# City Council Presentation, Proposed Water Reservoirs

In response to City Council Resolution #0097-2010 adopted on April 12, 2010

May 3, 2010

*Department of Public Services*
*Engineering Division*

*At its March 31, 2010 meeting the Water Sewer Technical Review Committee adopted the following Resolution:*

*Whereas*, the Water and Sewer Technical Review Committee projects nothing but long term benefits for the City's Water customers by providing a method of controlling the City's peak hour water consumption by using a system of water reservoirs.

*Whereas*, the Water and Sewer Technical Review Committee believes water conservation is important for water customers to consider but that water conservation alone will not reduce the City's peak hour demand.

*Whereas*, the representatives from the Detroit Water and Sewer Department have reaffirmed that in setting our water purchase rate that they would seriously consider the effects of a water reservoir system in controlling and eliminating our peak hour consumption.

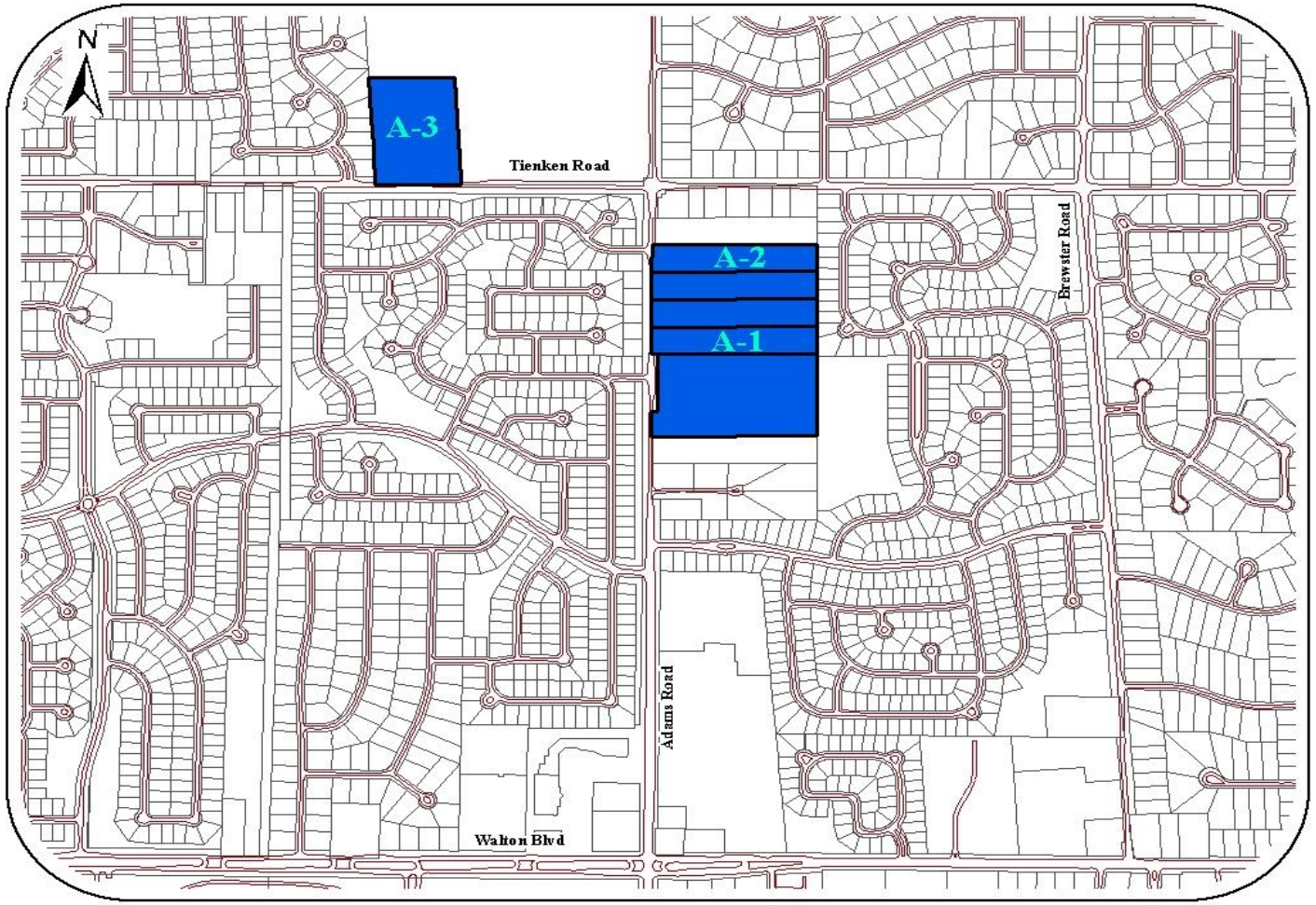
*Whereas*, the Water and Sewer Technical Review Committee has major concerns related to our limited ability to control future water rate increases without first eliminating our peak hour consumption.

*Whereas,* the Water and Sewer Technical Review Committee has taken note that our neighboring communities have either shown some interest in participating in conjunction with us or are moving towards a water reservoir system themselves .

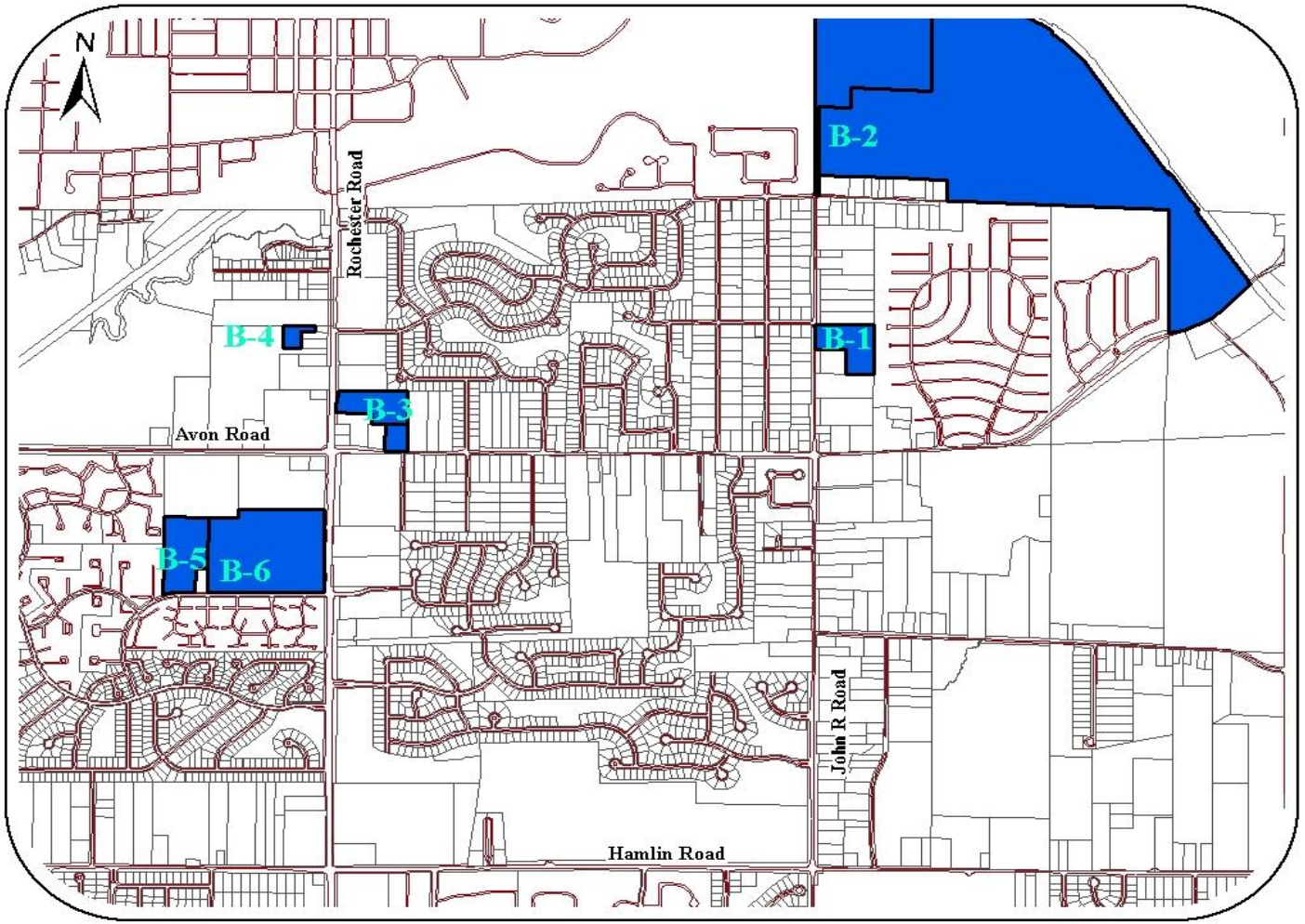
*Therefore, be it resolved*, that the Water and Sewer Technical Review Committee recommends and encourages the City Council to reconsider, without delay, its decision regarding the Water Reservoir program and as part of that reconsideration the City Council should also consider alternate site locations, including their related costs, for the reservoir system.

The resolution was APPROVED by the following vote:
Yeas: 6
Nays: 0
Absent: 5

# Alternate Water Reservoir Locations
# West side of Rochester Hills



# Alternate Water Reservoir Locations
# East side of Rochester Hills



# Proposed Water Reservoirs
# Alternate Locations

| Northwest Reservoir | | | | | | |
|---|---|---|---|---|---|---|
| **Map ID** | **Location** | **Purchase Acreage** | **Elev.** | **Water Reservoir Cost**** | **Est. Cost to Use Property** | **Total Est. Cost** |
| A1 | Adams Rd, Nowicki Park | ----- | 990 | $4,600,000 | City Owned Property* | $4,600,000 |
| A2 | Adams Rd, N of Nowicki Park | 2 | 964 | $4,600,000 | $100,000 | $4,700,000 |
| A3 | Tienken Rd, West of Adams High School | ----- | 998 | $4,600,000 | City Owned Property* | $4,600,000 |
| **East Central Reservoir** | | | | | | |
| B1 | John R, N of Avon, City Property | ----- | 759 | $6,350,000 | City Owned Property* | $6,350,000 |
| B2 | Bloomer Park | ----- | 790 | $7,900,000 | City Owned Property* | $7,900,000 |
| B3 | Vacant Property, N Avon, E Rochester Rd | 2 | 840 | $7,980,000 | $500,000 | $8,480,000 |
| B4 | Vacant Property, N Avon, W Rochester Rd | 1.5 | 830 | $7,980,000 | $290,000 | $8,270,000 |
| B5 | Meadowfield Site | 2 | 850 | $8,700,000 | $160,000 | $8,860,000 |
| B6 | Pkg Lot behind Dick's Sporting Goods | 2 | 846 | $8,700,000 | $500,000 | $9,200,000 |

*Though these are City owned properties, it is still unclear whether or not additional fees will need to be paid to cover the use of the property.

**There are constraints on all these sites and will need to be reviewed in more detail if the project moves forward. These costs are preliminary and many factors can change them, including elevation, amount of new water main replacement to provide sufficient reservoir supply line, type of reservoir, road crossings, tree removals, varying soil conditions, adjacent zonings, access road distance, etc. Just a few parcels were reviewed for costs regarding the installation of water storage facilities. These costs include contractor payments for construction only. Keep in mind that there may be other appropriate sites. Once sites are selected, it is recommended that the City's consultant review these for feasibility and cost in a more detailed manner to ensure the site is suitable.

Final design cost is approximately $500,000.

# Water Storage Reservoir with Domed Roof

Pittsfield Township, MI

# At-Grade Water Storage Reservoir

Romeoville, IL - 3.0 MG

# At-Grade Water Storage Reservoir

Woodstock, IL

# Partially Buried Water Storage Reservoir

Hutchinson, MN - 1.5 MG

# Partially Buried Water Storage Reservoir
Shakopee, MN

# Partially Buried Water Storage Reservoir

Savage, MN – 5.0 MG

# At-Grade Water Storage Reservoir

Sugar Grove, IL

# Buried Water Storage Reservoir
# active recreational use
Stillwater, MN

# Buried Water Storage Reservoir with active recreational use

Maple Grove, MN – 2.5 MG

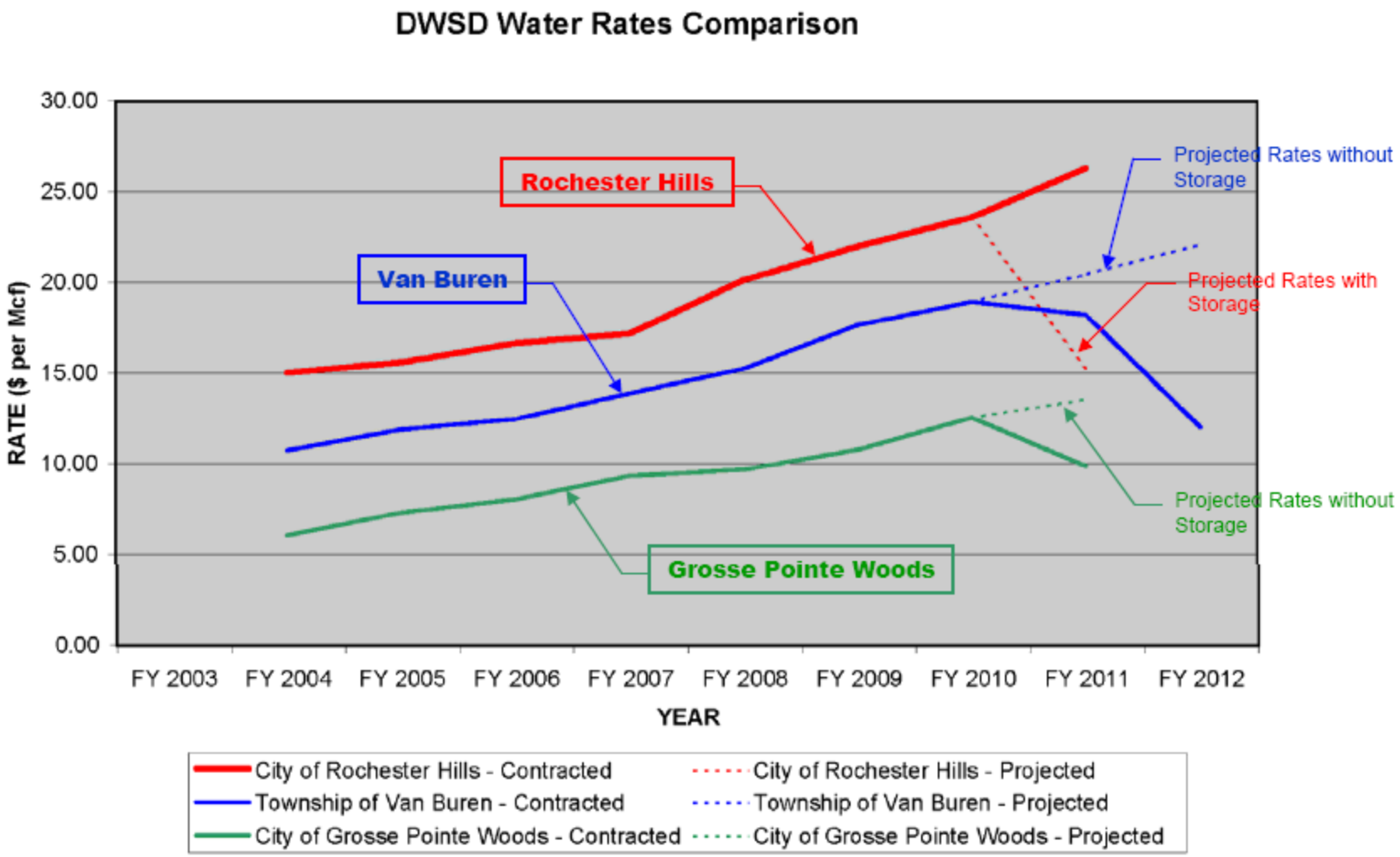
# Pump Station, architectural upgrades

St. Clair Shores, MI

# Pump Station, architectural upgrades

Tinley Park, IL

# DWSD Water Rate Comparison




Data Source, Somat Engineering

# Top 10 Municipalities on DWSD's Water System Ranked by Highest Peak Hour Increment

| | PRELIMINARY RATE CALCULATIONS FOR FY 2010-11 | | | | |
|---|---|---|---|---|---|
| Municipality | Avg Day (Mcf/Day) | Max Day (Mcf/Day) | Peak Hour (Mcf/Day) | Peak Hour Increment (Mcf/Day) | Rate ($ per Mcf) |
| Rochester Hills | 1346 | 3577 | 7066 | 3489 | $24.06 |
| Shelby Twp | 1313 | 3774 | 7084 | 3310 | $20.75 |
| Farmington Hills | 1561 | 3615 | 6395 | 2781 | $18.46 |
| Sterling Heights | 2232 | 5591 | 8332 | 2740 | $12.72 |
| Bloomfield Twp | 921 | 2625 | 4764 | 2139 | $25.14 |
| Novi | 999 | 2591 | 4724 | 2134 | $26.21 |
| Warren | 2418 | 5267 | 7345 | 2079 | $9.58 |
| W. Bloomfield Twp | 1217 | 3196 | 5067 | 1872 | $22.05 |
| Livonia | 1886 | 4391 | 6239 | 1848 | $13.54 |
| Canton Twp | 1329 | 3155 | 4960 | 1805 | $17.87 |

Data Source, DWSD

Peak Hr Increment = Peak Hr – Max Day

# Top 10 Municipalities on DWSD's Water System Ranked by Lowest Peak Hour Increment

| | PRELIMINARY RATE CALCULATIONS FOR FY 2010-11 | | | | |
|---|---|---|---|---|---|
| Municipality | Avg Day (Mcf/Day) | Max Day (Mcf/Day) | Peak Hour (Mcf/Day) | Peak Hour Increment (Mcf/Day) | Rate ($ per Mcf) |
| Grosse Pt. Woods | 309 | 738 | 738 | 0 | $8.38 |
| Oak Park | 413 | 686 | 686 | 0 | $6.81 |
| Oakland County Drain Comm. | 30 | 46 | 46 | 0 | $6.17 |
| SOCWA | 4030 | 8432 | 8432 | 0 | $8.74 |
| Wayne | 437 | 1147 | 1147 | 0 | $11.05 |
| Ypsilanti Comm Utility Authority | 1871 | 3569 | 3569 | 0 | $11.02 |
| Wixom | 308 | 717 | 717 | 0 | $15.07 |
| St. Clair County - Greenwood | 39 | 186 | 186 | 0 | $2.70 |
| Plymouth Twp. | 507 | 1480 | 1493 | 13 | $15.59 |
| Northville | 107 | 224 | 245 | 21 | $12.59 |

Data Source, DWSD

Peak Hr Increment = Peak Hr – Max Day

# Township of Van Buren

- New 2 million gallon water storage reservoir currently under construction. Anticipated completion date is November of 2010.
- Van Buren successfully negotiated reduced rates with DWSD for the 2010-11 rate season, with an ultimate savings of 30% - 35% for the 2011-12 rate season.
- Increased reliability of Township's water system by being able to supply water during low pressure or supply from DWSD, as well as providing more consistent pressure throughout the system, addressing a long standing pressure problem.

# Charter Township of Van Buren



April 2010

To Whom It May Concern:

The Charter Township of Van Buren is nearing completion of a new 2-million gallon elevated water storage tank, the first water storage facility in the Township's system. The initial plan for storage came from a 2004 water system master plan update, which led to a 2006 water tower feasibility study, and ultimately to an application to the State of Michigan for a low interest loan through the Drinking Water Revolving Loan Fund.

The initial estimate for a return on investment was a 10-12 year time frame, mainly from the ability to manage peak flows of purchased drinking water from the Detroit Water and Sewerage Department (DWSD). This timeframe was actually reduced substantially when the Township was informed that the project was eligible for Federal ARRA (stimulus) funding, which included the forgiveness of 40% of the principal on the loan.

The savings in adjusted rates from DWSD came to fruition in the 2010-2011 DWSD rate season, when the Township was negotiating the first scheduled re-opener of the DWSD water contract. With a project completion date of November 2010, DWSD has committed to an initial rate reduction of 30% to 35%. Rates will also then be stabilized by our ability to shave off the peak flow demands in the future.

Not only does this storage facility impact the Township monetarily, but also functionally. The ability to store 2-million gallons of drinking water will support the Townships water system by being able to continue to supply water during periods of low pressure or no supply from DWSD, as well as provide a more even and consistent pressure throughout the system, addressing a long standing pressure problem in portions of the Township. This gives the Township more control over the water supply to its customers and residents.

It is apparent to the Township officials, that the addition of a water storage facility is truly an added benefit to the operation and control of our drinking water system.

If you have any questions, I would be happy to try and provide further information on our project and the steps that were taken to make it a reality.

Sincerely,

Todd S. Knepper

Todd S. Knepper
Director of Public Works
Van Buren Charter Township
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# City of Grosse Point Woods

- New 600,000 gallon water storage reservoir currently under construction. Anticipated completion date is 2010.
- With anticipated new storage and operational improvements, Grosse Pointe successfully negotiated a 20% reduction in water rates for the 2010-11 rate season.

# What does DWSD gain by having Municipalities utilize water storage reservoirs?

- DWSD maintenance costs are reduced
- DWSD water main improvements are reduced, thus creating a more efficient utilization of the system
- Energy savings are realized
- Additional redundancy in the regional water system
- DWSD may be able to decrease the scope and size of capital improvement projects (32 Mile Rd)