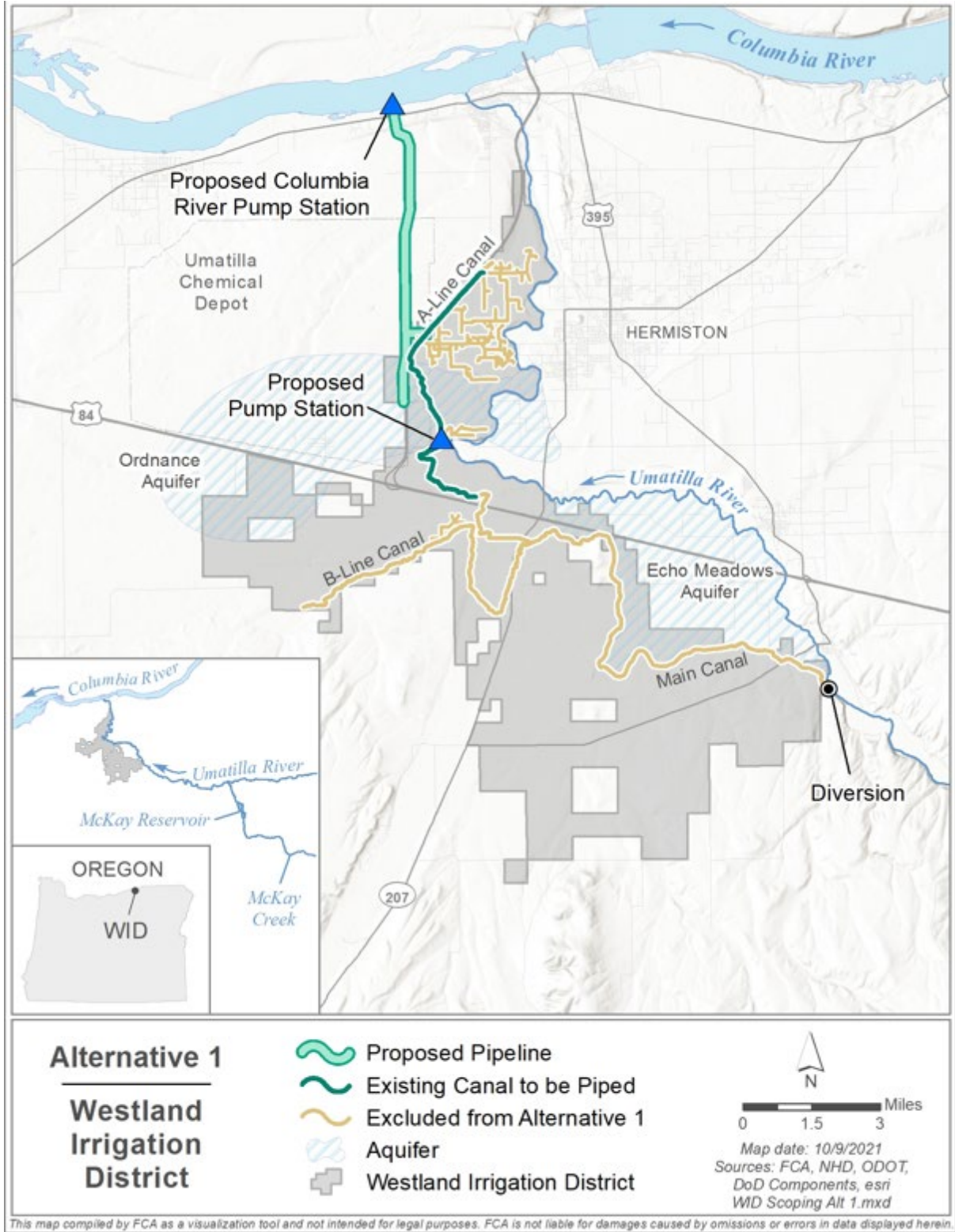


Figure 6-2. Modernization Alternative 1.

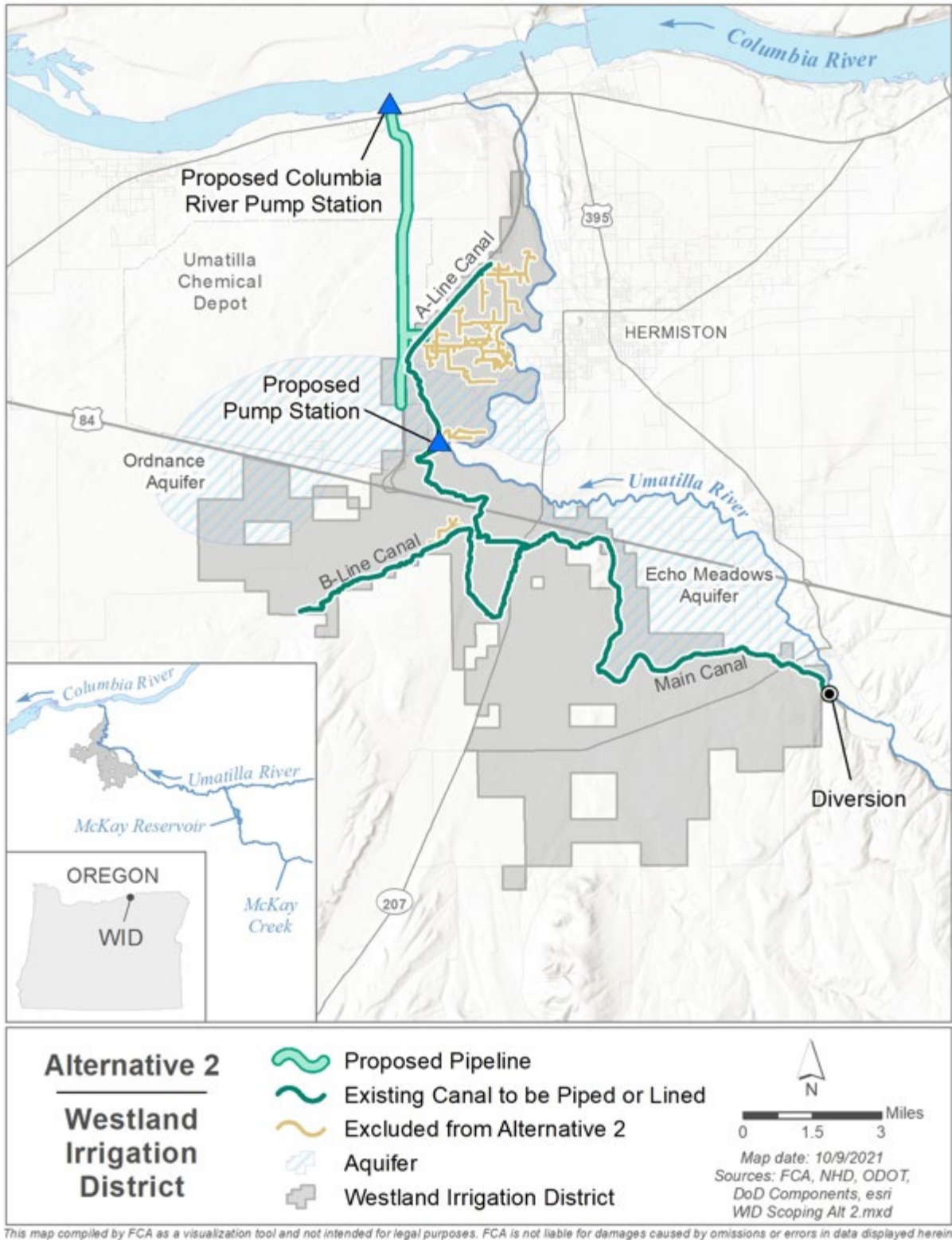


Figure 6-3. Modernization Alternative 2.

6.3 Economics

A National Economic Efficiency analysis is required by the PR&Gs to evaluate the economic, social, and environmental effects that are quantified (monetized and non-monetized) and those that are described qualitatively. The National Economic Efficiency analysis will analyze costs and benefits associated with the project and will capture the value of the national output of goods and services resulting from a federal investment and improvements. A National Economic Efficiency analysis will be completed for the project during the Plan-EA process.

7 References

- Institute for Water and Watersheds at Oregon State University (IWW). 2006 *Umatilla Sub-Basin Data Synthesis and Summary*. Prepared for the Umatilla County Critical Groundwater Task Force and the Stakeholders of Umatilla County. July 4, 2006. Retrieved from:
<https://static1.squarespace.com/static/5897d8662994ca37c62df8a7/t/59d6c7488a02c7509763e481/1507247951756/Appendix+M+-+Data+Synthesis+and+Summary.pdf>
- U.S. Department of Agriculture (USDA). 2017. *Guidance for Conducting Analysis Under the Principles, Requirements, and Guidelines for Water and Land Related Resources Implementation Studies and Federal Water and Resource Investments (DM 9500-013)*. Washington, DC: USDA.
- U.S. Department of Agriculture Natural Resources Conservation Service (NRCS). 2013. *Principles and Requirements for Federal Investments in Water Resources*.
- U.S. Department of Agriculture Natural Resources Conservation Service (NRCS). 2014. *Title-390 National Watershed Program Handbook*. Second edition.
- U.S. Department of Agriculture Natural Resources Conservation Service (NRCS). 2015. *Title-390 National Watershed Program Manual*. Fourth edition.