



Water / Irrigation Division
Working Together Toward Excellence in Service and Quality

2301 Fruitvale Blvd.
Yakima, WA 98902

"Water is life and Infrastructure Makes it Happen"

DATE: May 11, 2012

FROM: Dave Brown, Water/Irrigation Manager
Mike Shane, Water/Irrigation Engineer

RE: Irrigation System Rebuild Update

Periodically, staff has provided an update of the multi-year Irrigation System Rebuild project. In that this project has its origins more than a decade ago, it is easy to lose track of its importance, progress, and status as time marches on.

Background:

During the many Council Study Sessions, Meetings, Public Hearings, and Public Information Meetings over the past decade, plans for the future of the City's Irrigation System were discussed in detail. Based on those discussions, the City Council authorized the following plan of action:

- 1) Fund rehabilitation/replacement of the General Irrigation System replacement through a combination of revenue bonds (\$10M) and funds generated through a CIP rate component. Total cost estimated to be \$13-\$14million;
- 2) Revenue bonds to be issued in two increments of \$5M each. The first bond of \$5 million was obtained in 2004, with the second bond of \$3.5 million expected by the end of 2011. Because projects came in under estimate we have determined a second bond in not necessary and about \$800,000 will be borrowed from the Equipment Rental fund as a shot term loan;
- 3) Completion of the General Irrigation System replacement project scheduled for spring 2013, actually finished one year early;
- 4) The General Irrigation System project is considered the highest priority;
- 5) Bond repayment is from the funds collected through revenues generated by the CIP rate. (Rates are to be set at a level sufficient to pay the costs of the rehabilitation/replacement project.)

Note: The Irrigation Utility is an "Enterprise Fund", which essentially means that the Utility should be self-sufficient. By law, the Utility may not support any other fund through its rate structure; however, rates must be set at a level that will cover all operating and capital costs of the Utility, including debt service (i.e.: payments on bonds and other debt). While it is unlawful

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for revenue generated by the Utility to be used to support other funds, it is also unlawful to set rates at a level that is insufficient to cover the Utilities bond payments, as this would be an unconstitutional impairment of a contract. Therefore, a cost of service study is performed periodically to review the rate structure and ensure that rates are set at a prudent operating and legally authorized level.

Chronology:

- 1997 Irrigation System Formed including a Capital Improvement Fund
- 1998 completed first General System upgrade project
- December 1999 Master Irrigation Plan completed. The Plan included evaluation of all of the City owned irrigation systems, developed a Capital Improvement Plan (CIP) and identified eight systems rating a "high" priority for repair/replacement:
 - 1) Capital Hill (Replacement Complete)
 - 2) Nob Hill (Replacement Complete)
 - 3) Hillcrest (Replacement Complete)
 - 4) Brackett Park (Replacement Complete)
 - 5) West Yakima (Replaced 2/3 of the system)
 - 6) North Hillcrest A (Replacement Complete)
 - 7) DeAtley Park (Replacement Complete)
 - 8) Fruitvale Canal Improvements (ongoing project started in 2003)
 - 9) General (ongoing project started in 1998)
- The General System Phase 2 began in 2004 and is completed.
- The General System Phase 3 began in 2007 and is completed.
- The General System Phase 4 began in 2010 and will be completed in the 2011/12 construction season.

Current Activities:

In addition to completing the General Irrigation System Replacement Phase 4/Stage 2 in the winter of 2011/2012, the Fruitvale Canal was be piped from N. 5th Ave. to N. 7th St. (excluding BNSF right-of-way).

With the replacement of the high priority systems completed, remaining replacement projects will be based on funds available in the CIP budget and system repair history.

Below is a list of the projects completed since 1997. Also attached is an accounting of the funds collected and spent in the Capital Improvements Program, a table summarizing the completed projects and three maps.

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1998/1999

General System by contractor:

- 2,800 feet of 30" PVC

1999/2001

Consultant/Staff - Irrigation Master Plan/Study Completed

2001/2002

General System by contractor:

- 1,800 feet of 21" PVC
- 1,800 feet of 12" PVC

Fruitvale Canal System – 1,600 feet of 48" Hancor Pipe, 12 access manholes

2002/2003

General System by contractor:

- 5,600 feet of 30" PVC

2003/2004

Consultant/Staff - Preliminary Design of the General Irrigation System

DeAtley Park & Nob Hill Systems and a small portion of the General by contractor:

- 600 feet of 6" HDPE (high density polyethylene)
- 1,250 feet of 4" HDPE
- 700 feet of 3" HDPE
- 4,500 feet of 2" HDPE
- 1 Pumps
- 152 Services

General System by Irrigation Division:

- 1,600 feet of 4" PVC
- 900 feet of 3" PVC
- 115 services

2004/2005

General System by contractor:

- 5,300 feet of 30" HDPE
- 1,670 feet of 18" HDPE
- 970 feet of 16" HDPE
- 430 feet of 3" HDPE
- 23 services

Fruitvale Canal System by contractor:

- 450 feet of concrete canal lining

General System by Irrigation Division:

- 875 feet of 8" PVC
- 200 feet of 6" PVC
- 2,400 feet of 4" PVC
- 800 feet of 3" PVC
- 141 services

2005/2006

General System by contractor:

- 2,385 feet of 16" HDPE
- 875 feet of 14" HDPE
- 1,025 feet of 12" HDPE
- 3,390 feet of 10" HDPE
- 1,210 feet of 8" HDPE
- 85 feet of 3" HDPE
- 103 Services

General System by Irrigation Division:

- 1,250 feet of 6" PVC
- 1,800 feet of 4" PVC
- 650 feet of 3" PVC
- 137 services

West Yakima System by contractor:

- 135 feet of 10" HDPE
- 2,000 feet of 8" HDPE
- 2,800 feet of 6" HDPE
- 1,275 feet of 4" HDPE
- 3,800 feet of 3" HDPE
- 1,800 feet of 2" HDPE
- 270 services

2006/2007

General System by Irrigation Division:

- 800 feet of 6" PVC
- 1,320 feet of 4" PVC
- 2,600 feet of 3" PVC
- 202 services

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General System by contractor:

- 575 feet of 24" steel casing
- 650 feet of 18" HDPE
- 2,670 feet of 16" HDPE
- 1,830 feet of 14" HDPE
- 60 feet of 12" HDPE
- 400 feet of 10" HDPE
- 2,380 feet of 8" HDPE
- 1,090 feet of 6" HDPE
- 185 feet of 3" HDPE
- 25 services

Maclaren Reservoir by contractor:

- Repaired cracks in the existing concrete reservoir, rehabilitated the existing weir box, installed a new aluminum ladder and slide gate, and installed a new outlet screen structure

2007/2008

General System by Irrigation Division:

- 1,000 feet of 6" PVC
- 1,320 feet of 4" PVC
- 1,420 feet of 3" PVC
- 300 feet of 2" PVC
- 100 Feet of 1" PVC
- 182 services

General System by contractor:

- 123 feet of 24" DI
- 5,026 feet of 6" HDPE
- 3,781 feet of 4" HDPE
- 1,599 feet of 3" HDPE
- 2,298 of 2" HDPE
- 322 services

Brackett Park System by contractor:

- 3,060 feet of 2" HDPE
- 45 services

Glenn Drive Reservoir by contractor:

- Replaced existing pump station, including pumps, building, valves and piping which provides service to the Glenn Drive, West Walnut,

Belgold, West Chestnut and West Yakima irrigation systems.

2008/2009

General System by Irrigation Division

- 1,000 feet of 4" PVC
- 3,700 feet of 3" PVC
- 1,400 feet of 2" PVC
- 280 services

General System by contractor:

- 2,410 feet of 6" PVC
- 6,592 feet of 4" PVC
- 890 feet of 4" HDPE
- 510 feet of 3" PVC
- 95 feet of 2" PVC
- 366 services

Hillcrest, N. Hillcrest and Buena Vista Systems by contractor:

- 945 feet of 6" HDPE
- 330 feet of 6" PVC
- 1,916 feet of 4" HDPE
- 2,320 feet of 4" PVC
- 1,604 feet of 3" HDPE
- 2,132 feet of 3" PVC
- 597 feet of 2" HDPE
- 271 services

2009/2010

General System by Irrigation Division

- 1,480 feet of 6" PVC
- 1,400 feet of 4" PVC
- 1,120 feet of 3" PVC
- 92 services

General System by contractor:

- 8,755 feet of 4" PVC
- 1,729 feet of 4" HDPE
- 725 feet of 3" PVC
- 854 feet of 3" HDPE
- 325 services

Capitol Hill System by contractor:

- 1,966 feet of 12" PVC
- 1,644 feet of 6" HDPE
- 1,543 feet of 6" PVC
- 5,411 feet of 4" PVC

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- 355 feet of 3" HDPE
- 3,180 feet of 3" PVC
- 180 feet of 2" HDPE
- 314 services

2010/2011

General System by Irrigation Division

- 1,100 feet of 6" PVC
- 1,450 feet of 4" PVC
- 2,450 feet of 3" PVC
- 600 feet of 2" PVC
- 145 services

Capitol Hill System by contractor:

- 1,036 feet of 12" PVC
- 1,257 feet of 8" PVC
- 589 feet of 6" PVC
- 6,324 feet of 4" PVC
- 120 feet of 4" HDPE
- 1,946 feet of 3" PVC
- 258 services

General System by contractor:

- 3,306 feet of 32" HDPE
- 922 feet of 30" HDPE
- 3,442 feet of 6" HDPE
- 3,487 feet of 4" HDPE
- 241 services

2011/2012

General System by Irrigation Division

- 140 services

Fruitvale Canal System by contractor:

- 4,425 feet of 30" HDPE
- 476 feet of 24" DI

General System by contractor:

- 1,190 feet of 10" HDPE
- 2,190 feet of 6" PVC
- 853 feet of 4" HDPE
- 480 feet of 4" PVC
- 475 feet of 3" HDPE
- 981 feet of 3" PVC
- 162 feet of 2" HDPE
- 99 services

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Future Activities

- Move the Fruitvale Canal Diversion
- Refurbish the Medium Priority Irrigation Systems
 - Complete the last 1/3 of the West Yakima system – Replace approx. 12,000 feet of pipe
- Refurbish the Low Priority Irrigation Systems

The accomplishments to date are significant, as is the work remaining to complete the adopted plan and provide for the integrity of the City owned irrigation systems. City staff is working to complete this work in as cost effective a manner as possible. Irrigation construction projects to date have been completed on schedule and within construction estimates. You will note that a number of projects were completed with in-house forces, depending on maintenance workload and project complexity these efforts on the part of City crews can result in significant savings, a change of pace and cross-training opportunities for the crews.

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