SECTION 1

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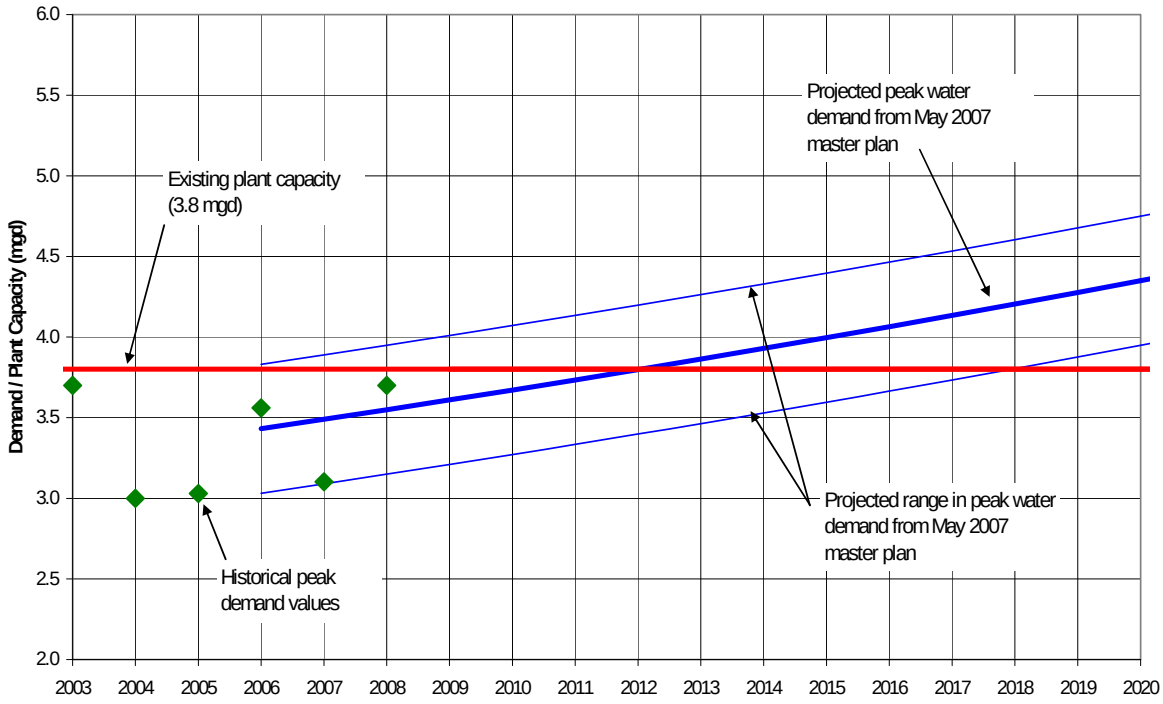
## Project Background

Lebanon's *Water System Master Plan*, completed in May 2007, documented the need for the city to replace the existing water treatment plant (WTP). Section 7 of the master plan indicates that the plant's maximum production is limited to approximately 3.8 million gallons per day (mgd). As illustrated in **Exhibit 1-1**, system demands in 2003 and again in 2008 have reached 3.7 mgd. Demands are expected to exceed the plant capacity of 3.8 mgd in the coming years. The range of peak demands that is illustrated in this figure reflects the variability that has occurred in recent years and that is projected into the future. Peak summer demands are weather-dependent. An especially hot and dry stretch during the summer results in demands that are on the high end of this range.

EXHIBIT 1-1
Projected Water Needs Compared to Existing Plant Capacity
*City of Lebanon Water Improvement*
*Lebanon, OR*



An expansion of the existing WTP was not recommended for the reasons that follow. Further, the existing WTP site is too small to allow for construction of a new plant on the same property.

- The pre-treatment clarifier basin (Accelator©) is nearly 60 years old. Deficiencies in existing parts resulting from corrosion have been identified.
- Two of the operating filters are at least 25 years old. This is approaching the range of typical design life. Parts are difficult to procure. Two filters already have been abandoned for structural reasons.
- Corrosion and weak spots in the filter gallery piping have been identified. Cleaning and repainting pipes to control corrosion will be costly and difficult, with limited long-term success. Replacing pipes or valves while the system operates also will be difficult.
- Crumbling concrete in the clearwell requires maintenance to prevent water from corroding underlying reinforcing material.
- Chemical systems, backwash and Accelator© waste handling, and clearwell capacity will need to be expanded to meet future demands. Space within current facilities is very limited and the overall WTP site is small. Expanding the WTP on the existing property does not appear to be feasible.
- Existing facilities lack redundancy, and clearwell storage volume is not large enough to provide water for a prolonged, unplanned shut down.
- Original filter controls are beginning to require maintenance. Parts from an unused control unit are salvaged to repair functioning units. New controls may be necessary in the near future.

The May 2007 master plan presented a supply development flowchart (Exhibit 10-3), that outlined a step-by-step approach for the city to evaluate and implement a replacement for the WTP. The early steps—evaluating the potential for obtaining water from river bank wells—have been completed with the conclusion that river bank wells in combination with a lower level of water treatment was not a viable alternative. The city is now implementing the next step of developing a conceptual design for a new canal or river intake and a new WTP.

## Scope of Current Project

The city plans to replace the existing WTP with a new plant having an initial capacity of 6 mgd, with expansion capability to an ultimate capacity of 14 mgd. The current conceptual design project consists of the following main elements:

1. Intake site selection and development of conceptual design for a new intake
2. Evaluation of potential WTP sites, including development of conceptual layout for a new WTP
3. Water treatment process selection

The project also considered transmission piping needs and finished water storage needs, two system components that influenced decisions about the WTP conceptual design.

The overall project goal was to develop a conceptual design for the intake, treatment plant, finished water storage, and transmission piping, and a cost estimate for the project so that the city could move forward with budgeting, design, and construction.

## Project Team

The preparation of this plan was a joint effort between the City of Lebanon and CH2M HILL. The following city individuals provided major contributions:

- Jim Ruef, Public Works Director
- Rob Emmons, Senior Engineer
- Dan Grassick, City Engineer
- Ron Whitlatch, Project Engineer
- Mike Trippet, Project Engineering

CH2M HILL's project team included the following:

- Paul Berg, Project Manager
- Sheryl Stuart, Project Engineering
- Mark Carlson, Water Treatment Engineer
- Tom Engleson, Water Treatment Engineer
- Bill Wagner, Site Evaluation
- Bob Gatton, Intake Evaluation
- Craig Massie, Project Delivery
- John Sams, Cost Estimator
- Ed Meyer, Cost Estimator
- Jennifer Henke, Hydraulic Modeling/Finished Water Transmission Pipeline Analysis
- Paul Swaim, Senior Reviewer
- Russell Ford, Senior Reviewer

The project team also included the following three independent reviewers:

- Melinda Friedman, Consulting Engineer, Confluence Engineering
- Dave Anderson, Public Works Director, City of The Dalles
- Chuck Kingston, WTP Supervisor, City of Hillsboro, Joint Water Commission