



# PW/Utilities

# Connection



## February 2007

Utilities Data from Jan. 2007

City of Melbourne Public Works & Utilities Department

### Annual contracts speed City infrastructure improvements

To save both time and money, the City has recently entered into a number of annual contracts for ongoing infrastructure improvements. They will speed up the process for concrete work, pipe lining, and revetment stabilization.

Aquatic Technologies was awarded the annual concrete work contract, with an estimated annual cost of \$202,350. When water meters, water and sewer services, and water and sewer mains are installed, replaced, or repaired throughout the City, concrete restoration work is required. The Streets and Stormwater Management Division had been completing this type of work, along with their other work as well.

“Fifty to 75 percent of our time was spent putting this stuff back together,” said Superintendent Billy Williams. “With this new contract, we can be freed up to concentrate on our core work.”

Williams explained one of their main responsibilities is repairing sidewalks. Thanks to the annual contract, they will have more time available to focus on this and their other fundamental duties. Many of the sidewalks

in Melbourne are older, which can cause the concrete to crack. Sidewalks also become damaged by vehicles running over them and from tree roots.



*Fabri-form is used to stabilize a City canal.*

Insituform

Technologies has been awarded an extension of their annual pipe lining contract, which began last year. The cured-in-place pipe (CIPP) rehabilitation services will be performed for both sanitary sewer gravity mains and for storm sewer lines ranging from eight-inch to 72-inch.

“CIPP rehabilitation is a cost effective and non-intrusive method of pipe repair,” explained Utilities Engineer Michelle Shultz. “It will restore the structural integrity of our storm and sewer systems, reduce infiltration, increase the flow capacity of the aging pipes, and eliminate leaking joints.”

Last year, which was the first year of the contract, the City successfully lined approximately 16,075 linear feet of sanitary sewer gravity mains, and 4,672 linear feet of storm sewer lines. This year’s contract amount is \$2,570,200.

Terra Firma Environmental has been awarded the annual contact for fabri-formed revetment work. This service will be used for rehabilitation of eroded canals, swales, ponds, etc. Grout-infused “pillows” are used to lower the amount of sediment entering waterways, which helps to prevent deterioration of the water quality at the outfall.

### Five-year update granted for water withdrawal permit

Following an arduous 1.5-year process, the St. Johns River Water Management District gave approval to the City’s 5-year update to its 20-year consumptive use permit. Withdrawal levels for the original permit granted in 1999 were based on finished water pumped to service, rather than the much greater amount of raw lake water needed to produce the finished water. Revised allocations have now been granted following modeling and other information gathering. These revised allocations represent a much more accurate picture of what the City is doing than those contained in the original permit. This has shown that the City’s withdrawal needs will have a minor impact to the actual water in the supply and the anticipated needs downstream. The next five-year update will be due in 2009.

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

### Water Usage

- ◆ Water pumped to service: 466,771,000 gallons or 15.057 MGD average
- ◆ Maximum finished water pumped to service: 15.998 MGD on Jan. 12, 2007
- ◆ Fire hydrant flushing: 20,487,660 gallons
- ◆ Committed capacity: 3.6996 MGD
- ◆ Capacity available for development: 7.0816 MGD (Based on 12-month average daily flow)

### Water Quality Statistics

#### Lake water

- ◆ Level: 13.86 feet above MSL on Jan. 31, 2007 (Prior month comparison: 13.87 feet on Dec. 31, 2006)
- ◆ pH: 7.8
- ◆ Alkalinity: 75 mg/L

- ◆ Total hardness: 147 mg/L
- ◆ Chlorides: 98 mg/L
- ◆ Color: 171
- ◆ Total dissolved solids (TDS): 320 mg/L

#### Well water

- ◆ pH: 7.8
- ◆ Alkalinity: 120 mg/L
- ◆ Total hardness: 659 mg/L
- ◆ Chlorides: 781 mg/L
- ◆ Color: 6
- ◆ TDS: 1,654 mg/L

#### Finished water - pumped to service

- ◆ pH: 8.4
- ◆ Alkalinity: 35 mg/L
- ◆ Total hardness: 100 mg/L
- ◆ Chlorides: 78 mg/L
- ◆ Color: 4
- ◆ Total dissolved solids (TDS): 308 mg/L

## Measures underway for safer City street lights

In an effort to "storm harden" street lights in the City, the Facilities Maintenance Division has undertaken a number of measures that have already helped and are expected to have a positive impact in the future.

The first of these efforts included changing all bare copper conductors to insulated duplex wiring.

"The wires would crash together in high winds and burn out the circuit," explained Superintendent Marv Sharp. "We have changed out all the City-owned circuitry now. Since it was completed in early 2000 we haven't had any circuitry failures in any subsequent storms."

Some street lights have also been changed to armless lighting systems that are rated for 130-mph winds. A stretch of them can be seen in front of the Melbourne Auditorium. Since they have no arms, these lights do not vibrate with high winds. In the units with arms, the vibrations can cause the welding on the units with arms to fail.

Sharp is hoping to eventually replace other lighting with the new armless units. There are 503 City-owned streetlights in Melbourne.

According to Sharp, the armless lights are easier and safer to maintain. They are nearer to the right-of-way and they don't sway while the workers replace bulbs or perform other maintenance tasks.

## Jar test training conducted for water plant operators

All of the City's water production operators received classroom and hands-on training recently to conduct bench-scale jar testing.

This type of testing simulates the full-scale operation of the water treatment process, providing operators with a reasonable idea of the way a treatment chemical will react and operate with a particular type of raw water. Raw surface water quality can vary greatly depending on weather conditions and other factors. As

a result, the jar testing can help operators determine if they are using the right amount of treatment chemicals.

"We run tests every hour," said Water Production Superintendent Fred Davis. "These tests help us monitor and adjust the treatment. They include tests for total hardness, iron residual, fluoride, pH, chlorine, color, and others. The jar test is a supplement that we can use to periodically confirm the results of the other tests."



*Gary Iverson of Hazen & Sawyer instructs operators on procedure, as Cathy Johnson listens.*

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## Wastewater Treatment Operational Summary and Reuse Statistics

### D.B. Lee WWTP

- ◆ Treated this month: 116.13 MG
- ◆ Treated daily: 3.75 MGD
- ◆ Reuse production — total month flow: 41.33 MG
- ◆ Reuse average daily flow: 1.33 MGD
- ◆ Reuse number of days run: 31
- ◆ Plant efficiency, BOD removal: 99.3%
- ◆ Committed capacity: 0.8660 MGD
- ◆ Capacity available for development: 1.7741 MGD  
*(Based on 12-month average daily flow)*
- ◆ Rainfall: 2.90 inches over 4 days

### Grant St. WWTP

- ◆ Treated this month: 91.75 MG
- ◆ Treated daily: 2.96 MGD
- ◆ Reuse production — total month flow: 4.44 MG
- ◆ Reuse average daily flow: 0.14 MGD
- ◆ Reuse number of days run: 31
- ◆ Plant efficiency, BOD removal: 98.5%
- ◆ Committed capacity: 1.7581 MGD
- ◆ Capacity available for development: 0.8069 MGD  
*(Based on 12-month average daily flow)*
- ◆ Rainfall: 2.10 inches over 8 days

*A total of 45.77 million gallons of reclaimed water was produced during January, representing 22 % of total plant flows.*

## Staff visits factories for equipment acceptance tests

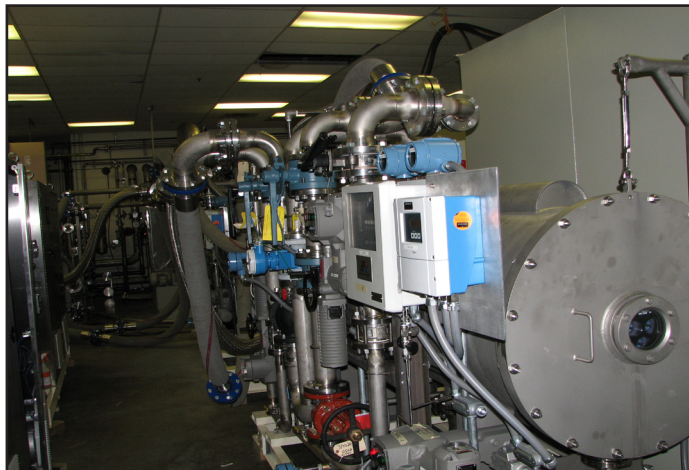
Phase II improvements at the surface water treatment plant are 70 percent complete. The plant should be operating with the new ozone treatment by August.

Critical equipment will be delivered soon, having recently been checked out at two different factories.

City staff and representatives from the project engineers, Hazen and Sawyer, recently traveled to both Birmingham, Alabama and Elmwood Park, New Jersey to examine and check the operation of the controls and ozone equipment.

“A few things were discovered that need to be corrected prior to shipping,” said Assistant City Engineer Martha Campbell, who participated in both factory acceptance tests, along with Assistant Super-

intendent Dave Phares. In addition, Operations Supervisor Cody Wells and Electronics Technician Vaughn Curry each went on one of the visits.



*Pictured are the ozone generators that were tested.*

The group visited Revere Controls in Alabama. Campbell said they found very few items that needed correcting and the visit allowed them to participate in working sessions on the equipment.

At the Ozonia plant in New Jersey, four days of testing provided for thorough inspection of all ozone equipment. They were able to point out needed changes before the equipment ships.

“The Ozonia contract is \$1.6 million,” Campbell said. “We had to be sure they met all requirements.”

## Streets and Stormwater Management Monthly Summary

- ◆ Daytime street sweeper — hours run: 135.5  
Cubic yards of material removed: 203
- ◆ Nighttime street sweeper — hours run: 79.7  
Cubic yards of material removed: 141.5
- ◆ Asphalt repairs made: 38
- ◆ Tons of asphalt used: 29.6
- ◆ Feet of storm pipe replaced: 340
- ◆ Acres treated through aquatic spraying: 21
- ◆ Feet of storm drain pipe repaired: 7
- ◆ Concrete repairs: 25
- ◆ Cubic yards of concrete used: 14.25

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## Test program of automated garbage carts set to begin soon

Driving through many neighborhoods beachside, you can't miss the green carts that are lining the streets on collection days. The Waste Management truck driver collects the carts by operating a joy stick. With it, he maneuvers the arm to grab the bar on the cart to pick it up, empty it, and set it back down. Melbourne will soon be "testing the waters" when it begins an automated cart pilot program later this month in The Sanctuary, a gated community of 249 homes.

The test program was approved

by City Council at their February 13 meeting. The program will provide two carts for each home; one 96 gallon and one 64 gallon. Both garbage and yard waste will be collected with the automated carts.

In a few months, a meeting will be conducted with the homeowner's association to obtain feedback. After a year with the cart system, a customer survey

will be conducted. If the program proves successful, it will continue.



*Driver operates joy stick to collect cart.*

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

### Water Projects

#### **Under Construction:**

- ◆ Phase II surface water treatment plant (SWTP) improvements, \$11,322,000
- ◆ Miscellaneous two-inch to six-inch waterline upgrades, \$874,857
- ◆ 36" water main clearing, Phase II
- ◆ Waterlines in annexation areas — Deerwood and El Dorado

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

##### **Process:**

- ◆ Automatic transfer switch and generator enclosure at the SWTP's belt press building
- ◆ Pineda Causeway 16" water main
- ◆ Wickham Road 8" water main
- ◆ Rehabilitation to RO wells #1, 2 & 3
- ◆ Backup well #4
- ◆ Unidirectional flushing program & Initial Distribution System Evaluation (IDSE) plan
- ◆ Water model update
- ◆ Harlock Rd water main extension
- ◆ Eau Gallie water line replacement, Phase I, Segments V & VI; portion of segments I & II, Phase II
- ◆ Country Road annexation water line extension

- ◆ Water line upgrade at Turtle-mound Rd.-Grand Haven subdivision
- ◆ 2006 misc. water line replacements
- ◆ 2007 misc. water line replacements (Phase I - Ballard Park)

### Wastewater Projects

#### **Under Construction:**

- ◆ Various manhole rehabilitation projects
- ◆ Lift Station #43 (Front Street) upgrade, \$567,000
- ◆ Lift Station #55 upgrade
- ◆ St. Andrews lift station and subaqueous force main
- ◆ Reuse interconnect
- ◆ FY '07 CIPP rehabilitation projects, \$1,200,000

#### **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 admin. bldg.
- ◆ Lift Station #29 (Aurora & Marywood) and Lift Station #46 (BCC) renovations
- ◆ Grant Place L.S. and force main
- ◆ Crane Field reuse project
- ◆ Sarno Road force main improvements

### Streets & Stormwater Projects

#### **Under Construction:**

- ◆ FY '06 CIPP pipe rehabilitation projects, \$855,000
- ◆ FY '07 CIPP pipe rehabilitation projects, \$1,350,000

#### **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)*