




MEMORANDUM

EUGENE WATER & ELECTRIC BOARD
GENERAL MANAGER'S DIVISION

Rely on us.

TO: Commissioners Menegat, Simpson, Lanning, Farmer, Brown
FROM: Ken Beeson 
DATE: July 20, 2007
SUBJECT: Roosevelt Building Project Budget Revision

Issue Statement.

On July 24, staff will request Board authorization to 1) revise the current Roosevelt Project budget, and 2) proceed with schematic design for the project.

Background.

On July 17, staff reviewed with the Board two possible budgets for the project:

- an \$80 million base budget estimate intended to reflect the most economical development that meets the functional requirements of the water and electric utilities; and
- an \$84 million budget estimate that provides, in addition to the development features of the base estimate, 1) incorporation of the original site design (approximate cost of \$2.3 million) and 2) provision of additional energy and efficiency measures in the buildings (approximate cost of \$1.7 million).

The staff recommendation was for Board approval of the \$84 million budget on July 24.

Following discussion, the Board asked for additional justification for the proposed additions including cost benefit analysis related to the energy efficiency additions. In addition, Commissioner Farmer requested more information on some of the suggestions made by the contractors in the 3rd party review.

This memo provides, for Board consideration, this additional justification, analysis and information. Also provided here is a final recommendation for Board approval to revise the project budget and allow staff to proceed with design and completion of an estimate that can be used for project financing in early 2008.¹

Discussion.

Justification for Additions to the Base Project Estimate. The two proposed additions to the base project budget

¹ I would note that substantial explanatory and support information related to the Roosevelt Project and the July 24 recommendation is contained in a Board memo dated July 11, 2007 ("*Roosevelt Project Review*") and a paper attached to a June 15, 2007 Board memo ("*Roosevelt Building Project 3rd Party Review*") that provides a detailed description of the current conceptual design and estimate for the project.

estimate (incorporation of the original site design and provision of additional energy efficiency measures in the buildings) are briefly reviewed below and were assembled with the following assumptions:

- Whether taken together or viewed separately, the additions are not intended to add substantial cost to the base budget estimate;
- Attributes for the additions are intended to directly support EWEB values and mission with respect to sustainability energy and water conservation, community and cost effectiveness; and
- Attributes for these additions are intended to help enhance and support the LEED certification goals for the project.

ADDITION #1. INCORPORATION OF THE ORIGINAL SITE DESIGN (estimated additional cost \$2.3 million). The current conceptual design and base estimate assumes the buildings and yard will be located centrally in the site, a portion of the berm will remain, and site improvements beyond the yard and building development will be limited. Addition #1 would allow us to incorporate the original site plan (buildings and yard in southeast portion of property, on-site wetlands mitigation and restoration, overall site landscaping, etc.).²

Beyond an initial savings in the estimated payment into the wetlands mitigation bank (detailed below) it is hard to determine hard cost benefits related to completing this development using the original site design. Staff justification and support for spending this additional money is based on the following:

- *Wetland restoration on site.* A direct cost benefit for using the original site and restoring a portion of the wetlands on site is approximately \$260,000.³ On site restoration of wetlands also provides a good example to the community and to the permitting agencies on how this type of property can be developed when wetlands are impacted. Restoring wetlands in this location helps maintain these land features throughout the community where practical.
- *Increased detention of storm water on site.* There is not a hard dollar benefit to apply here. With on-site wetland mitigation and related site improvements, the original site plan (as compared to the conceptual plan) will allow for longer detention of storm water on site resulting in a slower release into the public storm water system. The net effect is less impact on the public system, particularly during heavy rain periods. Storm water discharge charges are not affected since total expected discharge is not changed.
- *Substantial improvement of site appearance and environment.* Proceeding with the conceptual design will mean a significant portion of the undeveloped part of our site will remain untouched and unimproved. With the original site plan, we will substantially improve the overall appearance of the entire property. Blackberries and other invasive plants will be removed and the entire log pond berm will be removed or relocated.
- *More effective and efficient site security.* The conceptual site plan will leave the southern portion of the property unimproved as well as a portion of the berm in place, with reduced ability for EWEB to supervise and secure. The original site plan will allow for increased security.
- *Increased property value.* Although we don't intend to sell the development after it is complete, staff believes we can assume the \$2.3 million spent (less than 3% of the total development cost) to improve the site would add to the overall value and could be recovered in any sale.
- *Possible additional LEED points related to site sustainability and water efficiency.* Point areas of the

² This proposed addition includes asphalt instead of the concrete pavers assumed in the original design. Use of concrete or concrete pavers adds approximately \$2 million additional dollars and is not, in the opinion of the design team, as high a priority at this time as the other measures.

³ The EWEB site (52 acres total) has approximately 25 acres of "developable wetlands". As such, we are required to mitigate for any wetlands we impact. Under current design assumptions using the original site, we expect to impact about 16 acres of wetlands. We expect with the original site design to restore about 5 acres on site and purchase about 11 acres in a wetland bank; if don't use the original site design, we would expect to purchase 16 acres through the bank.. That 5 acres difference yields a savings of approximately \$260,000.

LEED evaluation that could possibly apply include: storm water design (quantity and quality control), site development (protect and restore habitat), and innovation in design (storm water detention).

ADDITION #2. PROVIDE ADDITIONAL ENERGY EFFICIENCY MEASURES FOR THE BUILDINGS. As discussed previously, certain sustainability features were scaled back or eliminated as part of the effort to meet cost reduction goals.⁴

Staff advised the Board (in the July 11 memo and on July 17) there were some possible energy measures that could be added back that would improve building operation efficiencies and comfort and will also help enhance and support the LEED certification goals for the project. These possible measures⁵ included:

- additional insulation in the Operations and Engineering Building;
- additional glass in the Operations Building (~4000 square feet);
- use of higher quality glass in all buildings;
- use of more efficient cooling equipment (chillers);
- use of more sophisticated controls for all heating and cooling equipment; and
- additional shading devices for the south facing portion of the Operations Building.

Staff advised that incorporation of additional efficiency measures was estimated to add approximately \$1.7 million to the total project cost. Staff also advised these measures have measurable payback and also increase local (EWEB), state and federal conservation incentives.

After completing a careful analysis of potential payback, I have determined the total expected net present value cost savings from energy savings and credits associated with potential measures are approximately \$1.2 million, which is \$500,000 less than the \$1.7 million I was requesting in the July 11 memo. As a result, I want to adjust the proposed budget revision from \$84 million down to \$83.5 million. That analysis is included here as Attachment A.

The \$1.7 million amount was developed by me in consultation with the consulting engineers, architects, and the contractor. We defined the range of possible measures (listed above) that would be needed to go from LEED Silver to LEED Gold, adjusted our conceptual estimate of direct construction costs (mechanical, electric, structure, glass, etc), and added necessary overheads. We did not run specific estimates for specific measures since we have not completed any design work.

There are other benefits (beside energy savings and credits) associated with investment in some of these measures (more glass, more skylights, more efficient HVAC equipment, more insulation, more sophisticated equipment controls) that are related to long term operation and maintenance as well as employee productivity, comfort and health. I have not tried to quantify those benefits in this analysis and, instead, I've focused on the "hard numbers".

⁴ A number of these features (added glass and a central "spine" with clerestory in the Ops building, natural ventilation, green roofs, rainwater recycling, ventilation "chimneys" (Fleet building), added insulation, more sophisticated controls for heating/cooling equipment, etc.) were either scaled back or eliminated when we made reductions in the building size and structural assumptions in an effort to meet cost reduction goals. It is also important to note here that these particular reductions were a relatively small part of the overall reductions that were made. Most of the reduction came from reducing the combined building space by approximately 30,000 square feet (15%) and by utilizing concrete tilt and pre-fab construction instead of structural steel and concrete.

⁵ Staff also advised that energy modeling during the design phase would help us define these measures more specifically and refine their application to determine how to most efficiently and effectively increase energy efficiency.

Additional information requested by Commissioner Farmer regarding 3rd party review suggestions. On page 3 of the July 11 Board memo, I noted the contractors had made some suggestions regarding possible reductions in the estimate, including:

- review alternatives for disposal of the on-site berm (portion);
- review conceptual design assumptions on thickness of asphalt and try to reduce;
- review conceptual design assumptions on where paving is required and/or where certain paving thicknesses are required;
- review whether two heating systems (overhead indirect and radiant floor heating) are required in the Fleet Building; and
- review whether crane installations planned in the Fleet Building can be accomplished more efficiently.

I also noted I don't think additional reductions in the conceptual estimate should be made at this time in response to these suggestions, but, rather, we should review these suggestions during design when we review all assumptions and requirements for the project.

Commissioner Farmer requested more information about the magnitude of savings associated with these suggestions. To answer that request, I have tried below to assess savings we might achieve if these suggestions were incorporated.

- Possible cost savings associated with alternatives to berm disposal: (rough estimate) approximately \$200,000 - \$500,000. The base estimate assumes removal of a portion of the berm and disposal off site. Alternatives include removing less berm, and disposing on site. Options for on-site disposal include using some portion of the berm as fill under the developed portion of the site and piling it on site. We aren't sure enough at this time of the quality of the material to be certain we can use it as fill. Piling it on site would probably mean impacting additional wetland and costing EWEB additional wetland bank fees. We plan to look for every opportunity to dispose of the berm material as cost effectively as possible, but more design review is needed to find those opportunities.
- Possible cost savings associated with reducing thickness of asphalt: approximately \$400,000. The contractors suggested we consider installing 4-1/2 inches of asphalt instead of the 6 inches we are currently assuming. Our civil engineer and contractor continue to recommend 6 inches. Further evaluation is needed before any reduction is made.
- Possible cost savings associated with alternatives to consistent paving in all parts of yard: approximately \$100,000 - \$200,000. This involves such things as considering gravel where there would be certain equipment (i.e., poles, boxes) stored and no driving would occur. Another aspect would be looking at less thickness of asphalt where there was less expected traffic impact. More detailed design will allow evaluation to determine what approach(es) might be possible and feasible.
- Possible cost savings associated with using only one heating system in Fleet: approximately \$20,000. Our concept assumption has been that a combination of indirect overhead heat and radiant floor heat would be most efficient and also provide best working conditions for personnel spending time on the floor or under vehicles. Evaluation during design will allow us to determine most efficient approach.
- Possible cost savings associated with alternative crane installations in Fleet: approximately \$25,000. The conceptual design assumption is there will be at least two cranes in the Fleet building; having multiple cranes provides operation and maintenance efficiencies Fleet personnel believe are needed. We can evaluate further during design although my current assumption, based on numerous discussions with Fleet personnel, is that the multiple crane approach should be maintained.

It is important to reiterate the design team does not think we should adjust the current budget proposal in response to these suggestions; rather, we should evaluate them during design when we can use the appropriate expertise for formal evaluation and make the most cost effective decision for EWEB.

Conclusions.

If you have a chance, please review the conclusions offered on page 6 – 7 of the July 11 Board memo.

In addition to those, I would briefly emphasize the following points:

- The recommendation on July 24 will be for Board authorization to revise the project budget to \$83.5 million (as described above) and let us proceed with the next step of design. We are not requesting project approval or approval for financing.
- With Board approval on July 24, we will complete schematic design by the end of this year and bring the Board another estimate for approval for use in the financing process. That estimate will not exceed the \$83.5 million project budget.
- As mentioned previously, the two proposed additions (original site and energy efficiency measures) are not intended to add substantially to the base project budget. They are in response to requests from various Board members who have asked to consider the original site and also what would be needed to reasonably assume LEED Gold as a target.
- Finally, I want to assure the Board that I and the design group will continue to make every effort to design and construct a Roosevelt Operations and Engineering facility that 1) meets EWEB's electric and water utility functional requirements; 2) is completed on schedule, and 3) is completed within the established project budget.

Recommendation/Requested Action.

Staff recommends Board authorization 1) to revise the current Roosevelt project budget from \$72 million to \$83.5 million; and 2) to proceed with the schematic design and preparation of a project cost estimate that can be used in early 2008 for the project financing process.

Please contact me if you have questions.

Attachment

revised: July 19, 2007
Roosevelt Building Project

ATTACHMENT A

Energy Efficiency Measure Cost - Benefit Analysis

Building Energy assumptions	Square Feet	KW / Sq Ft	KW (Connected)	Est KW Demand (45% of Connected)	Annual Energy (KWhr)	KWhr Savings (25% more efficient)	Parametric Gas Analysis (therms)	Expected gas savings (20%)
Operations and Engineering Building	108,620	0.0160	1,738	782	1,994,263	498,566	57,906	11,581
Warehouse	20,000	0.0160	320	144	367,200	91,800	10,788	2,158
Fleet Building	20,000	0.0160	320	144	367,200	91,800	11,055	2,211
Totals	148,620		2,378	1,070	2,728,663	682,166	79,749	15,950

year	NPV	1 2011	2 2012	3 2013	4 2014	5 2015	6 2016	7 2017	8 2018	9 2019	10 2020	11 2021	12 2022	13 2023	14 2024	15 2025	16 2026	17 2027	18 2028	19 2029	20 2030	21 2031	22 2032	23 2033	24 2034	25 2035
Costs (notes)																										
1 Energy Efficiency Improvements	\$ 1,700,000	\$ 1,700,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total costs	\$ 1,700,000																									
Savings																										
2 KWhr savings (annual)		682,166	682,166	682,166	682,166	682,166	682,166	682,166	682,166	682,166	682,166	682,166	682,166	682,166	682,166	682,166	682,166	682,166	682,166	682,166	682,166	682,166	682,166	682,166	682,166	682,166
3 Avoided Power costs	\$ 0.06457	\$ 0.06683	\$ 0.06917	\$ 0.07159	\$ 0.07410	\$ 0.07669	\$ 0.07937	\$ 0.08215	\$ 0.08503	\$ 0.08800	\$ 0.09108	\$ 0.09427	\$ 0.09757	\$ 0.10098	\$ 0.10452	\$ 0.10818	\$ 0.11196	\$ 0.11588	\$ 0.11994	\$ 0.12414	\$ 0.12848	\$ 0.13298	\$ 0.13763	\$ 0.14245	\$ 0.14743	\$ 0.15262
4 NPV electric savings (8.93% discount)	\$ 585,276	\$ 44,047	\$ 45,589	\$ 47,185	\$ 48,836	\$ 50,549	\$ 52,315	\$ 54,144	\$ 56,040	\$ 58,005	\$ 60,031	\$ 62,132	\$ 64,308	\$ 66,559	\$ 68,888	\$ 71,300	\$ 73,795	\$ 76,378	\$ 79,051	\$ 81,818	\$ 84,682	\$ 87,645	\$ 90,713	\$ 93,888	\$ 97,174	\$ 100,575
5 Business Energy Tax Credit (BETC)	\$ 165,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
6 EWEB Incentive Payment	\$ 150,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
7 Gas Savings (therms)	15,950	15,950	15,950	15,950	15,950	15,950	15,950	15,950	15,950	15,950	15,950	15,950	15,950	15,950	15,950	15,950	15,950	15,950	15,950	15,950	15,950	15,950	15,950	15,950	15,950	15,950
8 Gas Rate (\$ / therm)	\$ 1.37	\$ 1.42	\$ 1.48	\$ 1.54	\$ 1.60	\$ 1.67	\$ 1.73	\$ 1.80	\$ 1.87	\$ 1.95	\$ 2.03	\$ 2.11	\$ 2.19	\$ 2.28	\$ 2.37	\$ 2.47	\$ 2.57	\$ 2.67	\$ 2.78	\$ 2.89	\$ 3.00	\$ 3.12	\$ 3.25	\$ 3.38	\$ 3.51	\$ 3.65
9 NPV gas savings (8.93% discount)	\$ 303,990	\$ 21,852	\$ 22,726	\$ 23,635	\$ 24,580	\$ 25,563	\$ 26,586	\$ 27,649	\$ 28,755	\$ 29,905	\$ 31,101	\$ 32,346	\$ 33,639	\$ 34,985	\$ 36,384	\$ 37,840	\$ 39,353	\$ 40,927	\$ 42,565	\$ 44,267	\$ 46,038	\$ 47,879	\$ 49,795	\$ 51,786	\$ 53,858	\$ 56,012
10 Energy Trust of Oregon (natural gas)	\$ 13,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Savings	\$ 1,217,266																									

Notes

- 1 Estimated additional cost (direct construction plus all overheads) for energy efficiency measures described in the July 11 Board memo and discussed at the July 17 Board meeting.
- 2 Estimated annual energy savings obtained by increasing building efficiencies by 25%.
- 3 EWEB avoided power costs provided by EWEB Finance for use in this analysis; use of these costs for this purpose is consistent with other EWEB project cost evaluations.
- 4 Net present value calculation of energy cost savings over 25 year period beginning in year 1 of expected building occupancy.
- 5 Business Energy Tax Credit expected from installation of efficiency measures.
- 6 EWEB conservation incentive payment expected from installation of efficiency measures.
- 7 Estimated annual natural gas savings obtained by increasing building efficiencies by 25%.
- 8 Estimated rate for natural gas escalated at 4% per year.
- 9 Net present value calculation of natural gas cost savings over 25 year period beginning in year 1 of expected building occupancy.
- 10 Energy Trust of Oregon incentive related to natural gas expected from installation of efficiency measures.