



PW/Utilities

Connection



September 2005

Utilities Data from August 2005 City of Melbourne Public Works & Utilities Department

City's reuse system improving as studies look to the future

Since late July, water has become available to the City's reuse customers any day they choose to use it. During dry times, however, the City urges customers to conserve as they would with other sources of irrigation water.

An alternating-day schedule for reuse distribution was implemented in the summer of 2000 to maintain pressure to customers at the ends of the system during a drought that year. The measure was kept in place to maintain steadier pressure in the system.

Ed Dobos, an electronics technician for the division, devised a way to return to daily reuse availability. He installed a pressure transducer to monitor reuse distribution pressure and devised controls to modulate the storage tank fill valve as needed to maintain a steady pressure. Plant operators can now "see" components of the system via telemetry.

"We made our system smarter and we can now better serve the golf course and residential customers," said Wastewater Treatment Superintendent Eric Blankman. "It's been working wonderfully."

Melbourne's reuse system is becoming more vital with the St. Johns River Water Management District's proposed new rule to allow for irrigation on only two days per week. Reuse is exempt from the rule since it is an

important means of recycling highly-treated wastewater effluent. Focus is also on reuse as the City works to comply with the District's mandate to produce and distribute as reuse 30 percent of the wastewater taken in at both the D.B. Lee and Grant Street treatment plants.

To better develop the reuse system, the City is working with engineering consultants Quentin L. Hampton Associates, Inc. to develop a reuse master plan. The first draft is currently being reviewed by City staff. The plan will be revised based on staff comments.

"When our reuse system was first put into service, we just used it to fill the storage tanks at our two golf courses and it has grown over the years. As a result, we have some lines that dead-end instead of looping to equalize pressure in the distribution system."



Median, above, is one of many throughout the City irrigated with reuse.

A key element for the future of the City's reuse system is the link that will be constructed between the D.B. Lee and Grant Street systems which are now completely separate. Once complete, the interconnection will make the reuse system more reliable for the customers, help the City meet permit requirements, and allow the City to expand its service area to include new residential customers and large bulk customers in both the north and south areas of the City.

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Monthly Water Usage and Raw/Finished Water Quality Statistics

Water Usage

- ◆ Water pumped to service: 493,175,000 gallons or 15.909 MGD average
- ◆ Maximum finished water pumped to service: 17.139 MGD on August 19, 2005
- ◆ Water billed: 420,472,300 gallons
- ◆ Fire hydrant flushing: 22,668,200 gallons
- ◆ Committed capacity: 2.6311 MGD
- ◆ Capacity available for development: 8.4462 MGD (Based on 12-month average daily flow)

Water Quality Statistics

Lake water quality

- ◆ pH: 7.6
- ◆ Alkalinity: 64 mg/L
- ◆ Total hardness: 97 mg/L

- ◆ Chlorides: 51 mg/L
- ◆ Color: 214
- ◆ Total dissolved solids (TDS): 226 mg/L

Well water quality

- ◆ pH: 7.8
- ◆ Alkalinity: 121 mg/L
- ◆ Total hardness: 631 mg/L
- ◆ Chlorides: 752 mg/L
- ◆ Color: 6
- ◆ TDS: 1,608 mg/L

Finished water quality - pumped to service

- ◆ pH: 8.3
- ◆ Alkalinity: 36 mg/L
- ◆ Total hardness: 72 mg/L
- ◆ Chlorides: 49 mg/L
- ◆ Color: 3
- ◆ Total dissolved solids (TDS): 216 mg/L

The “Snooper” called into service for water line repair



Tim Hedrick, seated on the pipe, and Robert Sigman prepare to make repairs. Other division staff observe and assist.

An expansion joint split last month on an important 20-inch water transmission line that delivers water to the south end of the City.

There are two expansion joints on the section of pipe that stretch across the bridge over Crane Creek on U.S. 1. The joints are made of hard rubber and expand and contract slightly as the pipe reacts to heat and cold.

“This transmission line was put in 15 years ago to provide a good path for water in the south end of the City,” explained Assistant Public Works & Utilities Director Harold Nantz. “The expansion joint material begins to fatigue over the years as the rubber moves. In addition, the rubber is subjected to UV rays, as well as aging. It eventually becomes less flexible and can split,

as happened in this instance.”

When the split occurred, it caused the pressurized water to shoot into the air. The police notified the Utilities Operations Division. They in turn shut off the water that traveled through the section of pipe on the bridge and re-routed it to make repairs. Recently, the division rented and put into service a “Snooper” truck to replace the expansion joints.

“The Snooper has a hoist that extends out, down and back in and is used specifically for bridges,” said Division Superintendent Tom Hogeland.

“This is new equipment for us,” Hogeland added. “We

have never replaced expansion joints ourselves.”

Rental for the equipment was \$3,000 for two days, while the materials cost \$8,000.



Robert Sigman works on repairing the damaged expansion joint.

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Wastewater Treatment Operational Summary and Reuse Statistics

D.B. Lee WWTP

- ◆ Treated this month: 137.24 MG
- ◆ Treated daily: 4.43 MGD
- ◆ Reuse distributed: 58.04 MG
- ◆ Reuse average daily flow for days run: 1.86 MGD
- ◆ Reuse number of days run: 31
- ◆ Plant efficiency, BOD removal: 98.4%
- ◆ Committed capacity: 1.3246 MGD
- ◆ Capacity available for development: 0.0904 MGD
(Based on 12-month average daily flow)

Grant St. WWTP

- ◆ Treated this month: 99.83 MG
- ◆ Treated daily: 3.22 MGD
- ◆ Reuse distribution — total month flow: 6.28 MG
- ◆ Reuse average daily flow for days run: 0.30 MGD
- ◆ Reuse number of days run: 31
- ◆ Plant efficiency, BOD removal: 98.0%
- ◆ Committed capacity: 0.9599 MGD
- ◆ Capacity available for development: 1.0633 MGD
(Based on 12-month average daily flow)

New stormwater pipe on Laurie Street; road to be opened soon

A large-diameter stormwater pipe under Laurie Street is being replaced and residents in the area are sure to welcome the project's completion.

Since last summer's hurricanes, the corrugated metal pipe under the street had collapsed and undermined the integrity of the road, creating a sinkhole. The City's Streets & Stormwater Management Division attempted to patch the road with steel plates, but the pipe and road continued to fail due to high traffic volume.

Last October, the section over the pipe was barricaded and closed off to the public.

"It had become a traffic hazard," said Utility Engineer



Workers with RKT Constructors work on placing one of the sections of new stormwater pipe under Laurie Street.

Michelle Shoultz. "The road was collapsing because the pipe was collapsing."

Following engineering design, bank stabilization and turbidity control measures were undertaken to prevent adversely affecting the waterway. Construction is now underway to replace a 96-foot section with new eight-foot diameter reinforced concrete pipe. Also included is Fabri-Form on the embankments for erosion control. Fabri-Form

consists of fiber mats that are sewn together and filled with concrete.

The work should be complete by early December. RKT Constructors, Inc. is the contractor for this \$363,510 project.

Streets and Stormwater Management Monthly Summary

- ◆ Daytime street sweeper — hours run: 142.5
Cubic yards of material removed: 213
- ◆ Nighttime street sweeper — hours run: 64
Cubic yards of material removed: 71
- ◆ Asphalt repairs made: 60
- ◆ Tons of asphalt used: 80
- ◆ Feet of canals cleaned mechanically: 6,025
- ◆ Acres treated through aquatic spraying: 21
- ◆ Feet of storm drain pipe repaired: 300
- ◆ Concrete repairs: 17
- ◆ Cubic yards of concrete used: 65

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August Highlights

The level of Lake Washington decreased during the last month. At the end of August, the lake level was 15.269 feet above sea level. This compares to the lake level at the end of July, when it was 15.9 feet above sea level. Water quality remains good.

The D.B. Lee Wastewater Treatment Plant recorded 7.6 inches of rain during 12 days in August. The Grant Street Wastewater Treatment Plant received 5.78 inches of rain over 14 days during August. A total of 64.32 million gallons of reclaimed water was distributed during August. This represents 27% percent of total plant flows for August..

New building begins taking shape



Sections of the concrete roof are shown being lowered by crane onto the new 3,400 square-foot Public

Works & Utilities Building. Built to withstand 130 mph winds, the building will accommodate expanding staff needed to keep up with the City's growing infrastructure needs. Completion is expected in March.

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

Water Projects

Recently Completed:

- ◆ Hazelwood waterline extension
- ◆ Post Road elevated water tank demolition, \$47,806

Under Construction:

- ◆ Aurora elevated water tank rehabilitation, \$82,000
- ◆ Turtlemound North waterline extension, \$471,200
- ◆ Eau Gallie River sub-aqueous crossing, \$124,535

Under Design or in Bid Process:

- ◆ Phase II surface water treatment plant improvements
- ◆ Wickham Road ground storage tank and booster pump station
- ◆ Miscellaneous two-inch to six-inch waterline upgrades
- ◆ Automatic transfer switch and generator enclosure at the surface water treatment plant's belt press building
- ◆ Chlorine scrubber at Avenue B booster station

Wastewater Projects

Under Construction:

- ◆ Demolition of old treatment units at D.B. Lee WWTF, \$624,700
- ◆ New monitoring network for reuse system at DB Lee WWTP

Under Design or in Bid Process:

- ◆ Reuse master plan
- ◆ Water & Wastewater Operations maintenance building
- ◆ Lift Station #55 upgrade
- ◆ Grant Street Wastewater Treatment Plant lighting upgrade
- ◆ Sarno Road force main upgrade
- ◆ Electrical upgrade to the sludge belt press building at D.B. Lee and Grant Street WWTPs
- ◆ D.B. Lee WWTP administration building
- ◆ Lift Station #43 (Front Street) upgrade
- ◆ Garage doors at Grant Street WWTP

Streets & Stormwater Projects

Under Construction:

- ◆ Sherwood Park drainage improvements, \$358,285
- ◆ Eber Road widening from Babcock Street to Dairy Road, \$3,840,879
- ◆ Paradise Cay CIPP, \$325,835
- ◆ Laurie Road drainage improvements, \$363,510

Under Design or in Bid Process:

- ◆ Hoag Avenue paving and drainage improvements
- ◆ Upgrade of stormwater system at Charles Dr./Almar Subdivision
- ◆ Upgrade of existing culvert crossing under Pirate Lane

General Public Works:

Under Construction:

- ◆ Public Works & Utilities Administration Building, \$512,391

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