August 11, 2022

RE: Hermiston Irrigation District Infrastructure Modernization Project

Dear Stakeholders,

Hermiston Irrigation District (HID or the District) is 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. As a part of this effort, we 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 on the public comment period from August 11, 2022 to September 30, 2022; and
- Advise you on 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 Hermiston Irrigation District 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 analyses, and to learn of any information or concerns relevant to the analyses. The Scoping Document identifies the proposed project and framework for analyzing potential effects of the proposed project on resources.

The District and NRCS will discuss the Scoping Document during an in person public scoping meeting to be held on Tuesday, August 30, 2022. The purpose of this meeting is to collect comments on the proposed project, as well as answer questions about the NEPA and PR&G analyses and related processes. NRCS will use the public comments gathered during public scoping to inform the next steps in the NEPA and PL-566 program processes, and the development of a Draft Watershed Plan – Environmental Assessment.

Comments related to the issues discussed during the meeting and review of the Scoping Document are due by September 30, 2022. Comments and questions can be submitted online at www.oregonwatershedplans.org, emailed to: hermiston.id.comments@gmail.com, or mailed to: Farmers Conservation Alliance, 102 State Street, Hood River, OR 97031

Hermiston Irrigation District thanks you for your interest in the infrastructure modernization project and looks forward to your participation.

Respectfully,

Annette, Kirkpatrick

District Manager

Scoping Document for the Hermiston Irrigation District Infrastructure Modernization Project

Watershed Plan-Scoping Document

Umatilla Watershed

Umatilla County, OR

August 11, 2022

Prepared by Farmers Conservation Alliance on behalf of the Natural Resources Conservation Service

1. Table of Contents

2. Table of Figures

3. Table of Tables

Abbreviations

Af	acre-feet
BMP	best management practice
cfs	cubic feet per second
CTUIR	Confederated Tribes of the Umatilla Indian Reservation
HID or District	Hermiston Irrigation District
EA	Environmental Assessment
EIS	Environmental Impact Statement
NEPA	National Environmental Policy Act
NRCS	Natural Resources Conservation Service
O&M	Operations and Maintenance
ODFW	Oregon Department of Fish and Wildlife
Plan-EA	Watershed Plan-Environmental Assessment
PR&G	Guidance for Conduction Analysis Under the Principles, Requirements, and Guidelines for Water and Land Related Resources Implementation Studies and Federal Water and Resource Investments
Reclamation	U.S. Bureau of Reclamation
SHPO	State Historic and Preservation Office
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service

1 Introduction

Hermiston Irrigation District (herein referred to as HID or the District) seeks federal funding through the Natural Resources Conservation Service's (NRCS's) Watershed Protection and Flood Prevention Act, Public Law 83-566, authorized by Congress in 1954 (herein referred to as PL 83-566). Requested funds would be used to implement irrigation infrastructure modernization actions within Umatilla County, Oregon, such as converting existing canals and laterals to buried pipelines, installing a new telemetry system, and installing automated head gates to improve water management, system efficiency, and address local water resource concerns.

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, NRCS anticipates that a Draft Watershed Plan-EA would be prepared following scoping.[1]

The HID project area includes a 90-mile network of open canals and laterals that are up to 116 years old and part of the U.S. Bureau of Reclamation's (Reclamation) Umatilla Basin Project. Because Reclamation holds title to many of the assets and real property that are proposed to be modified, and because Reclamation may hold title to some of the new assets built under the proposed action, Reclamation has agreed to be a cooperating agency on the Plan-EA.

The Draft Plan-EA will describe the proposed project in detail, look at alternatives to meet the purpose and need of 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.

[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.

2 Consultation and Participation

2.1 Sponsors, Local Partners, Agencies, and Tribal Participation

The scoping process is a collaboration between the District, 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 (see Section 3). Additional opportunities for input will be provided during the Watershed Planning Process and development of the Draft Plan-EA.

Project sponsors are the parties involved in scheduling, facilitating communication, project design and development, and document writing. The sponsor for the project is HID. NRCS is the lead agency managing the NEPA process, and Reclamation is the cooperating agency. A Memorandum of Understanding between the two agencies is being drafted which will memorialize each agency's roles and responsibilities with respect to the planning process.

2.2 Permits and Compliance

Partners seek federal funding through PL 53-866 and will require an environmental assessment to comply with NEPA. Through the NEPA process, NRCS will identify how the project would comply with all relevant state and federal permits and regulations, including Section 106 of the National Historic Preservation Act (managed by the State Historic and Preservation Office [SHPO]), Section 7 of the Endangered Species Act (managed by the National Marine Fisheries Service [NMFS] and the U.S. Fish and Wildlife Service [USFWS]), Sections 404 and 401 of the Clean Water Act (managed by U.S. Army Corps of Engineers and Oregon Department of Environmental Quality, respectively), and Oregon's Removal Fill Law (ORS 196.795-990, managed by Oregon Department of State Lands). Permits that are not issued during the NEPA process will be issued 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 potential effects to those resources have been identified. In addition, consultation with SHPO, USFWS, NMFS, Confederated Tribes of the Umatilla Indian Reservation (CTUIR), and other appropriate agencies identified during the planning process will be conducted, as necessary, to agree on the mitigation plans.

3 Purpose and Need for Action

The purpose of the proposed project is to improve Agricultural Water Management by reducing water losses, increasing water use efficiency on District-operated infrastructure, and reducing risk to public safety in the project area by improving District infrastructure. This project is needed to address water loss, and water delivery and operations inefficiencies in District infrastructure.

3.1 Watershed Problems and Resource Concerns

The following sections identify watershed problems and resource concerns that the proposed project would seek to address.

3.1.1 Water Loss in District Conveyance Systems

Water losses due to inefficient conveyance systems can prevent the District from delivering the right amount of water to its patrons when they need it. Earthen canals, including the Maxwell Canal and the Feed Canal, allow water to seep from the canals into the ground. For example, approximately 19% of the water diverted through the District's M-Line (a combination of earthen and lined canal) seeps out of the canal and into the surrounding aquifer (Figure 5-1).[2] Water loss assessments conducted on multiple canals during the 2019 irrigation season showed that the system-wide loss at HID is 61.6 cfs, representing 122 af per day.[3]

3.1.2 Water Delivery and Operation Inefficiencies

The District-operated canals and laterals do not transport and deliver water as efficiently as a modernized system would. Water losses through seepage, lack of measurement devices at turnout locations, and fluctuations in water demand make it much more challenging for the District to deliver the amount of water that patrons want when they need it. The challenge of assuring that the patrons at the tail end of the system receive water, compounded by the operational inefficiencies mentioned above, result in end spills[4] of water at various points throughout the District. FCA measured three of these spills during the 2019 irrigation season (Figure 5-1). While the District collects irrigation water in drains and reuses a large portion of the smaller spills, 1,340 af of unused irrigation water is returned to the Umatilla River at the largest end spill that FCA measured.

3.1.3 Instream Flow for Fish and Aquatic Habitat

Currently, waterbodies affected by irrigation diversions may experience low streamflow during the irrigation season. Low streamflow negatively impacts water quality and may reduce the amount or quality of available aquatic habitat. Stakeholders have expressed interest in restoring streamflow to improve fish and aquatic habitat in waterbodies such as the Umatilla River, and the District would like to implement projects that support these activities

3.1.4 Risks to Public Safety

Open canals also pose a risk to public safety during the irrigation season. During the summer months when irrigation water is flowing at peak volume in the canals, water depths can be up to 5

[2] Hermiston Irrigation District (HID). (2021). Hermiston Irrigation District *System Improvement Plan*. Prepared by Farmers Conservation Alliance for Hermiston Irrigation District. October 2021.

[3] Farmers Conservation Alliance. (2020). Hermiston Irrigation District Water Loss Assessment, March 2020

[4] The District operationally spills excess water that is not used by patrons at the ends of its canals and laterals. This excess water typically spills into a ditch, creek, stream, or river and is referred to as "end spills."

feet and velocities range up to 2 feet per second.[3] These conditions result in areas of deep, swift water in canals with steep, trapezoidal banks that can make it difficult for a child or non-swimmer to get to safety. Canal breaching also poses a safety risk during the irrigation season. The District has experienced multiple canal breaching events, the most recent in April 2019 when the Maxwell Diversion was overtopped during a flood event and caused damage to infrastructure as well as erosion.[5] The District's facilities, located in urbanized areas, heighten the potential for safety issues due to the increased number or people interacting with the canals as well as structures that can be affected as a result of breaches.

The following resource opportunities would be realized through the implementation of the project.

- Improve irrigation water management and irrigation water delivery to HID patrons by improving conveyance efficiencies
- Reduce the operations and maintenance involved in delivering irrigation water to HID patrons
- Increase streamflow to improve water quality for fish and aquatic habitat availability
- Minimize the potential for injury, loss of life, and damage to surrounding property associated with HID-operated open canals and laterals
- Increase recreation opportunities on reservoirs, rivers, and streams through maintenance of reservoir levels and increased instream flow

4 Scope of the Environmental Assessment

NRCS and HID are conducting public scoping as a part of the project's NEPA and PR&G requirements to comply with the requirements of PL-566. 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 Draft Plan-EA will be drafted to determine if the proposed project meets the program criteria found in Title 390, National Watershed Program Manual, Part 500, Subpart A, Sections 500.3 and 500.4.

5 Affected Environment - Existing Conditions

5.1 Project Location and Project Area

The project is located in Umatilla County, Oregon. The Project Area consists of District infrastructure to be modernized (canal, laterals, headgates, and pumps), areas where new infrastructure would potentially be built, and associated rights-of-way and/or easements where construction would take place.

[5] Stoelb, Daniel. *2019 April Flooding Spotlight* (2019), Oregon Office of Emergency Management, July 9, 2019. ESRI Story Map. Retrieved from: https://storymaps.arcgis.com/stories/2cfe3ce9706045c585b5f1f3d1c79bb0

5.1.1 Current Infrastructure and Water Rights

HID uses 90 miles of canals, ditches, and pipelines to irrigate approximately 10,000 acres serving roughly 1,200 water users. The District stores, diverts, and delivers water under water rights with priority dates of 1894, 1904, 1905, 1991, and 2013.[2] These water rights allow the District to divert water from the Umatilla River and the Columbia River. The District operates and maintains the Cold Springs Reservoir and Dam for Reclamation, and has a contract with Reclamation for the storage of 50,000 af of irrigation water in Cold Springs Reservoir. Cold Springs Reservoir is HID's only storage facility and is used solely by HID. The District also participates in Reclamation's Umatilla Basin Project, Phase II, which allows the use of Columbia River water to enhance Umatilla River instream flow by exchanging irrigation water diverted from the Umatilla River for Columbia River water.[6]

The District conveys water through two primary canals with a series of laterals branching off of them (Figure 5-1). These canals and laterals, the majority of which are open and unlined, generally move water from the northeast to the southwest. From 2000 to 2012, the District worked to conserve water by piping approximately 10.7 miles of canals and laterals with PVC pipe.

Water from Cold Springs Reservoir is released into the A-Line Canal, located at the reservoir outlet, and the A-Line canal discharges into the head end of the Maxwell Canal. The Maxwell Canal also receives water from the Umatilla River at the Maxwell Diversion. The Phase II Canal diverts water from the Columbia River and discharges into the Cold Springs Reservoir.

The District operates three pump stations. A small pump station serves the Z-line. Two larger pump stations, the Minnehaha and Barton pump stations, are served by water from the Maxwell canal and provide pressurized water to downstream patrons.

Privately owned pipelines and ditches stem from the District's system. District staff regulate flows to each system canal and lateral using head gates.

[6] Hermiston Irrigation District (HID). (2018). *Agricultural Water Management and Conservation Plan*. Prepared for Oregon Water Resources Department. April 2018.

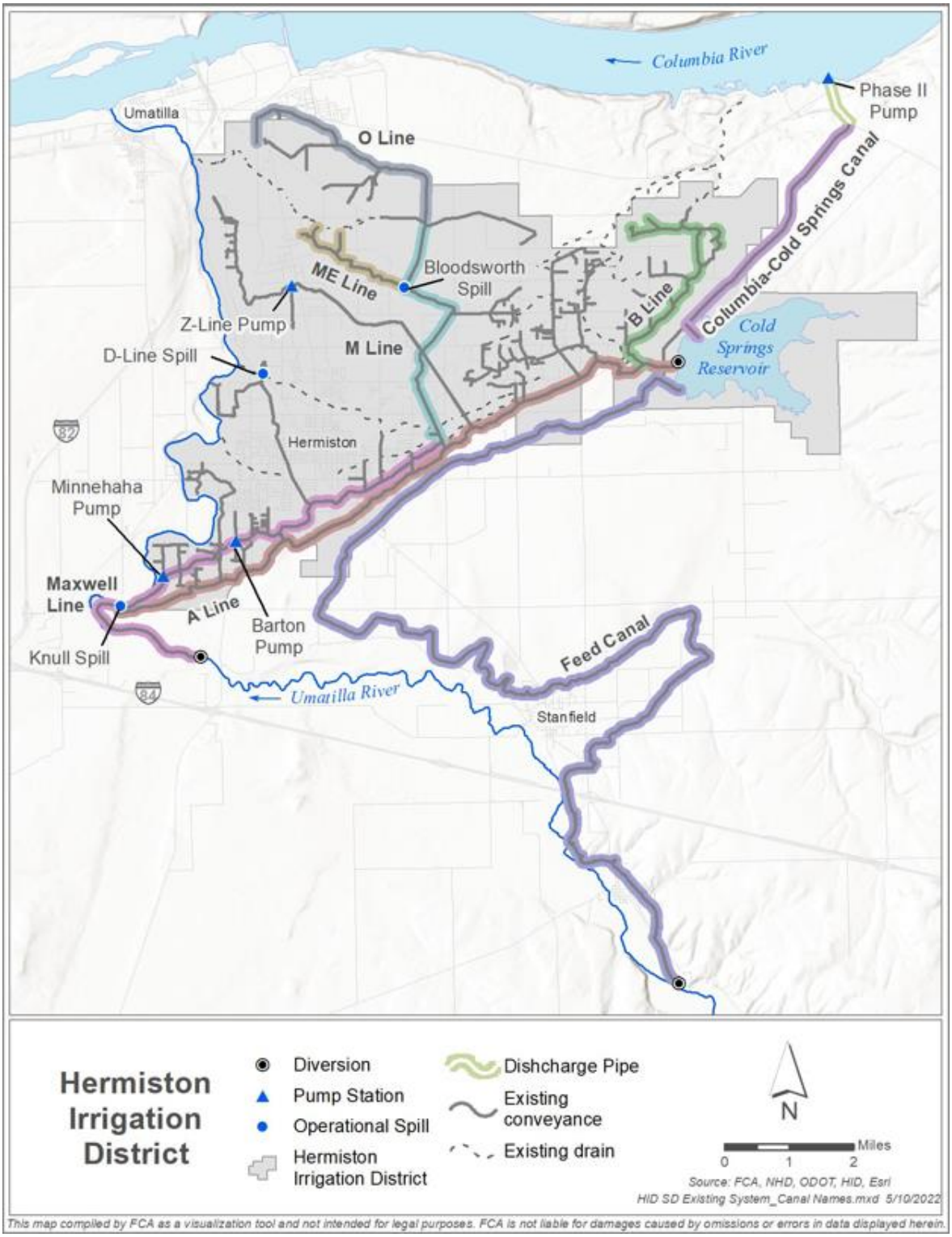

Figure 5-1. Hermiston Irrigation District current infrastructure. [7]

[7] Due to the complexity of the District's conveyance system, only a few key infrastructure components are labeled to assist the reader in understanding where infrastructure identified in this scoping document is located in the system.

5.1.2 Climate and Topography

Average annual precipitation in the District 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 181 days.[8] Irrigated lands vary in elevations from approximately 400 feet to 620 feet above sea level. Most of the District is flat, with slopes of 0 to 5%, although some areas have slopes of up to 25%.[6]

5.2 Resource Issues, Project-Related Effects and Proposed Measures

Table 5-1 provides an overview of the resource issues identified to date, and HID's proposed measures to avoid or mitigate adverse environmental effects during the construction and operation of its proposed irrigation conveyance system.

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	Resource Issues to be Analyzed	Proposed Analysis and Mitigation Measures
Geology and Soils	Effects from 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	Effects of 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.
	Effects of 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 and revegetation BMPs during construction.

[8] Institute for Water and Watersheds at Oregon State University. (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

Resource	Resource Issues to be Analyzed	Proposed Analysis and Mitigation Measures
	Removal of general vegetation for project construction	Incorporate noxious weed and revegetation BMPs during construction.
	Potential for impact to sensitive and/or rare plant species	Review state and federal listings specific to the project area. Determine measures based on species presence.
Fish	Effects of project construction and operation on general fish species	Communicate with U.S. Fish and Wildlife (USFWS), National Marine Fisheries Service (NMFS), and the Oregon Department of Fish and Wildlife (ODFW) and review available literature. No measures proposed at this time.
	Effects of project construction and operation on Threatened and Endangered Species	Review state and federal listings specific to the project area and region. Determine measures based on species presence.
Wildlife	Effects of project construction on general wildlife species	Review available literature and communicate with USFWS and ODFW. Incorporate BMPs during construction.
	Effects of project construction and operation on Threatened and Endangered Species	Review state and federal listings specific to the project area. Determine measures based on species presence.
	Effects of project construction and operation on birds protected 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 potential to affect Migratory Bird Treaty Act and Golden Eagle Protection Act species through vegetation clearing or construction activities, follow seasonal restrictions and incorporate BMPs during construction.
Surface Water	Effects of increased sedimentation during project construction due to exposed and disturbed soils	Develop and implement an Erosion and Sediment Control Plan. Incorporate BMPs during construction.
	Effects to streamflow in Umatilla River and other local waterbodies	Review literature and interview local experts. Finalize agreement for cooperative exchange of Columbia River water for instream flow.
	Effects on water quality from end spills into surface waters in association with District operations	Review literature and interview local experts. No measures proposed at this time.
Groundwater	Effects of project construction and operation on groundwater near the project area	Review literature and interview local experts. No measures proposed at this time.
Wetlands, Riparian Areas, and Floodplains	Effects of project construction and operation on wetlands, riparian areas, and floodplains near the project area	Preliminarily, review the National Wetlands Inventory Database and available literature. Consult with Oregon Department of State Lands and the U.S. Army Corps of Engineers (USACE) to determine if jurisdictional wetlands are present. No measures proposed at this time.

Resource	Resource Issues to be Analyzed	Proposed Analysis and Mitigation Measures
	Impacts to floodplains	Present the proposed project to the Umatilla County Flood Administrator to determine effects; measures would be determined. For project measures that may occur within the ordinary high-water mark of jurisdictional waters, consultation with the USACE would occur. Review FEMA FIRM map(s) associated with the project area.
	Impacts to riparian areas	Review available literature and consult with local experts. If necessary, consult with the USFWS and ODFW during the planning phase. If project measures that may occur within the ordinary high-water mark of jurisdictional waters, consultation with the USACE. No measures proposed at this time.
Land Use and Recreation	Effects of project construction, operation, and maintenance on agriculture, irrigation, residential, and other land uses near the project	Review spatial and zoning data and available literature. No measures proposed at this time.
	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	Effects of project construction and implementation on minority, low income, tribal, or indigenous community	Review socioeconomic data and spatial data. Interview local experts about water exchange project and about equitable water delivery to patrons.
Socioeconomic Resources	Effects of project construction, operation, and maintenance on the local economy of Umatilla County	Prepare a National Economic Efficiency and a Regional Impact Analysis as required by NRCS to determine the effect of the alternatives on a region's economy.
	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	Danger of drowning in canals	Review of 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]	Economic costs and benefits of the project	Prepare a National Economic Efficiency Analysis.

Resource	Resource Issues to be Analyzed	Proposed Analysis and Mitigation Measures
[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 and HID are considering the needs of the water users, goals for conservation and restoration, resources, and funding available for both the District and the water users, and the current 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 USDA (2017) and NRCS (2015). 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)

Under the No Action Alternative, the District would continue to operate and maintain the existing canal, lateral, and drain system in its current condition; however, the District would begin to update the pumping system through increased patron fees and pursuance of a debt plan (Section 5.1.1). This alternative assumes that a large-scale piping project to modernize the District's conveyance system would not be reasonably certain to occur, as funding at the large scale necessary to modernize the District's infrastructure is not anticipated from other sources. The No Action Alternative is a continuation of the District's standard operations and maintenance.

6.2.2 Modernization Alternatives

The District is working with engineers to design alternatives that are technically feasible and address the project's purpose and need. The Piping and Lining modernization alternatives would improve the District's remaining open canals and decommission the Maxwell Diversion. Both alternatives would reduce operations and maintenance costs to the District and save water by eliminating or reducing seepage, evaporation, and end spills.

6.2.2.1 Piping Modernization Alternative

In addition to decommissioning the Maxwell Diversion, the District's remaining open canals would be converted to buried pipelines under the Piping Modernization Alternative. HID patrons would receive pressurization benefits from the static head of Cold Springs Reservoir, reducing on-farm energy consumption. New District-operated pump stations would be constructed to overcome friction losses at several locations in the piped system and preserve pressurization. This alternative

would save water by eliminating seepage, evaporation, and end spills from the District's remaining earthen canals, as well as reduce operations and maintenance costs to the District. The District would also lay empty conduit in the same rights-of-way as the modernized canal and is being included in this scoping document for environmental compliance purposes. The conduit would allow the District to prepare for future co-located infrastructure improvements such as the addition of energy lines and/or fiber optic cable.

6.2.2.2 **Lining Modernization Alternative**

In addition to decommissioning the Maxwell Diversion, the bottom and sides of the District's remaining open canals would be lined with concrete or a geotextile liner and shotcrete under the Lining Modernization Alternative. New automated headgates at key control points would improve the precision and flexibility with which the District delivers irrigation water to its patrons. Installing flow meters and telemetry, or Supervisory Control and Data Acquisition (SCADA), at patron turnouts would reduce vehicle use and labor required to monitor on-farm water use. This alternative would reduce maintenance costs, seepage, and operational spills associated with earthen canals.

6.3 Economics

A National Economic Efficiency analysis will be completed for the project during the Plan-EA process. The NEE is an economic analysis that evaluates costs and benefits associated with the proposed project and is required to be included in the Plan-EA under the PR&G.

7 References

Farmers Conservation Alliance. (2020). Hermiston Irrigation District Water Loss Assessment, March 2020

Hermiston Irrigation District (HID). (2021). Hermiston Irrigation District *System Improvement Plan*. Prepared by Farmers Conservation Alliance for Hermiston Irrigation District. October 2021

Hermiston Irrigation District (HID). (2018). *Agricultural Water Management and Conservation Plan*. Prepared for Oregon Water Resources Department. April 2018.

Institute for Water and Watersheds at Oregon State University (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

Stoelb, Daniel. *2019 April Flooding Spotlight* (2019), Oregon Office of Emergency Management, July 9, 2019. ESRI Story Map. Retrieved from: https://storymaps.arcgis.com/stories/2cfe3ce9706045c585b5f1f3d1c79bb0