



**CITY OF RUTLAND
DEPARTMENT OF PUBLIC WORKS
RUTLAND, VERMONT**

City Hall – 52 Washington St. – Rutland, VT 05701
Mailing Address: P. O. Box 969 – Rutland, VT 05702
Phone: 802-773-1813 Fax: 802-775-3947

Jeffrey Wennberg
Commissioner

James A. Rotondo, P.E.
City Engineer

PUBLIC INFORMATIONAL MEETING

(February 10th & 18th, 2016)

Proposed Water System Upgrades

MARCH 1, 2016 BOND ARTICLES

ARTICLE 2

- Shall the bonds of the City of Rutland be issued in an amount not to exceed \$1,700,000, with a 30-year term, for the purpose of installation of a water equalization tank in the vicinity of Campbell Road?

ARTICLE 3

- Shall the bonds of the City of Rutland be issued in an amount not to exceed \$1,300,000, with a 30-year term, for the purpose of replacement of 5,940 feet of water distribution mains on Park, Crescent and East Streets; Jackson and Engrem Avenues; and Spellman Terrace?

Cost to Construct Both Projects: \$3 Million

Final Cost to City Ratepayers: \$1.8 Million

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SUMMARY - Proposed Water Main Replacement Project

PROJECT DESCRIPTION

- ***This project will replace 5,940 feet of obsolete water distribution mains in six locations. The following water mains are to be replaced:***

<u>LOCATION</u>	<u>LENGTH/SIZE</u>	<u>DATE INSTALLED</u>	<u>AGE (YRS)</u>
Park Street (S Main St to Grainger St)	2,200 lf of 6" CI	1893	123
Crescent Street (Lincoln St to N Main St)	900 lf of 3" CI	1893	123
East Street (Killington Ave to Jackson Ave)	740 lf of 4" CI	1885	131
Jackson Avenue (East St to #53)	300 lf of 4" CI	1880	136
Spellman Terrace (East St to Olmstead)	600 lf of 4" CI	1895	121
Engrem Avenue (S Main to #43)	1,200 lf of 4" CI	1887	129

NEED

- The pipes selected are all over 120 years old and have exceeded their useful life
- Existing pipes are undersized (3, 4 & 6 inch diameter)
- Today's code requires 8" minimum diameter to support fire flow (hydrants)
- Existing water mains are tuberculated further restricting flow capacity
- The City has over 30 miles of water main between 100 and 157 years old. This project is needed to begin replacing this obsolete infrastructure.

BENEFITS

- Improved water quality
- Reduced potential for water main leaks/breaks and service disruption
- More consistent water pressure and significantly improved fire flows
- Reduced emergency maintenance costs

FUNDING SOURCE & TERMS

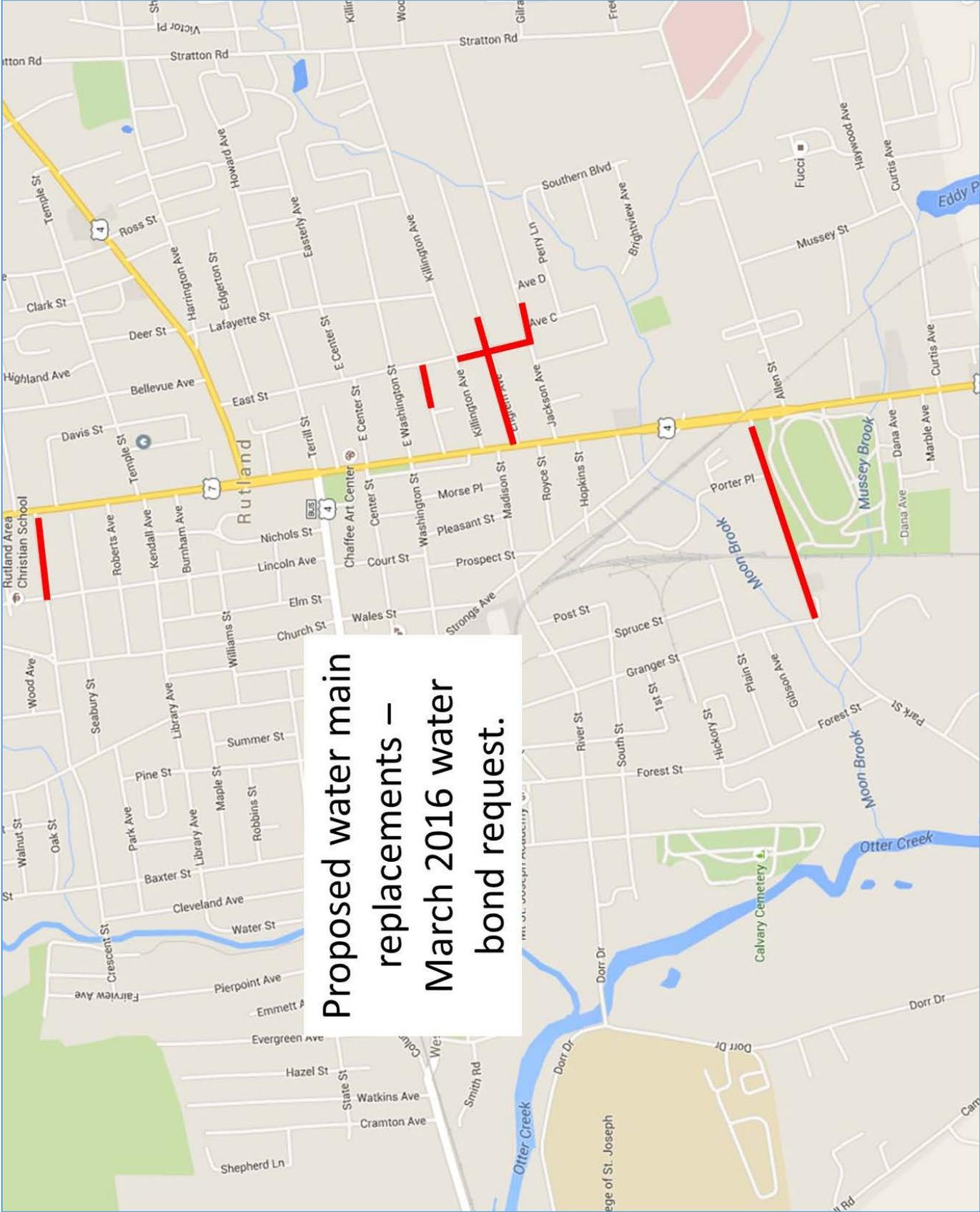
- Voter approved bonds funded by the Vermont Safe Drinking Water Revolving Fund through the Vermont Municipal Bond Bank
- 30 year bond at negative 3% interest

ESTIMATED COSTS

- \$1,300,000 total project cost
- Approximate costs to system = \$26,000 annually; \$780,000 total
- City savings from negative interest = \$520,000
- Cost to 1200 cubic foot/quarter fee payer = \$0.37/quarter

ESTIMATED CONSTRUCTION DATE

- Summer/Fall 2016



 LOCATION OF WATER MAINS TO BE REPLACED



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Drinking Water State Revolving Fund (DWSRF)					
Water Distribution Main Replacement Project					
Project Cost Estimate					
Project Cost Item	New Pipe Diameter (in)	Qty.	Unit	Unit Price (\$/LF)	Total
<u>CONSTRUCTION</u>					
Park Street (So. Main to Granger St.)	12	2,200	LF	165	\$ 363,000
Crescent Street (N. Main to Lincoln St.)	8	900	LF	155	\$ 139,500
East Street (Killington Ave. to Jackson Ave.)	8	740	LF	155	\$ 114,700
Jackson Avenue (East St. to #53)	8	300	LF	155	\$ 46,500
Spellman Terrace (East St. to Olmstead)	8	600	LF	155	\$ 93,000
Engram Avenue (So. Main to #43)	8	1,200	LF	155	\$ 186,000
Subtotal					\$ 942,700
20% Contingency					\$ 188,540
Total Estimated Construction Cost:					\$ 1,131,240
<u>ENGINEERING</u>					
Survey, Final Design & Construction Documents					\$ 62,000
Bid & Construction Phase Engineering					\$ 110,000
Total Estimated Engineering Cost:					\$ 172,000
<u>LEGAL</u>					
Bond Assistance					\$ 5,000
Other					\$ 2,000
Total Estimated Legal Cost:					\$ 7,000
TOTAL ESTIMATED PROJECT COST:					\$ 1,310,240
RECOMMENDED BOND VALUE:					\$ 1,300,000

Notes:

- 1.) Piping unit costs are based upon a similar project bid last week in Brandon, VT.
- 2.) Engineering costs are computed using State Eligibility Curve based upon construction cost.

SUMMARY – Proposed Water Equalization Tank Project

PROJECT DESCRIPTION

- *This project will install a new 500,000 +/- gallon water equalization tank on the southwest side of the city near Campbell Road.*

NEED

- The southwest neighborhoods (west of Otter Creek) represent one of the geographical areas furthest removed from the water filtration plant/transmission lines. Due to losses within the distribution system, limited feed lines servicing the area and higher elevations encountered, this area is currently plagued with service issues.
- The water system within this area is very sensitive to fire flows and periods of high demand
- The need for water system improvements in this area has been known for a very long time
- The consequence of the water system deficiency in this area became apparent during the Rutland Plywood fire which left many customers without water pressure for an extended period of time. This depletion in water pressure also caused the issuance of a limited precautionary “Do not drink” order for that part of the City.

BENEFITS

- Stabilized water pressures (water pressures will be “balanced” during periods of high demand)
- Several hundred thousand gallons of additional fire protection will be provided
- Water quality/safety will not be compromised as a result of fire flow events

FUNDING SOURCE & TERMS

- Voter approved bonds funded by the Vermont Safe Drinking Water Revolving Fund through the Vermont Municipal Bond Bank
- 30 year bond at negative 3% interest

ESTIMATED COSTS

- \$1,700,000 total project cost
- Approximate costs to system = \$34,000 annually; \$1,020,000 total
- City savings from negative interest = \$680,000
- Cost to 1200 cubic foot/quarter fee payer = \$0.51/quarter

ESTIMATED CONSTRUCTION DATE

- Summer 2017



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PHOTOGRAPHS OF SIMILAR TYPE WATER STORAGE TANKS

(400,000 Gallon, Town of Berlin)

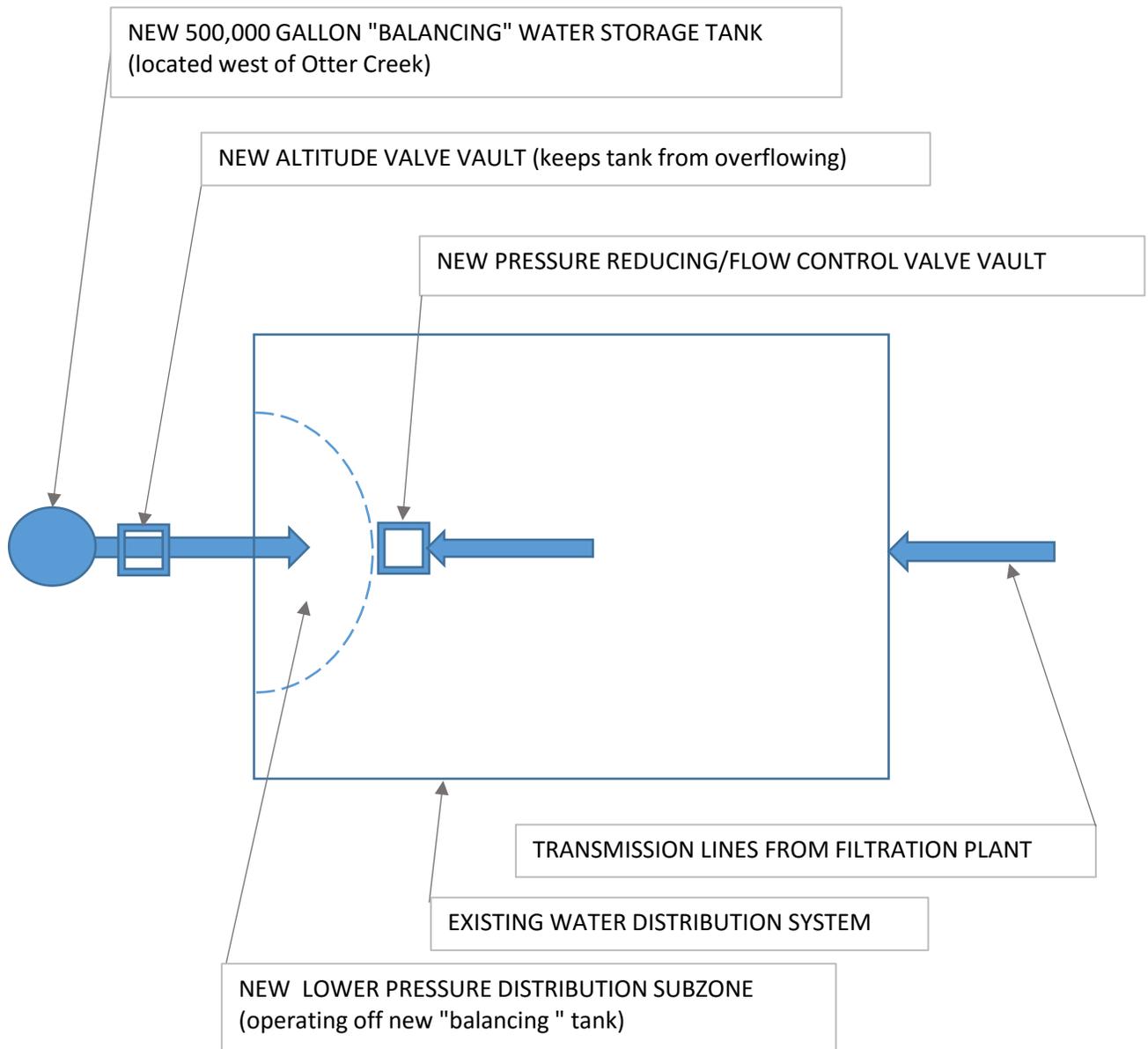




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"BALANCING" WATER STORAGE TANK WORKING SCHEMATIC



Description of System Operation

A new separate distribution subzone is established near the new "balancing" water storage tank. Within this zone, pressure is reduced by installing a pressure reducing valve that feeds this area from the existing distribution system. The "balancing" tank is designed to improve water pressure and flow to the newly established subzone by having water storage closer to users with larger main for fire protection. The altitude valve keeps the tank from overflowing. A tank level transducer and control system will allow the PRV valve to open and close based on tank water levels selected by the water operator to allow adequate turn-over of the stored water.



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Drinking Water State Revolving Fund (DWSRF)				
"Balancing" Water Storage Tank Project				
Project Cost Estimate				
Project Cost Item	Qty.	Unit	Unit Price (\$/LF)	Total
<u>CONSTRUCTION</u>				
500,000 Gallon Water Storage Tank	1	EA	\$ 800,000	\$ 800,000
Pressure Reducing Valve	1	EA	\$ 35,000	\$ 35,000
Altitude Vault	1	EA	\$ 35,000	\$ 35,000
12" Water Main (piping required on-site & to tie into	2,000	LF	155	\$ 310,000
Subtotal				\$ 1,180,000
20% Contingency				\$ 236,000
			Total Estimated Construction Cost:	\$ 1,416,000
<u>ENGINEERING</u>				
Preliminary Engineering				\$ 10,000
Final Design				\$ 85,000
Bid & Construction Phase Engineering				\$ 150,000
			Total Estimated Engineering Cost:	\$ 245,000
<u>LEGAL</u>				
Bond Assistance				\$ 5,000
Other				\$ 5,000
			Total Estimated Legal Cost:	\$ 10,000
<u>LAND ACQUISITION</u>				
Purchase and/or Permanent Easements				\$ 50,000
			Total Estimated Land Acquisition Cost:	\$ 50,000
TOTAL ESTIMATED PROJECT COST:				\$ 1,721,000
RECOMMENDED BOND VALUE:				\$ 1,700,000

Notes:

- 1.) 12" Water main is required to connect "Balancing" tank to distribution system. Quantity is a guesstimate.
- 2.) Engineering costs are computed using State Eligibility Curve based upon construction cost.
- 3.) Land acquisition cost is a guesstimate.