

Summary Review of the SFPUC's WSIP Program

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Over the past year I have reviewed various documents and discussed the Water System Improvement Program with key officials of the San Francisco Public Utilities Commission. Most recently I reviewed the SFPUC's February 2005 WSIP report, and two Parsons assessment reports, one released on October 3rd with a \$5.2 billion estimated budget and a subsequent report released on October 7th with a \$4.3 billion estimated budget. I have also participated in workshops with Parsons and PUC staff as Parsons conducted its independent assessment.

On that basis of the information I have reviewed, I have very serious concerns about the ability of the PUC to complete the Program on time and within budget.

First, environmental and organizational issues present major flaws in the Program's current plan. For one thing the PUC assumes that there will be no legal challenges to the PEIR. This is highly unlikely. Even though it very difficult to forecast the timing, extent, and disruption caused by such challenges, some budget and schedule contingences should be included for such. Neither the PUC nor Parsons has used any of the risk analysis techniques that are available to analyze such risks and estimate appropriate contingency factors.

The current lack of environmental consultants and the fact that responsibility for environmental reviews is bifurcated between the MEA and the PUC are serious threats. This was clearly recognized by Parsons. Ms. Leal acknowledges the importance of this issue in her cover letter and indicates that steps are being taken to resolve such concerns. It is my hope that she is successful in this regard because both these problems present huge risks to the Program, which will threaten its timely execution, and in turn have life safety and budget consequences.

Serious technical questions also exist, such as whether the PUC has properly identified the best project scopes. In its February 2005 WSIP the PUC defined projects to be at certain stages of design; e.g. Pre-planning, Alternative Analysis Report, Conceptual Engineering, etc. Parsons has evaluated those scopes and recommended that eight of the 34 regional project scopes be reset to less-advanced stages of design. The San Joaquin Pipeline project, as one major example, has been reset to the Advanced Analysis stage from the Conceptual Engineering stage. These eight projects represent more than 35% of the budget for the regional projects. At a minimum this means the project scopes and, hence the overall Program budget and schedule are less reliable than was earlier represented by the SF PUC. The Parsons budget and schedule do reflect the recommended resets.

This stage-of-design issue is important for another reason. At each of these stages, an estimate contingency is assigned. For instance, at the Pre-planning level Parsons recommends

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increasing the Engineer's Estimate by 25 to 40%. Though within industry standard, the ranges that Parsons uses are optimistic as can be seen in the following table:

Estimate Stage	% Design Complete	AACE ²	Parsons 8/15/05 Tech Memorandum	Parsons 10/05 recommendation
Pre-planning	0 to 2	- 75 to +100%	+ 40 to 50%	+ 25 to 40%
Alternative Analysis Report	1 to 5	+/- 50%	+ 30 to 40%	+ 25 to 35%
Conceptual Engineering	10 to 40	+/- 30%	+ 20 to 30%	+ 15 to 30%
Midpoint of Design	30 to 60	+/- 20%	+ 10 to 20%	+10 to 20%
Bid & Award	50 to 100	+/- 10%	N/A	0%

Another technical concern I have is with Parsons' analysis of the San Joaquin Pipeline system and Bay Division Pipeline #4 sliplining projects. In its October 3rd report, Parsons discussed one scope option for each of these projects and forecast the total project costs to be \$987 million and \$244 million, respectively. Four days later, Parsons issued a revised report in which they offered a "minimum cost" option for each of these two projects. Adoption of these two "minimum cost" scope options would reduce the Program costs from \$5.2 to \$4.3 billion, in Parsons' opinion. However the details of those scope options and their costs estimates are not thoroughly or clearly discussed in the Parsons report, so it is impossible for me to assess their credibility. I was also not able to discern which of the two scopes for each of these two projects Parsons believes is the best project alternative, which was one of the questions Parsons was to have addressed.

The Program management costs, annual escalation rates, and construction contingencies used by Parsons are within a standard of practice.

The PUC and Parsons schedule forecasts are relatively similar in terms of the overall Program's projected end-date: the PUC expects June 2016, and Parsons estimates November 2015. Both schedules are optimistic. They both assume that "all resources, financial and human, are available or will be available, when required. The human resources include not only SFPUC staff, but all the staff required from other departments in the City, including the City Planning Department."³ This, of course, is a key assumption, for the "organizational bifurcation" reasons discussed above.

Another scheduling concern is the lack of discussion by either the SFPUC or Parsons about the advantages and disadvantages of shifting project starts to achieve earlier realization of Level of Service goals. Since some projects have more seismic benefit, it may be prudent

² American Association of Cost Engineers, a professional organization devoted to the study and promulgation of cost estimating standards.

³ Parsons Oct. 7th report, p. 7-28

form a public safety perspective to advance those projects. Without such further analysis we cannot determine if the proposed Program is meeting LOS goals.

A final schedule concern is that the impacts associated the SJPL and BDPL sliplining “minimum cost options” were not evaluated by Parsons.

The financing costs will be a substantial portion of this Program’s cost, 21%. In its October 3rd report, Parsons said that reviewing the financing was outside its scope of work. So it reused the \$753 million estimate that was in the SFPUC’s February WSIP report, despite the Program costs being \$837 million (\$4.4 vs. \$3.6 billion) higher. Then in its October 7th revision, Parsons inexplicably used different financing numbers: \$747 million (16.9%) for the higher cost Program and \$596 million (16.6%) for the “minimum” option. If the original 21% financing cost factor were to be used, Parsons cost estimate would be about \$182 million higher than reported.

For these reasons, I am convinced that the SFPUC’s February 2005 WSIP plan is fatally flawed. Though the Parsons report is a substantial improvement over the February SWIP, I am not convinced that the Parsons vision can be achieved in terms of the expressed scope, schedule, and budget objectives.

I believe that further analysis and discussion addressing the questions raised above are warranted, particularly the City organizational, two project scope, and financing issues.