

Water Bureau

Current Construction Activities?

Kelly Butte status – We are negotiating the construction contract – the contractor has been selected and we are negotiating costs. We are preparing to install fencing and erosion control and doing contractual administrative activities under the PTE contract. These early activities demonstrate that construction started July 1, 2012 according to our approved compliance schedule.

- Washington Park – Construction is anticipated to start in 2016 to meet the compliance schedule. We have been conducting planning studies. Planning review looked primarily at the geotechnical issue of whether it's feasible to build on-site or if we should build elsewhere. We anticipate hiring a design consultant by Jan 1, 2013 and submitting land use review application by Jan 1, 2014. It's anticipated to require a Type IV Land Use Review since the floor of the reservoir will be removed to build a new reservoir inside the footprint. We assume 24 month land use review process. We need at least 6 months after the land use is approved to finish the design and obtain permits before we can start construction. According to the compliance schedule, construction starts July 1, 2016.
- Tabor Adjustments – No construction at this time. The current project includes only the work necessary to comply with LT2. Complete pipe replacement is being deferred to future years. This project has a budget of \$7 million and is anticipated to be constructed in two phases – phase 1 is the Division Street Piping and phase 2 is work onsite at Tabor. Division Street piping can be added to an existing contract by change order or bid as separate project. Design is 95% complete. Phase 2 design has not started.

Existing Contractual Obligations related to LT2 work?

- Kelly Butte – we have contractual obligations to MWH for construction services (engineer of record and observations); contractual obligations to Hoffman for their PTE contract and construction GMP contract.
- Washington Park – we have no contractual obligations
- Tabor Adjustments, phase 1 (Division Street Piping) – was designed in-house and has no contractual obligation. Division Street piping can be added to an existing contract by change order or bid as separate project. If done as change order, work can be awarded to a 100% MWESB firm.
- Tabor Adjustments Phase 2 (on-site work) – we have no contractual obligations if we design in house.

Contract Schedules?

(**Bold** dates are the OHA deadlines).

- Kelly Butte – **Construction start July 1, 2012**; Ordinance or Report to Council to accept GMP with Hoffman; Aug 22, 2012. Kelly Butte (existing) tank removal Sept-Oct 2012; site prep and excavation complete May 2013; reservoir construction starts Jun 2013; **reservoir operational Dec 31, 2014**; construction complete 2015.
- Washington Park – **submit signed plans and specs to OHA for review Mar 31, 2016**; **construction start July 1, 2016**; **Reservoir 3 replaced and operational Dec 31, 2019**; **reservoir 4 disconnected Dec 31, 2020**. This means we need to start design consultant selection process in Sept 2012; start design Jan 2013; start land use Jan 2014; hire CM/GC

contractor in 2014; finish design Jan 2016; obtain permits (about 6 month process); negotiate and sign GMP contract by Jun 1, 2016

- Tabor Adjustments phase1 – **submit to OHA 3/31/13; begin construction July 1, 2013;** add to change order or bid Sept 2012; Sign contract Oct 2012; order materials and start construction Oct 2012; complete construction Mar 31, 2015. Note - We need to submit modified schedule reflecting two phases to OHA for approval.
- Tabor Adjustments phase 2 - 100% plans and specs submit Dec 15, 2014; begin construction Mar 1, 2015; **reservoir disconnects at 1, 5, 6 – 12/31/2015;** construction complete Sept 30, 2016; Bid project (5 weeks) complete Oct 1, 2014; final design complete Aug 15, 2015; LUR Mar 1, 2013 to Mar 1, 2015. Note - We need to submit modified schedule reflecting two phases to OHA for approval.

How much money have we spent to date on PB2, KB, WP and Tabor Adjustment, what is the total costs; contrast with costs if we treat at Tabor Res 5 and at Washington?

- Kelly Butte – as of 6/30/2012 we spent \$6.3 million; total cost budget 78.2 million, 72.6 M in the current 5 year plan
- Washington Park – as of 6/30/2012 we spent \$0.72 million; total cost budget 61.1 million; 5 yr plan has \$37.7 million
- PB2 – spent \$41.7 million as of 6/30/12; 5 yr plan has \$98.3 million; total cost is \$129.9 million
- Tabor Adjustments – as of 6/30/2012 we spent \$0.34 million; total cost budget 6.4 million; 5 yr plan has \$5.6 million

project	Expenses as of 6/30/12 in millions	Amount in 5 yr plan in millions	Total project budget in millions
Powell Butte Reservoir 2	41.7	98.3	129.9
Kelly Butte Reservoir	6.3	72.6	78.2
Washington Park Reservoirs	0.72	37.7	61.1
Tabor Adjustments	0.34	5.6	6.4
Totals	49.06	214.20	275.60

High Level Analysis of Treatment at the Outlet

We looked at the "treatment at the outlet" option before the rule was finalized. After the rule became final and we had lost our legal challenge, we looked at the option again and gave serious consideration to whether or not treatment at the outlet makes sense and concluded fairly quickly that it does not.

While it is technically possible, it is not practical to treat at the reservoirs. The water in the open reservoirs is considered, for all intents and purposes under the rule, "raw water" that must be treated for crypto, Giardia and viruses. Meeting the requirements of the rule by trying to treat for Giardia and viruses with either chlorine or chloramines would require the building of enclosed storage facilities to allow for sufficient "contact time" for the disinfectants to do their work before the water enters into the distribution system. In order to meet the requirements of the rule by

using U.V., we know that we would have to build a treatment plant the size of the one we thought we might have to build at Bull Run if we had not received the treatment variance.

Why is that? Because treatment for Giardia and viruses would require a much higher dose of U.V. than for crypto alone. Assuming that it will cost us \$100 million to build a UV plant in Bull Run, our back of the envelope estimation is that it will take at least that much (times 2) to build two plants of similar size at Tabor and Washington Park. That ~\$200 million estimate does not include any of the following considerations:

- Where those plants would be built? We know that if land became available it would add to the ~\$200 cost of the U.V. plants.
- Cost of two new treatment plants does not include the cost of potential clear wells or storage tanks to ensure contact time. Those would add additional millions.
- In addition to the very significant capital costs to build two new treatment plants in town, we would have the O&M (operations and maintenance) costs of:
 - staffing two new plants,
 - maintaining and operating 115+ year-old reservoirs that are showing their age,
 - ongoing power costs for the plants and the pumping that would be required. U.V. consumes a significant amount of power and our "green" gravity fed system would require expensive pumping (right now 80% of our system is fed by gravity).