



# PW/Utilities Connection



## September 2006

Utilities Data from Aug. 2006

City of Melbourne Public Works & Utilities Department

### New system-wide flushing program begins with pilot tests

Various locations within Melbourne's water distribution system have been experiencing discolored water. The City has been working to address this issue through a program using an employee dedicated to flushing localized areas throughout the water distribution system at regular intervals. The City also employs a number of automated flushing devices to keep sediment from the lines.

To expand and compliment the measures currently in place, a new program has recently been pilot tested in two locations. It is expected to have an even greater impact in improving water quality in the distribution system. The City is working with Reiss Environmental to develop and implement a unidirectional flushing program.

The first element of the project has been to develop a computer model to clearly show areas that need special attention. Once these locations have been determined, the unidirectional flushing program will be laid out for the entire system, specifically focusing on those areas that had received customer complaints. Those complaints have been entered into the geographic information system (GIS) map to build the model, which will be constantly updated. This modeling is allowing the City to put together a strategically-targeted plan for the entire system.

"There are generally two cause of the complaints — either the age of the pipes or the velocity of the water flowing through the pipes," said Assistant Public Works & Utilities Director Harold Nantz. "There are

chronic problem areas caused by old cast iron or galvanized metal pipes. Issues have also been occurring as a result of slow water velocities through the lines. For instance, this could be the case in subdivisions where the houses sit on large lots. The pipes there are sized for fire flows, but generally the normal house-

hold demands are lower, which slows the velocity of the water flow so that total dissolved solids settle out."

The unidirectional flushing will send 1,000 gallons of water per minute through the lines at 50 psi (pounds per square inch). The strong water velocity of four to six feet per second will clean the lines completely of anything that has settled in. The water used in the flushing is dechlorinated so that it can be sent harmlessly into the stormwater system.

The recent pilot testing was performed in two sequences to show the more detailed needs of an ongoing, regular unidirectional flushing program for the entire water distribution system.

"The pilot is showing us what it really is going to take to fully implement the program," Nantz said. "How many people will we need? How long will it take for each sequence? What will be our specific equipment needs? The pilot tests will answer these questions."

Nantz explained that an early benefit to the program has been that in doing the field studies to implement the program they have discovered some closed valves in the system. By having these reopened, the circulation and resulting water quality has been improved.



*John Hummel adds chemical to dechlorinate the water being flushed in one of the recent pilot test areas.*

# PW/Utilities Connection - Sept. 2006

[www.melbourneflorida.org](http://www.melbourneflorida.org)

Public Works/Utilities Data from Aug. 2006

## Monthly Water Usage and Raw/Finished Water Quality Statistics

### Water Usage

- ◆ Water pumped to service: 483,878,000 gallons or 15.609 MGD average
- ◆ Maximum finished water pumped to service: 17.598 MGD on August 10, 2006
- ◆ Fire hydrant flushing: 16,188,715 gallons
- ◆ Committed capacity: 3.1207 MGD
- ◆ Capacity available for development: 7.6345 MGD (Based on 12-month average daily flow)

### Water Quality Statistics

#### Lake water

- ◆ Level: 15.07 feet above MSL on August 31, 2006 (Prior month comparison: 14.19 feet on July 31)
- ◆ pH: 7.9
- ◆ Alkalinity: 106 mg/L

- ◆ Total hardness: 167 mg/L
- ◆ Chlorides: 114 mg/L
- ◆ Color: 132
- ◆ Total dissolved solids (TDS): 374 mg/L

#### Well water

- ◆ pH: 7.8
- ◆ Alkalinity: 123 mg/L
- ◆ Total hardness: 654 mg/L
- ◆ Chlorides: 787 mg/L
- ◆ Color: 6
- ◆ TDS: 1,682 mg/L

#### Finished water - pumped to service

- ◆ pH: 8.3
- ◆ Alkalinity: 38 mg/L
- ◆ Total hardness: 109 mg/L
- ◆ Chlorides: 89 mg/L
- ◆ Color: 3
- ◆ Total dissolved solids (TDS): 328 mg/L

## Change outs to automated water meters well underway

The City's new financial software system has prompted a hastening of the pace to convert existing manual-read water meters to automated units.

"The AMRs (automated meter readers) are very compatible with the new MUNIS software," explained Utilities Operations Superintendent Tom Hogeland. "We expect to complete the system-wide change-out by 2011."

About 52,000 units in all will be converted. There are currently more than 3,000 that have been installed.

"During the next fiscal year, we are hoping to get another 5,000 in the ground," explained Customer Service Supervisor Patti Cheary. "We are averaging 25-30 change-outs per day," she said.

One customer service employee, Shane Robbins, is currently devoted to changing out the meters. Once another 5,000 meters are changed out, one of the current meter readers will also be devoted to meter change



*Shane Robbins installs automation equipment to convert meter.*

outs.

"When the system is completed, it will only take two people to drive by the meters and collect the information," Cheary said.

Currently five meter readers average 9,500-10,000 readings per month. The non-retrofitted meters are labor-intensive to read. The employee must walk to each meter box, open it, then key the figure into the hand-held device for downloading into the

computer system at the end of the day. With the automated system, the employee will simply need to drive by the properties. A receiving antenna plugged into their laptop computers will pick up a radio signal from the transmitter device in the meter to provide the read directly into the computer.

Once the change outs are complete, only two employees will be needed to read all 51,000-plus meters in the City's water system. The other employees will be used for maintenance and other assignments.

# PW/Utilities Connection - Sept. 2006

[www.melbourneflorida.org](http://www.melbourneflorida.org)

Public Works/Utilities Data from Aug. 2006

## Wastewater Treatment Operational Summary and Reuse Statistics

### D.B. Lee WWTP

- ◆ Treated this month: 157.69 MG
- ◆ Treated daily: 5.09 MGD
- ◆ Reuse production — total month flow: 52.99 MG
- ◆ Reuse average daily flow: 1.71 MGD
- ◆ Reuse number of days run: 29
- ◆ Plant efficiency, BOD removal: 99.0%
- ◆ Committed capacity: 0.8957 MGD
- ◆ Capacity available for development: 1.4718 MGD  
*(Based on 12-month average daily flow)*
- ◆ Rainfall: 8.2 inches over 9 days

### Grant St. WWTP

- ◆ Treated this month: 93.23 MG
- ◆ Treated daily: 3.01 MGD
- ◆ Reuse production — total month flow: 7.82 MG
- ◆ Reuse average daily flow: 0.25 MGD
- ◆ Reuse number of days run: 31
- ◆ Plant efficiency, BOD removal: 99.36%
- ◆ Committed capacity: 1.6720 MGD
- ◆ Capacity available for development: 0.4805 MGD  
*(Based on 12-month average daily flow)*
- ◆ Rainfall: 6.84 inches over 8 days

*A total of 250.92 million gallons of reclaimed water was produced during August, representing 24% of total plant flows.*

## New lift station at Front Street Park to accommodate growth

The existing lift station at Front Street Park is being dismantled to make way for a new structure. Lift Station 43, which is at the corner of Front Street and Melbourne Avenue, has a service area that reaches north to Nasa Boulevard and west to the FEC Railroad.

"This area is undergoing significant development and redevelopment, adversely affecting capacity at the existing lift station," explained Utilities Engineer Michelle Shultz. "The new wet well for the station is designed to accommodate 20 year growth in the service area."

The new station will have a 10-foot diameter concrete wet well that will be 14-foot deep. It will have two submersible 10 horsepower pumps rated for 275 gallons per minute. In addition, a



*The existing lift station at Front Street Park is readied for dismantling as construction begins on the new station that will replace it.*

new generator will be installed for emergency backup in the event of commercial power failure.

Located next to the Front Street Park restrooms, the new station will be fenced and landscaped. After dismantling the existing lift station, it will be filled in and re-grassed.

Jobear/Warden Construction of Palm Bay is the contractor for the project, which should be completed by December. The company has successfully completed other lift station projects for the City. They will also be renovating Lift Station 55, located on Stewart Road between Lake Washington Road and Parkway Drive. This Lift Station 55 renovation project was added to their existing contract for the Front Street station.

## Streets and Stormwater Management Monthly Summary

- ◆ Daytime street sweeper — hours run: 45.5  
Cubic yards of material removed: 67
- ◆ Nighttime street sweeper — hours run: 58  
Cubic yards of material removed: 92
- ◆ Asphalt repairs made: 33
- ◆ Tons of asphalt used: 65.75
- ◆ Feet of canals cleaned mechanically: 2,936
- ◆ Acres treated through aquatic spraying: 21
- ◆ Feet of storm drain pipe repaired: 10
- ◆ Concrete repairs: 22
- ◆ Cubic yards of concrete used: 50.5

# PW/Utilities Connection - Sept. 2006

www.melbourneflorida.org

Utilities Data from Aug. 2006

## ASE Blue Seal Award

The City's Fleet Management Divisions recently received notice that it had been awarded the Automotive Service Excellence (ASE) Blue Seal of Excellence. The program recognizes that the division meets the standards established by the National Institute of Automotive Service Excellence. This is the third year the division has been awarded the Blue Seal of Excellence.

## CIPP lining at Grant Street Wastewater Treatment Plant

Workers with Insituform lower 265 feet of cured-in-place liner into a 30-inch pipe leading into the Grant Street Wastewater Treatment Plant. In this lining process, after insertion, heated water is pumped into the resin filled bag, which activates the resin causing it to adhere to the existing pipe. The pipe being lined is approximately 50 years old.



## What's Done, What's Underway and What's Coming Up

### Water Projects

#### **Under Construction:**

- ◆ St. Andrews water line replacement, \$10,000
- ◆ Phase II surface water treatment plant improvements, \$11,322,000
- ◆ Miscellaneous two-inch to six-inch waterline upgrades, \$874,857

#### **Under Design or in Bid**

##### **Process:**

- ◆ Wickham Road ground storage tank and booster pump station
- ◆ Automatic transfer switch and generator enclosure at the surface water treatment plant's belt press building
- ◆ Pineda Causeway 16" water main
- ◆ Wickham Road 8" water main
- ◆ Babcock Street water line relocation between Fee Avenue and Melbourne Avenue
- ◆ 36" water main clearing, Phase II
- ◆ Waterlines in annexation areas — Deerwood and El Dorado
- ◆ Rehabilitation to RO wells #1, 2 & 3
- ◆ Backup well #4
- ◆ Unidirectional flushing program & Individual Distribution System

Evaluation (IDSE) plan

- ◆ Water model update
- ◆ Harlock Rd water main extension
- ◆ 2006 Miscellaneous water line replacement projects

### Wastewater Projects

#### **Under Construction:**

- ◆ St. Andrews lift station and subaqueous force main, \$33,500
- ◆ Various CIPP sewer line rehabilitation projects, Wastewater Collection: \$867,143, Wastewater Treatment: \$423,000
- ◆ Lift Station #43 (Front Street) upgrade, \$567,000
- ◆ Bell Street sewer aerial crossing, \$140,000
- ◆ Lift Station #55 upgrade, \$160,000

#### **Under Design or in Bid**

##### **Process:**

- ◆ Reuse master plan
- ◆ Water & Wastewater Operations maintenance building
- ◆ Electrical upgrade to the sludge belt press building at D.B. Lee and Grant Street WWTPs

- ◆ D.B. Lee WWTP administration building
- ◆ Lift Station #29 (Aurora & Marywood) and Lift Station #46 (BCC) renovations
- ◆ Grant Place lift station and force main
- ◆ Reuse interconnect
- ◆ Crane Field reclaimed water main

### Streets & Stormwater Projects

#### **Under Construction:**

- ◆ Eber Road widening from Babcock Street to Dairy Road, \$3,840,879
- ◆ Various CIPP pipe rehabilitation projects, \$855,000

#### **Under Design or in Bid**

##### **Process:**

- ◆ Babcock and Hibiscus intersection improvements
- ◆ Gramling Park Road drainage improvements
- ◆ Melbourne Avenue drainage at Pennwood Avenue

*For more information about this report, please contact the Melbourne PW/Utilities Administration Department at (321) 674-5761 or send an e-mail to [utilities-admin@melbourneflorida.org](mailto:utilities-admin@melbourneflorida.org)*