

Fire protection: RFD base including trucks, equipment
12.1.14

assumptions:

100% of these infrastructure costs are currently borne by RFD (ie entire town via RFD budget)

\$533,403	current RFD budget
\$321	avg parcel cost (1661 parcels)
\$213	tax payment for \$200,000 house <i>includes</i>
\$75,000	current annual payments for RFD fire trucks (\$375,000-\$415,000 per engine)
\$45	avg parcel cost (1661 parcels)
\$30	tax payment for \$200,000 house
\$3,006	current annual payments for RFD use of water note: water from hydrants is not metered thus no charge; other costs such as hydrant maintenance and plowing are charged to all WS users
\$1.81	avg parcel cost (1661 parcels)
\$1.20	tax payment for \$200,000 house

notes:
The Richmond Fire Department currently has three engines, purchased in 2011, 2001 and 1994. The fire engines are programmed for a 20 year replacement cycle.
20 year cycle: 2015, 2021, 2031)

Fire protection: Richmond water infrastructure including lines, hydrants, maintenance
12.1.14

assumptions:

Fire infrastructure represents app. 5% of current water system infrastructure costs

The costs of fire infrastructure in the water system would be paid by RFD (ie entire town via RFD budget)

proposed payments

\$291,519	current water budget
\$3,006	current RFD water payments \$
1.03%	current RFD water payments %
	note: water from hydrants is not metered thus no charge; other costs such as hydrant maintenance and plowing are charged to all WS users
\$1.81	current avg annual parcel cost (1661 parcels)
\$1.20	current annual tax payment for \$200,000 house
\$14,576	proposed RFD water payments \$
5.00%	proposed RFD water payments %
\$11,570	proposed increase
\$8.78	proposed avg parcel cost
\$6.97	proposed increase per parcel
\$5.83	proposed payment per \$200,000 house
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**Fire protection: Richmond water infrastructure in new tank
11.25.14**

assumptions:

<u>gals</u>	<u>%</u>	
130,000	17.1%	100% of daily demand capacity paid by users (via rates)
252,000	33.2%	40% of fire protection capacity paid by users (via rates) based on relative value to users
378,000	49.7%	60% of fire protection capacity paid by town <u>including users</u> (via RFD rates) based on relative value to entire town
<u>760,000</u>		TOTAL

proposed payments

<u>gals</u>	<u>% of gals</u>	<u>ast. annual</u> <u>bond payments</u>	<u>574</u> <u>est. annual</u> <u>avg per user</u>	<u>1661</u> <u>est. annual</u> <u>avg per parcel</u>	<u>est. annual</u> <u>cost per \$200k house</u>
130,000	17.1%	\$7,746	\$13.49	<i>na</i>	<i>included below</i>
252,000	33.2%	\$15,016	\$26.16	<i>na</i>	<i>na</i>
378,000	49.7%	\$22,523	\$0.00	\$13.56	\$9.01
<u>760,000</u>	<u>100.0%</u>	<u>\$45,285</u>	<u>\$39.65</u>	<u>\$13.56</u>	<u>\$9.01</u>

Summary

\$22,762	est. annual increase in water system user rates (as % of tank costs)
\$39.65	est. average increased annual payment per water system user (EU)
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Opinion of Probable Total Project Cost and User Cost for Tank Project

Richmond Village Infrastructure Rehabilitation Project

New Water Storage Tank - Average Daily Demand and Fire Capacity 11/25/14

Description	Current 50 yr ADD Est. plus 630K gal. fire flow = 760,000 gallon tank
<u>Opinion of Total Project Cost for New Tank</u>	\$1,184,351
VT DWSRF Funding**:	
A. Yearly Cost per EU* @ -0.7% for 30 years Est. Annual Loan Payment of \$24,738	\$43
VMBB Funding (for \$ not in DWSRF)***:	
C. Yearly Cost per EU* @ 4% for 30 years Est. Annual Loan Payment of \$20,547	\$36
	Total: <hr style="display: inline-block; width: 100px; border: 1px solid black; vertical-align: middle; margin-right: 5px;"/> \$79



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** = 70% of Total Project Cost

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Green Mountain Engineering, Inc.

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KC, 11.25.14

<u>Item</u>	<u>Total Cost</u>	<u>% Water</u>	<u>Water Cost</u>	<u>% Fire</u>	<u>Fire Cost</u>
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Pump	\$175	-	\$0	100	\$175
Antifreeze	\$50	-	\$0	100	\$50

Labor(2hr/wk)	\$3,120	25	\$500	75	\$2,620
Snow removal(20 storms)	\$4,800	100	\$0	100	\$4,800
TOTAL	\$97,590	11%	\$10,673	89%	\$86,917

Piping value	30,800 total feet minus 10,200 feet water service only = 20,600 fire mains				
	Current pipe cost = \$3.68/ft for 4" PVC.				
	Current pipe cost = \$12.31/ft for 8" PVC.				
Current value in pipe extra cost for fire protection = \$8.63 X 20,600					\$177,778.00
	\$275,368		\$10,673		\$264,695

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KC, 11.25.14

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** = 70% of Total Project Cost

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Green Mountain Engineering, Inc.

Items in the Water Department related to the Fire Service Fee

KC, 11.25.14

<u>Item</u>	<u>Total Cost</u>	<u>% Water</u>	<u>Water Cost</u>	<u>% Fire</u>	<u>Fire Cost</u>
Hydrants (33)	\$82,500	10	\$8,250	90	\$74,250
Marker Flags	\$1,320	10	\$132	90	\$1,188
Repair kits	\$3,960	10	\$396	90	\$3,564
Paint	\$180	10	\$18	90	\$162
Grease	\$120	10	\$12	90	\$108
Wrench	\$90	100	\$90	-	\$0
Flow Control Valve	\$35	100	\$35	-	\$0
Adapters	\$150	100	\$150	-	\$0
2 ½ Cap Gasket	\$90	10	\$90	-	\$0
5 ¼ Cap gasket	\$105	10	\$105	-	\$0
Diffuser	\$95	100	\$95	-	\$0
Backflow Preventer	\$700	100	\$700	-	\$0
Signage	\$100	100	\$100	-	\$0
Pump	\$175	-	\$0	100	\$175
Antifreeze	\$50	-	\$0	100	\$50

Labor(2hr/wk)	\$3,120	25	\$500	75	\$2,620
Snow removal(20 storms)	\$4,800	100	\$0	100	\$4,800
TOTAL	\$97,590	11%	\$10,673	89%	\$86,917

Piping value	30,800 total feet minus 10,200 feet water service only = 20,600 fire mains Current pipe cost = \$3.68/ft for 4" PVC. Current pipe cost = \$12.31/ft for 8" PVC.				
Current value in pipe extra cost for fire protection = \$8.63 X 20,600					\$177,778.00
	\$275,368		\$10,673		\$264,695

These are fire items we pay/paid for and the % use for each on average. For example, we only use the hydrants twice/year plus a random leak flush. Fire uses them every week year-round plus random trainings/drills/fills and fires, hence the 10/90. In the winter, we don't touch them. In the winter, they access them regularly.

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Fire protection: RFD base including trucks, equipment
12.1.14

assumptions:

100% of these infrastructure costs are currently borne by RFD (ie entire town via RFD budget)

\$533,403	current RFD budget
\$321	avg parcel cost (1661 parcels)
\$213	tax payment for \$200,000 house <i>includes</i>
\$75,000	current annual payments for RFD fire trucks (\$375,000-\$415,000 per engine)
\$45	avg parcel cost (1661 parcels)
\$30	tax payment for \$200,000 house
\$3,006	current annual payments for RFD use of water note: water from hydrants is not metered thus no charge; other costs such as hydrant maintenance and plowing are charged to all WS users
\$1.81	avg parcel cost (1661 parcels)
\$1.20	tax payment for \$200,000 house

notes:
The Richmond Fire Department currently has three engines, purchased in 2011, 2001 and 1994. The fire engines are programmed for a 20 year replacement cycle.
20 year cycle: 2015, 2021, 2031)

Fire protection: Richmond water infrastructure including lines, hydrants, maintenance
12.1.14

assumptions:

Fire infrastructure represents app. 5% of current water system infrastructure costs

The costs of fire infrastructure in the water system would be paid by RFD (ie entire town via RFD budget)

proposed payments

\$291,519	current water budget
\$3,006	current RFD water payments \$
1.03%	current RFD water payments %
	note: water from hydrants is not metered thus no charge; other costs such as hydrant maintenance and plowing are charged to all WS users
\$1.81	current avg annual parcel cost (1661 parcels)
\$1.20	current annual tax payment for \$200,000 house
\$14,576	proposed RFD water payments \$
5.00%	proposed RFD water payments %
\$11,570	proposed increase
\$8.78	proposed avg parcel cost
\$6.97	proposed increase per parcel
\$5.83	proposed payment per \$200,000 house
\$4.63	proposed increase per \$200,000 house

**Fire protection: Richmond water infrastructure in new tank
11.25.14**

assumptions:

<u>gals</u>	<u>%</u>	
130,000	17.1%	100% of daily demand capacity paid by users (via rates)
252,000	33.2%	40% of fire protection capacity paid by users (via rates) based on relative value to users
378,000	49.7%	60% of fire protection capacity paid by town <u>including users</u> (via RFD rates) based on relative value to entire town
<u>760,000</u>		TOTAL

proposed payments

<u>gals</u>	<u>% of gals</u>	<u>ast. annual</u> <u>bond payments</u>	<u>574</u> <u>est. annual</u> <u>avg per user</u>	<u>1661</u> <u>est. annual</u> <u>avg per parcel</u>	<u>est. annual</u> <u>cost per \$200k house</u>
130,000	17.1%	\$7,746	\$13.49	<i>na</i>	<i>included below</i>
252,000	33.2%	\$15,016	\$26.16	<i>na</i>	<i>na</i>
378,000	49.7%	\$22,523	\$0.00	\$13.56	\$9.01
<u>760,000</u>	<u>100.0%</u>	<u>\$45,285</u>	<u>\$39.65</u>	<u>\$13.56</u>	<u>\$9.01</u>

Summary

\$22,762	est. annual increase in water system user rates (as % of tank costs)
\$39.65	est. average increased annual payment per water system user (EU)
\$22,523	est. increased annual costs in RFD budget (as % of tank costs)
\$13.56	est. increased annual avg cost per parcel (note: all parcels, including users and nonusers, pay RFD costs)
\$9.01	est. increased annual avg cost per \$200,000 house (non user)
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notes:

this analysis does not address other rate decreases (eg debt retirement, new users) or increases (eg other new debt)

Opinion of Probable Total Project Cost and User Cost for Tank Project

Richmond Village Infrastructure Rehabilitation Project

New Water Storage Tank - Average Daily Demand and Fire Capacity 11/25/14

Description	Current 50 yr ADD Est. plus 630K gal. fire flow = 760,000 gallon tank
<u>Opinion of Total Project Cost for New Tank</u>	\$1,184,351
VT DWSRF Funding**: A. Yearly Cost per EU* @ -0.7% for 30 years Est. Annual Loan Payment of \$24,738	\$43
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KC, 11.25.14

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