Lake Powell Pipeline

Draft GIS Work Plan

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Prepared by

Eric D Zimmerman

Section 1
Introduction

The purpose of this work plan is to define the Geographic Information System (GIS) procedures for compiling and analyzing data, and supporting resource impact analyses for the Lake Powell Pipeline (LPP). This work plan presents and describes the GIS analysis methodology, reviews existing data and identifies data needs, references an outline for the GIS Technical Report, identifies dependency items and relationships to other resources, and identifies potential problems and recommendations for resolving problems.

Section 2
Issues

There are no GIS-related issues and concerns associated with the LPP project. GIS will be used to support impact analyses for resources that could be impacted by the LPP.

Section 3
Impact Topics

There are no GIS impact topics.

Section 4
Impact Area and Significance Criteria

4.1 Impact Area

The impact areas analyzed using GIS will include the following:

- Corridors along the area directly affected by pipelines and associated features, access roads and staging areas, pump stations, substations and power lines, power generations facilities and reservoirs
- Any stream or river and associated corridor that would be subject to water deliveries or alterations in flow
- Other areas potentially impacted by construction and operation of the LPP

4.2 Significance Criteria for Each Impact Topic

There are no significance criteria for GIS.

Section 5
Methodology

5.1 Introduction and Overall Approach

The following describes the methodology for using GIS and how it will apply to the LPP project.

5.1.1 Definition of Baseline Conditions

GIS baseline conditions will be defined by the data and analysis methods that are in place as of January 30, 2009.

5.1.2 Analysis of Alternatives

GIS will be used to support impact analyses on resources for each of the alternatives. The impacts will be measured by reviewing the existing GIS data and analysis procedures and comparing them to features and actions that are proposed to occur under the proposed action and alternatives of the LPP project. Changes that can be determined using GIS will be documented and provided to specific resource disciplines for inclusion in technical reports or technical memoranda.

5.1.2.1 Review and Collection of Existing GIS Data and Literature

Existing GIS data and information relevant to the LPP project that are available in current published reports, maps, and literature will be identified from relevant agency sources such as the Natural Resource Conservation Service, the U.S. Bureau of Reclamation, the affected counties, and similar sources. Previous preliminary investigation work also will be obtained and reviewed.

5.1.2.2 Field Reconnaissance

Field reconnaissance will include a physical inspection of each alternative alignment. Particular attention will be given to locations and features identified in the GIS literature and data review that may be affected by LPP construction or operation. Any additional features and data identified in the field that was not included in the literature or existing data will be documented and a preliminary description will be prepared, along with metadata for each GIS attribute. Geographic Positioning System (GPS) instruments will be used during field reconnaissance activities to record data points for specific resources.

5.1.2.3 Technical Memorandum

Correlation of information obtained from the data and literature review and the field reconnaissance will be performed. This will include determining whether field observations are generally consistent with existing data and literature. Where relevant, differences will be noted and described.

A technical memorandum (TM) will be prepared summarizing the field reconnaissance and literature and data review findings. The TM will be used by the LPP team and the Utah Division of Water Resources to assist in selecting a preferred alignment and to support engineering and resource analysis by other MWH team disciplines.

5.1.2.4 Analysis and Recommendations

The findings of the GIS investigations will be analyzed to see if and where conflicts occur with proposed alignment alternatives in the study area. Essential data gaps requiring additional characterization will be identified and recommendations will be made for acquiring the data to complete characterizations.

5.1.2.5 Prepare Technical Report and Production of Maps

A technical report and maps will be prepared summarizing the results of the GIS analysis. An outline of the report is presented in Section 7.

Section 6
Data Needs and Analysis

6.1 Data Needed

The GIS/Geospatial data needed to perform the analysis include:

- Digital Elevation Models (DEMs) (5m, 10m, & 30m)
- Elevation Contour lines (20ft and 40ft intervals)
- Digital Raster Graphics (DRGs) (1:24k, 1:100k, & 1:250k)
- Imagery (1ft or 1m color)
- Hydrology Data
- Watershed Boundaries
- Water Basin Boundaries
- M & I District Boundaries
- Water Rights Data
- Threatened and Endangered Species Data
- Easement Data
- Existing and Proposed Reservoirs
- TIGER Data for Utah and Arizona
- Utility Data (Electric, Gas, Telephone, Water, Wastewater, & Storm water)
- Proposed LPP pipeline alignments
- Roads Data
- Boundary Files (State, County, City, etc.)
- Land Use Data
- Land Ownership Data
- Geology Data
- Soils Data
- Sensitive Areas Data (Wilderness, Visual Impact Areas, Areas of Critical Environmental Concern (ACEC))
- Population and Estimated Populating Growth Data
- Recreation Areas Data
- Other relevant data, as identified

6.2 Data Available and Adequacy

The GIS/Geospatial data required to complete the GIS analysis can be acquired from the following identified and existing sources: (estimate the availability and adequacy of each type of data listed in Section 6.1)

- Digital Elevation Models (DEMs) (10m, & 30m) available on the World Wide Web at: http://agrc.its.state.ut.us/
- Digital Raster Graphics (DRGs) (1:24k, 1:100k, & 1:250k) available on the World Wide Web at: http://agrc.its.state.ut.us/
- Imagery (1m color) available on the World Wide Web at: http://agrc.its.state.ut.us/
- Hydrology Data available on the World Wide Web at: http://agrc.its.state.ut.us/
- Watershed Boundaries available from the Department of Natural Resources (DNR) Division of Water Resources

- Water Basin Boundaries available from the Department of Natural Resources (DNR) Division of Water Resources
- Water Rights Data available on the World Wide Web at: http://www.waterrights.utah.gov/
- Threatened and Endangered Species Data available from the Utah Division of Wildlife Resources
- Existing and Proposed Reservoirs available from the Department of Natural Resources (DNR) Division of Water Resources
- TIGER Data for Utah and Arizona available on the World Wide Web at: http://www.census.gov/
- Proposed LPP pipeline alignments
- Roads Data available on the World Wide Web at: http://agrc.its.state.ut.us/
- Boundary Files (State, County, City, etc.) available on the World Wide Web at: http://agrc.its.state.ut.us/
- Land Use Data available on the World Wide Web at: http://agrc.its.state.ut.us/

6.3 Additional Data Needs

6.3.1 Primary

The following data will be required in addition to the data described in Section 6.2:

- None

6.3.2 Secondary

The following data will be required in addition to the data described in Section 6.2:

- All the data identified in Section 6.1 will need to be compiled from existing sources.

Section 7
Outline of GIS Technical Report

Cover
Title Page
Table of Contents

Chapter 1
Introduction

1.1 Introduction

This will be an introduction to the TR. It will explain the purpose of the report and provide the reader a guidepost as to its organization and content.

1.2 Summary Description of the Proposed Action and Alternatives

A very brief description of the Proposed Action and alternatives. The reader will be referred to the project description chapter in each document for more detail.

1.3 Overview of GIS

An overview of GIS will be prepared to describe how data is compiled, stored and used to analyze resources and impacts on resources.

Chapter 2
Methodology

2.1 Data Used

This section describes the data inputs that were used in the methodology. The source of the data that was used and how it was collected will be discussed.

2.2 Assumptions

Assumptions that had to be made in order to use the methodology or to analyze the impacts are identified in this section with an explanation and rationale.

2.3 Methodology

2.3.1 Description

This section describes in detail the methodology (model(s) that were used to estimate the impacts and analyze resource data to determine potential changes. The discussion will show how the methodology or model was used to estimate resource impacts.

2.3.2 Verification and Calibration (if needed)

This section will describe how any models used were verified and calibrated.

Chapter 3
Affected Environment (Baseline Conditions)

3.1 Impact Area

This section will include detailed maps and describe the baseline conditions of the impact area for the LPP project. GIS data included on the maps, data interpretations, and metadata will be provided for the baseline conditions.

Chapter 4
LPP Project Alternatives

4.1 Maps and GIS Data

This chapter will include detailed maps of the alternatives and descriptions of the GIS data included on the maps. Data interpretations and metadata will be provided for each alternative.

References Cited

All the references used for the GIS analysis and cited in the TR.

Glossary

Abbreviations and Acronyms

Appendices (As necessary and appropriate including tabular data, model parameters and results, other information that was to voluminous to include in the text.)

Section 9
Dependency Items From Other Resources

The only dependency from other resources is the acquisition of the GIS/geospatial data that the other resources may have.

Section 10
Potential Problems and Recommendations

None.