Long Range Water System Study Overview

October 20, 2008
City Council Meeting

Long Range Water Study

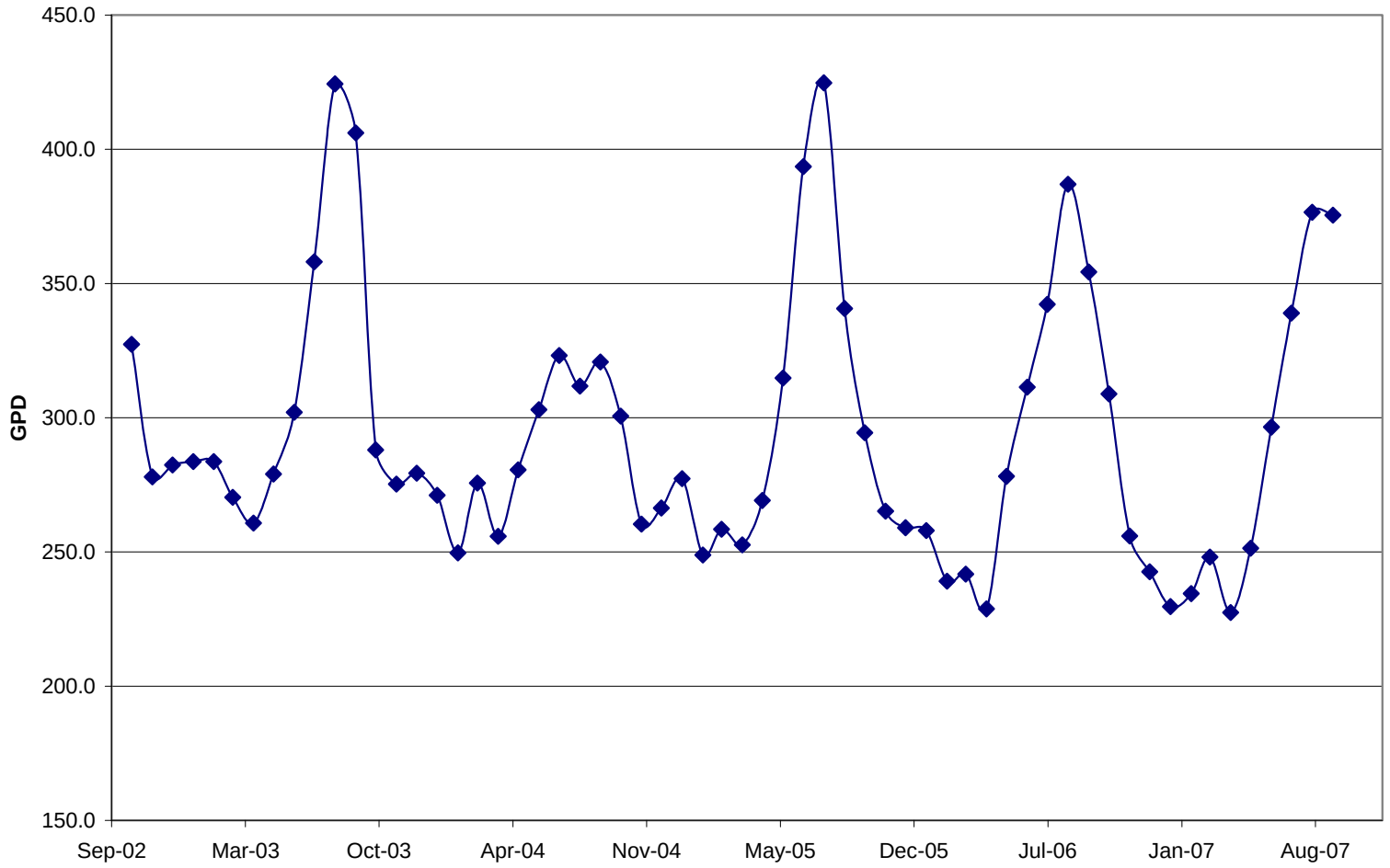
- Scope & Objectives
  - Historical Data Evaluation
  - Estimate Future Water Demands
  - Analyze 5-year CIP & Bond Issue
  - Analyze Future Improvements
  - Summary Report

Historical Evaluation

- Customer Growth (1997 to 2007)
  - Residential increase of 3.1%
  - Commercial increase of 5.5%
- Trends
  - Per customer usage has decreased

Trends for All Customers

Average Daily Consumption per Customer by all Customers



Current & Future Water Production

Year	Current Average Day MGD	Current Peak Day MGD	Future Average Day MGD	Future Peak Day MGD
2002	12.45	19.09		
2003	13.07	21.35		
2004	12.79	17.52		
2005	13.83	23.69		
2006	13.91	22.56		
2007	13.69	23.83		
2008			**14.62**	**24.55**
2009			15.09	25.53
2010			15.58	26.56
2011			16.09	27.65
2012			16.62	28.80
2013			**17.17**	**30.01**
2014			17.75	31.30
2015			18.35	32.66
2016			18.97	34.09
2017			19.63	35.62
2018			**20.31**	**37.23**
2019			21.02	38.95
2020			21.76	40.77
2021			22.53	42.70
2022			23.34	44.76
2023			**24.18**	**46.95**
2024			25.06	49.28
2025			25.98	51.72
2026			26.93	54.41
2027			27.94	57.23
2028			**28.98**	**60.25**

5-Year CIP Evaluation

- Capital projects adequate
- Major components
  - North Section of 24” East Transmission Main
  - South Section of 24” East Transmission Main
  - Heller Road 16” distribution main
  - Route PP Main Upgrade
  - Ground Storage at Hillsdale pump station

Long Range Water Study

- Year 2018 Improvements
  - Current 32 MGD McBaine Supply is projected to be maxed out between 2016 and 2019
  - Evaluation needed on treatment process or additional treatment plant at a new location.
  - Additional pump station at West Ash site
  - Elevated water tower in Prathersville area.
  - 16” transmission main from new West Ash pump station to new elevated tower

Long Range Water Study

- Year 2023 Improvements
  - New Southeast (SE) pump station, ground storage, and discharge main in the area south of Nifong between U.S.63 and Rock Quarry.
  - 24” Transmission main from Clark Lane (Hillsdale discharge) to Stephens Station tower
  - Additional pump station and ground storage at Hillsdale pump station

Long Range Water Study

- Year 2028 Improvements
  - Addition pump and ground storage at new SE pump station
  - Additional ground storage at the new West Ash pump station
  - 24” Transmission main from Shepard tank to Hillsdale pump station (growth dependent)
  - 16” Transmission main from Grindstone Pkwy to Shepard tank (growth dependent)

Long Range Water Study

- Other Recommendations
  - Study on future supply, treatment and transmission (2009)
  - Additional sludge storage at WTP
  - Update / Review Long Study every five years

2013 - 2028 Improvements – Estimated Costs

2008 Water Bond	$ 38,939,500

2018 Improvements	$ 20,758,000
(excludes WTP improvements)	TBD
2023 Improvements	$ 36,139,000
2028 Improvements	$ 25,411,000
2013 to 2028 Total	$ 82,308,000

Questions?

2018 Improvements – Estimated Costs

New Pump Station at West Ash	$ 3,363,000
Elevated Tower in Prathersville	$ 7,694,000
16” Transmission Main from new West	$ 9,501,000
Ash Pump Station	
WTP Improvements	TBD
New SE Pump Station Design Start	$ 200,000
2018 Total	$ 20,758,000

2023 Improvements – Estimated Costs

New Southeast (SE) Pump Station	$ 3,386,000
Ground Storage at SE Pump Station	$ 2,622,000
24” Discharge Main from SE	$ 4,528,000
Additional pump station at Hillsdale	$ 3,564,000
Additional ground storage at Hillsdale	$ 3,865,000
24” Transmission Main to Stephens	$ 18,174,000
2023 Total	$ 36,139,000

2028 Improvements – Estimated Costs

Additional pump and ground storage at	$ 3,318,000
New SE pump station	
Additional ground storage at West Ash	$ 3,513,000
24” Transmission Main from Shepard	$ 10,843,000
to Hillsdale	
16” Transmission Main from Grindstone	$ 7,737,000
to Shepard	
2028 Total	$ 25,411,000

Growth Areas