October 2, 2019

RE: North Unit Irrigation District Infrastructure Modernization Project

Dear stakeholders,

North Unit Irrigation District (NUID) is seeking federal funding to modernize irrigation canals, laterals, and other infrastructure throughout the district. The purpose of this letter is to:

- Transmit the Preliminary Investigative Report (PIR) for this project;
- Advise you on the public comment period from October 2 through November 21; and
- Advise you on how to submit comments on the proposed project.

NUID is seeking federal funding through the Natural Resources Conservation Services (NRCS's) Watershed Protection and Flood Prevention Program, Public Law 83-566 (PL 83-566). This funding would be invested in infrastructure improvements within the district.

Federal investments through PL 83-566 need to comply with both the program's requirements and the National Environmental Policy Act (NEPA) process. Under the NEPA process, a federal agency independently evaluates the effects of a proposed project on social, cultural, and natural resources. NRCS is the lead federal agency managing the NEPA process for the NUID Infrastructure Modernization Project.

Public scoping is the first step of the NEPA process. Under this step, NRCS releases a PIR to resources agencies, interested stakeholders, and the public. The PIR identifies the proposed project and scope for evaluating resources that have the potential to be affected by the proposed project.

NUID and NRCS will discuss the PIR with resources agencies, interested parties, and the public during a public scoping meeting to be held on October 21, 2019. The purpose of this meeting is to collect comments on the proposed project and any alternative actions that could also achieve the purpose and need of the project, as well as answer questions about the NEPA process. NRCS will use the public comments gathered during public scoping to inform the next step in the NEPA process, the development of a Draft Watershed Plan – Environmental Assessment.

Agency and public comments in response to the issues discussed during the meeting and/or review of the PIR are due by November 21, 2019. Comments and questions can be emailed to: NorthUnit.ID.Comments@gmail.com.

NUID thanks you for your interest in our system modernization and looks forward to your participation.

Sincerely,

Mike Britton, General Manager

Preliminary Investigative Report for the North Unit Irrigation District Infrastructure Modernization Project

Prepared by Farmers Conservation Alliance

Submitted to Natural Resources Conservation Service

October 2019

Table of Contents

Table of Figures

Table of Tables

Abbreviations

NUID or District	North Unit Irrigation District
BMP	Best Management Practice
NEPA	National Environmental Policy Act
NRCS	Natural Resources Conservation Service
PIR	Preliminary Investigative Report
PL 83-566	Watershed Protection and Flood Prevention Program, Public Law 83-566
Plan-EA	Watershed Plan-Environmental Assessment
SHPO	State Historic and Preservation Office
U.S./US	United States
USFWS	United States Fish and Wildlife Service

1 Introduction

North Unit Irrigation District (herein referred to as NUID or the District) seeks federal funding through the Natural Resources Conservation Service's (NRCS) Watershed Protection and Flood Prevention Program, Public Law 83-566, authorized by Congress in 1954, to implement an irrigation infrastructure modernization project within Jefferson County, Oregon. The proposed project would include a collection of NUID's canals and laterals that are generally located between Gray Butte and the southwestern edge of Madras. Project actions would include converting existing open canal and laterals to buried pipelines with the possibility of constructing reuse or retention reservoirs[1] near the locations of current end spills[2]. Modernizing NUID's aging water distribution system would increase system efficiency and help 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. Following the scoping period, a Draft Watershed-Plan Environmental Assessment (Plan-EA) will be prepared that reviews the potential effects and mitigation requirements of the project, and details project specifics.

The Draft Plan-EA will describe the proposed project in detail and analyze its potential effects on cultural, social, and environmental resources in the vicinity. NRCS will then release the Draft Plan-EA for public comment.

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 (Section 3). Additional opportunities for input will be 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 lead sponsor for the project is the Deschutes Basin Board of Control, and NUID is a co-sponsor. NRCS is the lead agency managing the NEPA process.

[1] During this scoping period, the District is evaluating the potential use of reuse or retention reservoirs. Reuse reservoirs allow for storage of water that would have otherwise been spilled. Retention reservoirs act as a holding facility to allow water to percolate out over time.

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

2.2 Permits and Compliance

Partners seek federal funding through PL 53-866. Therefore, it will require an environmental assessment to comply with NEPA. The NEPA processes will identify the necessary compliance 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 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 will 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; consultation with appropriate agencies will be conducted to agree on the mitigation plans.

3 Purpose and Need for Action

The purpose of the proposed project is to improve water conservation, water delivery reliability, and public safety on District-owned canals and laterals.

Federal support would enable the District to pursue a strategic, comprehensive approach to implementing projects that address the following watershed problems and resource concerns: water loss in District conveyance systems, water delivery and operations inefficiencies, instream flow for fish and aquatic habitat, and risks to public safety from open irrigation canals.

3.1 Watershed Problems and Resource Concerns

3.1.1 Water Loss in District Conveyance Systems

The District's open canals and laterals lose about 42 percent of their flow to seepage, evaporation, and end spills (NUID 2018). Water losses due to inefficient conveyance systems can prevent the District from delivering to its patrons the full rate and duty associated with each water right. Details of water losses and demands can be found in the District's System Improvement Plan (NUID 2017), which is included as Appendix A to this document.

3.1.2 Water Delivery and Operation Inefficiencies

The District's canals and laterals do not transport and deliver water as precisely, accurately, or efficiently as a modernized system would. Water losses through seepage and fluctuations in water demand make it much more challenging for the District to deliver the amount of water that patrons need when they need it. Furthermore, when the NUID system was developed, the canals were designed to transport "carry water" to ensure delivery in times of peak demand. While some of this carry water is utilized on-farm, some of it is spilled into the Crooked and Deschutes rivers. Of the total flow diverted into the District's system, 6 percent is discharged off of the District (NUID 2018). In addition to addressing delivery and efficiency issues in their existing system, recent changes

to reservoir operations have reduced the amount of storage water available to patrons during the irrigation season. Because NUID is the junior water right holder in the Deschutes Basin, they historically rely more heavily on its storage water rights than more senior water right holders. Over the past 10 years, water availability has become an issue due to drought and changes in reservoir operations leading to less available storage. The District would like to implement infrastructure projects in support of both District operations and watershed sustainability goals.

3.1.3 Instream Flow for Fish and Aquatic Habitat

Prior to recent water management agreements, reservoir operations led to low winter streamflow and high summer streamflow in the Deschutes River upstream from NUID's diversion. Downstream from NUID's diversion, the combined diversions of six irrigation districts and the cities that divert water in or near the City of Bend lead to low spring, summer, and fall streamflow in the Deschutes River. These conditions can impact fish and aquatic species. Stakeholders in the area have worked together to develop new water resource agreements that are aimed to combat these issues and restore streamflow, and the District would like to implement projects that support these activities.

3.1.4 Risks to Public Safety

Open canals pose a risk to public safety during the irrigation season. In addition to multiple instances of injury and car accidents, several drowning deaths or near-drowning instances have occurred in NUID and adjacent district canals. The District's location in a partly urbanized area heightens the potential for an accident.

Canal breaching can also pose a serious safety risk and risk of property damage during the irrigation season. Because of its severity, focused efforts and management strategies have been developed to mitigate against canal breaches, which so far have limited such occurrences. However, potential flood risks from canal breaching remains a concern of the District.

3.2 Watershed and Resource Opportunities

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

- Improve irrigation water management and irrigation water delivery to NUID patrons by improving conveyance efficiencies.
- Improve streamflow, and enhance water quality and aquatic habitat availability.
- Minimize the potential for injury and loss of life associated with the open NUID canals and laterals.
- Reduce the operations and maintenance involved in delivering irrigation water to NUID patrons

4 Scope of the Environmental Assessment

NRCS and NUID are conducting public scoping as a part of the project's NEPA review. Public scoping seeks to identify issues of economic, environmental, cultural, and social importance in the watershed. Following the scoping process, a 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 District serves 952 accounts across 58,887 irrigated acres in Jefferson County. The project area consists of the District infrastructure to be modernized and constructed (canal, laterals, and reuse reservoirs) and associated rights-of-way and/or easements where construction would take place.

5.1.1 Current Infrastructure and Water Rights

The District operates 65 miles of main canal and 235 miles of laterals, including a few existing piped segments. NUID operates one diversion on the Deschutes River, in Bend, Oregon. It diverts natural flow from the Deschutes River and stored water released from Wickiup Reservoir at this location. Wickiup Reservoir, located 60 miles southwest of Bend, has a maximum capacity of 200,000 acre-feet.

The District also operates a pumping plant on the Crooked River. This pumping plant is located where the District's main canal crosses the Crooked River. It provides water for both primary and supplemental use in the District. Water pumped from the Crooked River discharges directly into the District's main canal upgradient from the scoping area.

The water source supplied to patrons (i.e., Deschutes River, Wickiup Reservoir, or Crooked River) varies from year to year based on water year type (i.e., dry year, wet year, normal year). Using diversion flow records from the past 10 years, on average, NUID sources 91 percent of its diverted water from its diversion on the Deschutes River and 9 percent of its diverted water from the Crooked River Pumping Plant. The majority of the District's canals and laterals are open and unlined. Privately owned pipelines and ditches stem off of the District's system. Patron turnouts[3] from the District's canals and laterals to these private conveyances are generally gate-regulated and weir[4]-measured. District staff regulate flows to each system lateral and patron turnout.

5.1.2 Climate and Topography

Average annual precipitation in the District is 8.6 inches, with only 1.1 inches of rain falling during the summer months (June, July, and August). Summer temperature in July averages 66 degrees Fahrenheit with highs generally around 90 degrees Fahrenheit. The typical growing season in the District is 120 days (NUID 2012).

Irrigated lands vary in elevations from approximately 2,200 feet to 2,800 feet above sea level; most District canals slope gently downward from south to north (NUID 2012).

[3] A "turnout" is the point at which the control of the water changes from the District to the patron(s).

[4] A "weir" is a structure built to measure the rate of flow of water coming from the canal or pipe to the patron's turnout.

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

Table 5-1 provides an overview of the resource issues identified to date and NUID's proposed measures to avoid 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 during development of the Plan-EA. 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 during development of the Plan-EA. 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 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	General Fish	Communicate with USFWS and Oregon Department of Fish and Wildlife and review available literature. No measures proposed at this time.
	Threatened and Endangered Species	Review state and federal listings specific to the project area and region. Determine measures based on species presence.
Wildlife	Effects on General Wildlife	Review available literature and communicate with USFWS and the Oregon Department of Fish and Wildlife. Incorporate BMPs during construction.

Resource	Resource Issues to be Analyzed	Proposed Analysis and Mitigation Measures
	Effects of the project on Threatened and Endangered Species	Review state and federal listings specific to the project area. Determine measures based on species presence.
	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 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	Effects on water quality from discharging of tail water in waterbodies associated with District operations	Review literature and interview local experts. No measures proposed at this time.
	Effects of increased turbidity during project construction due to exposed and disturbed soils	Develop and implement an Erosion and Sediment Control Plan. Incorporate BMPs during construction.
Groundwater	Effects of removing potential groundwater source	Review literature and interview local experts. No measures proposed at this time.
Wetlands, Riparian Areas, and Floodplains	Impacts to 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.
	Impacts to floodplains	Present the proposed project to the Jefferson County Floodplain Administrator to determine effects; measures would be determined.
	Impacts to riparian areas	Review available literature and interview local experts. No measures proposed at this time.
Land Use and Recreation	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.
	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. No measures proposed at this time.

Resource	Resource Issues to be Analyzed	Proposed Analysis and Mitigation Measures
Socioeconomic Resources	Effects of project construction, operation, and maintenance on the local economy in Jefferson 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.

6 Alternatives

6.1 Formulation Process

In order to determine the most viable alternatives to meet the project's purpose and need, NRCS and NUID 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

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 and lateral system in its current condition. This alternative assumes that modernization of the District's 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 Alternative

The Modernization Alternative is NUID's desired alternative. The District has determined that this alternative is technically feasible and addresses the project's purpose and need (NUID 2017). Under the Modernization Alternative, NUID would pipe high priority laterals in the southern half of the District (Figure 6-1). Additionally, the District is interested in constructing reuse reservoirs near the locations of current end spills. A full description of the actions proposed under this alternative can be found in NUID's System Improvement Plan (NUID 2017).

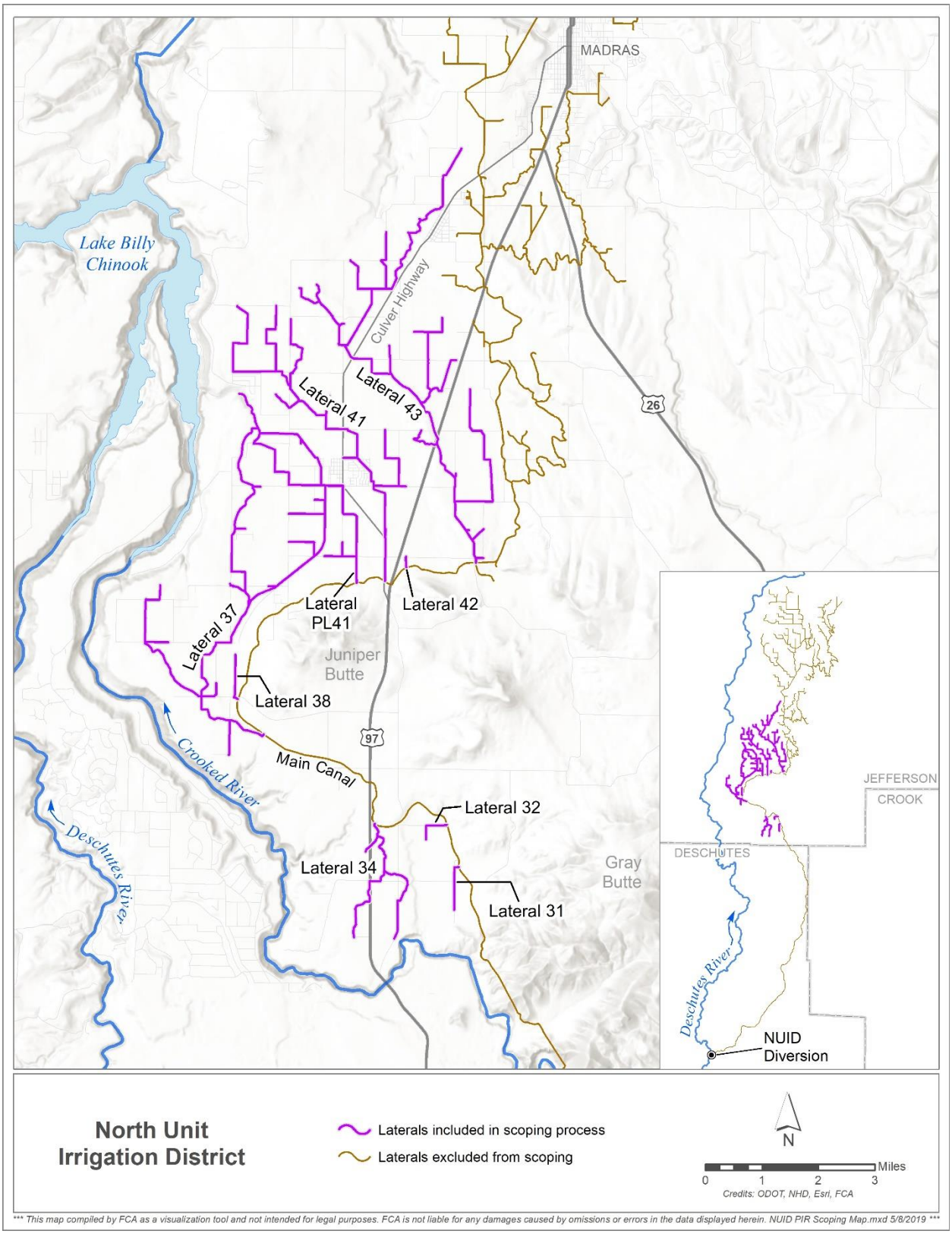

Figure 6-1. North Unit Irrigation District proposed piping.

6.3 Alternatives Proposed for Elimination from Detailed Study

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 U.S. Department of Agriculture's Guidance for Conducting Analysis Under the Principles, Requirements, and Guidelines for Water and Land Related Resources Implementation Studies and Federal Water and Resource Investments (USDA 2017). Pursuant to this guidance, alternatives that become "unreasonable due to cost, logistics, existing technology, social, or environmental reasons," or general inability to address the purpose and need for action, may be removed from consideration.

6.3.1 Dryland Farming

Under the dryland farming alternative, District patrons would no longer rely on irrigation water delivered by the District. Instead, crop growth would depend on precipitation as its water supply.

6.3.2 Fallowing of Farm Fields

The fallowing of farm fields alternative could include permanent or temporary transfer of water rights off irrigated lands or not using water rights appurtenant to irrigated lands. Fallowing of farm fields would allow for less use of irrigation water and would, therefore, allow more water to remain instream for habitat uses.

6.3.3 On-Farm Efficiency Upgrades

Under the on-farm efficiency upgrades alternative, the District's laterals and canal would remain in their current state, and patrons would upgrade their on-farm irrigation methods and management practices to use newer irrigation technologies that provide better and more uniform application of water and have greater efficiencies.

6.3.4 Exclusive or Partial Use of Groundwater for Irrigation

Exclusive or partial use of groundwater for irrigation has been considered to leave more surface water available in streams and rivers. The exclusive or partial use of groundwater would involve forgoing surface and storage water rights and pumping groundwater to meet irrigation needs in the District.

6.3.5 Canal Lining

Under the canal lining alternative, the bottom and sides of the currently open canal and laterals would be covered with a geotextile liner and shotcrete to prevent water from seeping into the underlying soils and rock.

6.4 Economics

A National Economic Efficiency analysis will be completed for the project during the Plan-EA process.

7 References

North Unit Irrigation District (NUID). (2012). Water Management and Conservation Plan.

North Unit Irrigation District (NUID). (2017). North Unit Irrigation District System Improvement Plan. Bend, OR: Author.

North Unit Irrigation District (NUID). (2018). NUID PIR Questionnaire with Responses. Unpublished data. December 4, 2018.

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.

8 Appendix A. System Improvement Plan

Appendix A is provided in a separate document.