PW/Utilities Connection

February 2004

Utilities Data from Jan. 2004 City of Melbourne Public Works & Utilities Department

Street milling & resurfacing work scheduled to begin soon

Work is expected to begin in March to resurface almost 14 miles of streets in the City and to perform milling work on certain streets, along with striping and marking where needed.

For the first time this year, Engineering Department staff performed an intensive evaluation to determine which streets had the greatest need. Design Supervisor Rory Dittmer, who is serving as project manager, and Engineering Technician Raul Reveron-Ruiz spent two days a week for three months driving every road in Melbourne and rating their condition on a one-to-five scale, with five being in the worst condition.

Dittmer said that age alone is not the determining factor for need and that is why the exhaustive evaluation was required.

"Some roads last 15-20 years before they need to be resurfaced," Dittmer said. "Others can fall apart in five years if they are located on a high groundwater table. The groundwater breaks the bond faster between the asphalt and the limerock."

One of the roads to be resurfaced shows its poor condition.

Two years worth of resurfacing work is being performed this year.

"Resurfacing was put on hold last year due to the spike in oil prices," Dittmer said. "Asphalt prices are based on oil prices. We thought it was better to wait a year for a more favorable economy for asphalt and we were right. We are now getting more for our money."

Besides resurfacing, more than ten miles of those streets will also be milled, which involves removing the existing asphalt. Milling is often required on streets with curbs so that the pavement does not become too high for driveways, which can cause drainage and other problems. The old asphalt is then recycled.

The contractor for the $794,000 project is APAC Florida, Inc. of Melbourne. A portion of the funding is coming from the local option gas tax revenue.

Sarno Access Road will be resurfaced as part of the project.

Streets that will be both milled and resurfaced include Canterbury Lane, North Drive, Leewood Boulevard, Croftwood Drive, Wisteria Drive, Holly Lane, Wallace Avenue, Osage Avenue, Iroquois Avenue, Brown Avenue, Purdue Street, Rio Baya North, Rio Baya South, Rio Bonita Street, Rio Casa Drive North, Rio Casa Drive South, Rio Pino North and Rio Pino South.

Streets to be resurfaced without milling include Almond Boulevard, America Street, Arthur Avenue, Ash Street, Avenue A East, Buckingham Avenue, Bud Yeager Drive, Cade Avenue, Camellia Drive, Cameron Street, Carissa Place, Carver Street, Cherokee Avenue, Clayton Avenue, Commodore Boulevard, Ford Circle West, Gardenia Drive South, George Court, Gibbs Street, Glenmore Circle, Kingdom Avenue (north of Royalty) Midiron Way, Mohican Drive, Pecan Street, Plompton Drive, Poinciana Drive, Pontiac Circle North, Pontiac Circle South, Putters Lane, Redwood Lane, Rio Palma South, Sarno Access Road, Tangerine Street (north of Palmetto), Tulane Avenue, Vernon Dicks Drive, Wallace Avenue, Westchester Avenue, Westminster Avenue, Woodbury Road, Rio Casa Boulevard, Rio Palma North, Rio Palma South, Rio Plumosa North, Rio Plumosa South and Rio Villa Boulevard.

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Monthly Water Usage and Raw/Finished Water Quality Statistics

Water Usage

- Water pumped to service: 419,013,000 gallons or 13.517 MGD average
- Maximum finished water pumped to service: 14.249 MGD on January 8, 2004
- Water billed: 390,577,200 gallons
- Fire hydrant flushing: 16,208,060 gallons
- Fire Department water usage: 49,900 gallons
- Brevard County water usage – sewer flushing: 7,500 gallons
- Flushing and testing new water mains: 4,935 gallons
- Committed capacity: 1.2713 MGD
- Capacity available for development: 10.6779 MGD (Based on 12-month average daily flow)

Water Quality Statistics

Lake water quality

- pH: 7.6
- Alkalinity: 64 mg/L
- Total hardness: 133 mg/L
- Chlorides: 93 mg/L
- Color: 186
- Total dissolved solids (TDS): 262 mg/L

Well water quality

- pH: 7.6
- Alkalinity: 118 mg/L
- Total hardness: 133 mg/L
- Chlorides: 759 mg/L
- Color: 6
- TDS: 1,471 mg/L

Finished water quality - pumped to service

- pH: 8.1
- Alkalinity: 36 mg/L
- Total hardness: 101 mg/L
- Chlorides: 80 mg/L
- Color: 4
- Total dissolved solids (TDS): 231 mg/L

Automatic meter reading to improve safety and time

The current meter reading process in Melbourne is a time-consuming, labor intensive one. It involves five employees visiting almost 52,000 properties in Melbourne's water service area each month. They park their trucks, and walk their routes, going to each meter, opening the meter box and keying the read into a hand-held device for down-loading into the computer once they get back to the office. In rural areas, they drive to and stop at each property to manually check the reading.

That's about to change. Gradually, probably within the next 10 years, all of the meters will be automated. With the new meters, the readers will simply 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.

Patti Cheary holds the transmitter unit for one of the new meters.

"It's going to be great," said an enthusiastic Patti Cheary, who is the City's customer service supervisor. Not only will there be the time savings, but it will also make the meter reading job safer. Cheary cited safety issues they face such as dogs, snakes, spiders and traffic.

During this fiscal year, 1,500 of the new automated meters will be installed in new neighborhoods and in remote areas, according to Cheary. Eventually, all the meters will be changed, either through retrofitting existing meters or installing new meters when necessary.

Specifications are currently being developed following a two-year pilot program to test a variety of the automated meters under harsh conditions.

"We have about 75 of them located in remote areas," Cheary said. "We tested them in different adverse conditions, particularly in flood-prone areas. This helped us determine which type would best suit our needs."

Public Works & Utilities Director Bob Klaproth said the new system will provide a cost savings since it will eliminate the need to hire new people as the City grows.

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Wastewater Treatment Operational Summary and Reuse Statistics

D.B. Lee WWTP

- Treated this month: 124.30 MG
- Treated daily: 4.01 MGD
- Reuse distribution — total month flow: 42.37 MG
- Reuse average daily flow: 1.37 MGD
- Reuse number of days run: 30
- Plant efficiency, BOD removal: 98.78%
- Committed capacity: 0.6687 MGD
- Capacity available for development: 1.1548 MGD

(Based on 12-month average daily flow)

Grant St. WWTP

- Treated this month: 76.71 MG
- Treated daily: 2.47 MGD
- Reuse distribution — total month flow: 1.92 MG
- Reuse average daily flow: 0.06 MGD
- Reuse number of days run: 8
- Plant efficiency, BOD removal: 98.28%
- Committed capacity: 0.4091 MGD
- Capacity available for development: 2.0217 MGD

(Based on 12-month average daily flow)

Pipe bursting used to install new pipe with minimal disruption

A new pipe to collect wastewater has been needed on Leewood Boulevard in the Leewood Forest neighborhood. The old way to do this work would have involved digging up the street, removing the old eight-inch pipe that is eight-feet underground, and installing a new one. But, technology can be a wonderful thing. Instead of the disruption caused by all the digging, a new method is being used known as pipe bursting.

Workers from Instituform, the City's contractor for the project, begin pipe bursting procedure.

In this process, a pit is dug at each end of the 185-foot section. A new high-density polyethylene line is pulled through as the hydraulic burster machine breaks up the old pipe and pushes the pieces to the side as it moves through the section with the new pipe.

According to Mike Brink, wastewater collection supervisor, the old pipe is made of vitrified clay, which is similar to pottery. If the soil gets unstable, this pipe is prone to cracking and then groundwater enters the pipes and is carried for treatment, along with the wastewater.

"This puts more stress on the wastewater treatment plant," Brink said. "During heavy rains it can also overload the lift stations. Not only does water get in, but also sand, which can lead to sinkholes."

The City is in the second year of a three-year, $900,000 project to rehabilitate the wastewater collection infrastructure in the Leewood Forest neighborhood. The first phase involved coating all the 40 manholes with a cementious coating to prevent leaks. Next, all of the wastewater lines were checked for leaks. Cured-in-place liner is inserted into most of the old pipes, which hardens and acts as a new pipe. The most recent section, however, needed to be improved with the new pipe due to extreme deterioration.

Streets and Stormwater Management Monthly Summary

- Daytime street sweeper — hours run: 852
  Cubic yards of material removed: 246
- Nighttime street sweeper — hours run: 120
  Cubic yards of material removed: 97
- Asphalt repairs made: 44
- Tons of asphalt used: 33.5
- Feet of canals cleaned mechanically: 9,760
- Acres treated through aquatic spraying: 0
- Concrete repairs: 27
- Cubic yards of concrete used: 35.5

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January Highlights

The level of Lake Washington decreased slightly during January. At the end of the month, the lake level was 13.75 feet above sea level. That compares to the end of December reading of 14.07 feet above sea level. Water quality remains good.

The D.B. Lee Wastewater Treatment Plant recorded 2.4 inches of rain during six days in January. The Grant Street Wastewater Treatment Plant received 2.31 inches of rain over six days during the month.

A total of 44.29 million gallons of reclaimed water was used for irrigation during January. This represents 22 percent of total plant flows for the month.

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

Water Projects

Under Construction:

♦ U.S. 1 utility relocations associated with U.S. 1 widening — Post Road north to Pineda Causeway, $940,000

♦ U.S. 1 utility relocations associated with U.S. 1 widening — Post Road south to Aurora Road, $1,060,000

♦ Shut-off valves for elevated storage tanks, $159,777

♦ Croton Road utility relocation associated with widening, $593,257

♦ Trailer Haven waterline upgrades, $195,905

♦ Wickham Road waterline replacement from SR 192 to Nasa Blvd., $1,257,000

♦ Sludge handling facility motor control center and belt filter press control cabinets, $175,685

Under Design or in Bid Process:

♦ Phase II surface water treatment plant improvements

♦ Utility relocation in association with NASA Boulevard realignment at Wickham Road

♦ Waterline upgrade, Olde Eau Gallie

♦ Painting various structures at Lake Washington Water Treatment Plant

♦ Chemical feed upgrades at Canova Beach Booster Station

♦ Hibiscus booster station electric shut-off valves

♦ Wickham Road ground storage tank and booster pump station

♦ Parkway Drive water line extension

Wastewater Projects

Under Construction:

♦ Sewer line cleaning, $120,000

♦ Lift Station 80 replacement—East Bay Plantation, $62,300

♦ Sewer manhole rehabilitation, $14,500

♦ Large (36") diameter sewer rehabilitation, $669,465

♦ Mechanical Integrity Testing at Grant Street WWTF, $65,837

Under Design or in Bid Process:

♦ Lift Station 24 replacement design

♦ New monitoring network for reuse system at DB Lee WWTP

♦ Demolition of old treatment units at D.B. Lee WWTF

Streets & Stormwater Projects

Under Construction:

♦ Rio Lindo canal dredging, $457,289

Under Design or in Bid Process:

♦ Hoag Avenue paving and drainage improvements

♦ Eber Road widening from Babcock Street to Dairy Road

♦ Sarno Road/Bell Street drainage improvements

♦ Upgrade of stormwater outfalls along Charles Dr./Almar Subdivision

♦ Upgrade of existing culvert crossing under Pirate Lane

♦ Swift Street stormwater improvements

♦ Babcock Street widening

♦ Baffle box at Cliff Creek

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