



GILLETTE MADISON PIPELINE PROJECT (GMPP) TECHNICAL MEMORANDUM #11 FINAL

TO: Mike Cole, P.E., City of Gillette

FROM: Dan Korinek, P.E.

DATE: April 30, 2010

JOB NO.: BMcD # 54432

RE: Draft Construction Schedule and Phasing (with Consideration for Potential Funding)

CC: Darin Brickman, P.E., BMcD
Carl Anderson, P.E., MMI
Casey Hanson, P.E. MMI
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Mike Cole, P.E., COG
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ATTACHMENTS:

Urgent For Review Please Comment Please Reply For Your Use

EXECUTIVE SUMMARY

The Request for Proposal (RFP) for the GMPP requested that a draft construction schedule including any proposals to phase project construction be developed. As part of this process we were to obtain input from the City of Gillette (COG) and Wyoming Water Development Commission (WWDC) before including the phasing concepts in the Pre-Design Report. The purpose of this Technical Memorandum (TM) is to provide the framework of the phasing and scheduling of the project to date as they correlate to potential funding availability. The TM will be utilized for discussions with the COG and WWDC team and comments and decisions made during those discussions will be used to finalize this TM. The TM will then serve as the basis for the phasing/scheduling to be included in the Pre-Design Report. It will be important to make these determinations up front as once design documents are complete it is inefficient and risky

to break out only sections of each package for bid. In conversations with the COG they shared this view point as well. The TM begins with a brief discussion of the current plan for packaging the projects and concludes with an opinion of the best packaging based on the current expectation of available funding.

Basis of Our Proposal

The proposal submitted by our team to the City of Gillette for the GMPP project assumed that 6 design packages would be prepared and put out for bid separately. As such the project was awarded based on the following design packages:

- P1 - Wells
- P2 - Well-Field Piping
- P3 - In-Town Piping
- P4 - Water Transmission Pipeline
- P5 - Pump Station
- P6 - Storage Reservoir

COG /WWDC Input

We have had continued conversations with the City of Gillette as we work through the Technical Memorandums associated with the various components of the project including the wells, piping, and pumping stations. We have recently posed the question of project packaging and scheduling with the COG for any changes they felt would be desired regarding this topic. In general the City feels that as a team we need to remain with the breakdown of the 6 components as originally planned. The City would like this Technical Memorandum to incorporate the funding scenario information that was provided by the COG for a discussion item. The City's management feels it is imperative to capture a rigid detailed approach of what the plan is, defining the packages as we have them with consideration for funding. It will be important for the team to remain with these design packages and to not get caught up in breaking them out as the project proceeds. This would lead to unnecessary re-work of drawings, additional expense, unclear delineation of construction responsibilities for various components of the work and overall inefficiencies.

COG Phased Funding

The 2007 "Gillette Long-Term Water Supply Phasing Plan", provided rough cost estimates for the facilities to be constructed for the GMPP. In an effort to develop a correlation between the anticipated funding that will be available and the estimated cost for various components of the project, Mike Cole developed the following table for consideration at the end of 2009. The 2007 estimates are adjusted for inflation and estimations for when funding might be available were reported in this estimate. Since the project has proceeded some of the information has changed. For instance, as we discuss in Technical Memorandum 4, it is not likely that a new pump station will be built at the Madison site. However, Technical Memorandum 13 discusses that a new hypochlorite generation facility will need to be constructed, at the direction of the City, near the location of the new wells. Also the current scope for design of storage reservoirs only allows for one structure at the Pine Ridge site. Items such as this will require modifications to this estimate, however for the purposes of this TM we have correlated, by highlighting, where the 6 key components included in the current scope would fall into this original estimate of fund phasing.

ESTIMATE OF GILLETTE MADISON PIPELINE PROJECT COSTS - PHASED FUNDING PLAN 6 - Build SW Transmission Loop & Madison Wells First

PHASE I Design, Administration, Test Wells and Easement/Permit Acquisition
complete by Spring 2011)

Description	2009 dollars	2009 dollars	67% State Funding 2009 dollars (actual)	33% Local (State Loan) 2009 dollars (actual)
2009 Wyoming State Legislature Appropriation (funding already in place)	\$16,750,000	\$16,750,000	\$11,222,500.00	\$5,527,500.00
SUBTOTAL	\$16,750,000	\$16,750,000	\$11,222,500	5,527,500

PHASE II ^{(a), (b)} Anticipated Construction Schedule (2011-2012)

Description	(1) 2007 dollars	(2) 2011-2012 dollars	67% State Funding 2011-2012 dollars	33% Local (State Loan) 2011-2012 dollars
⁽⁶⁾ Five new Madison Wells and Well Piping (P1 & P2)	\$9,775,000	\$12,218,750.00	\$8,186,562.50	\$4,032,187.50
⁽³⁾ SW Treated H2O Loop (P 3)	\$9,816,000	\$12,270,000.00	\$8,220,900.00	\$4,049,100.00
SUBTOTAL		\$24,488,750.00	\$16,407,462.50	\$8,081,287.50

PHASE III ^{(c), (d)} Anticipated Construction Schedule (2013-2014)

Description	(1) 2007 dollars	(2) 2013-2014 dollars	67% State Funding 2013-2014 dollars	33% Local (State Loan) 2013-2014 dollars
⁽³⁾ Segment 4 Piping (WyoDAK to Southern Tank, via Sleepy Hollow) (P4)	\$21,402,600	\$28,893,510.00	\$19,358,651.70	\$9,534,858.30
⁽⁴⁾ Storage Tanks - 6.0 million gallons total (2.0 MG @ Madison, 4.0 MG in Gillette) (P6) Pine Ridge Only	\$7,500,000	\$10,125,000.00	\$6,783,750.00	\$3,341,250.00
Segment 3 Piping (Donkey Creek PS to WyoDAK)(P4)	\$25,662,500	\$34,644,375.00	\$23,211,731.25	\$11,432,643.75
Donkey Creek Pump Station (P5)	\$3,775,000	\$5,096,250.00	\$3,414,487.50	\$1,681,762.50
Madison PStation (Hypochlorite Facility Instead)(P5)	\$3,225,000	\$4,353,750.00	\$2,917,012.50	\$1,436,737.50
⁽⁵⁾ City Furnished Electrical and Contract SCADA NA	\$5,500,000	\$7,425,000.00	\$4,974,750.00	\$2,450,250.00
SUBTOTAL		\$90,537,885.00	\$60,660,382.95	\$29,877,502.05

PHASE IV ^{(e), (f)}

Anticipated Construction Schedule (2015-2016)

Description	(1) 2007 dollars	(2) 2015-2016 dollars	67% State Funding 2015-2016 dollars	33% Local (State Loan) 2015-2016 dollars
Segment 1 Piping (Madison to Moorcroft) (P4)	\$33,516,500	\$48,598,925.00	\$32,561,279.75	\$16,037,645.25
Segment 2 Piping (Moorcroft to Donkey Ck PS)(P4)	\$25,662,500	\$37,210,625.00	\$24,931,118.75	\$12,279,506.25
SUBTOTAL		\$85,809,550.00	\$57,492,398.50	\$28,317,151.50
TOTAL CONSTRUCTION COSTS (estimate)		\$200,836,185.00	\$134,560,243.95	\$66,275,941.05
TOTAL PROJECT COSTS (estimate)		\$217,586,185.00	\$145,782,743.95	\$71,803,441.05

Explanations:

- (1) Cost estimates originally based on 2007 "Gillette Long-Term Water Supply Phasing Plan", prepared by Casey Hanson, PE, Morrison-Maierle, Inc.
- (2) 2007 dollars adjusted for inflation @ 5% increase per year.
- (3) In-Town Piping and Segment 4 Piping costs (2007) increased by 20% to accommodate longer length to serve Sleepy Hollows/Crestview area.
- (4) Additional Storage added to 2007 costs – for regional benefit.
- (5) 2007 estimate for City-Furnished Electrical and Contract SCADA increased for Donkey Creek PS & Madison Pump Station.
- (6) 2007 estimate originally included ten (10) Madison Wells. This estimate reduced number of wells to five (5).
- (7) Cost estimate only includes supply and transmission facilities. Does not include costs to extend service to regional customers.

Assumptions:

- (a) *Construction Contracts will be awarded spring 2011.*
- (b) *Funding to be approved by 2010 Wyoming State Legislature with actual funds available no later than July 2010.*
- (c) *Construction Contracts will be awarded spring 2013.*
- (d) *Funding to be approved by 2011 and/or 2012 Wyoming State Legislature with actual funds available no later than July 2012.*
- (e) *Construction Contracts will be awarded spring 2015.*
- (f) *Funding to be approved by 2013 and/2014 Wyoming State Legislature with actual funds available no later than July 2014.*

Latest Schedule for Design Completion

The original schedule and updates to this point have shown a common submittal date for all 6 design components of the project. This has been denoted by ID 92 "Finalize Plans & Specifications (Incorporate Review Comments)" and the date currently shown is 3/25/2011. This should correlate well with the construction phasing as noted under Phase 1 of the previous table which designates designs to be complete by the Spring of 2011.

Recommendations

It should first be noted that the information provided in this document is based only on current estimates of the funding availability based on the best information the City has at this time. The funding availability is subject to change. When packaging projects we try to include work that is specific to the specializations of a contractor. For instance the pump station and tank should be packaged separately as these types of construction will draw completely different contractors with specialization for each of these facilities. Likewise the pipeline type work should be packaged separately from the facilities work. In reviewing the above table the current funding scenario would fall in line fairly well with the currently planned packaging of the project with one exception. The one area that creates concerns is the timing of Segment 1 and Segment 2 of the transmission line work. Based on this information there are two phasing/packageing approaches that can be pursued as follows:

Phasing/Packageing Approach 1: Under this approach the original 6 design packages would be developed as originally planned. Package 4 (Transmission Piping Segments 1-4) would be bid together, however the contract documents would make it clear to the contractor that

sequencing of the project should include construction of line segments 3 and 4 first based on funding availability. The disadvantage of this approach is that we would be dictating the schedule of installation for the contractor to build the lines and the prices bid would need to be held for the sections to be built in future years. This could cause the contractor to inflate the unit prices for the piping to guard against material price increases in future years. To the contrary, should material prices reduce in future years, the COG would not benefit from these savings. Furthermore for this particular project, it is our understanding that the COG will not be able to bid projects for which funding has not yet been allocated for through the State Legislature. This would be the key flaw in this approach.

Phasing/Packaging Approach 2: Under this approach our team will divide Package 4 (Transmission Piping) into two separate bid packages. Package 4a would consist of the design for Segments 3 and 4 of the Transmission Piping and would be bid with the initial funding that is available as noted in the above table for 2013-2014. Package 4b would consist of the design for Segments 1 and 2 of the Transmission Piping and would be bid with the funding as it becomes available in 2015-2016 as noted above. Under this approach we would not be directing the schedule to the contractor and they would be allowed to sequence the construction as they deem cost effective for their operations.

Conclusions

If the funding for the GMPP project becomes available as estimated by the City in the above table, it is our recommendation that **Phasing/Packaging Approach 2** would provide the most benefit to the COG/WWDC. This would provide the cleanest approach to bidding the project as it will allow for the contractor to sequence their construction in a way they see most efficient and to bid on materials based on current market conditions at the time the project is to be built. It will also comply with requirements of the State Legislature for bidding projects only once funding has been allocated.

The design of all packages is currently on-going and scheduled to be completed in July 2011. An amendment has been added to project which includes the design of the blending facility with associated piping, the hypochlorite facility and domestic waterline from the end of the disinfection zone to the Madison Pump Station. The following table lists the packages and the estimated date of design completion.

Design Package

Design Completion	Design Package
July 2011	P1 – Wells
	P2 – Well Field Piping
	P3 – In-Town Piping
	P4 – Transmission Piping Segments 1, 2, 3 & 4
	P5 - Donkey Creek Pump Station
	P6 – Pine Ridge Storage Facility
	P7 – Hypochlorite Facility
	P8 – Blending Waterline and Facilities
	P9– Domestic Waterline (end of the disinfection zone to Madison Pump Station)

Construction will be dependent on funding as it becomes available. The City's priorities for construction are indicated in the following table with the estimated date of bid with consideration for current funding predictions.

Bid Year	Construction Package
First Priority Summer 2011	P1 - Wells
	P2 - Well Field Piping
	P3 - In-Town Piping
2nd Priority 2012	P4a -Transmission Piping Segments 4
	P6 – Pine Ridge Storage Facility (Tank or Clearwell)
	P7 – Hypochlorite Facility
3rd Priority 2014	P4b – Transmission Piping Segments 1, 2 & 3
	P5 - Donkey Creek Pump Station and Pine Ridge Hypochlorite Facility
	P8 – Blending Waterline and Facilities
	P9 – Domestic Waterline (end of disinfection zone to Madison Pump Station)

Finally, it should be emphasized that if funding becomes available earlier than anticipated, it is in the best interest for the COG to construct the packages as soon as possible. This is evident in the estimated phasing table above when comparing the 2007 dollars required for construction to numbers adjusted for inflation for future year construction. The COG will benefit by reducing their exposure to inflation and will receive a better value for their funding. It will be important to revisit this Technical Memorandum as the project proceeds and additional information is known regarding the allocation of funding.