

To the Mayor and Members of the City Council

August 4, 2015

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**SUBJECT: WATER UTILITY MASTER PLANNING OVERVIEW**

The City's Water Department treats and distributes drinking water, collects and treats wastewater and distributes reuse water to Fort Worth retail and wholesale customers. The Water Department's capital projects are fully funded by revenues received from customer rates and fees for service as well as fees associated with new development. Capital project financing may include cash funding, revenue bonds, federal grants and low interest loans administered by the Texas Water Development Board. In the next five years, the Water Department plans to invest approximately \$725 million in capital needs, including \$151 million in fiscal year 2016. The primary elements of the capital improvement plan are divided into the following areas:

1. Growth
2. Rehabilitation and Replacement
3. Regulatory, Risk, and Reliability
4. Regional Initiatives
5. Operational Efficiency and Improvements

The Department's Capital Improvement Plan (CIP) is developed from a wide variety of sources, including condition assessments of existing assets, street replacement/rehabilitation programs, city/regional priorities and requirements, development agreements, regulatory action plans, and master planning documents.

In general, a master plan recommends specific projects necessary to meet future growth in customer base, geographical area, and levels of service. Often times a system model is developed and field calibrated as part of the master planning process. The model can then be utilized and updated by staff as conditions change in order to re-schedule and re-prioritize projects to reflect current conditions. Population projections are a collaborative effort between the North Central Texas Council of Governments and the City's Planning/Development Department. The planning strategies in a master plan are derived from the City's Comprehensive Master Plan. From documenting growth strategies to preparing for regulatory changes, a master plan helps a utility meet its future goals and expectations.

The following master plans have been prepared by the Water Department. Each of these master plans includes a listing of recommended projects as well as an implementation schedule.

- **Year 2005 Water Master Plan** – the 2005 water master is now ten years old and is in the process of being updated. The 2005 water master plan includes population, service area, and average and peak day demand growth projections for the water system through 2025. Strategies and projects are identified to improve service levels for specific areas of the water system. For the twenty year planning window from 2005 through 2025, a total of \$1.2 billion dollars of projects are identified. Examples of completed projects from this master plan include the following:

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- 54" water main from the Holly Water Treatment Plant to the Northside Reservoir
 - Rolling Hill Water Treatment Plant expansion from 160 MGD to 200 MGD
 - Eagle Mountain Water Treatment Plant expansion from 70 MGD to 105 MGD
 - Construction of the Westside Water Treatment Plant
- **Year 2012 Wastewater Master Plan and Short-Term Facility Plan** – this master plan updated the existing wastewater collection system hydraulic model, prepared a risk based assessment of the existing system facilities, and recommended projects to meet future capacity needs and system growth. This master plan includes population, service area, and wastewater flow projections through the year 2030. Projects identified for implementation as part of this plan are estimated to cost approximately \$811 million. Examples of large projects that are identified by this master plan and presently in design/construction include the following:
 - South Shore replacement trunk sewer pipeline
 - Casino Beach lift station and force main
 - Upper and lower Big Fossil Creek parallel relief sewer pipelines
 - **Year 2007 Reclaimed Water Priority and Implementation Reuse Master Plan** – the purpose of this study is to provide the Water Department with a plan that can be used to guide implementation of a direct reuse program to supplement future water supply. Four large reuse projects are identified as part of this plan, with the construction of the Eastern Reuse System being finalized in 2012. The Eastern Reuse System project currently serves portions of Fort Worth, Arlington, Euless, and DFW Airport.
 - **Year 2014 Biosolids Implementation and Long Term Master Plan** – the purpose of the Biosolids Master Plan is to develop a roadmap for biosolids handling at the Village Creek Water Reclamation Facility. The plan evaluates biosolids technologies and beneficial reuse in response to current and future challenges.
 - **Year 2010 Information Technology Master Plan** - the specific objective of this study is to prioritize IT projects based on business, financial, organizational and technical dependencies; identify resources required to ensure successful project delivery; and determine IT organizational structure, governance and staffing requirements to support IT-related initiatives.
 - **Year 2002 Comprehensive Vulnerability Assessment Report** – the purpose of this report is to ensure public health and safety in accordance with US House of Representative Bill 3448, the Public Health Security and Bioterrorism Response Act of 2001. The study has four objectives: i) prioritize mission critical facilities; ii) identify physical, chemical, biological and cyber threats to facilities; iii) recommend enhancements to the protections provided to the Department's critical facilities; and iv) provide costs for recommended security enhancements and develop a road map for implementing the security plan.

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Each of the master plans listed is a stand-alone document prepared by an Engineer and reviewed by Water Department staff prior to finalizing. As part of the CIP development, staff integrate master plan recommended projects with projects obtained from other sources. Prior to placement on the CIP, projects are subject to validation, including checking the assumptions used to justify the project compared with up to date information on development activity, growth patterns, and historical usage. Once incorporated into the CIP, a project is subject to further scrutiny prior to the funding year, including confirmation of the detailed project scope, project cost estimate review, schedule analysis, and verification of the funding source.

As a capital intensive industry, water utilities rely on master planning documents to plan for the future. With the growth forecast for Fort Worth, master plans are critical in determining the required infrastructure to support that growth along with the financial impacts to the utility. The Water Department relies heavily on master planning to ensure our ability to prepare for the future. Of the \$725 million worth of projects in the current five year Water Department CIP, approximately \$285 million worth of projects originated from the six master plans listed previously. In the future, the Water Department anticipates taking master plans to City Council for acceptance prior to implementation.

Please feel free to direct any questions you might have to John Carman, Director, Water Department at extension 8246.

David Cooke
City Manager