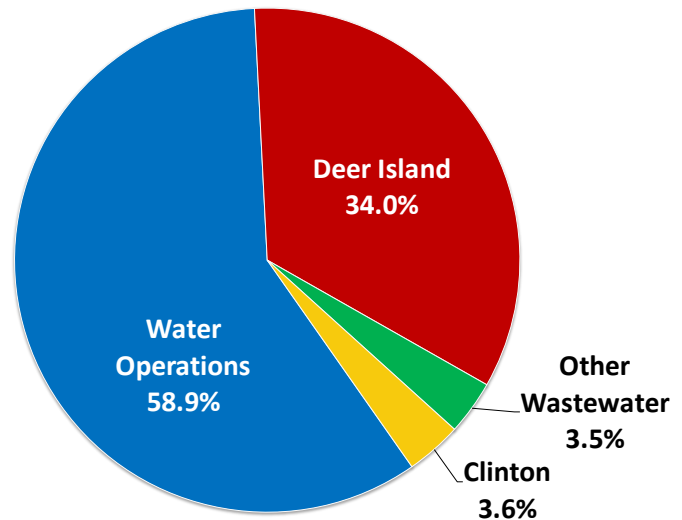


**Table 28**

Proposed Fiscal Year 2015 Chemicals Summary (\$\$)				
Line Item/Description	Final FY14	Proposed FY15	Δ (\$\$)	Δ (%)
<b>Soda Ash</b> Used primarily at the CWTP; some at Clinton WWTP.	\$3,519,632	\$3,706,975	\$187,343	5.3%
<b>Sodium Hypochlorite</b> Used for treatment at DITP and CWTP. Usage increase offset by price decrease.	2,290,358	2,352,586	62,228	2.7%
<b>Ferric/Ferrous Chloride</b> For struvite control at DITP.	882,858	883,920	1,062	0.1%
<b>Sodium Bisulfite</b> For dechlorination of treated wastewater and water. Usage increased significantly for new NPDES permit requirements; partially offset by price reduction.	512,907	755,990	243,083	47.4%
<b>Liquid Oxygen</b> Ozone generation at CWTP. Reduction in use expected due to increase in UV disinfection.	726,069	611,744	-114,325	-15.7%
<b>Hydrofluosilic Acid</b> Fluoride control at CWTP. Significant reduction in usage, combined with 4% decrease in price.	761,818	541,145	-220,673	-29.0%
<b>Polymer</b> Sludge thickening at DITP and Clinton.	323,577	316,558	-7,019	-2.2%
<b>Activated Carbon</b> For odor control at DITP.	272,655	313,942	41,287	15.1%
<b>Carbon Dioxide</b> To increase pH and alkalinity level of water supply at CWTP.	289,523	282,148	-7,375	-2.5%
<b>All Other Chemicals</b> For algae control; corrosion control in Framingham Relief Sewer and DITP.	1,091,829	902,104	-189,725	-17.4%
<b>TOTAL CHEMICALS EXPENSES</b>	<b>\$10,671,226</b>	<b>\$10,667,112</b>	<b>-\$4,114</b>	<b>0.0%</b>

**Other Highlights**

- Chemicals budget is 1.6% of all expenses and 5% of all direct expenses.
- Chemicals budget decreases just \$4.1 thousand from FY14 (0.0%).
- Water operations chemicals: \$6.3 million
  - Reduction of \$0.4 million (6%)
- DITP chemicals: \$3.63 million
  - Increase of nearly \$0.44 million (14%)
  - Assumes new NPDES permit for half of FY15
- Clinton Plant chemicals: \$0.38 million
  - Increase of \$0.09 million (31%)
  - Assumes new NPDES permit for full year
  - Chemicals expense represents nearly 25% of the treatment plant’s budget.
- Other wastewater facilities chemicals: \$0.37 million
- 57% of chemical spending (\$6.06 million) is for soda ash and sodium hypochlorite (See Figure 33.)



**Figure 32**

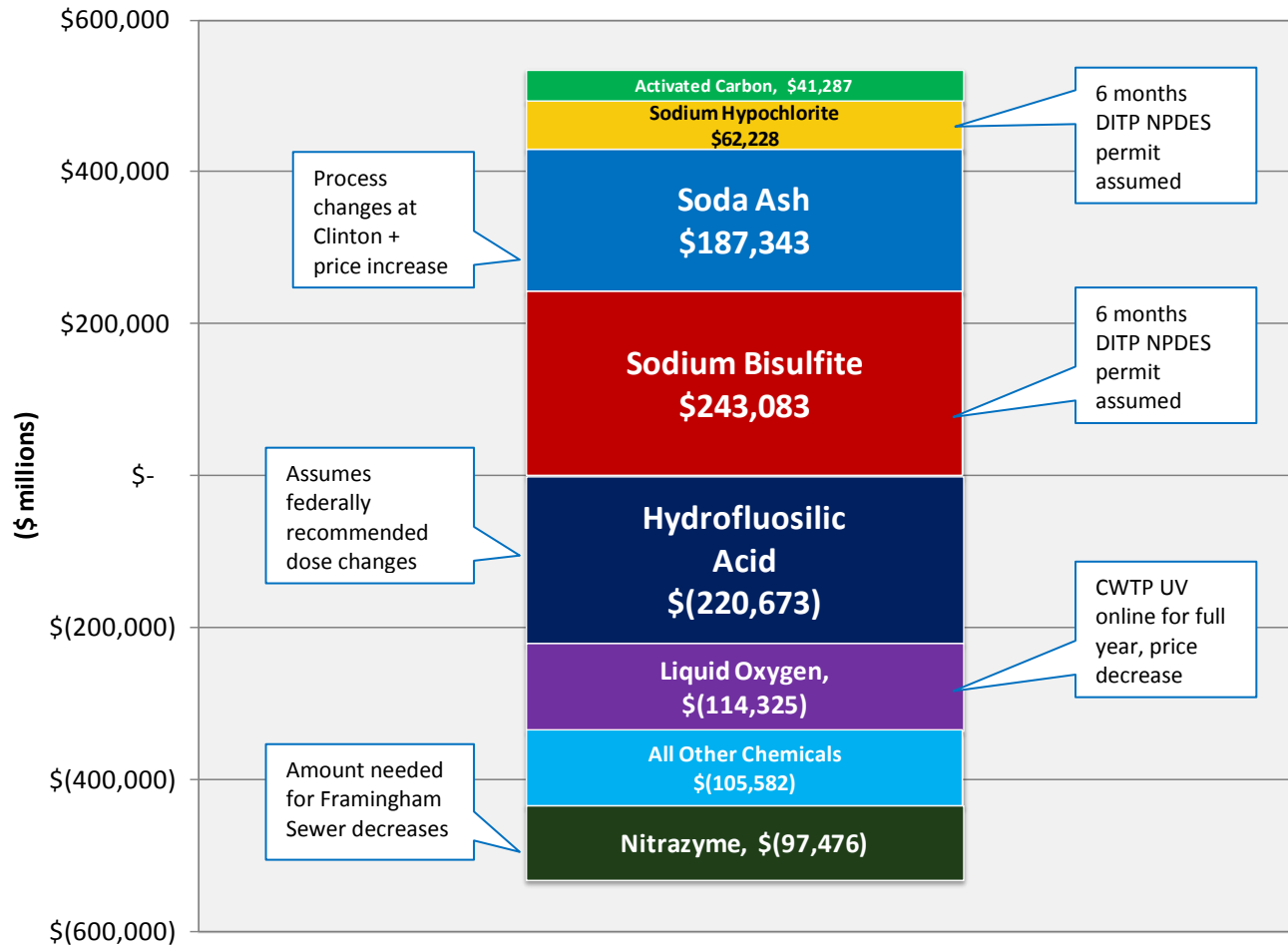


Figure 33

Table 29

Changes in Price/Quantity

- Changes in both price and quantity contribute to chemicals spending decrease. (See Table 29.)
- Combined use of Nitrazyme and VX456 at Framingham Sewer:
  - Usage decrease: -\$17 thousand
  - Price increase: +\$21 thousand
- Better aeration at the Clinton facility has resulted in higher alkalinity and an increased need for soda ash to control alkalinity; assumed increased soda ash use results in \$85 thousand increase.

Impact of Chemical Price versus Quantity in Dollars			
Chemical	Price	Quantity	Net Change
Soda Ash	\$115,000	\$72,000	\$187,000
Nitrazyme	(13,600)	(83,900)	(97,500)
Hydrofluosilic Acid	(31,000)	(190,000)	(221,000)
Aqua Ammonia	(40,000)	(10,000)	(50,000)
Liquid Oxygen	(43,000)	(72,000)	(115,000)
Sodium Bisulfite	(234,000)	477,000	243,000
Sodium Hypochlorite	(255,000)	317,000	62,000
<b>Total Change</b>	<b>\$(501,600)</b>	<b>\$510,100</b>	<b>\$8,500</b>

Regulatory Changes Impacts

Table 30

Impacts of Anticipated Deer Island NPDES Permit Requirements Quantities and Price Impacts at Various Levels			
	No Enterococcus Treatment	6 months Enterococcus Treatment	12 months Enterococcus Treatment
Total Gallons	1,488,442	2,338,101	3,048,407
Total Cost	\$835,634	\$1,482,854	\$2,023,924
<b>Diff (w/ vs. w/out)</b>	<b>\$ -</b>	<b>\$647,220</b>	<b>\$1,188,290</b>

- Assumes full year of NPDES permit chemical costs for Clinton WWTP.
- Assumes 6 months of NPDES permit chemical costs for DITP (See Table 30 to the right.)
  - Neither formal draft nor final DITP permit has been issued.
- **The Advisory Board recommends reducing budgeted amounts for chemical use by \$650,000 to reflect no increased costs associated with regulatory changes to the National Pollutant Discharge Elimination System (NPDES) permit at the Deer Island Wastewater Treatment Plant.**
- Fluoride reduction reflects anticipated federally recommended dose changes.
  - Reduction: nearly 30% from FY14 budget

Chemicals Changes by Location

- Deer Island increase due entirely to NPDES permit assumptions, discussed above.
- Water Operations decrease: \$389 thousand
  - Lower liquid oxygen due to addition of UV disinfection at Carroll WTP.
  - Fluoride reduction due to anticipated changes in federal recommended dose.
- Clinton WWTP chemicals increase due to process changes, discussed above.

**Chemicals Increase/Decrease by Location**

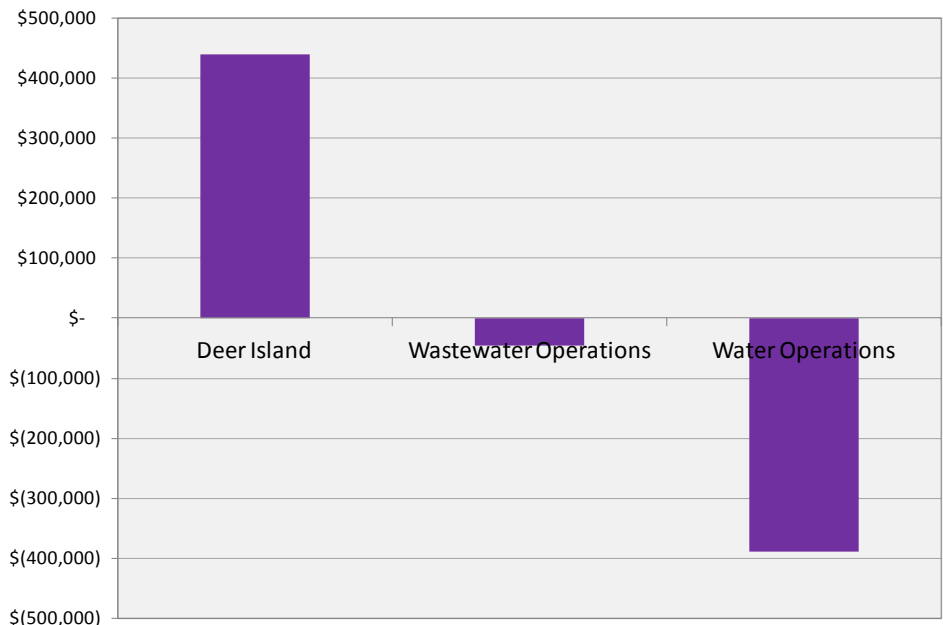


Figure 34

- Over half (56.8% or \$6.1 million) of all chemicals spending is for soda ash and sodium hypochlorite. (See Figure 35.)
- *The Advisory Board expects that the chemicals budget will be revised to reflect updated pricing and usage assumptions.*

## Chemicals Expense Final FY14 versus Proposed FY15

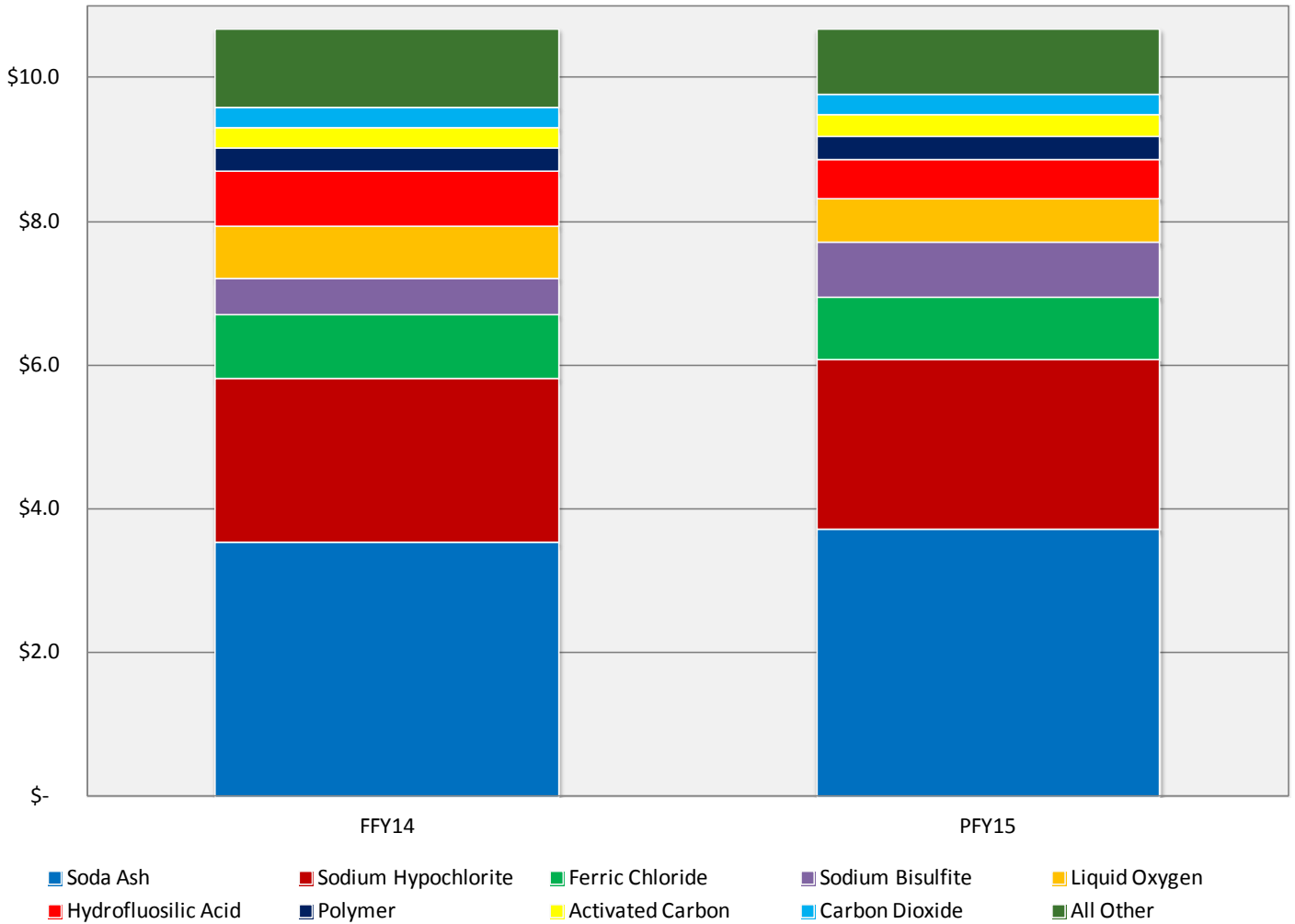


Figure 35