

Potential Impacts of the Reservoir Projects at Mount Tabor Park and Washington Park

1) What kinds of construction impacts will Mount Tabor Park experience if the Open Reservoir Replacement Project goes forward?¹

There will be a range of impacts on the environment, the surrounding neighborhoods, and the entire community including:

New Roads: Due to the location and nature of the Mount Tabor Butte site, heavy construction and demolition equipment is problematic. At least one large staging area will be necessary. To help facilitate large trucks and machinery, a new road has been proposed to travel up the wooded slope of the south side of Mount Tabor Park from Division Street through the historic Mount Tabor Yard and Nursery. Besides new road construction the project requires dynamiting the existing basins, hauling away the debris and excavated dirt from over fifteen acres of area now represented by Reservoir 5 and one half of Reservoir 6.

The construction of additional 8—10 feet wide access roads for maintenance vehicles is suggested. “Water Bureau staff will need vehicular access to each of the equipment hatches in the park. This includes the hatches on the reservoirs as well as the hatches to each of the vaults. Access will also be needed to each of the gatehouses and the pump station. Vehicular access is required to raise and lower heavy equipment into the reservoirs or vaults. Some facilities will need routine access (e.g., daily or weekly) while others must be accessed only occasionally (e.g., annually.) The construction material can vary depending on the location in the park (gravel, asphalt, widened sidewalks, grasscrete, or other similar surfaces.)”

Area of Potential Effect: While the area of potential effect may not yet have been determined, it will be sizable. Neighborhoods, streets, traffic, park visitors, flora and fauna will be powerfully impacted. Air and noise pollution will be issues. Already there is mounting concern over dust and other particulates not only affecting people’s homes but affecting the drinking water stored in the reservoirs that are slated to be kept on line throughout the project.

¹ Quoted information is taken from, *Limitations on Park Use with Below Ground Storage*, March, 2003 Reference # 1530105 Montgomery Watson Harza memo.

Threatened Historic Resources: Historic gatehouses, parapet walls, basins, fences and lampposts are irreplaceable and even those slated to be saved will be at great risk during demolition and construction activities. New road building will affect Reservoir I structures. Preliminary tank designs show disregard for the historic features in Reservoir 5.

2) What time frame is slated for the demolition and construction?

The construction time frame has not been clearly defined. Three to five years has been discussed. On the City of Portland Portland Maps website, construction dates are listed through 2012.

3) Do underground storage tanks at Mount Tabor Park make sense? -

No. Besides the heavy demolition and construction problems, the type of tanks that are to be constructed at Mount Tabor Park are problematic for the park site for a variety of reasons. some of which are:

Dirt Allowance Above Tanks: Without sizable cost increases related to structural upgrades, the huge concrete tanks will be built to accommodate 2 to 3 feet of dirt above them. Each additional foot of dirt over that depth will add 2 to 3% to the construction costs. In the consultant's document regarding Reservoir 5, this percentage would add \$550,000 to \$850,000 to construction cost. (It is unclear whether this amount represents a per tank increase as two tanks are slated to be built at that site.)

The tanks replacing Reservoirs 5 and 6 are on the southwest facing aspect of Mount Tabor butte. In the summer, this most hot and dry aspect coupled with the shallow soil, could cause a desertification effect severely limiting the types of plants that would thrive there.

Allowable Plantings Above Tanks: Plantings above buried reservoirs are already limited due to other considerations. "If gardens or other ornamental plantings are selected for the space above the reservoirs, consideration should be given to the use of pest-resistant plant species that minimize the need for herbicide and pesticide application above and around the buried reservoirs. Further, if plantings requiring periodic chemical application are selected, additional barriers must be added to the reservoir roof design to further enhance its watertightness. Any application of chemicals above the reservoirs must be reviewed and approved by the Water Bureau prior to application. Approval of its use would be contingent upon review of such issues as the requested coverage area, the chemical's mobility in soil and application method."

Any irrigation could prove problematic. The following is a quote from the June, 2003 minutes of a Mountain View, California city council meeting regarding a proposed buried reservoir: “For maintenance, City staff is investigating artificial turf due to a number of potential advantages. The artificial turf does not require watering, fertilizing or pest and weed control, thus saving on those expenses, eliminating the risk of contamination to the reservoir from these sources and facilitating State permitting. Also, artificial turf would eliminate drainage issues over the reservoir.”

“The Bureau will need unencumbered access to their buried facilities for maintenance and inspection. Trees and their root system can interfere with this access. Expansion of tree roots can also cause damage to concrete structures. Therefore, any large tree plantings should be kept a safe distance from the pipeline corridors and the area above and around the buried tanks. Small shrubs with shallow root systems would be acceptable plantings above the buried facilities.”

Allowable Structures Above Tanks: “The Bureau prefers that no permanent buildings that can not be readily removed or replaced be constructed above the reservoirs.” The reservoir roofs are designed to allow approximately 10,000 pounds of weight load. For this reason and for access reasons, “the Bureau prefers that no objects of sufficient weight to require structural enhancement be added over the roof. This would reduce costs, minimize risk of damage to the structure, and would prevent the need to remove the object if the buried reservoir needed to be accessed in this location.”

Vents, Hatches and Vaults Above The Tanks and Throughout the Park: Each tank will need two or more vents with an approximate size of 5 to 7 feet in diameter. Each buried reservoir will require at least two hatches with dimensions of 3 feet square and 3 feet by 12 feet for personnel and equipment. The vents and hatches themselves pose aesthetic problems and more importantly security issues will need to be addressed. Other vaults and hatches will be needed throughout the park to access pipes, valves and meters. These will also need to be secured.

4) Does a water feature (shallow reflecting pond) make sense as mitigation to the loss of the deep open water and other historical features of the reservoirs?

Water Deemed Essential to Any New Design: The views, reflections and feeling associated with the expanse and depth of the water in the reservoir

basins at Mount Tabor Park and Washington Park are integral to the park experience and the historic and cultural sites. When the Mount Tabor Neighborhood Association was first made aware of the Open Reservoir Replacement Project, the rumor was that the reservoirs would be covered but would look basically the same. As it became apparent that the original reservoirs would be demolished and reexcavated, replacing the water views were of primary importance in the neighborhood surveys and to the Public Advisory Committee and were incorporated into the Guiding Principles.

Maintenance Costs for the Water Feature Need Closer Scrutiny: Although the Water Bureau suggests that maintenance costs are a prime consideration for the burying of the reservoirs, we are not convinced that replacing the reservoirs with a water feature will reduce maintenance costs. In fact, costs may increase. Short and long term maintenance costs of reflecting pools are cause for concern due to budgetary instability. Numerous costs, including hidden costs, have not been delineated in the memo, Park Development Cost Estimate - Alternative to Restore Existing Conditions, November, 2002.

Increased Engineering Costs with Water Feature: A water feature will also increase engineering costs. "If a water containing feature is selected for construction above the reservoirs, special design requirements such as minimum roof and slab separation, adequate roof slope, drainage and water proofing must be incorporated into the reservoir and landscape design to safeguard the reservoirs from any leakage."

Water Features Above Reservoirs Are Potentially Problematic: Our research indicates that ponds above reservoirs have a variety of challenges that should be thoroughly explored before the City of Portland decides to invest in such a high-cost construction and maintenance project. Correspondence with the Water Bureau reveals that reflecting ponds will most likely prove unsatisfactory due to the inability of shallow water to provide the aesthetic appeal of deep water.

The problems associated with shallow ponds have been addressed elsewhere. A member of the Friends did visit the Eden Park reflecting ponds over Cincinnati's reservoirs. Photos and reports show troubled water with unsightly algae growth and reported leaking that could jeopardize the reservoirs below. The following is an excerpt from communication between a utility official and the City Council of Tukwila, Washington, regarding a reservoir/park project, "Mr. Harris reminded Council that the reservoir is watertight and to incorporate a water feature on top of the reservoir is

not appropriate with respect to public health standards.”²

5) Who will be responsible for any replacement water features associated with Mount Tabor Park?

There has been no information released regarding this issue. Currently throughout the city, the Water Bureau is the caretaker of most of the water features such as fountains. Maintenance problems have been mounting with a number of fountains and water features at other sites around the city. A most recent example is the closing of the Chinese Garden due to severe leakage of the pond. Reports show that the water feature problem has been very difficult to diagnose and very expensive to operate due to water loss. Portland Parks and Recreation is working with a budget with more than a \$100 million shortfall. Parks funding is tied to levies and has proved to be very unstable.

6) If the City of Portland moves forward with its plans for regionalization or the sale of the Bull Run system, how will this affect parks and open spaces where water works are located?

A news reporter posed this interesting question to the Friends of the Reservoirs and they were not able to answer. Currently, known water tanks and reservoirs exist at not only Mount Tabor Park and Washington Park but Powell Butte, Kelley Butte and other smaller open spaces throughout the City. The issues of land ownership are beginning to be addressed in other communities facing regionalization or privatization of their water supply.

7) Why were floating covers considered acceptable for the Washington Park reservoirs and recommended as one of the alternatives for the Mount Tabor reservoirs when the maintenance, sanitation and aesthetic problems associated with floating covers are well documented?

Perhaps the cost and the relative ease of installation encouraged the Water Bureau to pursue floating covers for the Washington Park reservoirs. However, the costs are deceiving as proper maintenance requires constant diligence and sizable capital. Installation requires drilling and other alterations to the historic reservoirs.

These types of covers are associated with a host of problems. They should not be placed over the reservoirs in either park. The California Department of Health Services has published a booklet entitled,

² Minutes of Tukwila, Washington City Council meeting, May 24, 1999

“Sanitary Assessment of Flexible Membrane Floating Covers for Domestic Water Reservoirs February 3, 1997. The report, “gives a general description of the sanitary defects and public health concerns associated with the use of flexible-membrane covers.” Some pages of this important report have been included and we have requested that you be provided with a full copy. The City of Portland and the State Health Department should be aware of the risks associated with these covers that are being promoted and installed in Washington Park.

The following are excerpts taken from a 2/1999 memorandum from the director of public works to the City of Manhattan Beach, California City Council regarding covering a reservoir there, “Floating covers have a history of maintenance problems and, as a result, have a higher potential for allowing contaminants to reach the water supply. The State Department of Health Services (DHS) has adopted a policy of not encouraging the use of floating covers.”

Choosing floating covers for any of Portland’s reservoirs illustrates a -lack of consideration and understanding of the significant resources represented- by the Washington Park Historic District. Floating covers are aesthetically inappropriate in a park or vista area and this point has been discussed by the Water Bureau in previous memorandums. The covers could arguably go against various established zoning codes for historic resources.

Subsection: Potential Impacts of the Reservoir Projects

Appendix

- A. *021/03/97*. "Sanitary Assessment of Flexible Membrane Floating Covers for Domestic Water Reservoirs," California Dept. of Public Health Service, Drinking Water Program.
- B. *02/1:3/99*. Memorandum, City of Manhattan Beach, to the Mayor and City Council, from Neil Miller, Director of Public Works.