

6. Project Implementation Plan

6.1. Introduction

Once the project configuration and course are established, a preliminary schedule is required to guide in project development. The preliminary time line schedule illustrates opportunity for public involvement, administrative actions, funding, permitting, land and easement acquisition, final design and construction. This preliminary plan of implementation provides a general indication of how future phases interrelate.

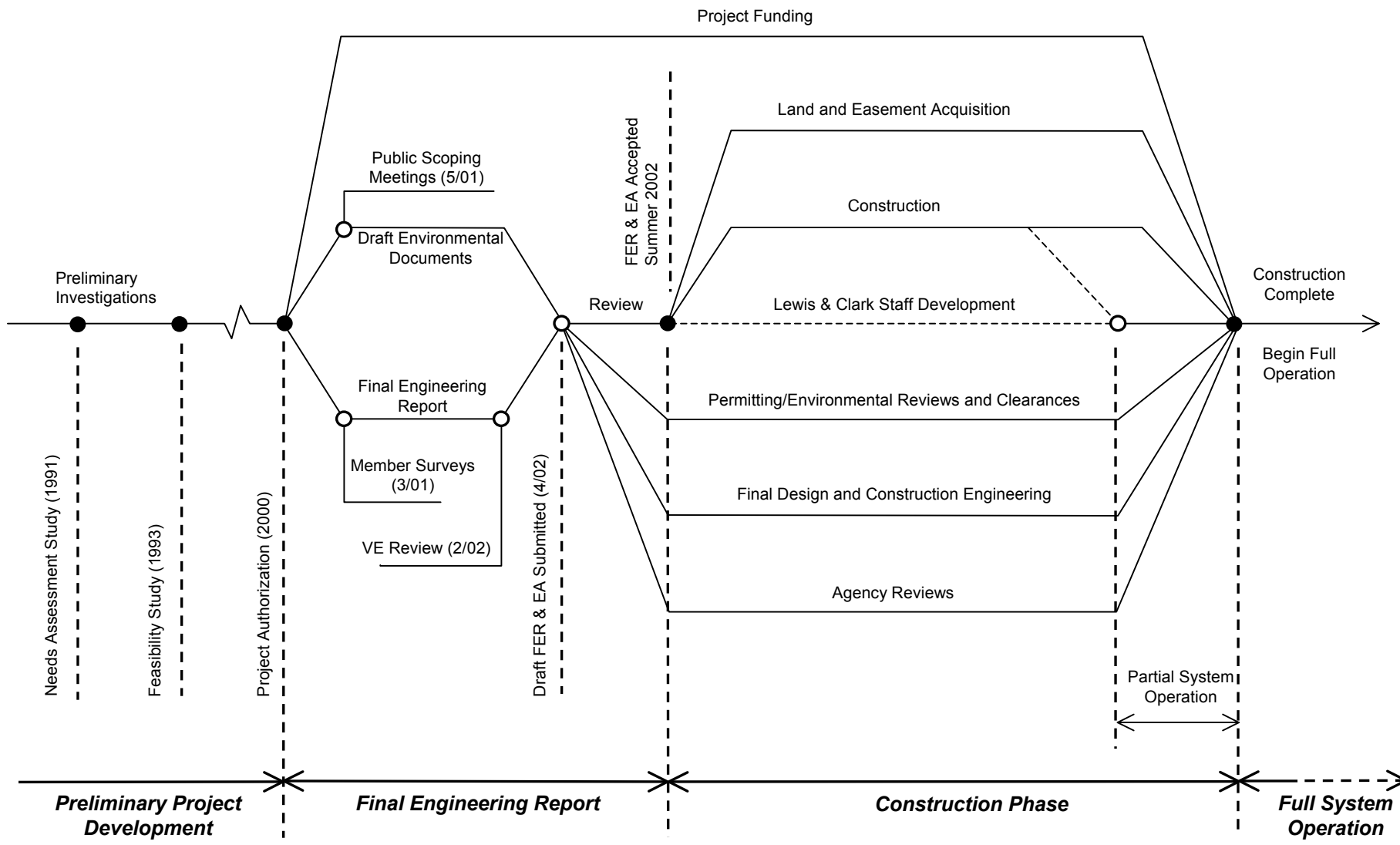
Also a more detailed bar chart schedule is provided to provide a preliminary project construction schedule. Undoubtedly, the bar chart schedule will be revised several times throughout the course of the project based on various influences upon the project. However, this preliminary schedule is necessary to provide a plan for project development and a projection of cash flow requirements. The schedule should continue to be updated as the project progresses.

6.2. Preliminary Project Timeline Schedule

A preliminary project time line schedule is attached as Figure 6.2-1. This time line illustrates basic project interrelationships. Specific dates are not shown in the future phases of the timeline schedule. However, target dates will be established and agreed upon as the project progresses. Additional information and detail is included in the preliminary construction schedule.

6.2.1. Project Scope Review and Public Involvement

Following completion of this Final Engineering Report, the scope of the proposed project will be presented to Congress and the public. During various phases of the project, it will be important to keep the public involved and updated regarding the status of the project and other issues. Acquisition of some permits may also require public notification and public meetings to solicit input and comments.



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FINAL ENGINEERING REPORT
LEWIS AND CLARK RURAL
WATER SYSTEM

FIGURE 6.2-1

Preliminary Project Timeline
Schematic Drawing

6.2.2. Funding

The Lewis & Clark project will be funded with a combination of Federal, state and local monies (additional detail is included in Chapter 7). The largest portion of project funding will come from the Federal government with the level of project funding determined on a year-to-year basis as provided in the annual Federal budget. State and local funding will match the proportion of Federal funding. State funding, as an alternative, could be accelerated to fully fund the state's proportion of the project funding – this will vary from state-to-state. Various options for local funding are under consideration by Lewis & Clark.

6.2.3. Design Development

The design phase of the project involves two phases. The first phase is the preliminary design phase in which the size, capacity, location, configuration and projected costs of the project are documented in this Final Engineering Report for approval by the lead Federal agency and project sponsors. The locations, size and configuration of the well fields, pumping stations, pipelines, treatment works, storage facilities and other ancillary project features will be used as the basis for final site surveys, geotechnical investigations, cathodic protection surveys and other evaluations. The alignments and site locations would also be used for property acquisition and easements.

Preparation of final design documents will require several years and is highly dependent on project phasing and funding. Due to the size of the project, multiple construction contracts will be issued. It is anticipated final design of various phases of the project will be developed approximately 6 months to one year in advance of planned construction. This will allow agency review of the construction documents, permitting, environmental and cultural resource reviews and land/easement acquisition. Final design development for the water treatment plant will require 24 to 30 months. Final construction contract documents will include drawings, technical specifications, bidding and front-end documents. A final opinion of probable construction cost will be prepared at the time of completion of each bid package.

6.2.4. Permitting

Several permits are required for a project of this magnitude. A discussion regarding permitting requirements is provided in Chapter 8 of this Final Engineering Report. Certain permits may require significant lead times and applications for these permits should be initiated during the design development phase. It is important to begin permit applications early in the design process as possible

in order to incorporate any regulatory requirements into the design. However, the designs should be sufficiently advanced in order to provide reliable information to the permitting agencies. Most permits should be issued before the project is bid and before construction can proceed.

6.2.5. Easements and Property Acquisition

Acquisition of property and easements for project facilities can be accomplished concurrent with project design. Property and easement acquisition can proceed after the final locations for pipelines and other system facilities are determined. It is critically important to acquire lands and easements for certain key project components as early as possible, specifically:

- ? Water treatment plant site (private landowner);
- ? Mulberry Point well sites (South Dakota Game, Fish and Parks);
- ? Northwest Area well sites (private landowner(s));
- ? A reservoir site west and southwest of Sioux Falls (private landowners);
- ? Pipeline easements in Lincoln and Minnehaha Counties near Sioux Falls;

Acquisition of easements for the pipelines and property for pump stations, reservoirs, wells, treatment plant and other project features will require a substantial investment in time and effort. The time period to complete the land acquisition and easement task will require several years. Construction of the project will be phased and easements and property acquisition can be phased to match the proposed design and construction schedules.

After the alignment and other locations are determined, it will be necessary to obtain right of entry to project areas for site surveys, geotechnical investigations and other required field work.

6.2.6. Staff Development

Development of a staff to operate and maintain a large water system requires a significant amount of time, effort and resources. Lewis & Clark's current staffing is minimal and dedicated to project planning, funding and administrative tasks. As the project progresses into the construction phase, Lewis & Clark will need to transition from its current roles to an operational entity.

It is suggested key operations personnel be hired and participate in final design development and the construction phases. This is important in order to receive input during design and for key staff to observe system facilities as they are constructed. Lewis & Clark has hired a specialist to coordinate and negotiate land and easement acquisitions.

Upon completion of certain components of the project (wells, water treatment plant, and a portion of the water transmission pipeline system), Lewis & Clark can begin partial system operation and start delivering water to a limited number of member systems. Additional water treatment plant and pipeline operational staff would not be required until prior to completion of these project components.

Water treatment plants and distribution systems require trained and certified personnel to operate and maintain these facilities. In South Dakota, the certification law is contained in SDCL Chapter 34A-3 and the regulations are contained in Section 74:21:02, 01 through 69. The bulk of Lewis & Clark's operation personnel will be based in South Dakota and will be headquartered at the water treatment plant. Water distribution system operators will need to be certified in South Dakota, Iowa and Minnesota and will have to comply with the laws of those states.

Recommendations for proposed staffing is presented in Table 6.2-1 based on experience with similarly sized treatment plants and project systems (refer to Chapters 4 and 5). Currently, it is not intended that major construction and repairs would be undertaken by Lewis & Clark with regard to the pipeline system – rather, major repairs would be handled through construction contractors or with staffing and equipment from local rural water systems. The required operator classification is shown for the proposed “lead” operator only for each category shown on Table 6.2-1 based on South Dakota classifications. Certification will be required for other operators (especially for the water treatment plant), but the final mix of required certifications for the entire staff will be determined at a later date.

Table 6.2-1 lists the need for one half-time person for the wells and well field. It may be possible this individual could be used for other tasks at the water treatment plant. Table 7.2-1 does not include seasonal hires used for miscellaneous tasks, including painting, mowing and other general maintenance items on a temporary basis - typically, June through August.

Table 6.2-1
System Staffing Requirements (Assumes System Fully Operational)

Position	Existing	Proposed
Headquarters Office (all full-time):		
Manager	1	1
Administrative Assistant	0.5	1
Bookkeeper	0.5	1
Well Fields (full-time):	0	0.5
Water Treatment Plant (all full-time, over 2 shifts):		
Chief Operator (Class III)	0	1
Operators/Laboratory	0	21
Mechanic	0	1
Electronics Technician	0	1
Clerical	0	1
Water Transmission System (all full-time):		
Chief Operator (Class III)	0	1
Operators	0	3
Total	2	32.5

6.2.7. Agency Reviews

Review periods will be included as part of the project schedule. The primary reviewing authority will be the lead Federal agency – the Bureau of Reclamation. Reviews of the project scope, cost and scheduling will include: review of the Final Engineering Report; value engineering reviews; review of preliminary drawings and technical specifications; and review of the final drawings, specifications and other contract documents prior to bidding. The review periods will also include reviews required by other regulatory and permitting agencies, as appropriate.

6.2.8. Bidding and Contract Award

Work involved during this period in the project schedule involves solicitation of competitive bids and distribution of contract and bidding documents to prospective bidders. Bidding and contract documents will include special provisions to comply with appropriate Federal contracting requirements, in accordance with the Cooperative Agreement between Lewis & Clark and Reclamation. It is also

recommended pre-bid conferences and job showings be conducted to provide information to bidders. Bid period activities include responding to questions from bidders and suppliers, issuing addenda, conducting bid openings and reviewing bids. The project will be bid in phases requiring multiple bid lettings.

The bulk of the project construction will be based on the traditional design/bid competitive bid method of delivery. One exception to be considered is for the acquisition of construction and equipment for the telemetry and control system. It will be important for the telemetry and control system equipment to be provided by a single source for a project of this complexity. This importance is compounded by the fact the project construction will take several years. It is suggested the telemetry and controls contractor be solicited through a competitive bid situation with the intent of issuing an indefinite delivery type of contract.

6.2.9. Construction Phase

The construction phase of the project is expected to extend over several years, depending upon the availability of funding. Work to be performed during the construction period will include:

- ? Construction of pipelines, pumping stations, well fields, treatment works, storage reservoirs and other project facilities;
- ? Contract administration of each of the construction contracts, including review of shop drawings, progress payments and processing of contract change orders;
- ? Resident engineering services at each of the active construction sites during significant phases of the construction;
- ? Preparation of operation and maintenance manuals;
- ? Operator training, facility checkout and start-up; and
- ? Assistance with start-up and initial operation of the system.

6.2.10. Start-up and Operations

After completion of critical portions of the project (wells, water treatment plant, and a portion of the water transmission pipeline system), Lewis & Clark can begin partial system operation and start delivering water to a limited number of member systems. At this point of the project, Lewis & Clark must have operations and maintenance staff hired, trained and ready to begin operation of the system. It is important, as mentioned above, to involve key members of the operations staff throughout the project beginning with the final design phase. The proposed project construction schedule anticipates

construction of portions of the treated water transmission pipeline system to add additional members, incrementally, as construction continues to full operational status.

6.3. Project Phasing

The pace of construction activity will depend upon the availability of funding. The project will be split into discrete phases and will be based on a logical progression of work. The duration of the project is expected to extend over a ten to fifteen year period based on the experience of similar projects in the State of South Dakota. The construction phasing concentrates on system expansion into new service areas.

Construction sequencing presents certain issues to be resolved and considered during design. It will be important to delay construction of the water treatment plant so that the plant is not sitting idle after completion of construction. This is important to maintain equipment warranties and to begin operation of the plant immediately to make corrections and repairs during the one-year correction period. It will be important to have the treated water pipeline project developed in order to deliver treated water to some member systems at a rate and volume suitable to “test” the plant. Although in some cases it will be unavoidable, it is not desirable to leave portions of the pipeline system “dry” following construction while waiting for delivery of treated water.

In general, the progression of pipeline construction will radiate from the water treatment plant (a bar chart to illustrate a possible construction schedule and sequence of connections to member systems is shown in Chapter 7 and the Executive Summary). A preliminary listing of project priorities and phases is listed below:

- **Phase 1 Projects** – Phase 1 would include construction of the Mulberry Point Well Field; raw water pipeline to the Mulberry Point area and the treated water pipeline from the water treatment plant to Centerville’s service line. No members would be served upon completion of the Phase 1 Projects.
- **Phase 2 Projects** – Phase 2 would include construction of the water treatment plant; and the treated water pipeline from Centerville’s service line to Sioux Falls service line. Upon completion of the Phase 2 Projects, Lewis & Clark would have the ability to provide service to the following member systems:

- Beresford, SD
- Centerville, SD
- Lennox, SD
- Parker, SD
- South Lincoln RWS, SD
- Tea, SD
- Minnehaha Community Water, SD (western connection)
- Sioux Falls, SD

It is anticipated Phase 2 would be completed in the fall of 2009. The total amount of reserved capacity that could be delivered would be 14.16 MGD.

- 7 **Phase 3 Projects** – Phase 3 would include construction of the treated water pipelines to serve members in western Iowa and Minnesota. The pipeline to Iowa would extend to Sheldon and the line to Minnesota would extend to Luverne. Upon completion of the Phase 3 Projects, Lewis & Clark would have the ability to provide service to these additional member systems:

- Sioux Center, IA
- Rural Water System No. 1 (both connections)
- Hull, IA
- Boyden, IA
- Sheldon, IA
- Lincoln County RWS, SD
- Harrisburg, SD
- Minnehaha Community Water, SD (eastern connection)
- Rock Rapids, IA
- Rock County RWS, MN (western connection)
- Luverne, MN

It is anticipated Phase 3 would be completed in the fall of 2012. The total amount of reserved capacity that could be delivered would be 21.16 MGD.

- 7 **Phase 4 Projects** – Phase 4 would extend construction of the treated water pipelines to serve additional members in Iowa and Minnesota. The pipeline to Iowa would extend to from Sheldon to Clay Regional RWS's eastern connection and the line to Minnesota would extend from Luverne to

Worthington and Sibley, IA. Upon completion of the Phase 4 Projects, Lewis & Clark would have the ability to provide service to the following member systems:

- Clay Regional RWS, IA (western connection)
- Rock County RWS, MN (eastern connection)
- Lincoln-Pipestone RWS, MN
- Worthington, MN
- Sibley, IA

It is anticipated Phase 4 would be completed in the fall of 2013. The total amount of reserved capacity that could be delivered would be 25.69 MGD.

7. **Phase 5 Projects** – Phase 5 would complete construction of the pipelines to the most remote users in the system in Iowa and South Dakota. Upon completion of the Phase 5 Projects, Lewis & Clark would have the ability to provide service to the following member systems:

- Clay Regional RWS, IA (northern connection)
- Madison, SD

It is anticipated Phase 5 would be completed in the fall of 2014 or early 2015. The total amount of reserved capacity that could be delivered would be 27.19 MGD.

During construction, it may become apparent that certain portions of the treated water pipeline could be constructed out of sequence to facilitate water sales between existing members to aid in water shortages and emergencies. This may also eliminate the need for some members to expend funds to construct interim water facilities that would be abandoned or rendered obsolete upon eventual service by Lewis & Clark. Although not considered in current project planning, out of sequence construction has been mentioned by various member systems as a means to provide early project benefits (no project water, thought) to more remote member systems.

6.4. Replacement Parts, Equipment and Support Facilities

In addition to management and labor needs, the proposed system will require various equipment, tools, replacement parts and support facilities. Recommendations for these items and associated costs are listed in Chapter 5 (water treatment plant) of this report.

6.4.1. Parts

Various replacement parts are required for routine and emergency repairs and other system requirements. Defining the specific parts to be maintained is a difficult task. It is important to maintain an adequate parts inventory in order to meet project-operating needs, but overstocking promotes waste and the opportunity for loss. Replacement parts could include: various sizes of pipe and fittings, repair sleeves, pump equipment, valves or valve parts, meters, water treatment plant equipment, telemetry and electronics equipment and other parts.

6.4.2. Equipment and Tools

A large water system utility will require various vehicles, trucks, trailers, portable generators, pumps, tools and other equipment. This additional equipment is not included under current project funding. Lewis & Clark plans to obtain some of the required equipment and tools prior to project operation – and the remainder as the project becomes operational. It is important to understand the capital equipment needs, but also to account for maintenance, operating and storage costs associated with these various pieces of equipment.

6.4.3. Support Facilities

The bulk of the projects' support facilities will be located at the water treatment plant site. In addition to the water treatment plant, storage and equipment yards will be located throughout the pipeline system at some of the reservoir sites to provide a ready supply of appropriately sized pipe and repair sleeves.