

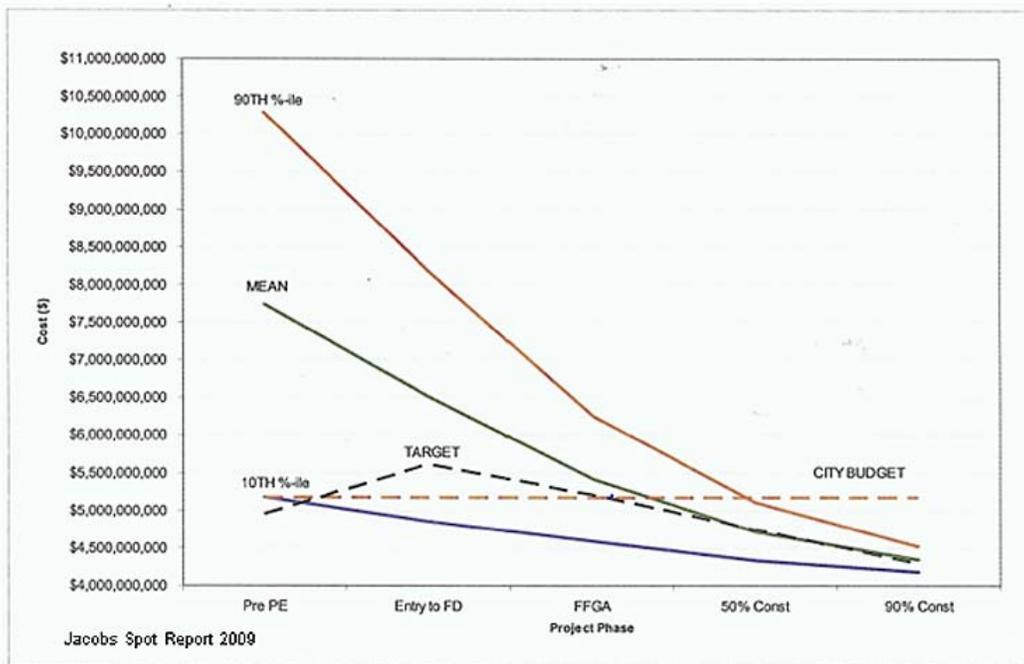
## The probability of rail transit coming in on budget

Based on what we had learned from the Federal Transit Administration's assessment of the probability of the New Jersey tunnel's final cost (see our November 2 post), we surmised that such probabilities may have also been calculated for the Honolulu rail transit project.

We therefore submitted a FOIA (Freedom of Information Act) request to FTA for any documents that discussed this issue. We received the documents<sup>i</sup> this past Saturday, which showed the FTA's calculations of the probabilities of Honolulu reaching its projected costs. These are revealed in their chart below. The chart is based on a \$5.1 billion construction cost, which excludes their anticipated \$0.4 billion in financing costs.

Basically, the FTA's risk assessment process is based on the fact that at the Pre-Preliminary Engineering (Pre PE) stage all costs are preliminary. The costs are further refined in the Preliminary Engineering, the Final Design (FD), and in the Full Funding Grant Agreement (FFGA) stages. As projects progress through these stages to actual construction, more often than not there will be an increase in projected costs as may be seen from Table 2.<sup>ii</sup>

Increases in projected costs, together with further refinement in the costing process, is expected to increase FTA's confidence in the new projected cost being closer to actual as-built cost.



Today, the Honolulu Project is midway between the Pre-Preliminary Engineering (Pre PE) and Final Design (FD) stages. The chart tells us that the FTA's estimation of probabilities is as follows:

- A 10 percent chance that that the Project will come in under budget.
- A 50 percent chance that the Project will come in under \$7.2 billion.
- A 90 percent probability that the Project will be built for less than \$9.3 billion and, of course, a 10 percent chance that it will exceed that amount.

However, we need to remind ourselves that for the FTA's last heavy rail project, the San Juan Tren Urbano line, the actual as-built cost was 74 percent higher than the original Full Funding Grant Agreement projection (see last line of Table 2).

At the Full Funding Grant Agreement stage Honolulu will receive, for the first time, a firm commitment from the FTA on the amount of federal funding for the rail project.

Given the above considerations, it would be only prudent to assure ourselves of both the federal funding and a better grasp of what the as-built cost will be before beginning any construction.

In other words, know what we will actually get from this new U.S. House of Representatives, which has so far allocated to Honolulu no serious New Starts funding. Time will also allow a more rigorous study of the projected costs, which will emerge in the later stages.

**Table 2: Capital Costs for each Project, listed by as-built cost**

Project	Mode	Inflation-Adjusted Capital Cost (in Millions \$)				
		AA/DEIS/MIS (or PE Entry)	FEIS (or Final Design Entry)	Original FFGA	Final FFGA	As Built
Memphis Med Center LRT***	LRT	\$36.0	\$68.2	\$73.3	\$73.3	\$58.1
Metra UP West	CR	\$98.8	\$140.4	\$128.1	\$128.1	\$106.1
Baltimore Central LRT Double-Tracking	LRT	\$150.5	\$150.1	\$154.4	\$210.0	\$151.6
Metra SW Corridor	CR	\$178.7	\$217.7	\$191.0	\$191.0	\$185.3
Salt Lake City University/Medical Ext.*	LRT	NA	\$189.1	\$204.5	\$204.5	\$192.1
Newark Rail Link MOS-1	LRT	\$181.3	\$178.3	\$215.4	\$215.4	\$207.7
Metra North Central	CR	\$204.8	\$237.0	\$224.8	\$224.8	\$216.8
Sacramento South LRT (Phase 1)	LRT	\$201.6	\$205.1	\$219.7	\$219.7	\$218.6
Portland Interstate MAX LRT Extension*	LRT	\$803.8	\$310.6	\$321.5	\$321.5	\$323.6
Tri-Rail Double Tracking Segment 5	CR	NA	\$330.2	\$331.1	\$338.8	\$345.6
Pittsburgh Stage II Reconstruction*	LRT	\$400.7	\$400.7	\$363.2	\$363.2	\$385.0
Largo Metrorail Extension	HR	\$375.0	\$432.6	\$412.6	\$607.2	\$426.4
Dallas North Central LRT***	LRT	\$332.7	\$406.0	\$460.8	\$460.8	\$437.3
Chicago Douglas Branch	HR	\$441.7	\$477.7	\$473.2	\$473.2	\$440.8
Mission Valley East LRT Extension	LRT	\$386.6	\$386.6	\$426.6	\$426.6	\$506.2
South Boston Piers Transitway - Phase 1	BRT	\$398.3	\$477.3	\$457.4	\$600.2	\$600.2
Hiawatha Corridor LRT**	LRT	\$243.7	\$540.6	\$512.9	\$708.4	\$696.7
Denver Southeast Corridor***	LRT	\$585.0	\$870.4	\$867.8	\$867.8	\$850.8
BART Extension to SFO***	HR	\$1,193.9	\$1,230.0	\$1,185.7	\$1,483.2	\$1,551.6
Hudson-Bergen MOS 1 & 2***	LRT	\$930.4	\$948.5	\$1,842.0	\$2,172.0	\$1,756.2
Tren Urbano	HR	\$1,085.6	\$1,309.2	\$1,280.6	\$1,638.0	\$2,228.4

\* These projects had significant scope changes that reduced the total length of the projects by more than half between AA and actual construction so the AA/DEIS cost estimates for Portland, Salt Lake City, and Pittsburgh are not included in the summary analysis.

\*\* The Hiawatha LRT project conducted AA in the early 1980s when the cost estimate reported in the AA column was developed and the LRT alternative chosen as the LPA. The project was not pursued until the late 1990s when it finally applied to enter PE.

\*\*\* These projects had scope and design changes during project development that had an effect on the as-built costs, but the mode and general alignment of these projects remained consistent throughout project development. These projects are included in the summary analysis.

i FTA PMOC program Contract No. DTFT60-04-D-00015 CLIN 0005: Jacobs Spot Report. July, 2009.  
 ii [The Predicted and Actual Impacts of New Starts Projects. FTA. April 2008.](#)