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## STUDY 10.0 LAND USE INVENTORY

The Project is located in Nance and Platte counties, where water is diverted from the Loup River and routed through the 35-mile-long Loup Power Canal, which empties into the Platte River near Columbus. The Project includes various hydraulic structures, two powerhouses, and two regulating reservoirs. The Project passes through agricultural, commercial, and industrial land in Nance and Platte counties, through the community of Genoa, and near the communities of Monroe and Columbus; therefore, there are a variety of land uses adjacent to the Project. Based on length of the Project and the variety of adjacent land uses, there is the potential for incompatible land uses between Project lands (within the Project Boundary) and adjacent properties (outside of the Project Boundary).

The District does not have a detailed inventory of land uses adjacent to the Project Boundary. Such a record could be used to assist the District in evaluating land use conflicts. Therefore, the District will conduct a general land use inventory of all Project lands and of all adjacent properties. Land use information will be plotted on maps and analyzed to identify potential conflicts and opportunities relating to Project operations, public access, recreation, and environmental resource protection. This information will be used in the development of a recreation management plan (see Study 8.0, Recreation User Survey).

### 1. GOALS AND OBJECTIVES OF STUDY

*“Describe the goals and objectives of each study proposal and the information to be obtained;” 18 CFR §5.11(d)(1)*

The goal of the land use inventory is to determine specific land uses of Project lands and adjacent properties to identify potential conflicts and/or opportunities relating to Project operations, public access, recreation, and environmental resource protection.

The objectives of the land use inventory are as follows:

1. To identify and record current and proposed future land uses of Project lands.
2. To identify and record current and authorized future land uses of adjacent properties.
3. To identify and map all existing public access points to the Loup Power Canal, regulating reservoirs, and defined recreation areas on Project lands.
4. To identify and map any areas on Project lands or adjacent properties having potentially incompatible or conflicting land uses.
5. To identify, and map potential opportunities for improving public access to Project lands and recreation areas.

6. To identify potential opportunities to enhance public safety on Project lands.
7. To identify potential solutions for any land use conflicts that may be identified.
8. To provide information on land use, land use conflicts, and access to be used in conjunction with the results of Study 8.0, Recreation User Survey, and Study 9.0, Creel Survey, to develop a recreation management plan.

## 2. RELEVANT RESOURCE MANAGEMENT GOALS

*“Address any known resource management goals of the agencies or Indian tribes with jurisdiction over the resource to be studied;” 18 CFR §5.11(d)(2)*

A principal goal of FERC relicensing is to balance the power and non-power aspects of the Project. A land use inventory is a beneficial tool for licensees, agencies, and adjacent property owners when managing Project resources and planning for the future. An accurate land use inventory facilitates appropriate management of Project lands and waters by limiting instances of incompatible adjacent land uses. In turn, the reduction of incompatible land uses prevents adverse impacts on Project operations, public access, recreation, and environmental resources.

## 3. BACKGROUND AND EXISTING INFORMATION

*“Describe existing information concerning the subject of the study proposal, and the need for additional information;” 18 CFR §5.11(d)(3)*

The District has extensive knowledge about the land uses within the Project Boundary as well as those properties and land uses adjacent to the Project Boundary. However, a detailed land use inventory has not been conducted and recorded for adjacent properties.

Within the Project Boundary, hydropower generation constitutes the authorized and predominant land use. Various types of public recreation and natural resource conservation are also established land uses of Project lands. It should be noted that all land adjacent to the Project Boundary is private property owned by others, and the District has no control over its use.

Properties that are adjacent to the Project Boundary and that are within the City of Columbus’s jurisdiction and future growth areas are shown in the *Columbus Comprehensive Plan Update*, which includes current (2005) land use, zoning, and future land use maps (City of Columbus, October 2005). Existing land uses adjacent to the Project Boundary include open space, agriculture, single-family residential, and industrial. The land adjacent to the Project Boundary is currently zoned Rural Residential (RR), Single-Family Residential (R-1), High-Density Residential (R-3), Commercial (C-1), and General Industry (MH). A portion of the Loup Power Canal is adjacent to the City’s Northeast Growth Center, which is described in the *Columbus*

*Comprehensive Plan Update* and has future land use designations of single-family residential, major commercial, office and limited commercial, and high-density residential. In addition, the Lost Creek Parkway runs parallel to the Tailrace Canal. As the City of Columbus grows to the north and east, it is anticipated that agricultural land uses adjacent to the Loup Power Canal will gradually change to more urban/suburban land uses.

Properties that are adjacent to the Project Boundary that are within the jurisdiction of Nance County are shown in the *Nance County Comprehensive Development Plan*. Existing land uses adjacent to the Project Boundary include land zoned Primary Agriculture District A and B (A1A and A1B) and Transitional Agriculture District (TA). Additionally, the canal runs along the south side of the City of Genoa, which does not have a comprehensive plan.

Columbus and Nance County are the only jurisdictions adjacent to the Project Boundary that have adopted comprehensive plans and have land use maps approved within the last 10 years. Genoa, Monroe, and Platte County do not have similar documentation.

#### 4. PROJECT NEXUS

*“Explain any nexus between project operations and effects (direct, indirect, and/or cumulative) on the resource to be studied;” 18 CFR §5.11(d)(4)*

Hydropower operation and maintenance procedures for the Project have evolved over a period of 70 years, and to date, no major conflicts have arisen between Project operations and recreation and conservation uses on Project lands. Licensed Project facilities are completely within the Project Boundary. Surface water management and drainage ditch maintenance constitute the District’s primary interfaces with adjacent property owners. To date, the District has not identified any Project operations that significantly affect adjacent properties. Similarly, the District has not identified any adjacent land uses that have significant effects on the Project and its operation.

Incompatible land uses, or poor management of otherwise compatible land uses, could adversely impact Project operations, public access, recreation, and environmental resources. An accurate land use inventory will be a beneficial tool for the licensee, agencies, and property owners when managing Project resources and planning for the future because such an inventory can be used to help reduce or avoid incompatible adjacent land uses. The data gathered as part of the land use inventory will also be used in the completion of future studies and plans that may be required as part of the relicensing process.

## 5. STUDY AREA AND STUDY SITES

The Project extends approximately 35 miles from the Headworks to the Outlet Weir, and the Project Boundary encompasses approximately 5,200 acres of land. A large portion of the Project consists of a power canal with a nominal width of 300 feet. The majority of adjacent land is agricultural and is considered compatible with the Project. Areas that may present conflicts or opportunities relating to Project operations, public access, recreation, and environmental resource protection include urban areas, public access points, the five developed recreation areas, and important environmental features or habitat. Specific land uses of Project lands and adjacent properties at the following sites will be carefully evaluated:

- Headworks Park, including Headworks OHV Park
- Lake Babcock Park (aka Loup Park)
- Lake North Park
- Columbus Powerhouse Park
- Tailrace Park
- Loup Lands Wildlife Management Area (leased to the Nebraska Game and Parks Commission)
- Lake Babcock Waterfowl Refuge
- North Sand Management Area
- South Sand Management Area
- Siphons
- Areas with evidence of heavy informal usage
- Urban areas of Genoa, Monroe, and Columbus

## 6. PROPOSED METHODOLOGY

*“A detailed description of the study and the methodology to be used;” 18 CFR §5.11(b)(1)*

*“Explain how any proposed study methodology (including any preferred data collection and analysis techniques, or objectively quantified information, and a schedule including appropriate field season(s) and the duration) is consistent with generally accepted practice in the scientific community or, as appropriate, considers any known tribal interests;” 18 CFR §5.11(d)(5)*

The methodology for the land use inventory includes three tasks, described below. Standard land use inventory methods will be employed, with modifications to account for the size of the Project Boundary.

### *Task 1 Data Collection*

For Project lands, existing Project maps will be used and District staff will be consulted to classify land uses. The specific land use classifications that will be used are as follows:

- Developed Recreation Area (campsites, picnic areas, playground equipment, swimming beaches, etc.)
- Bicycle and Pedestrian Trail
- Wildlife Management Area
- Intensive Recreation Area (motorized boating, hunting, OHV park)
- Restricted Operations Area

For adjacent properties, a preliminary land use inventory will be completed using the existing *Columbus Comprehensive Plan Update* and Nance County Comprehensive Plan (City of Columbus, October 2005; Nance County, 1999). For areas not included in current comprehensive plans, USDA 2006 (or most recent available) aerial photographs will be used to identify land use. These aerial photographs will also be used to verify the accuracy of land use information from the existing comprehensive plans. Adjacent properties will be classified according to the following conventional land use designations:

- Agricultural
- Park/Open Space
- Single-Family Residential
- Multi-Family Residential
- Commercial
- Institutional
- Industrial

Field observations will be completed to gather detailed land use information for developed areas and for any other areas for which review of aerial photographs provides insufficient information. Field observations will include “windshield” or walking surveys and may include interviews with property owners if additional information is needed.

### *Task 2 Map Generation*

Land use maps will be developed based on the findings from the data collection and field observations. The maps will be at a 1" = 1,000' scale and will be on aerial photographs to allow for land use identification and interpretation. Available electronic data will be used, including USDA 2006 (or most recent available) aerial

photographs. Land use and other relevant information will be digitized and color coded.

### *Task 3 Analysis*

Based on the data collection, including field observations, areas of current land use conflicts and potential future land use conflicts will be identified. Any conflicts, including the specific land uses in conflict, the type of conflict (operational, environmental, nuisance, etc.), and possible mitigation measures to resolve the conflict, will be described.

If, through the land use inventory, opportunities for improving Project operations, public access, recreation, or environmental resource protection become apparent, explanations of these opportunities will also be prepared and measures for taking advantage of these opportunities outlined.

## 7. CONSULTATION WITH AGENCIES, TRIBES, AND OTHER STAKEHOLDERS

During preparation of the PAD, the District formed a Recreation/Land Use/Aesthetics Workgroup to discuss issues related to these topics. The workgroup discussed questions raised by agencies during early coordination regarding land use and its relationship to relicensing and held a conference call meeting on July 7, 2008 to discuss potential land use conflicts. During preparation of this Land Use Inventory Study Plan, on December 19, 2008, an additional conference call meeting of this workgroup was held to discuss potential land use conflicts (a coordination call with the workgroup chair was also held on December 1, 2008). During these conference call meetings, the National Park Service identified a land use inventory as a means to address concerns about potentially incompatible land uses. Other workgroup representatives supported conducting a land use inventory during the relicensing process to identify potential opportunities for enhancing recreational facilities. The District will continue to work with agencies to resolve any issues or concerns during the course of the study plan meetings prior to preparation of the revised study plan.

## 8. WORK PRODUCTS

*“Provisions for periodic progress reports, including the manner and extent to which information will be shared; and sufficient time for technical review of the analysis and results;” 18 CFR §5.11(b)(3)*

The intended work product of the land use inventory is a study report that documents the land use inventory process and analysis, includes a series of maps of the entire Project Boundary outlining land use findings, and provides recommendations for resolving conflicts and taking advantage of opportunities relating to Project operations, public access, recreation, and environmental resource protection.

Updates regarding the land use inventory will be included in the study progress reports to be submitted to FERC in December 2009 and March 2010.

## 9. LEVEL OF EFFORT AND COST

*“Describe considerations of level of effort and cost, as applicable.” 18 CFR §5.11(d)(6)*

It is estimated that the land use inventory will cost approximately \$50,000. This work will be completed by qualified land planners, engineers, and GIS technicians.

## 10. SCHEDULE

*“A schedule for conducting the study;” 18 CFR §5.11(b)(2)*

*“The potential applicant's proposed study plan must also include provisions for the initial and updated study reports and meetings provided for in §5.15.” 18 CFR §5.11(c)*

All tasks for the land use inventory are scheduled to occur in the fourth quarter of 2009, and the final study report is to be submitted in the first quarter of 2010.

## 11. REFERENCES

City of Columbus. October 2005. *Columbus Comprehensive Plan Update.*

Available online at

<http://www.columbusne.us/commdev/Columbus%20Plan.pdf>.

Nance County. 1999. Nance County Comprehensive Development Plan.