

Water Storage

**Estimating its Effects on the
Cost of Buying Water from
DWSD and Water Rates**





Cautionary Note

- **The further you go into the future the greater the probability that assumptions can or will change which will impact the estimated water bills presented here**
- **The recent issues raised about DWSD's contract practices imply that there could potentially be a change made at DWSD which could impact rates and rate structures into the future**
- **It is possible that the rate structure, during any of the DWSD contract reopen points, with the City, could eliminate or reduce the MAX Day customer advantage which is the basis of this presentation**

What Determines the City's Water Rate

Water Department - Expenses		2010
Salaries & Wages - Water		10.04%
Materials & Supplies - Water		1.01%
Professional and Inter-Fund Services - Water		11.97%
Water Acquisition - Water		61.47%
Repairs & Maintenance - Water		0.13%
Rentals - Water		0.02%
Other Expense - Water		0.00%
Depreciation & Amortization - Water		13.91%
Interest & Fiscal Charges - Water		0.66%
Transfer - Out - Water		0.79%
Capital Outlay - Water		0.00%
Grand Total Expenses - Water		

What Costs will be Effected with Water Storage

Water Department - Expenses		2010
Salaries & Wages - Water		10.04%
Materials & Supplies - Water		1.01%
Professional and Inter-Fund Services - Water		11.97%
Water Acquisition - Water		61.47%
Repairs & Maintenance - Water		0.13%
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Interest & Fiscal Charges - Water		0.66%
Transfer - Out - Water		0.79%
Capital Outlay - Water		0.00%
Grand Total Expenses - Water		

How is our rate determined by DWSD

Our Current 2010-11 Contract with DWSD

DWSD Contract For Rate Year 07/01/10 to 06/30/11

	<u>Annual Volume</u>	<u>Max Day</u>	<u>Peak Hour</u>	<u>Fixed Monthly</u>	<u>Variable Rate/Mcf</u>
Peak Hour Customer	445,000 (mcf)	25.81 (mgd)	51.91 (mgd)	\$83,118	\$24.06

FY 2010-11 PRELIMINARY RATE CALCULATION

COMMUNITY: Rochester Hills

Service Category	A	B	C	D	E	F		G
	Cct Dmd Proxies mgd	Units of Service Mcf/day	Applied Units Mcf/day -	Unit Cost	Allocated Costs	Cost Recovery		
						Fixed (c)	Commodity	
1 Commodity	(a)	1,219.2	1,346.0	\$188.01	\$253,057	\$0	\$253,057	
2 Max Day Usage	25.81	3,450.3	3,577.1	803.54	2,874,353	487,788	2,386,565	
3 Peak Hour Usage	51.91	6,939.4	7,066.2	0.00	0	0	0	
4 Peak Hour Increment			3,489.1	225.77	787,722	0	787,722	
5 Commodity Distance	26.9 miles		36,207.4	0.00	0	0	0	
6 Max Day Distance			96,223.9	0.00	0	0	0	
7 Peak Hour Use Distance			190,079.6	8.89	1,689,427	385,719	1,303,708	
8 Peak Hour Incr Distance			93,855.8	0.00	0	0	0	
9 Commodity Distance-EI	48.7 miles (b)		65,550.2	10.71	701,846	0	701,846	
10 Max Day Distance-Elevation			174,204.5	1.30	226,466	0	226,466	
11 Peak Hour Use Distance-Elevation			344,121.9	11.05	3,800,826	0	3,800,826	
12 Peak Hour Incr Distance-Elevation			169,917.3	7.34	1,247,533	0	1,247,533	
13 Customer B (Meters)		2,385 eq 5/8" mtrs		19.14	45,637	45,637	0	
14 Wholesale Customer Support			1,346.0	58.15	78,275	78,275	0	
15 Total FY 2011 Revenue Requirement					\$11,705,142	\$997,419	\$10,707,723	
16 FY 2011 Billing Units					445,000	12	445,000	
17 FY 2011 Rate Schedule (16)/(17)		Fixed Monthly Charge & Commodity Rate - \$/Mcf			\$26.30	\$83,118	\$24.06	

(a) Applied Units include allocated Non-Revenue (unaccounted for) Water @ 10.4% of sales based on distance factor.

(b) Elevation Factor = 840 - 610 = 230 feet / 10.56 = 21.8 miles + 26.9 miles = 48.7 miles.

(c) 25% of the Capital portion of "Plant" and "Pipe" categories plus all of "Other" categories.

TOTAL	Unit Costs - \$/Mcf Water Sales				Cost Recovery		
	Comm'd	Max Day	PH Use	PH Incr	TOTAL	Fixed	Commodity
Regular (Lines 1-4)	0.57	6.46	-	1.77	8.80	1.10	7.70
Distance (Lines 5-8)	-	-	3.80	-	3.80	0.87	2.93
Dist/Elev (Lines 9-12)	1.58	0.51	8.54	2.80	13.43	-	13.43
Other (Lines 13-14)	0.28				0.28	0.28	-
TOTAL	2.42	6.97	12.34	4.57	26.30	2.24	24.06
Treatment	0.57	6.46			7.03	1.10	7.70
Pipes / Meters	0.28	-	3.80	-	4.07	1.15	2.93
Storage / Pumping	1.58	0.51	8.54	4.57	15.20	-	13.43

Our Current 2010 Contract with DWSD

DWSD Contract For 2010 Rate Year (07/01/10 to 06/30/11)

	<u>Annual Volume</u>	<u>Max Day</u>	<u>Peak Hour</u>	<u>Fixed Monthly</u>	<u>Variable Rate/Mcf</u>
Peak Hour Customer	445,000 (mcf)	25.81 (mgd)	51.91 (mgd)	\$83,118	\$24.06

<u>Annual Billing Units</u>	<u>Rate</u>	<u>Revenue Requirement</u>	
445,000	\$24.06	10,707,723	Variable
\$ 83,118.25	12 Months	997,419	Fixed
		\$11,705,142	Total

<u>Annual Billing Units</u>	<u>Rate</u>	<u>Revenue Requirement</u>
445,000	\$26.30	\$11,705,142

Max Day Rate for 2010

DWSD Contract For Rate Year (07/01/10 to 06/30/11)

	Annual Volume	Max Day	Peak Hour	Fixed Monthly	Variable Rate/Mcf
Max Day Customer	445,000 (mcf)	25.81 (mgd)	25.81 (mgd)	\$67,562	\$13.96

Annual Billing Units	Rate	Revenue Requirement	
445,000	\$13.96	6,212,200	Variable
\$ 67,562	12 Months	810,744	Fixed
		\$7,022,944	Total

Annual Billing Units	Rate	Revenue Requirement
445,000	\$15.78	\$7,022,944

The Difference as a Max Day Customer

DWSD Contract For Rate Year (07/01/10 to 06/30/11)

	Annual Volume	Max Day	Peak Hour	Fixed Monthly	Variable Rate/Mcf
Max Day Customer	445,000 (mcf)	25.81 (mgd)	25.81 (mgd)	\$67,562	\$13.96
Peak Hour Customer	445,000 (mcf)	25.81 (mgd)	51.91 (mgd)	\$83,118	\$24.06

Approximately **\$11.7** million will be paid to DWSD **as a peak hour** customer in DWSD Rate Year (07/01/10 to 06/30/11).

Approximately **\$7.1** million **could have been paid** to DWSD **as a MAX day** customer in DWSD Rate Year (07/01/10 to 06/30/11).

A Difference of **\$4.6** Million

The 2010 DWSD Contract Reopener

Rochester Hills Estimated Sample 2010 Water Rates (1) (with 72 customer approved contracts)

<u>Volume</u>	<u>Max Day</u>	<u>Peak Hour</u>	<u>Monthly</u>	<u>\$/Mcf</u>
445,000	25.81	51.91	\$ 83,118	\$ 24.06
430,000	23.80	37.40	71,682	19.26
430,000	23.80	23.80	63,396	13.56
420,000	23.80	37.40	71,497	19.66
420,000	23.80	23.80	63,211	13.82
410,000	23.80	37.40	\$ 71,310	\$ 20.08
410,000	23.80	23.80	\$ 63,024	\$ 14.10

(1) 7/01/10-6/30/2011 Rate will go through an annual adjustment

The 2010 DWSD Contract Reopener

DWSD Contract For Rate Years 2011, 2012 and 2013 (subject to annual adjustments)

	Annual Volume	Max Day	Peak Hour	Fixed Monthly (1)	Variable Rate/Mcf (1)
Peak Hour Customer	410,000(mcf)	23.80 (mgd)	37.40(mgd)	\$71,310	\$20.08

Annual Billing Units	Rate	Revenue Requirement	
410,000	\$20.08	8,232,800	Variable
\$71,310	12 Months	855,720	Fixed
		\$9,088,520	Total

Annual Billing Units	Rate	Revenue Requirement
410,000	\$ 22.17	\$ 9,088,520

(1) 7/01/10-6/30/2011 Rate will go through an annual adjustment

The 2010 DWSD Contract Reopener

DWSD Contract For Rate Years 2011, 2012 and 2013 (subject to annual adjustments)

	Annual Volume	Max Day	Peak Hour	Fixed Monthly (1)	Variable Rate/Mcf (1)
Max Day Customer	410,000(mcf)	23.80 (mgd)	23.80(mgd)	\$63,024	\$14.10

Annual Billing Units	Rate	Revenue Requirement	
410,000	\$14.10	5,781,000	Variable
\$63,024 12 Months		756,288	Fixed
		\$6,537,288	Total

Annual Billing Units	Rate	Revenue Requirement
410,000	\$15.94	\$6,537,288

(1) 7/01/10-6/30/2011 Rate will go through an annual adjustment

The 2010 DWSD Contract Reopener

DWSD Contract For Rate Years 2011, 2012 and 2013 (subject to annual adjustments)

	Annual Volume	Max Day	Peak Hour	Fixed Monthly (1)	Variable Rate/Mcf (1)
Peak Hour Customer	410,000 (mcf)	23.80 (mgd)	37.40 (mgd)	\$71,310	\$20.08
Max Day Customer	410,000 (mcf)	23.80 (mgd)	23.80 (mgd)	\$63,024	\$14.10

Approximately **\$9.1** million will be paid to DWSD **as a peak hour** customer in DWSD Rate Year (07/01/11 to 06/30/12).

Approximately **\$6.5** million **could be paying** to DWSD **as a MAX day** customer in DWSD Rate Year (07/01/11 to 06/30/12).

A Difference of **\$2.6** Million

(1) 7/01/10-6/30/2011 Rate will go through an annual adjustment

Estimate of Future Cost of Water From DWSD

Assumptions Used

DWSD Overall System Revenue Requirement Increase	
DWSD Revenue Requirement Change	9.00%

	Actual 2000-01	Actual 2001-02	Actual 2002-03	Actual 2003-04	Actual 2004-05	Actual 2005-06	Actual 2006-07	Actual 2007-08	Actual 2008-09	Actual 2009-10	Actual 2010-11	11 Yr Ave
DWSD Water Rates (per Ccf)	\$ 1.09	\$ 1.23	\$ 1.41	\$ 1.49	\$ 1.56	\$ 1.67	\$ 1.72	\$ 2.01	\$ 2.25	\$ 2.36	\$ 2.63	
Annual DWSD Percent Change	0.0%	12.8%	15.0%	5.0%	5.1%	6.8%	3.1%	17.2%	11.9%	4.7%	11.4%	8.5%

Review of DWSD Contract

Current Rate

	<u>Volume</u>	<u>Max Day</u>	<u>Peak Hour</u>	<u>Fixed Monthly</u>	<u>Variable Rate/Mcf</u>
Peak Hour Customer	445,000	25.81	51.91	\$83,618	\$24.34

Approximately **\$11.7** million paid to DWSD in 2010-11

Future Rate (with estimated annual adjustment)

	<u>Volume</u>	<u>Max Day</u>	<u>Peak Hour</u>	<u>Fixed Monthly (1)</u>	<u>Variable Rate/Mcf (1)</u>
Peak Hour Customer	410,000	23.80	37.40	\$71,310	\$20.08

Approximately **\$9.9** million ($\$9.1 * 9\%$) (2) paid to DWSD in 2011-12

Projected Rate as MAX Day (subject to annual adjustments)

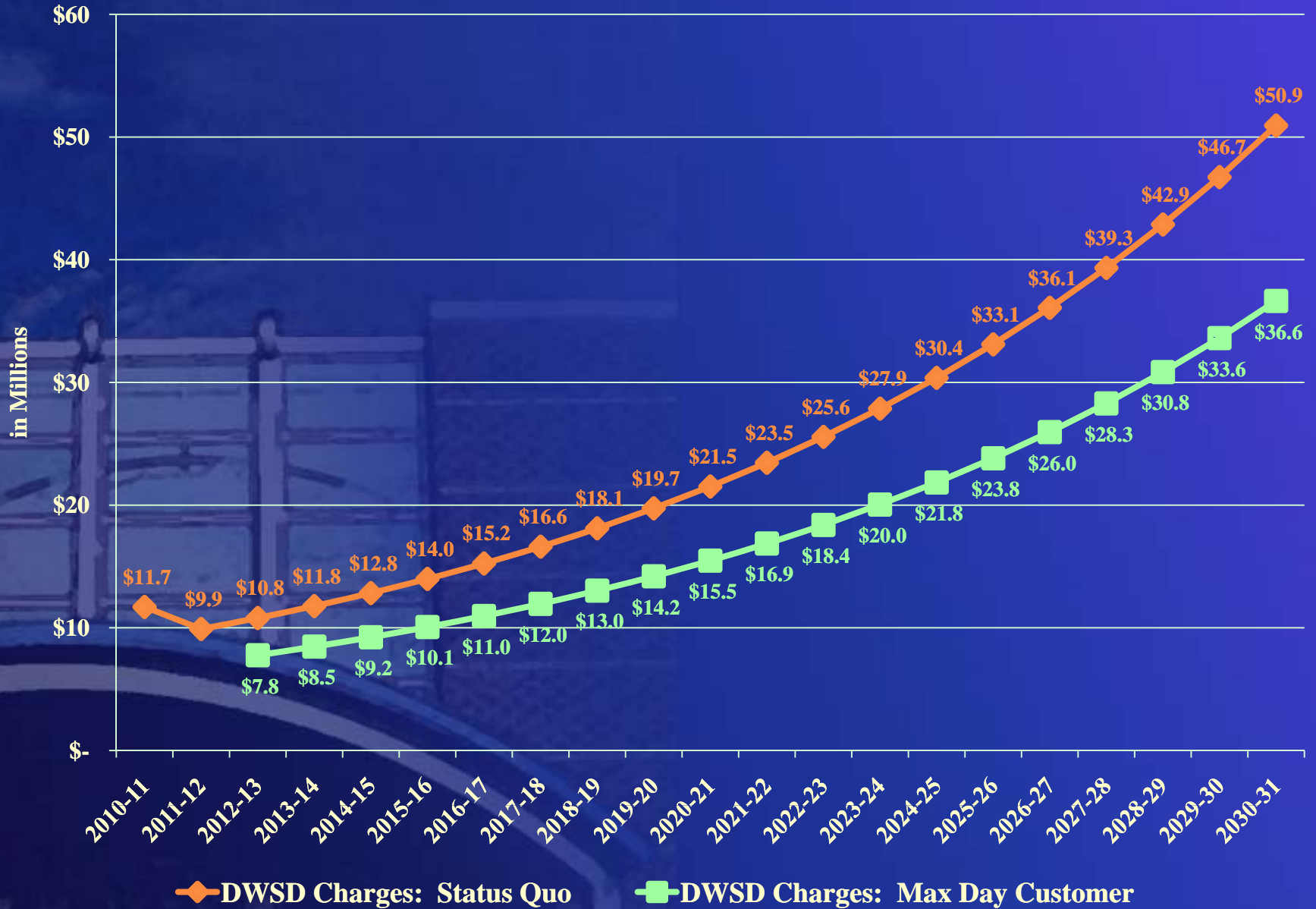
	<u>Volume</u>	<u>Max Day</u>	<u>Peak Hour</u>	<u>Fixed Monthly (1)</u>	<u>Variable Rate/Mcf (1)</u>
Max Day Customer	410,000	23.80	23.80	\$63,024	\$14.10

Approximately **\$7.8** million ($(\$6.5 * 9\%) * 9\%$) (2) paid to DWSD in 2012-13

(1) If the new peak hour time had been in place for Rate Year 2010 (7/1/10 – 06/30/11) this is an estimate of what our rates would have been.

(2) Based on new peak hour rates plus a annual adjustment estimate of 9% per each year.

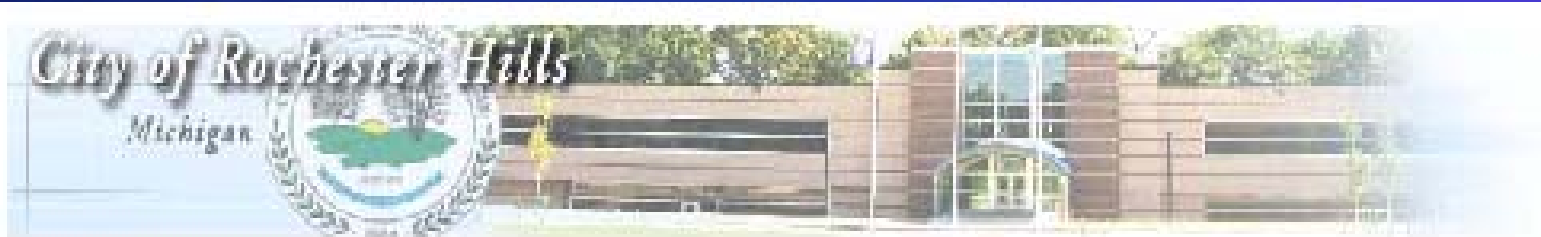
DWSD Charges to City of Rochester Hills: Rate Year Forecast



Water Storage and the Effect on Average Residential Customer's Water Bill

Current Water Rates for an Average Water Customer

<u>2010-2011 Commodity Charge</u>	\$4.65/Unit	\$55.80/Bill	Average Annual \$334.80 (12 units/Bill)
<u>2010-2011 Customer Charge</u>		\$3.50/Bill	<u>\$21.00</u> (6 bills/year)
Total Average Annual Residential Water Bill			\$355.80 or \$29.65/Month



Current Water and Sewer Bill

Current Bill Only - No Payment Updates

Account #	Service Period	Billing Period	Location		
[REDACTED]	OCT NOV	10/05/10 - 12/02/10	[REDACTED]		
Meter Type	Meter Readings		Type of Read	Consumption (# of Units)	
	Previous	Present			
HM	840	852	Actual	12	
AM	223	223	Actual	0	
Description	Commodity	Customer	Capacity	Other	Total
Water	55.80	3.50	0.00	0.00	59.30
Sewer	50.40	3.50	0.00	0.00	53.90

Payment must be received by the due date to avoid a 1.5% penalty.

Current Bill Amount	\$113.20
Total Amount Due	\$113.20
Due Date	01/06/2011
Pay After Due Date	\$114.89

Estimates of Future Water Bills with or without Water Storage

(based on certain assumptions)

Assumptions Used

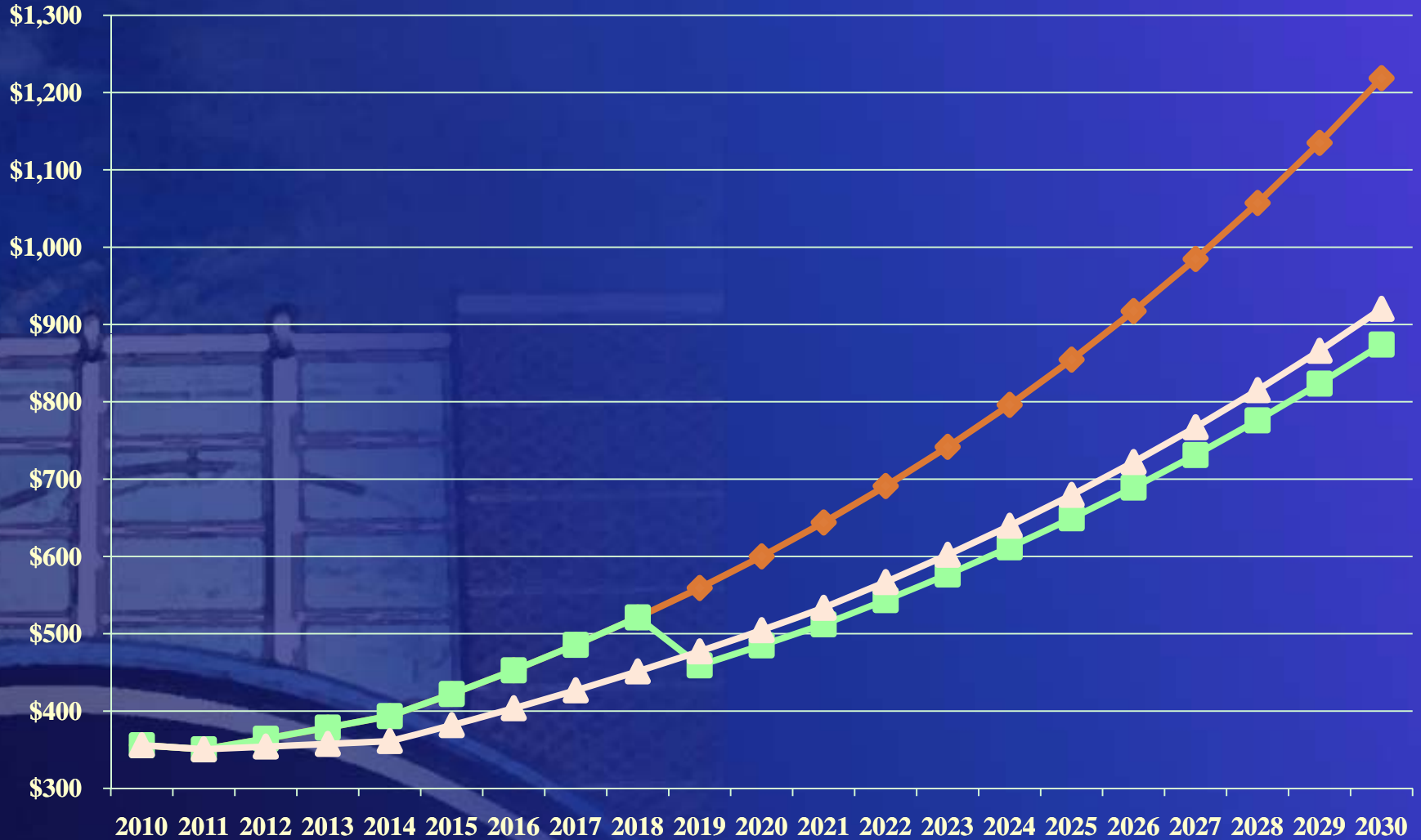
	FY2012	FY2013-17	FY2018-30
Annual Average Interest Rate	1.5%	3%	5%
Reservoir Engineering Cost	\$ 508,990		
Reservoir Construction Cost	\$ 14,000,000		
Grand Total Reservoir Cost	\$ 14,508,990		
DWSD Overall System Revenue Requirement Increase			
DWSD Revenue Requirement Change	9.00%		
Annual Reservoir Depreciation (\$14M/30 yrs)	466,667		
Annual Reservoir Utility	50,000		
Annual Reservoir Maintenance	20,000		
Grand Total Operating Impact	\$ 536,667		

Current Rate Model Protocols' Remain Unchanged

- **System must Break Even (cover it's Cost).**
Any deficit or surplus from prior year will be recaptured and used in the next rate year.
- **System needs to have 90 days of operating cash on hand. Reach that goal over 5 rate years. We are currently in year 2 of that goal. Projected to reach goal by rate year 2014.**
- **Annual Depreciation of the system is deposited into Water Sewer Capital Fund**

Estimated Water Rates

2010-2031 Forecasted Annual Water Billing (Median Customer = 12 Units/Bill)



—◆— No Reservoir: Status Quo

—■— Reservoir: Status Quo Rates until B/E date

—▲— Reservoir / \$14M / 10-Years

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- The recent issues raised about DWSD's contract practices imply that there could potentially be a change made at DWSD which could impact rates and rate structures into the future
- It is possible that the rate structure, during any of the DWSD contract reopen points, with the City, could eliminate or reduce the MAX Day customer advantage which is the basis of this presentation

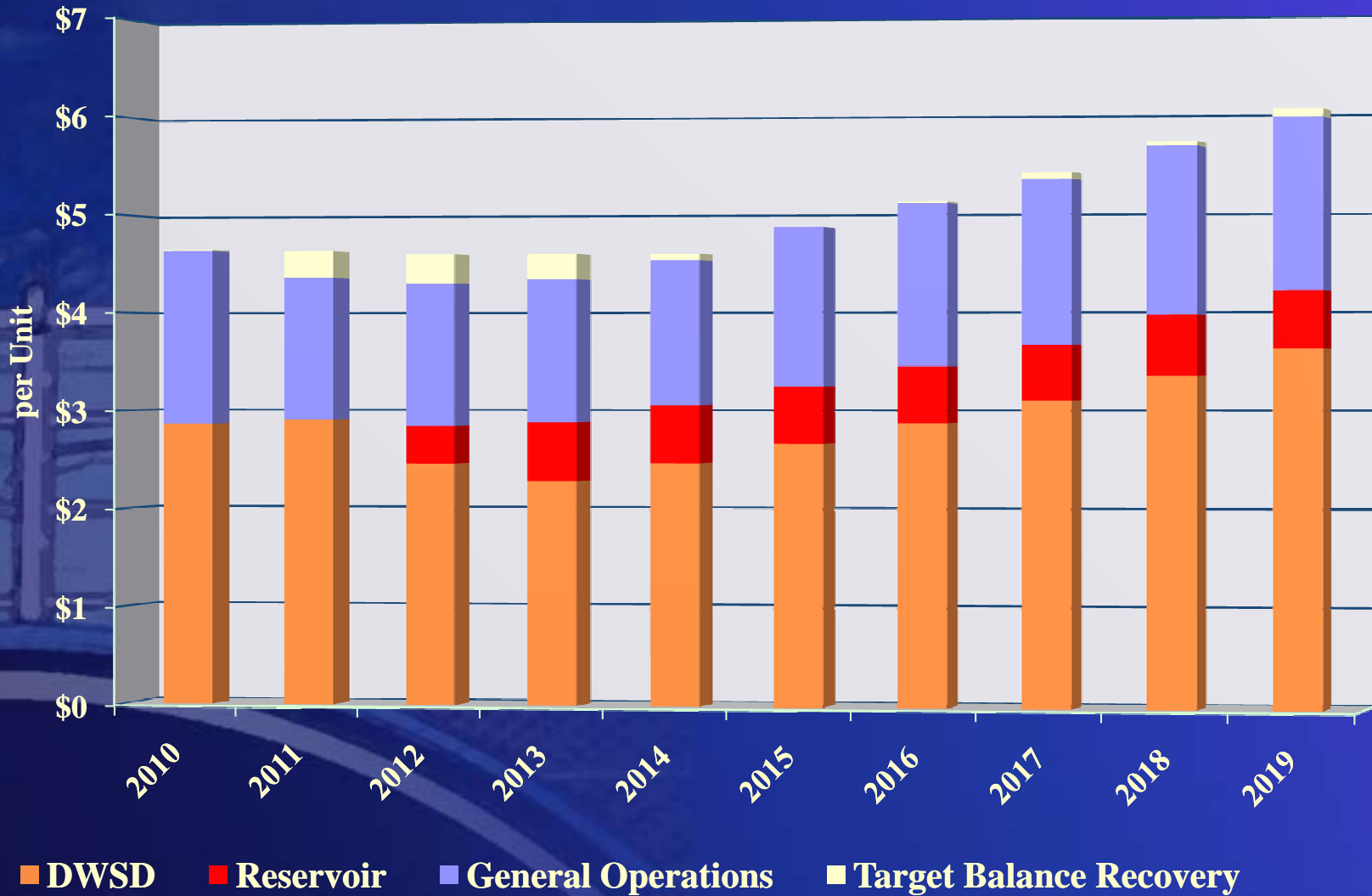


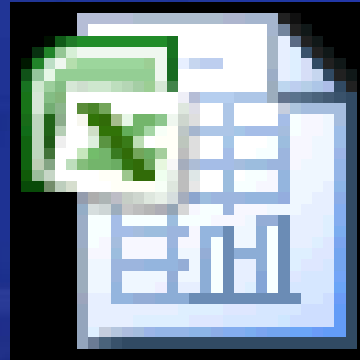
Questions

The City of Rochester Hills, Michigan

	Actual 1999-00	Actual 2000-01	Actual 2001-02	Actual 2002-03	Actual 2003-04	Actual 2004-05	Actual 2005-06	Actual 2006-07	Actual 2007-08	Actual 2008-09	Actual 2009-10	Actual 2010-11	11 Yr Ave
DWSD Water Rates (per Ccf)	\$ 1.09	\$ 1.09	\$ 1.23	\$ 1.41	\$ 1.49	\$ 1.56	\$ 1.67	\$ 1.72	\$ 2.01	\$ 2.25	\$ 2.36	\$ 2.66	
Annual DWSD Percent Change		0.0%	12.8%	15.0%	5.0%	5.1%	6.8%	3.1%	17.2%	11.9%	4.7%	12.5%	8.6%

Water Rate Components





Microsoft Office Excel Worksheet

Loan Sources

Water Sewer Capital Fund	\$7,000,000
Fire Capital Fund	\$3,000,000
Capital Improvement Fund	\$1,000,000
Facilities Fund	\$2,000,000
Fleet Fund	<u>\$1,000,000</u>
	\$14,000,000



Current Water and Sewer Bill

Current Bill Only - No Payment Updates

Account #	Service Period	Billing Period	Location		
[REDACTED]	NOV DEC	11/02/10 - 01/05/11	07 SUMMIT RIDGE		
Meter Type	Meter Readings		Type of Read	Consumption (# of Units)	
HM	Previous	Present	Actual	12	
AM	388	388	Actual	0	
Description	Commodity	Customer	Capacity	Other	Total
Water	55.80	3.50	0.00	0.00	59.30
Sewer	50.40	3.50	0.00	0.00	53.90

Payment must be received by the due date to avoid a 1.5% penalty.

Current Bill Amount	\$113.20
Total Amount Due	\$113.20
Due Date	02/08/2011
Pay After Due Date	\$114.89