

**Western Townships Utilities Authority**

# **Capital Improvement Program**

**August 2009**



# WESTERN TOWNSHIPS UTILITIES AUTHORITY

## CAPITAL IMPROVEMENT PROGRAM

The Capital Improvement Program consists of two components - the **Emergency Replacement Fund** and the **Planned Capital Improvement Program**.

### Emergency Replacement Fund

The purpose of this fund is to set aside a reserve to provide for catastrophic unplanned expenditures related to the failure of "Critical Items". Critical items are identified by the Director of Operations and are defined as items which are necessary to keep the system operational and protect the health and welfare of the public. Assuming that not all critical items will fail simultaneously, only a percentage of the total value of critical items will be set aside. This percentage is determined through a resolution of the Board of Commissioners. Currently, \$576,700 has been set aside to fund the "Critical Items," which represents 49% of the total critical items identified. This amount may change on a yearly basis, as the total amount of critical items, their associated costs, and the percentage are changed. These funds are currently invested in WTUA's operating checking account, which is a municipal investment sweep account. Investment earnings are used for current operations.

In the event these funds are used to provide for catastrophic expenditures, the funds should be replenished by the townships as a part of the regular monthly invoices, during the months following the catastrophic expenditures. The amount of money that each township will be responsible for replenishing will be determined by the townships' usage of the system at the location of the catastrophic failure.

In order to ensure that an appropriate amount of funds continue to be set aside to provide for the failure of "Critical Items," the assumptions used to determine the reserve amount will be updated on a regular basis. A list of the assumptions and the dates they should be reevaluated are provided in Attachment A. The assumptions are as follows:

*Dollar threshold of critical items* - The dollar threshold of critical items will be determined by the Director of Operations.

*List of critical items* - The list of critical items that will be replaced through the Emergency Replacement Fund will be reevaluated by the Director of Operations on a yearly basis.

*Valuation of critical items* - Every 3 years, the Director of Operations will adjust the value of each item on the critical items list to reflect current market value for the replacement of that item. Large fluctuations in the cost to replace the various critical items can be accounted for by the Director of Operations on a more frequent basis.

*Percentage of critical items* - Every 5 years, the Board of Commissioners will determine what percentage of the critical items will be reserved for in the Emergency Replacement Fund.

*Location of Emergency Replacement Fund* - Every 5 years, the Board of Commissioners will evaluate how the Emergency Replacement Fund is to be invested.

*Township allocation for replenishment* - Every 5 years, the Board of Commissioners will reevaluate the methodology for replenishing funds used for emergency replacement.

*Timing of replenishment* - Every 5 years, the Board of Commissioners will reevaluate how quickly the townships will replenish funds used for emergency replacement.

A list of the critical items is provided in Attachment B.

### **Planned Capital Improvement Program**

The purpose of this program is to provide for the planned replacement, updating, and addition of capital assets. The plan will consist of the following:

- A list of capital projects, grouped according to the major components of WTUA's system, as well as a general grouping of assets, which benefit the system as a whole. The costs associated with these capital projects will be included in a detailed 5-year projection of capital expenditures, as well as a summary of additional projected expenditures to be made more than 5 years in the future. The costs will then be allocated to the townships based on the location of the improvement. Attachment D depicts the cost sharing breakdown for all major components of the WTUA system as well as general assets denoted above. This allocation was derived from the original cost sharing allocations in the 1989 Finance and Service Agreements. Smaller capital improvements, which are of a general nature, will be allocated to the townships based on their total flow to WTUA for the year and will be incorporated in the Operating Budget as new equipment.
- Paragraphs describing the detail of each project listed in the 5-year projection will be provided, including how the project was identified, the overall priority of the project and its various components.

The Planned Capital Improvement Program is provided in Attachment E.

The type, amount, and timing of these expenditures will be determined by the Director or Operations annually and reviewed by the Board of Commissioners. The projection is intended to be a useful planning tool and does not obligate the townships to fund the described projects. On a yearly basis, the budgeting process will determine which of the Planned Capital Improvement Program projects will be funded.

In order to ensure that the information provided in the Planned Capital Improvement Program projection is kept current, the assumptions will be updated on a regular basis. A list of the assumptions and the dates they should be reevaluated is provided in Attachment C. The assumptions are as follows:

*List of capital improvements* - The list of capital improvements will be determined by the Director of Operations annually during the budget process.

*Valuation of replacements* - Every 3 years, the Director of Operations will adjust the value of each project on the capital improvements list to reflect current market value for the improvement of that project. Large fluctuations in the cost to perform the various improvement projects can be accounted for by the Director of Operations on a more frequent basis.

*Approval of yearly repairs/replacement plan* - On a yearly basis, the Board of Commissioners will approve that year's capital improvement program. Amendments for additional unplanned projects may be necessary throughout the year.

*Methodology for determining allocation of capital expenditures, whose purpose is to benefit a particular location* - Every 5 years, the Board of Commissioners will reevaluate how the costs for capital expenditures, which benefit a particular location will be allocated to the townships.

*Methodology for determining allocation of capital expenditures, whose purpose does not benefit a particular location* - Every 5 years, the Board of Commissioners will reevaluate how the costs for capital expenditures, which do not benefit a particular location will be allocated to the townships.

## Attachment A Emergency Replacement Fund Assumptions

Description of Assumption	Current Decision	Decision Maker	Timing of Reevaluation	Next Reevaluation Date
Dollar threshold of critical items	None	Director of Operations	As necessary	As necessary
List of critical items	See Attachment B	Director of Operations	1 year	June, 2010
Valuation of critical items	Items are listed at present value	Director of Operations	3 years	June, 2010
Dollar amount of critical items to be reserved	\$576,700	Board of Commissioners	5 years	June, 2013
Location of replacement funds	WTUA operating checking account	Board of Commissioners	5 years	June, 2013
Township allocation for replenishment of funds	Funds used to pay for catastrophic expenditures are replenished by the townships according to their respective flow through the area repaired.	Board of Commissioners	5 years	June, 2013
Timing of replenishment of funds	Funds used to pay for catastrophic expenditures are replenished by the townships during the months following the expenditure	Board of Commissioners	5 years	June, 2013

**Attachment B**  
**Emergency Replacement Fund**  
**Critical Items**

<b>Cost Center</b>	<b>Critical Item Description</b>	<b>Materials</b>	<b>Labor</b>	<b>Total</b>
<b>Lower Rouge</b>	1 Pump	\$ 127,000	\$ 6,000	\$ 133,000
	1 Force Main Motor	71,000	8,000	79,000
	2 Control Valves	60,000	20,000	80,000
	1 EQ Pump/Motor	189,000	5,000	194,000
	1 Variable Frequency Drive	45,000	15,000	60,000
	1 Pipe Repair	5,000	20,000	25,000
	1 Compressor	10,000	6,000	16,000
	<b>Total for Cost Center</b>	<b>507,000</b>	<b>80,000</b>	<b>587,000</b>
<b>Middle Rouge</b>	1 Immersible Pump	120,000	25,000	145,000
	1 VFD	30,000	10,000	40,000
	1 Complete DPC Unit	12,000	500	12,500
	1 Odor Control Vessel/Upgrade	60,000	10,000	70,000
	<b>Total for Cost Center</b>	<b>222,000</b>	<b>45,500</b>	<b>267,500</b>
<b>Collection System</b>	1 Sewer Collapse	30,000	30,000	60,000
	1 Manhole Collapse	10,000	10,000	20,000
	1 Pump Station Failure	30,000	20,000	50,000
	<b>Total for Cost Center</b>	<b>70,000</b>	<b>60,000</b>	<b>130,000</b>
<b>Force Main</b>	4 Air Release Valves	35,000	1,000	36,000
	2 Knife Valves	3,000	1,000	4,000
	1 Force Main Break (to YCUA)	20,000	80,000	100,000
	<b>Total for Cost Center</b>	<b>58,000</b>	<b>82,000</b>	<b>140,000</b>
<b>Other</b>	1 Primary Feed Replacement	30,000	30,000	60,000
Total Replacement Cost				1,184,500
Percentage of Critical Items to be Reserved				<u>49%</u>
<b>Total Reserve</b>				<b><u><u>\$ 576,700</u></u></b>

## Attachment C Planned Capital Improvement Program Assumptions

Description of Assumption	Current Decision	Decision Maker	Timing of Reevaluation	Next Reevaluation Date
List of repairs/replacements	See Attachment E	Director of Operations	1 year	June, 2010
Valuation of repairs/replacements	Items are listed at present value	Director of Operations	1 year	June, 2010
Approval of annual plan	Plan approved on a yearly basis	Board of Commissioners	1 year	June, 2010
Methodology for determining allocation of capital expenditures, whose purpose is to benefit a particular location	Allocate based on Attachment D.	Board of Commissioners	5 years	June, 2010
Methodology for determining allocation of smaller capital expenditures, whose purpose does not benefit a particular location	Allocate based on the townships flow for the year.	Board of Commissioners	5 years	June, 2010

**Attachment D  
Planned Capital Improvement Program  
Allocation Percentages**

<b>Segment</b>	<b>Component</b>	<b>Canton</b>	<b>Northville</b>	<b>Plymouth</b>
<b>1A</b>	Upstream MH to Phoenix Lake	0.00%	84.84%	15.16%
	Phoenix Lake to Wilcox Road	0.00%	84.68%	15.32%
<b>MSI</b>	Maybury Sanatorium	0.00%	100.00%	0.00%
<b>MRPI/MRVI</b>	Prison to Wilcox Road **	0.00%	84.84%	15.16%
	Wilcox Road to Plymouth Road *	0.00%	84.84%	15.16%
	Plymouth Road to Haggerty Road *	0.00%	80.53%	19.47%
	Haggerty Road to Joy Road *	0.00%	73.92%	26.08%
<b>1B</b>	Middle Rouge Lift Station & EQ Basin	19.24%	42.13%	38.63%
	Downstream Control	38.66%	16.46%	44.88%
<b>1C</b>	Upstream MH to Warren Road	25.38%	33.96%	40.67%
	Warren Road to Ford Road	53.10%	21.34%	25.56%
	Ford Road to Cherry Hill	58.25%	19.00%	22.75%
	Cherry Hill to Lower Rouge PS	74.07%	11.80%	14.13%
<b>1D</b>	Lower Rouge Pump Station	51.28%	22.17%	26.55%
	Lower Rouge EQ Basin	100.00%	0.00%	0.00%
<b>2</b>	YCUA Effluent Pump Station & Force Mains	51.28%	22.17%	26.55%
<b>Redirection Projects</b>	Plymouth Road Interceptor	0.00%	0.00%	100.00%
	Hines Drive Interceptor	0.00%	0.00%	100.00%
	Joy Road Interceptor	82.00%	0.00%	18.00%
	Michigan Avenue Interceptor	100.00%	0.00%	0.00%
<b>Hines Drive Pump Station</b>		0.00%	0.00%	100.00%
<b>Eckles Road Pump Station</b>		82.00%	0.00%	18.00%
<b>YCUA Expansion</b>	Treatment Plant Capacity	51.28%	22.17%	26.55%
<b>EWWTs</b>		51.28%	22.17%	26.55%
<b>Storage Building</b>		33.33%	33.33%	33.33%

\* Implies based on upsizing costs for NHV Projects 5a, 5b & 5c.

\*\*Subject to change following review by Technical Committee and Board approval.

**Attachment D (continued)**  
**Planned Capital Improvement Program**  
**Flow Meter Cost Allocations**

			<b>Canton Township</b>	<b>Northville Township</b>	<b>Plymouth Township</b>	
A	*	Plymouth	Sheldon Rd. S of Territorial	0.00%	0.00%	100.00%
B	*	Plymouth	Sheldon Rd. and Pine Tree	0.00%	0.00%	100.00%
C	*	Plymouth	Ann Arbor Rd. E of Main St.	0.00%	0.00%	100.00%
FE-8	*	Northville	15277 Northville Rd.	0.00%	100.00%	0.00%
FE-9	*	Northville	15277 Northville Rd.	0.00%	100.00%	0.00%
FE-11	*	Northville	39742 Five Mile Rd.	0.00%	100.00%	0.00%
FE-12	*	Plymouth	39748 Joy Rd.	0.00%	0.00%	100.00%
FE-13	*	Plymouth	40320 Joy Rd.	0.00%	0.00%	100.00%
FE-14	*	Canton	39402 Joy Rd.	100.00%	0.00%	0.00%
FE-15	*	Canton	40602 Joy Rd.	100.00%	0.00%	0.00%
FE-16		Canton	41000 Joy Rd.	100.00%	0.00%	0.00%
FE-17		Middle Rouge	40905 Joy Rd.	19.24%	42.13%	38.63%
FE-17A	*	Middle Rouge	Haggerty S of Ann Arbor Rd.	0.00%	73.92%	26.08%
FE-17B	*	Middle Rouge	Joy W of Haggerty	0.00%	0.00%	100.00%
FE-17C	*	Middle Rouge	Joy W of Haggerty	0.00%	0.00%	100.00%
FE-18	*	Northville/Plymouth	48984 Five Mile Rd.	0.00%	50.00%	50.00%
FE-20		Hines Dr. Pump Station	40243 N Edward Hines Dr.	0.00%	0.00%	100.00%
FE-21		Eckles Rd. Pump Station	39403 Joy Rd.	82.00%	0.00%	18.00%
FE-22		Eckles Rd. Pump Station	39403 Joy Rd.	82.00%	0.00%	18.00%
FE-44		Lower Rouge	3600 S Haggerty	74.07%	11.80%	14.13%
FE-45		Lower Rouge	3501 S Haggerty	100.00%	0.00%	0.00%
C-1	*	Canton	Warren E of Haggerty	100.00%	0.00%	0.00%
C-2	*	Canton	Ford Rd. W of Haggerty	100.00%	0.00%	0.00%
C-3	*	Canton	Ford Rd. E of Haggerty	100.00%	0.00%	0.00%
C-4	*	Canton	Cherryhill W of Haggerty	100.00%	0.00%	0.00%
C-5	*	Canton	Cherryhill E of Haggerty	100.00%	0.00%	0.00%
C-6	*	Canton	Palmer W of Haggerty	100.00%	0.00%	0.00%
C-7	*	Canton	Palmer E of Haggerty	100.00%	0.00%	0.00%
C-8	*	Canton	Haggerty N of Michigan Ave.	100.00%	0.00%	0.00%
C-9	*	Canton	Michigan Ave. W of Haggerty	100.00%	0.00%	0.00%
C-10a	*	Canton	Haggerty S of Michigan Ave.	100.00%	0.00%	0.00%

\* These meters are replaced with spare meters as needed. Spare meters are purchased yearly through the O&M budget to maintain an inventory of approximately 5 spare meters. This is done to avoid rental costs when a meter malfunctions.

**ATTACHMENT E  
PLANNED CAPITAL IMPROVEMENT PROGRAM**

Project Description	2009	2010	2011	2012	2013	2014 - 2018	Total	Canton	Northville	Plymouth
<b>Lower Rouge EQB Expansion</b>	\$ 7,650,000	\$ 1,525,000	\$ -	\$ -	\$ -	\$ -	\$ 9,175,000	\$ 9,175,000	\$ -	\$ -
<b>SMALL PUMP STATION REPAIRS &amp; REPLACEMENT</b>										
Little Rouge Lift Station										
Flushing Bucket Bearings	-	52,000	-	-	-	-	52,000	10,005	21,908	20,087
EFSP (Pumps)	620,802	-	-	-	-	-	620,802	119,442	261,544	239,816
Odor Control Modification	-	-	465,000	-	-	-	465,000	89,466	195,905	179,629
Parking Lot Repairs	-	60,000	-	-	-	-	60,000	11,544	25,278	23,178
Lower Rouge Pump Station										
Large Force Main Pumps	450,000	-	-	-	-	-	450,000	230,760	99,765	119,475
Flushing Bucket Bearings	-	35,000	-	-	-	-	35,000	17,948	7,760	9,292
<b>MALL PUMP STATION REPAIRS &amp; REPLACEMENT</b>										
CADA System	-	-	-	-	30,000	-	30,000	12,300	-	17,700
<b>FORCE MAIN REPAIRS &amp; REPLACEMENT</b>										
Air Release Valves	-	-	-	240,000	-	-	240,000	123,072	53,208	63,720
<b>INTERCEPTOR REPAIRS</b>										
Project 7	-	250,000	-	-	-	-	250,000	-	201,325	48,675
Project 8	-	-	1,500,000	-	-	-	1,500,000	-	1,108,800	391,200
Project 9	-	-	-	400,000	-	-	400,000	-	400,000	-
Project 10	-	-	-	-	400,000	-	400,000	-	339,360	60,640
Project 11-15	-	-	-	-	-	2,000,000	2,000,000	-	1,696,800	303,200
<b>LOW METERS</b>										
A, B, C Telemetry	-	-	-	-	40,000	-	40,000	-	-	40,000
Low Meter Replacements	-	40,000	50,000	-	40,000	80,000	210,000	168,068	15,805	26,127
<b>GENERAL</b>										
GIS Orthomapping	-	50,000	-	-	100,000	-	150,000	75,000	37,500	37,500
Vehicles	-	-	25,000	-	-	25,000	50,000	16,666	16,666	16,668
<b>Total without LR EQB Expansion</b>	\$ 1,070,802	\$ 487,000	\$ 2,040,000	\$ 640,000	\$ 610,000	\$ 2,105,000	\$ 6,952,802	\$ 874,271	\$ 4,481,624	\$ 1,596,907
<b>Total with LR EQB Expansion</b>	\$ 8,720,802	\$ 2,012,000	\$ 2,040,000	\$ 640,000	\$ 610,000	\$ 2,105,000	\$ 16,127,802	\$ 10,049,271	\$ 4,481,624	\$ 1,596,907

**ATTACHMENT E  
PLANNED CAPITAL IMPROVEMENT PROGRAM  
CANTON TOWNSHIP'S SHARE**

<b>Project Description</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014 - 2018</b>	<b>Total</b>
<b>Lower Rouge EQB Expansion</b>	\$ 7,650,000	\$ 1,525,000	\$ -	\$ -	\$ -	\$ -	\$ 9,175,000
<b>LARGE PUMP STATION REPAIRS &amp; REPLACEMENT</b>							
Middle Rouge Lift Station							
Flushing Bucket Bearings	-	10,005	-	-	-	-	10,005
EFSP (Pumps)	119,442	-	-	-	-	-	119,442
Odor Control Modification	-	-	89,466	-	-	-	89,466
Parking Lot Repairs	-	11,544	-	-	-	-	11,544
Lower Rouge Pump Station							
Large Force Main Pumps	230,760	-	-	-	-	-	230,760
Flushing Bucket Bearings	-	17,948	-	-	-	-	17,948
<b>SMALL PUMP STATION REPAIRS &amp; REPLACEMENT</b>							
SCADA System	-	-	-	-	12,300	-	12,300
<b>FORCE MAIN REPAIRS &amp; REPLACEMENT</b>							
Air Release Valves	-	-	-	123,072	-	-	123,072
<b>FLOW METERS</b>							
Flow Meter Replacements	-	20,512	37,928	-	40,000	69,628	168,068
<b>GENERAL</b>							
GIS Orthomapping	-	25,000	-	-	50,000	-	75,000
ehicles	-	-	8,333	-	-	8,333	16,666
<b>Total without LR EQB Expansion</b>	<b>\$ 350,202</b>	<b>\$ 85,009</b>	<b>\$ 135,727</b>	<b>\$ 123,072</b>	<b>\$ 102,300</b>	<b>\$ 77,961</b>	<b>\$ 874,271</b>
<b>Total with LR EQB Expansion</b>	<b>\$ 8,000,202</b>	<b>\$ 1,610,009</b>	<b>\$ 135,727</b>	<b>\$ 123,072</b>	<b>\$ 102,300</b>	<b>\$ 77,961</b>	<b>\$ 10,049,271</b>

**ATTACHMENT E  
PLANNED CAPITAL IMPROVEMENT PROGRAM  
NORTHVILLE TOWNSHIP'S SHARE**

<b>Project Description</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014 - 2018</b>	<b>Total</b>
<b>LARGE PUMP STATION REPAIRS &amp; REPLACEMENT</b>							
Middle Rouge Lift Station							
Flushing Bucket Bearings	-	21,908	-	-	-	-	21,908
EFSP (Pumps)	261,544	-	-	-	-	-	261,544
Odor Control Modification	-	-	195,905	-	-	-	195,905
Parking Lot Repairs	-	25,278	-	-	-	-	25,278
Lower Rouge Pump Station							
Large Force Main Pumps	99,765	-	-	-	-	-	99,765
Flushing Bucket Bearings	-	7,760	-	-	-	-	7,760
<b>FORCE MAIN REPAIRS &amp; REPLACEMENT</b>							
Air Release Valves	-	-	-	53,208	-	-	53,208
<b>INTERCEPTOR REPAIRS</b>							
Project 7	-	201,325	-	-	-	-	201,325
Project 8	-	-	1,108,800	-	-	-	1,108,800
Project 9	-	-	-	400,000	-	-	400,000
Project 10	-	-	-	-	339,360	-	339,360
Project 11-15	-	-	-	-	-	1,696,800	1,696,800
<b>FLOW METERS</b>							
Flow Meter Replacements	-	8,868	2,217	-	-	4,720	15,805
<b>GENERAL</b>							
GIS Orthomapping	-	12,500	-	-	25,000	-	37,500
Vehicles	-	-	8,333	-	-	8,333	16,666
<b>Total</b>	<b>\$ 361,309</b>	<b>\$ 277,639</b>	<b>\$ 1,315,255</b>	<b>\$ 453,208</b>	<b>\$ 364,360</b>	<b>\$ 1,709,853</b>	<b>\$ 4,481,624</b>

**ATTACHMENT E  
PLANNED CAPITAL IMPROVEMENT PROGRAM  
PLYMOUTH TOWNSHIP'S SHARE**

<b>Project Description</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014 - 2018</b>	<b>Total</b>
<b>LARGE PUMP STATION REPAIRS &amp; REPLACEMENT</b>							
Middle Rouge Lift Station							
Flushing Bucket Bearings	-	20,087	-	-	-	-	20,087
EFSP (Pumps)	239,816	-	-	-	-	-	239,816
Odor Control Modification	-	-	179,629	-	-	-	179,629
Parking Lot Repairs	-	23,178	-	-	-	-	23,178
Lower Rouge Pump Station							
Large Force Main Pumps	119,475	-	-	-	-	-	119,475
Flushing Bucket Bearings	-	9,292	-	-	-	-	9,292
<b>SMALL PUMP STATION REPAIRS &amp; REPLACEMENT</b>							
SCADA System	-	-	-	-	17,700	-	17,700
<b>FORCE MAIN REPAIRS &amp; REPLACEMENT</b>							
Air Release Valves	-	-	-	63,720	-	-	63,720
<b>INTERCEPTOR REPAIRS</b>							
Project 7	-	48,675	-	-	-	-	48,675
Project 8	-	-	391,200	-	-	-	391,200
Project 10	-	-	-	-	60,640	-	60,640
Project 11-15	-	-	-	-	-	303,200	303,200
<b>FLOW METERS</b>							
A, B, C Telemetry	-	-	-	-	40,000	-	40,000
Flow Meter Replacements	-	10,620	9,855	-	-	5,652	26,127
<b>GENERAL</b>							
GIS Orthomapping	-	12,500	-	-	25,000	-	37,500
Vehicles	-	-	8,334	-	-	8,334	16,668
<b>Total</b>	<b>\$ 359,291</b>	<b>\$ 124,352</b>	<b>\$ 589,018</b>	<b>\$ 63,720</b>	<b>\$ 143,340</b>	<b>\$ 317,186</b>	<b>\$ 1,596,907</b>

**Attachment E  
Planned Capital Improvement Program  
Lower Rouge EQB Expansion  
2006 – 2010**

**Description**

As a result of Canton Township's regional flow metering project, additional storage is required at the Lower Rouge Facility. Additional pumping capacity will also be required in order to get the flow into the new storage. Lower Rouge currently has approximately 5.5 MG of storage capacity. The expansion will add an additional 5.5 MG.

**Funding Sources**

Townships are billed as costs are incurred.

**Cost Sharing**

	2006	2007	2008	2009	2010
Canton Township 100.00%	\$650,000	\$928,454	\$17,454,000	\$7,650,000	\$1,525,000

**Cost**

	Budget				
	2006	2007	2008	2009	2010
Design	\$650,000	\$593,652	\$ -	\$ -	\$ -
Construction	-	-	15,600,000	6,900,000	1,500,000
Other		334,802	54,000	-	-
Project management	-	-	1,800,000	750,000	25,000
<b>Total</b>	<b>\$650,000</b>	<b>\$928,454</b>	<b>\$17,454,000</b>	<b>\$7,650,000</b>	<b>\$1,525,000</b>

**Project Status**

Wade Trim is doing the design and project management for this project. DeMaria is the construction contractor. Construction started in February 2008. Completion is expected in 2010.

**Attachment E  
 Planned Capital Improvement Program  
 Large Pump Station Repairs & Replacement  
 Middle Rouge Lift Station  
 Flushing Bucket Bearings  
 2010**

**Description**

Replace worn out bearings on all flushing buckets inside the underground equalization basins. The flushing buckets are designed to remove debris from the bottom of the basin once the sewage is drained out after a rain event. There are 32 flushing buckets inside the 7.8 million gallon basin at Middle Rouge. Each flushing bucket contains 2 bearings.

**Funding Sources**

Townships are billed as costs are incurred.

**Cost Sharing**

Canton Township	19.24%	\$ 10,005
Northville Township	42.13%	21,908
Plymouth Township	38.63%	20,087
		<u>\$ 52,000</u>

**Cost**

	<b>Budget</b>
Parts	\$ 32,000
Installation	20,000
Total	<u>\$ 52,000</u>

**Attachment E  
Planned Capital Improvement Program  
Large Pump Station Repairs & Replacement  
Middle Rouge Lift Station  
EFSP  
2006-2009**

**Description**

This project completes the replacement of the enclosed flight screw pumps (EFSP) at the Middle Rouge facility. Pumps #1, 2, 5 and 6 were replaced in 2007. This project will entail the removal and replacement of pumps #3 and #4 as well as the installation of a monorail system for removal of the new pumps and modifications to the odor control ductwork.

**Funding Sources**

Townships are billed as costs are incurred.

**Cost Sharing**

		2006	2007	2008	2009
Canton Township	19.24%	\$ 192,847	\$ 178,524	\$ 96,200	\$ 119,442
Northville Township	42.13%	422,279	390,917	210,650	261,544
Plymouth Township	38.63%	387,197	358,441	193,150	239,816
		<u>\$ 1,002,323</u>	<u>\$ 927,882</u>	<u>\$ 500,000</u>	<u>\$ 620,802</u>

**Cost**

	Budget			
	2006	2007	2008	2009
Engineering Design	\$ 99,536	\$ 23,981	\$ 76,508	\$ -
Installation and materials	877,468	878,582	400,000	595,802
Project Management	25,319	25,319	23,492	25,000
	<u>\$ 1,002,323</u>	<u>\$ 927,882</u>	<u>\$ 500,000</u>	<u>\$ 620,802</u>

**Project Status**

Two pumps were replaced and started operations in February 2007. Two additional pumps were replaced and started operations in June 2007. Construction started on the replacement of the final two pumps in March 2009. The project should be completed by October 2009.

**Attachment E  
Planned Capital Improvement Program  
Large Pump Station Repairs & Replacement  
Middle Rouge Lift Station  
Odor Control Modification  
2011**

**Description**

The current odor control system at the Middle Rouge facility relies on a high rate of air draw from the Motor Room, with the air treated with sodium hypochlorite to eliminate odors. This system relies on foul air from the wetwell traveling up the enclosed flight screw pumps (EFSP), which will be removed entirely upon completion of EFSP Replacement Phase 3. As the chemical cost of the sodium hypochlorite continues to rise, modifications planned are to eliminate the chlorine based odor control and replace it with a carbon system similar to that being installed at Lower Rouge

**Funding Sources**

Townships are billed as costs are incurred.

**Cost Sharing**

Canton Township	19.24%	\$ 89,466
Northville Township	42.13%	195,905
Plymouth Township	38.63%	179,629
		<u>\$ 465,000</u>

**Cost**

	<b>Budget</b>
Engineering Design	\$ 50,000
Odor Control System	400,000
Project Management	15,000
	<u>\$ 465,000</u>

**Attachment E  
 Planned Capital Improvement Program  
 Large Pump Station Repairs & Replacement  
 Middle Rouge Lift Station  
 Parking Lot Repairs  
 2010**

**Description**

Repairs and modifications to the driveway and parking lot at the Middle Rouge lift station. The older section (back) of the driveway and parking lot are showing the signs of age, along with the increased traffic load due to the construction traffic. Modifications would entail extension of the paved area to better accommodate crane/boom truck access for installation and removal of pumps and other equipment.

**Funding Sources**

Townships are billed as costs are incurred.

**Cost Sharing**

Canton Township	19.24%	\$ 11,544
Northville Township	42.13%	25,278
Plymouth Township	38.63%	23,178
		<u>\$ 60,000</u>

**Cost**

	<b>Budget</b>
Parking Lot	<u>\$ 60,000</u>

**Attachment E**  
**Planned Capital Improvement Program**  
**Large Pump Station Repairs & Replacement**  
**Lower Rouge Pump Station**  
**Large Force Main Pumps**  
**2005-2009**

**Description**

Replace the original large force main pumps (Pumps 3, 4, 5 and 6) that deliver flow to YCUA. The existing 9,500 gpm Gould pumps never operated very well, and there have been increased signs of major wear of critical pump components since 2002.

**Funding Sources**

Townships are billed as costs are incurred.

**Cost Sharing**

		2005	2006	2009
Canton Township	51.28%	\$ 25,640	\$ 217,940	\$ 230,760
Northville Township	22.17%	11,085	94,223	99,765
Plymouth Township	26.55%	13,275	112,837	119,475
		<u>\$ 50,000</u>	<u>\$ 425,000</u>	<u>\$ 450,000</u>

**Cost**

	Budget		
	2005	2006	2009
Design	\$ 50,000	\$ -	\$ -
Pump	-	225,000	225,000
Installation	-	200,000	225,000
Total	<u>\$ 50,000</u>	<u>\$ 425,000</u>	<u>\$ 450,000</u>

**Project Status**

The first phase of the replacement of the first two pumps was completed in August 2006. The second phase (final 3 pumps) is being completed as part of the Lower Rouge Expansion project.

**Attachment E  
 Planned Capital Improvement Program  
 Large Pump Station Repairs & Replacement  
 Lower Rouge Lift Station  
 Flushing Bucket Bearings  
 2010**

**Description**

Replace worn out bearings on all flushing buckets inside the underground equalization basins. The flushing buckets are designed to remove debris from the bottom of the basin once the sewage is drained out after a rain event. There are 20 flushing buckets inside the 5.5 million gallon basin at Lower Rouge. Each flushing bucket contains 2 bearings.

**Funding Sources**

Townships are billed as costs are incurred.

**Cost Sharing**

Canton Township	51.28%	\$ 17,948
Northville Township	22.17%	7,760
Plymouth Township	26.55%	9,292
		<u>\$ 35,000</u>

**Cost**

	<b>Budget</b>
Parts	\$ 20,000
Installation	15,000
Total	<u>\$ 35,000</u>

**Attachment E  
Planned Capital Improvement Program  
Small Pump Station Repairs & Replacement  
SCADA System  
2013**

**Description**

The Supervisory Control and Data Acquisition (SCADA) system is a computer system used to monitor and control the operations of WTUA's pump stations. This project will incorporate the small pump station SCADA systems with the upgraded Instrumentation System Control Panel at Middle Rouge.

The integration of the Hines and Eckles pump stations with the SCADA system will allow real time operation and monitoring of the remote pump station sites, improving the efficiency of the operations staff and data retrieval for analysis purposes.

**Funding Sources**

Townships are billed as costs are incurred.

**Cost Sharing**

Canton Township	41.00%	\$ 12,300
Northville Township	0.00%	-
Plymouth Township	59.00%	17,700
		<u>\$ 30,000</u>

**Cost**

	<b>Budget</b>
SCADA system	<u>\$ 30,000</u>

**Attachment E  
Planned Capital Improvement Program  
Force Main Repairs & Replacement  
Air Release Valves  
2008 - 2012**

**Description**

This project involves the replacement of twenty-nine (29) of the air release valves (ARV) on the 36" force main to YCUA in a two step process. During the first phase 5 Vent-o-Mat ARV's will be purchased and install as a pilot test. The remaining ARV's will be replaced after assessment of the pilot program. The 36' force main was put in service early in 2007. It is anticipated that all 29 ARV on the 36" force main will need replacement at some point. The current ARV have had a problem with grease plugs that form in the ARV body causing sanitary sewer overflows (SSO) along Michigan Avenue. The ARV's on the 30" force main were replaced in 2006. These ARV have been functioning properly. The ARV will be installed by OMI as part of the normal preventative maintenance rounds.

**Funding Sources**

Townships are billed as costs are incurred.

**Cost Sharing**

		<b>2008</b>	<b>2012</b>
Canton Township	51.28%	\$ 23,076	\$ 123,072
Northville Township	22.17%	9,977	53,208
Plymouth Township	26.55%	11,947	63,720
		<u>\$ 45,000</u>	<u>\$ 240,000</u>

**Cost**

	<b>Budget</b>	
	2008	2012
ARV	<u>\$ 45,000</u>	<u>\$ 240,000</u>

**Project Status**

The first five Vent-O-Mat ARV's were installed in November 2008, and are being evaluated.

**Attachment E  
Planned Capital Improvement Program  
Interceptor Repairs  
Project 7  
2010**

**Description**

This project involves repairs to the MRPI/MRVI interceptor lines in Hines Park between Plymouth and Haggerty Roads, where there are connections that run through the pipes causing obstructions. Repairs will be made by open cut excavation.

**Funding Sources**

Townships are billed as costs are incurred.

**Cost Sharing**

Canton Township	0.00%	\$ -
Northville Township	80.53%	201,325
Plymouth Township	19.47%	48,675
		<u>\$ 250,000</u>

**Cost**

	<b>Budget</b>
Repair costs	\$ 250,000
	<u>\$ 250,000</u>

**Attachment E  
Planned Capital Improvement Program  
Interceptor Repairs  
Project 8 - MRVI  
2011**

**Description**

This project involves the repair of leaking joints in the Middle Rouge Valley Interceptor (MRVI) along Haggerty Road between Hines Drive and Joy Road. Much of this 48" diameter interceptor is brick. The MRVI was built in 1961.

Closed circuit television (CCTV) inspections in 2000 revealed numerous significant infiltration points along the interceptor. The leaks will be repaired using a combination of spray applied sealant as well as chemical grout injected into the open pipe joints as needed, followed by CIPP Lining.

**Funding Sources**

Townships are billed as costs are incurred.

**Cost Sharing**

Canton Township	0.00%	\$ -
Northville Township	73.92%	1,108,800
Plymouth Township	26.08%	391,200
		<u>\$ 1,500,000</u>

**Cost**

	<b>Budget</b>
3200 feet CIPP lining	<u>\$ 1,500,000</u>

**Attachment E  
Planned Capital Improvement Program  
Interceptor Repairs  
Project 9 - 1A-Northville Twp. (Hines Dr.)  
2012**

**Description**

This project involves repairs to the WTUA 1A interceptor in Northville Township where the pipe crosses underneath the CSX railroad between Manhole 23 to Manhole 24 just northwest of Phoenix Lake along Northville Road. The WTUA 1A pipe was constructed in 1991.

Closed circuit television (CCTV) inspection of the interceptor in 2002 found that this segment had significant settlement at either end causing a hydraulic deficiency in the flow and debris accumulation. This segment of pipe was originally installed using "bore and jack" method which sometimes results in undermining of the soils around the pipe causing settlement.

**Funding Sources**

Townships are billed as costs are incurred.

**Cost Sharing**

Canton Township	0.00%	\$ -
Northville Township	100.00%	400,000
Plymouth Township	0.00%	-
		\$400,000

**Cost**

	Budget
30" pipe repairs	\$ 350,000
Engineering	50,000
	\$ 400,000

**Attachment E  
Planned Capital Improvement Program  
Interceptor Repairs  
Project 10  
2013**

**Description**

This project will continue the rehabilitation of the Middle Rouge Parkway Interceptor (MRPI) and Middle Rouge Valley Interceptor (MRVI) in Northville and Plymouth Townships. The actual location for the project for 2013 will be determined based upon CCTV inspections of the interceptor.

**Funding Sources**

Townships are billed as costs are incurred.

**Cost Sharing**

Canton Township	0.00%	\$ -
Northville Township	84.84%	339,360
Plymouth Township	15.16%	60,640
		<u>\$ 400,000</u>

**Cost**

	Budget
Interceptor repair costs	<u>\$ 400,000</u>

**Attachment E  
Planned Capital Improvement Program  
Interceptor Repairs  
Project 11-15  
2014-2018**

**Description**

These projects anticipated continued rehabilitation of the Middle Rouge Parkway Interceptor (MRPI) and Middle Rouge Valley Interceptor (MRVI) in Northville and Plymouth Townships. As we approach 2014 more detailed program descriptions will be developed for each project. The MRPI was built in 1938 and the MRVI was constructed in 1961.

**Funding Sources**

Townships are billed as costs are incurred.

**Cost Sharing**

		2014	2015	2016	2017	2018
Canton Township	0.00%	\$ -	\$ -	\$ -	\$ -	\$ -
Northville Township	84.84%	339,360	339,360	339,360	339,360	339,360
Plymouth Township	15.16%	60,640	60,640	60,640	60,640	60,640
		<u>\$ 400,000</u>	<u>\$ 400,000</u>	<u>\$ 400,000</u>	<u>\$ 400,000</u>	<u>\$ 400,000</u>

**Cost**

		Budget				
		2014	2015	2016	2017	2018
Interceptor repair costs		<u>\$ 400,000</u>	<u>\$ 400,000</u>	<u>\$ 400,000</u>	<u>\$ 400,000</u>	<u>\$ 400,000</u>

**Attachment E  
Planned Capital Improvement Program  
A, B, C Telemetry  
2013**

**Description**

Flow meters A, B and C are used to measure the amount of flow that the City of Plymouth contributes to the WTUA system which is passed on to Wayne County/DWSD. Upon completion of the Downstream Controls Project, WTUA will have the capability to pass on the actual, real-time flow from the City. Equipping meters A, B and C with radio telemetry will provide WTUA with the data necessary to do so.

**Funding Sources**

Townships are billed as costs are incurred.

**Cost Sharing**

Plymouth Township	100%	<u>\$ 40,000</u>
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**Cost**

	<b>Budget</b>
Equipment and installation	<u>\$ 40,000</u>

**Attachment E  
Planned Capital Improvement Program  
Flow Meter Replacements  
2009 - 2017**

**Description**

WTUA measures the flows that enter the WTUA system using 39 permanently placed flow meters and maintains up to 6 spare meters. Data from these meters is analyzed on a monthly basis. The percentage allocation of the actual flow is what is used to allocate the operating expenses among the Townships. A replacement program has been created to replace the meters at the end of their expected useful life. The Sigma, ISCO and flume meters will be replaced on an as-needed basis through the operations and maintenance budget. The remaining, more costly meters will be replaced through the Capital Improvement Program.

**Funding Sources**

Townships are billed as costs are incurred.

**Cost Sharing**

		2009	2010	2011	2012	2013	2014 - 2018
Canton Township	Based upon	\$ -	\$ 20,512	\$ 37,928	\$ -	\$ 40,000	\$ 69,628
Northville Township	location of	-	8,868	2,217	-	-	4,720
Plymouth Township	meters	-	10,620	9,855	-	-	5,652
		<b>\$ -</b>	<b>\$ 40,000</b>	<b>\$ 50,000</b>	<b>\$ -</b>	<b>\$ 40,000</b>	<b>\$ 80,000</b>

**Cost**

		Budget					
		2009	2010	2011	2012	2013	2014 - 2018
Accusonic meters		\$ -	\$ -	\$ 40,000	\$ -	\$ 40,000	\$ 80,000
Brooks Mag meters		-	40,000	10,000	-	-	-
		<b>\$ -</b>	<b>\$ 40,000</b>	<b>\$ 50,000</b>	<b>\$ -</b>	<b>\$ 40,000</b>	<b>\$ 80,000</b>

**Attachment E  
Planned Capital Improvement Program  
General  
GIS Orthomapping  
2010 - 2013**

**Description**

Orthophoto mapping is the base mapping required for an effective GIS. SEMCOG sponsored a flight in 2005 and the data was received in 2006. The Townships were not satisfied with the quality of the data. The federal government sponsored a flight in 2008 and the data was received in June 2009. WTUA is budgeting a flight for 2010, due to the unsatisfactory quality of the latest flight.

It is anticipated that this mapping will need to be done every 3 years.

**Funding Sources**

Townships are billed as costs are incurred.

**Cost Sharing**

		2010	2013
Canton Township	50%	\$ 25,000	\$ 50,000
Northville Township	25%	12,500	25,000
Plymouth Township	25%	12,500	25,000
		<u>\$ 50,000</u>	<u>\$ 100,000</u>

**Cost**

		Budget	
		2010	2013
GIS Orthomapping		<u>\$ 50,000</u>	<u>\$ 100,000</u>

**Attachment E  
Planned Capital Improvement Program  
General  
Vehicle  
2011 - 2016**

**Description**

It is anticipated that by 2011 the 2001 Ford F350 pickup truck vehicle will need to be replaced and that by 2016 the 2006 GMC Sierra will need to be replaced. The new vehicles will be purchased through the Oakland County Purchasing Co-op that Canton Township participates in for new vehicles.

**Funding Sources**

Townships are billed as costs are incurred.

**Cost Sharing**

		2011	2016
Canton Township	33%	\$ 8,333	\$ 8,333
Northville Township	33%	8,333	8,333
Plymouth Township	33%	8,334	8,334
		<u>\$ 25,000</u>	<u>\$ 25,000</u>

**Cost**

		Budget	
		2011	2016
Pickup Truck		<u>\$ 25,000</u>	<u>\$ 25,000</u>