

# City of Portsmouth Water and Sewer Rate Study



**City Council Work Session  
February 11, 2013**



**Tighe & Bond**

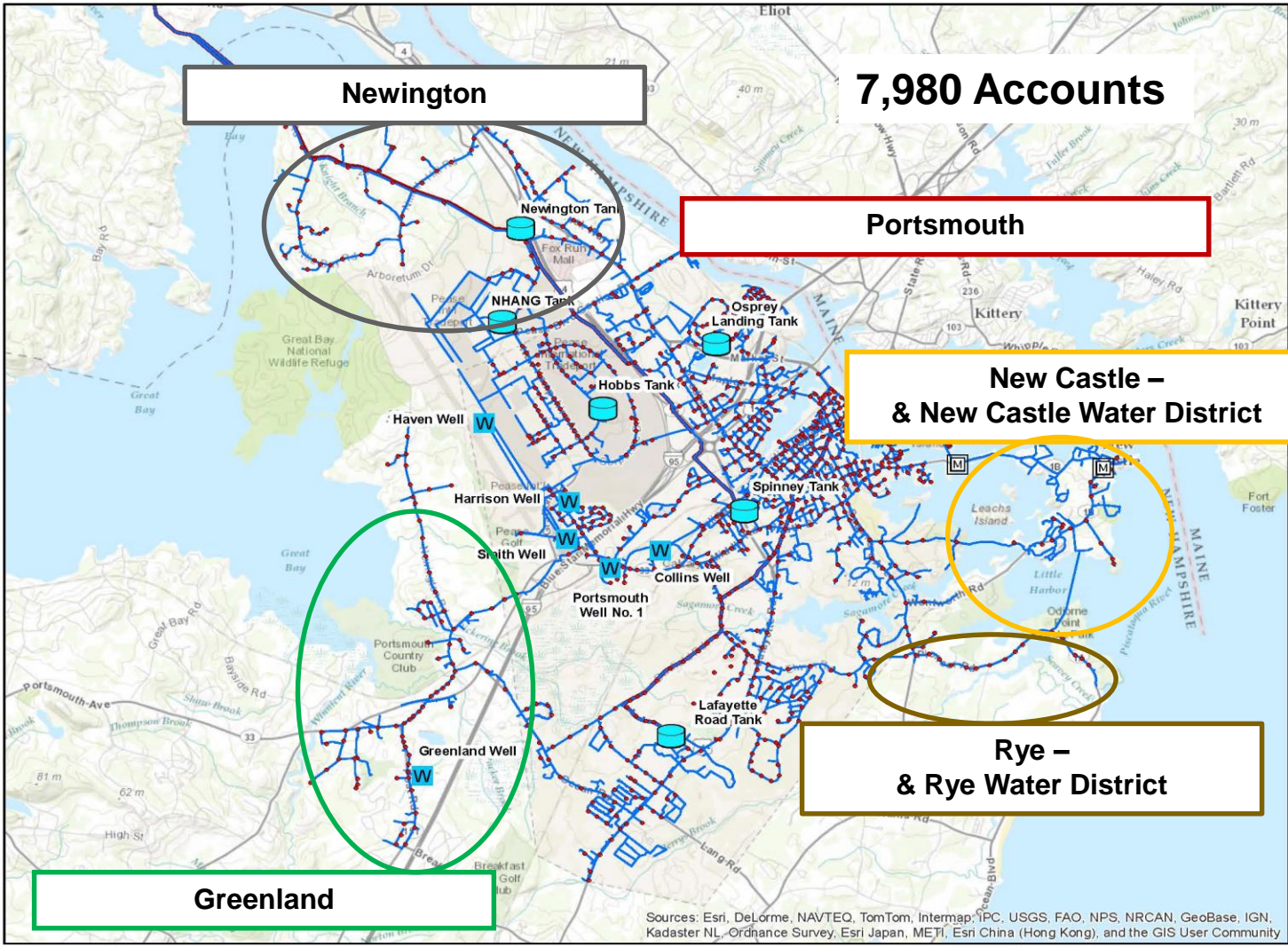
Consulting Engineers  
Environmental Specialists

# Overview of Tonight's Meeting

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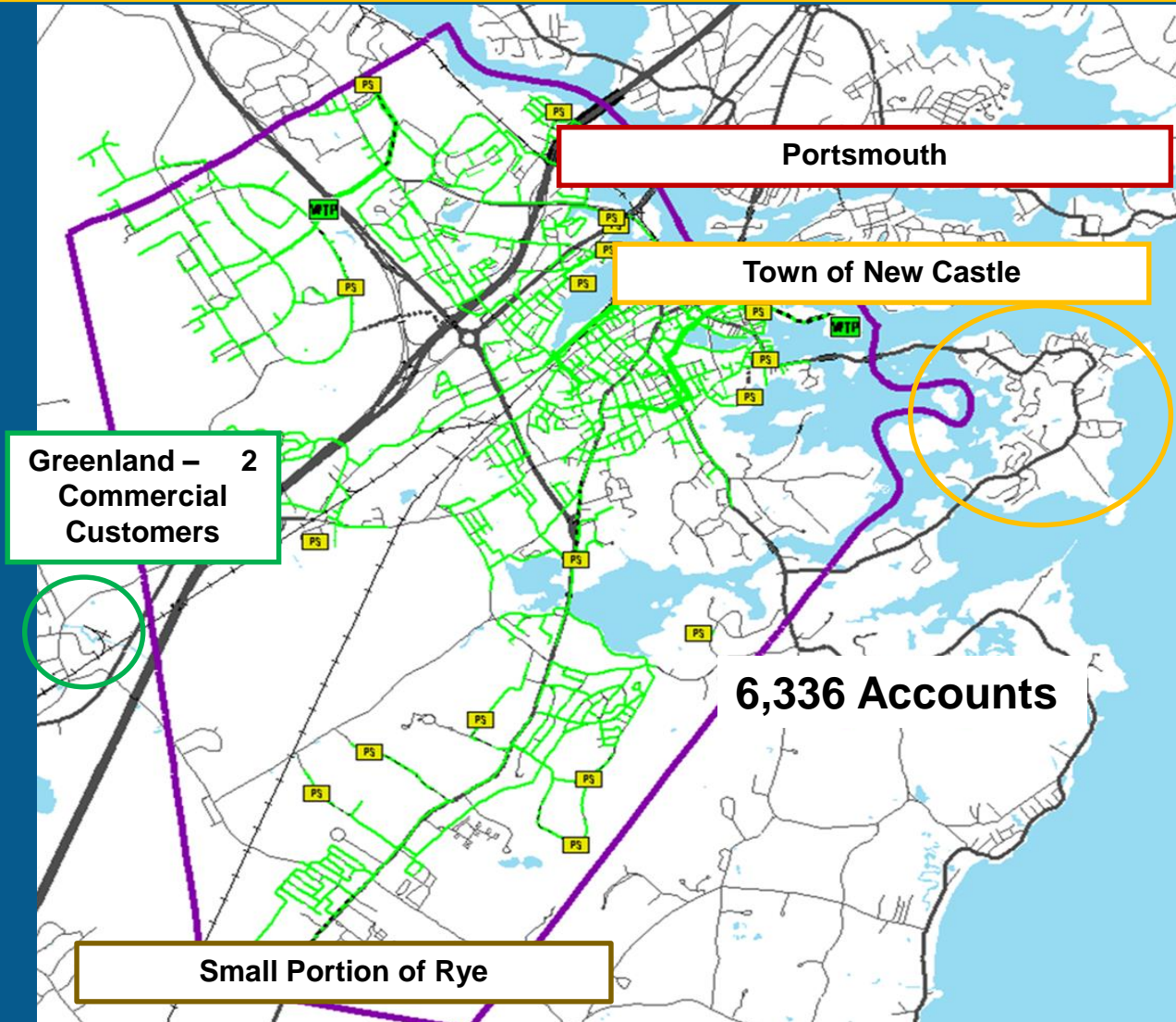
- **Introduction of the Study**
- **Enterprise Fund Accounting Requirements**
- **Factors Impacting Water and Sewer Rates**
- **Rate and Fee Policy Factors**
- **Next Steps**
- **Questions & Comments**

# Portsmouth Regional Water System



Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, iPC, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL - Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), and the GIS User Community

# Portsmouth Wastewater System



# Why Update the Rate Model

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- **Reduction in Billable Consumption**
- **Changing Water and Sewer Customer Base**
- **Policy Questions Such as Additional Tiers, Irrigation Meters**
- **Regulatory Requirements**
- **Capital Project Costs**
- **Good Practice to Update Model on Regular Basis**



# **Enterprise Fund Accounting Requirements**

# System Funding: Enterprise Funds

- ▶ Enterprise Funds Account for Operations That are Financed and Operated in a Manner Similar to Private Business
- ▶ Must have Fees and or Charges Sufficient Enough to Cover the Cost of Providing Goods and Services, Including Capital costs (i.e. Depreciation and Debt Service)
- ▶ Note: Property Taxes **do not** Subsidize the Water and Sewer Funds

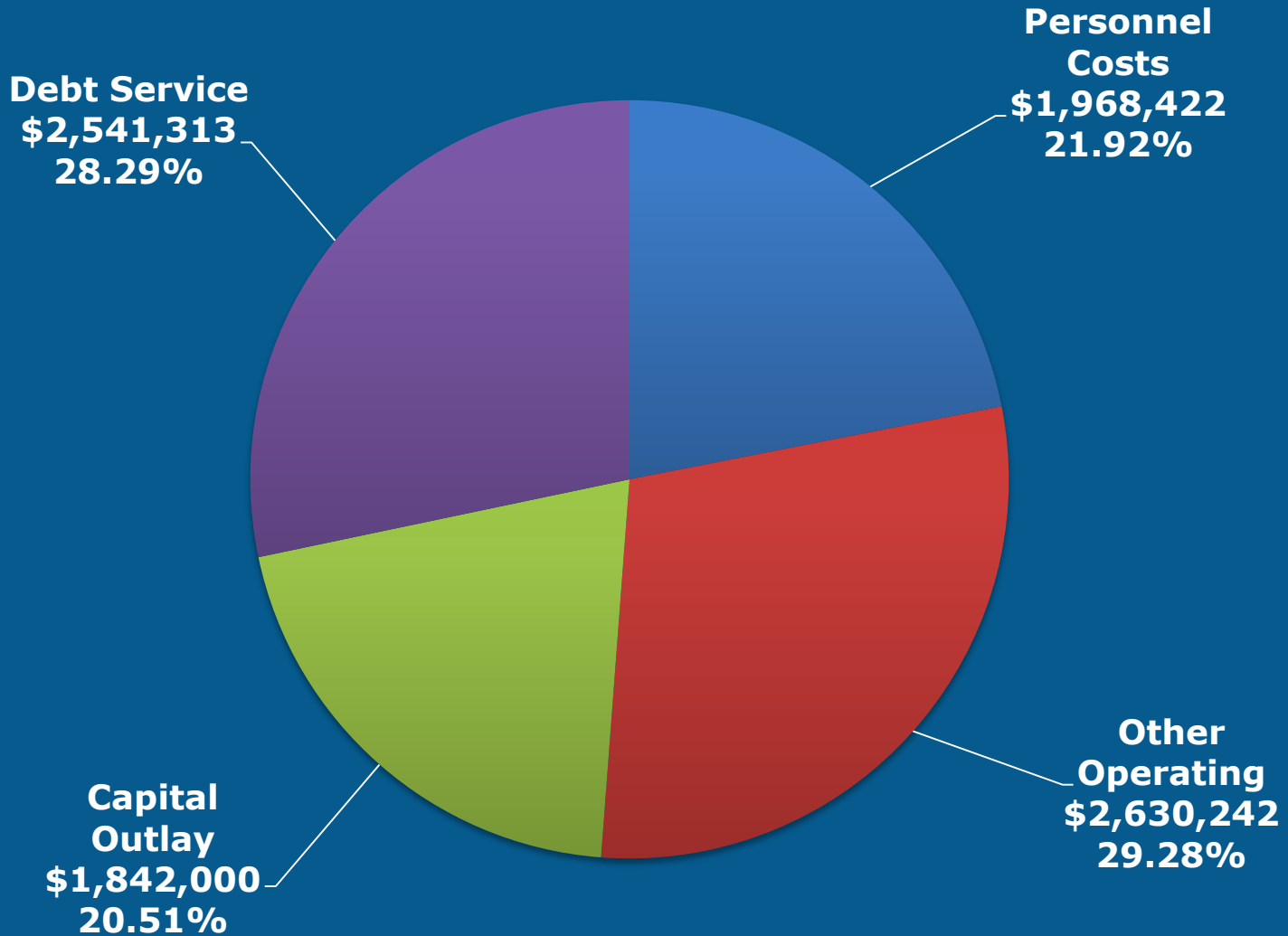
# Full Accrual vs. Cash Requirements

## Water Fund FY13 Budget

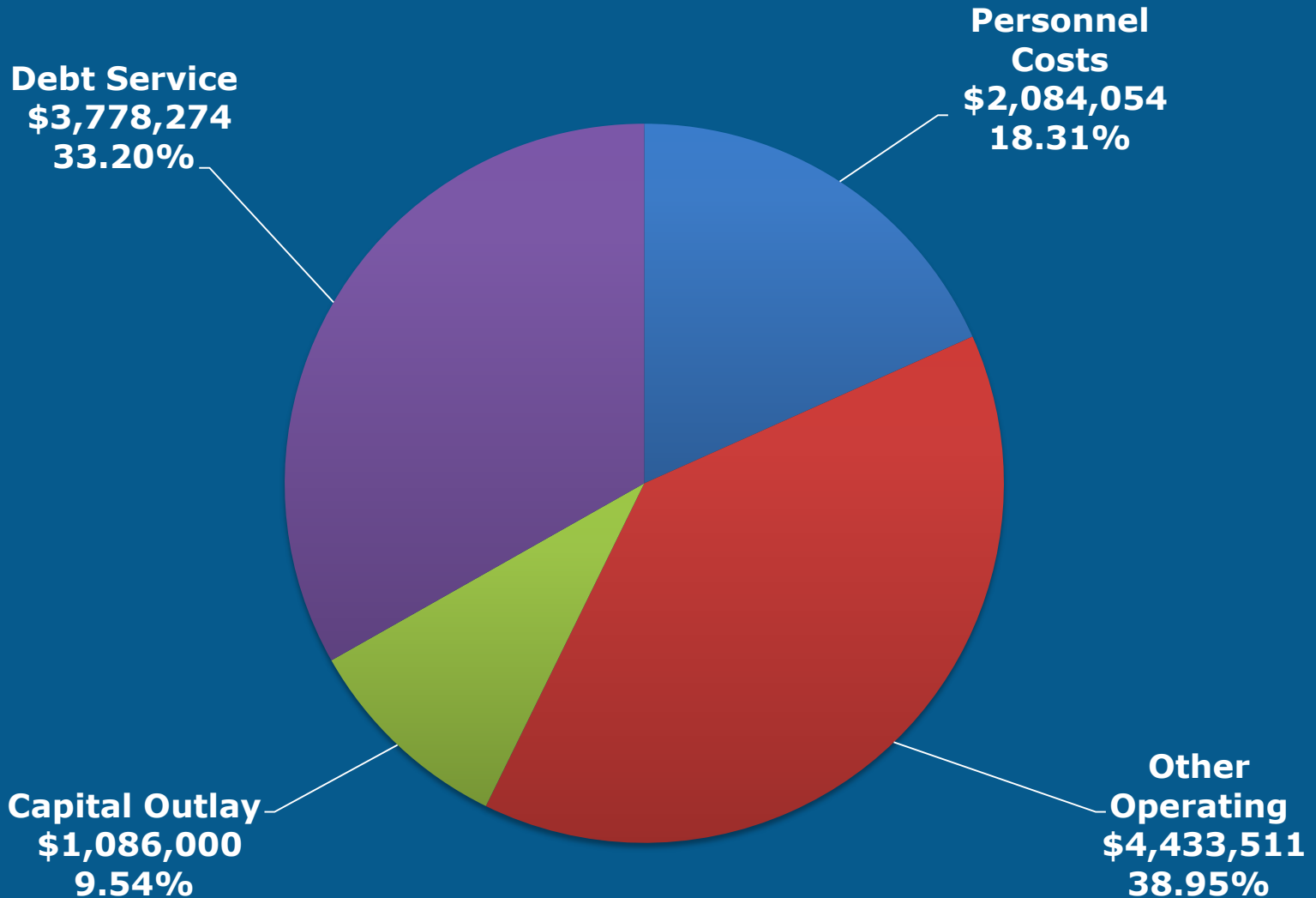
	Full Accrual Basis of Accounting	Cash Requirements
Operations and Maintenance	4,334,664	4,334,664
Madbury Property Taxes	118,000	118,000
Equipment & Minor Capital needs	146,000	146,000
Depreciation	1,168,763	0
Interest on Debt	937,726	937,726
Accrued Interest	0	33,870
Principal Debt	0	1,569,717
OPEB Liability	23,320	0
Capital Projects, Vehicle Replacement	0	1,842,000
<b>Total</b>	<b>\$6,728,473</b>	<b>\$8,981,977</b>



# Cash Basis Revenue Requirements: FY 13 Water Fund - \$8,981,977



# Cash Basis Revenue Requirements: FY 13 Sewer Fund - \$11,381,839



# Rate Design: Current Rates – Water

Meter Size	Monthly Meter Charge
5/8" and 3/4"	\$4.95
1"	\$8.27
1 1/2"	\$14.25
2"	\$22.91
3"	\$36.26
4"	\$68.74
6"	\$120.27
8"	\$168.01
10"	\$252.02

*CF = cubic feet,*  
*1 CF = 7.48 gallons*  
*CCF = 100 cubic feet*  
*1 Unit = 100 cubic feet*  
*100 cubic feet = 748 gallons*

Monthly Usage Rates – Variable Portion	
All User Classes	
Capital Related Rate per unit billed	\$2.78 per Unit
First 10 units billed per month	\$1.37 per Unit
<b>Tier 1: 0 – 10 Units</b>	<b>\$4.15 per Unit</b>
Capital Related Rate per unit billed	\$2.78 per Unit
Over 10 units billed per month	\$2.22 per Unit
<b>Tier 2: Over 10 Units</b>	<b>\$5.00 per Unit</b>
Irrigation	
Capital Related Rate per unit billed	\$2.78 per Unit
Over 10 units billed per month	\$2.22 per Unit
<b>All Usage</b>	<b>\$5.00 per Unit</b>

# Rate Design: Current Rates – Sewer

Meter Size	Monthly Meter Charge
5/8" and 3/4"	\$ -
1"	\$ -
1 1/2"	\$ -
2"	\$ -
3"	\$ -
4"	\$ -
6"	\$ -
8"	\$ -
10"	\$ -

Monthly Usage Rates – Variable Portion	
All User Classes	
Capital Related Rate per unit billed	\$4.00 per Unit
First 10 units billed per month	\$5.54 per Unit
<b>Tier 1: 0 – 10 Units</b>	<b>\$9.54 per Unit</b>
Capital Related Rate per unit billed	\$4.00 per Unit
Over 10 units billed per month	\$6.49 per Unit
<b>Tier 2: Over 10 Units</b>	<b>\$10.49 per Unit</b>

*CF = cubic feet,  
 1 CF = 7.48 gallons  
 CCF = 100 cubic feet  
 1 Unit = 100 cubic feet  
 100 cubic feet = 748 gallons*

# Municipal Financial Services Group

- **Specialized Financial and Management Consulting Practice**

- ▶ Focus on Municipal and Environmental Infrastructure
- ▶ Efficient Delivery of Public Sector Services



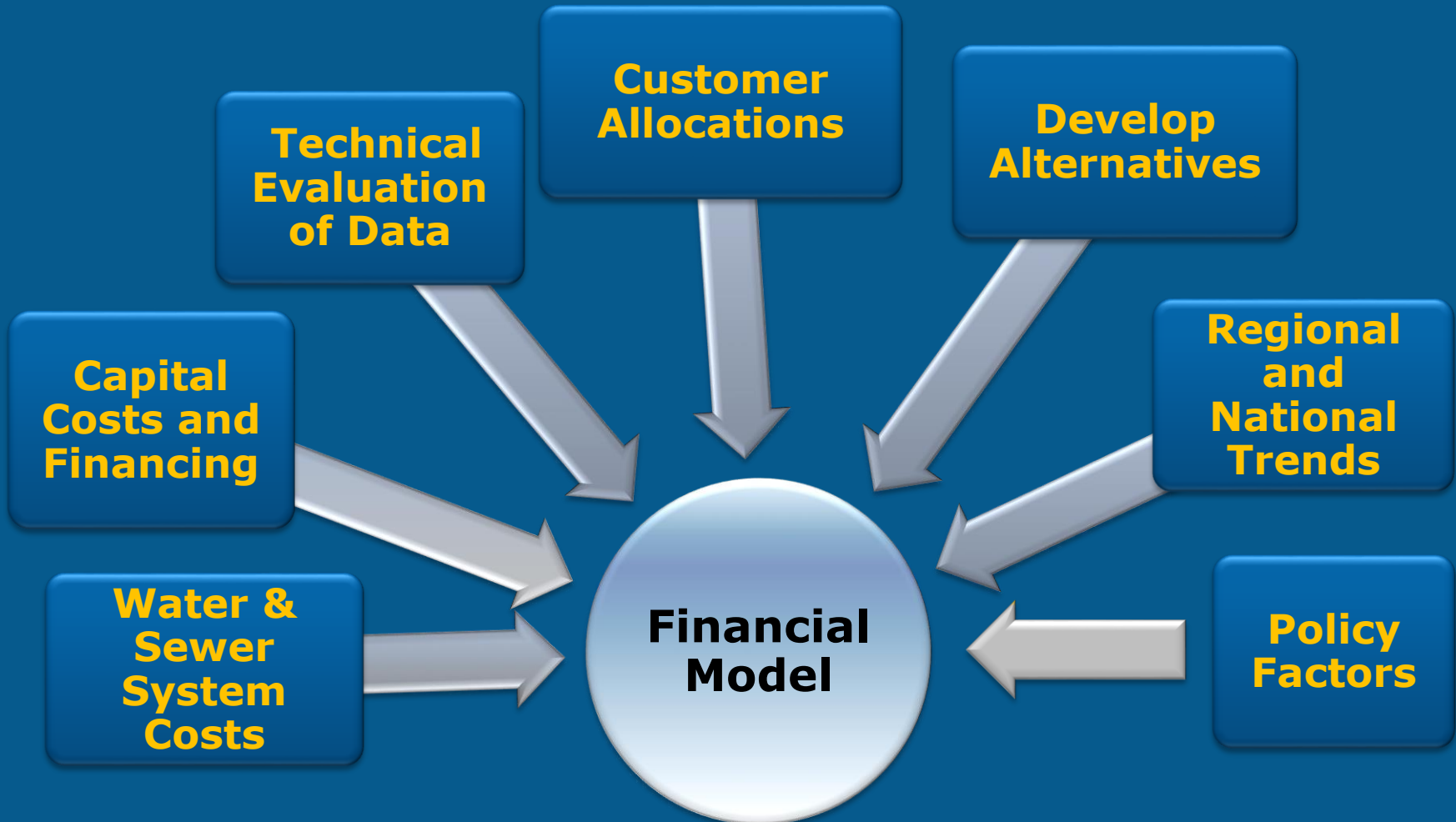
- **National Practice Since 1976**

- **Clients Range from Large (New York, Washington, DC, Cleveland, San Francisco) to Very Small (Prudhoe Bay) - Clients Serve 45% of Nation's Population**

- **Recent work for numerous governments in New England**

- ▶ Water and sewer rate studies and financial plans
  - New Hampshire - Claremont
  - Massachusetts - Barnstable, Auburn
  - Connecticut - Branford, Cheshire, Manchester, Middletown, Watertown
  - Rhode Island - Bristol, Newport Water

# Rate Study Components



# Principals of Rate Setting

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- **Water and sewer operations are self-supporting**
  - ▶ Rates and fees are set to recover cost of providing service
  - ▶ No profit and no subsidy to or from General Fund
  - ▶ Operations function as a business
  - ▶ Utilities reimburse General Fund for support services

# Principals of Rate Setting

- **Water and sewer rates are user fees rather than taxes and therefore are designed to charge customers based on their use of the service.**
  - ▶ Should be cost based
  - ▶ Cannot be arbitrary
- **Water and sewer are set on a zero sum basis**
  - ▶ Reductions in revenues due to decreased usage, rate structure changes or other factors result in the need for rate increases





# **Factors Impacting Water and Sewer Rates**

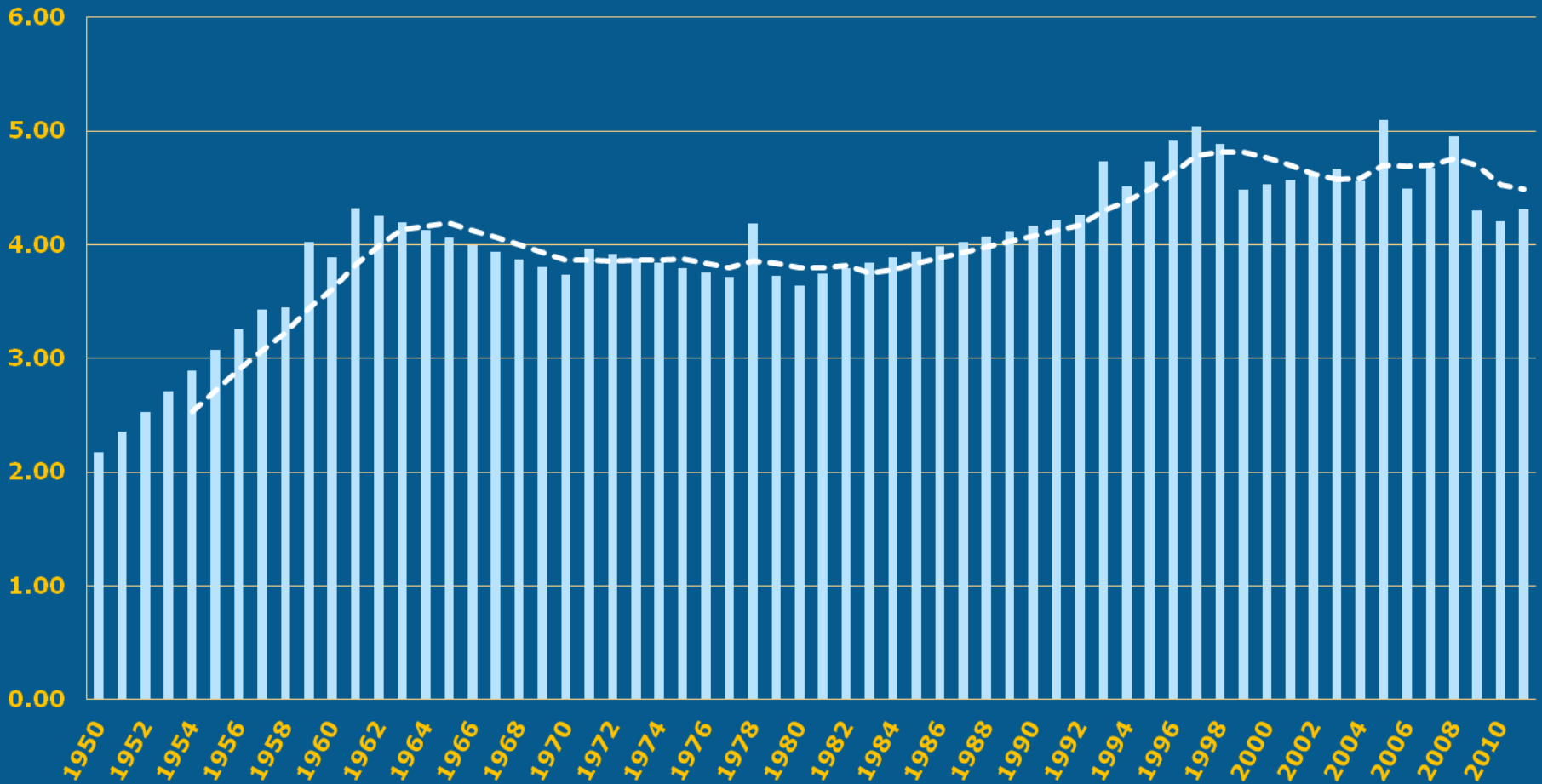
# Portsmouth Capital Needs

- **Capital Intensive Service**
- **Aging Infrastructure**
- **Regulatory Requirements**
  - ▶ Safe Drinking Water Act
  - ▶ Clean Water Act (Sewer)



# Portsmouth Water Demand Trends

Million Gallons per Day and 5 Year Rolling Average



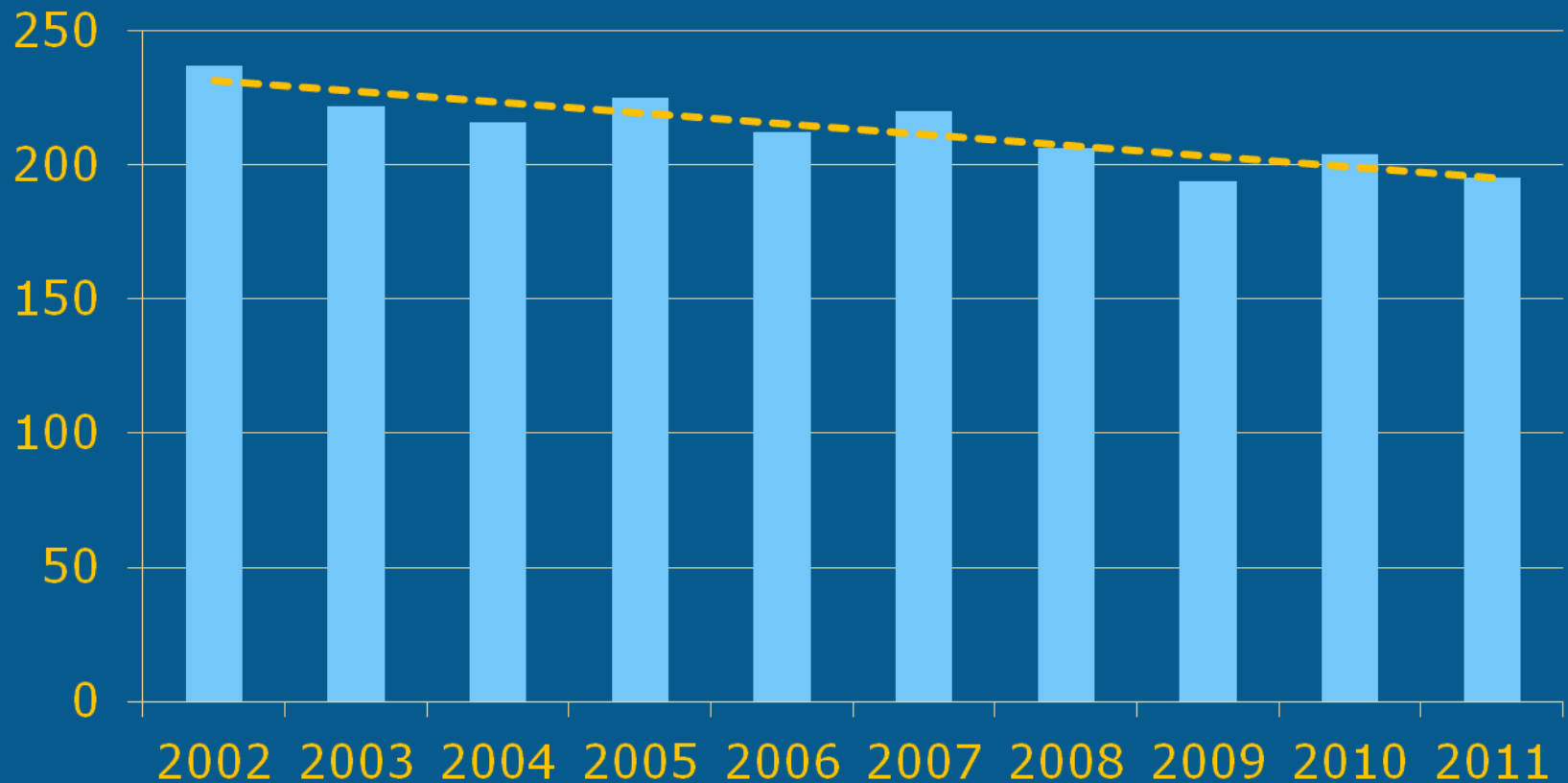
# Portsmouth Water Demand Trends

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- **Factors Contributing to Declining Demand**
  - ▶ Water fixture change-outs
  - ▶ Fewer people per household
  - ▶ Economic conditions
  - ▶ “Going-Green” conservation ethic
  - ▶ Response to rate increases

# Usage Trends – Regionally

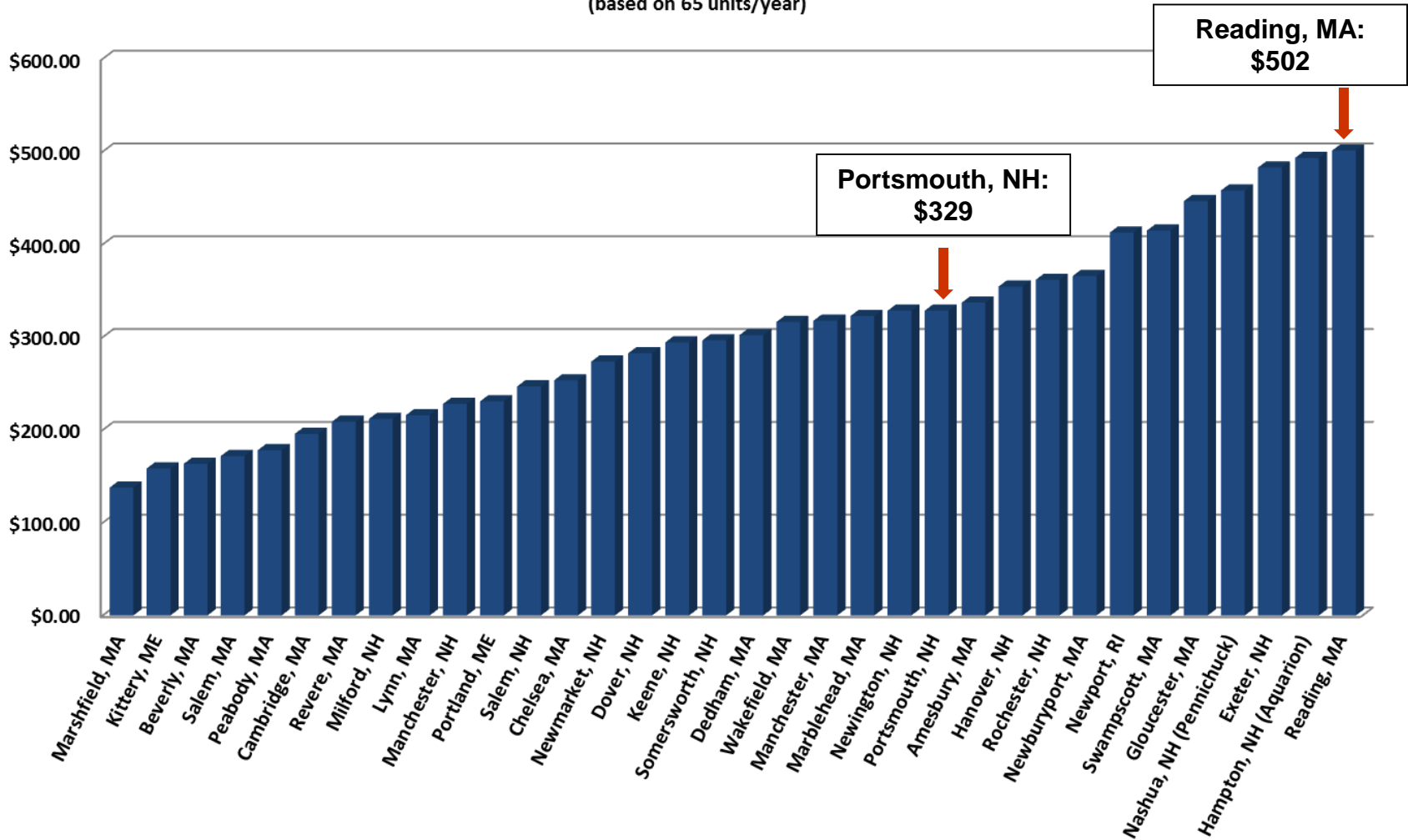
## Massachusetts Water Resources Authority Average Daily Delivery – Million Gallons



Source: Summary Report of MWRA's Demand Management Program for Fiscal Year 2012

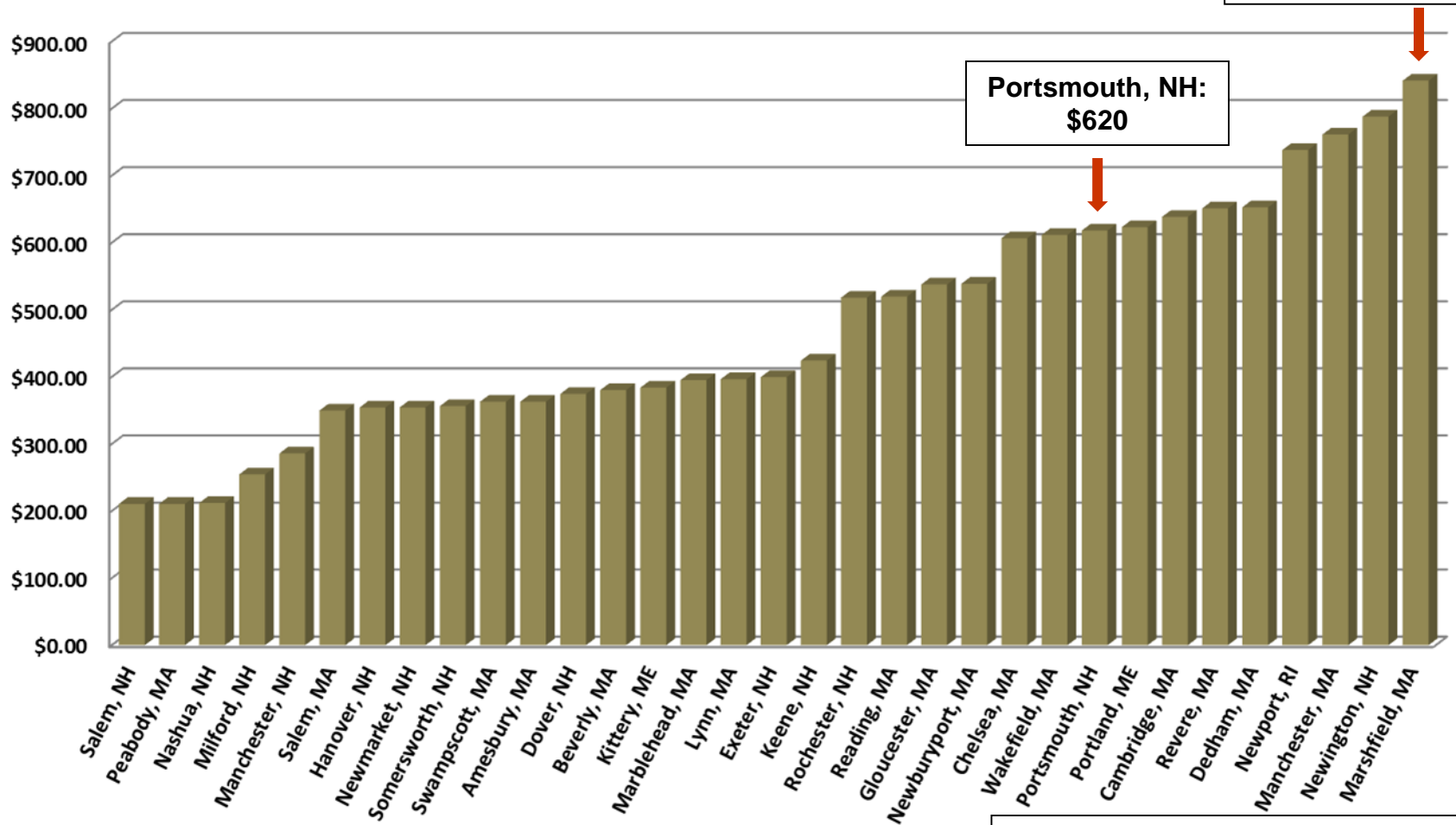
# Bill Comparison - Water

Average Annual Single Family Residential Water Bill  
(based on 65 units/year)



# Bill Comparison - Sewer

**Average Annual Single Family Residential Sewer Bill**  
(based on 65 units/year)

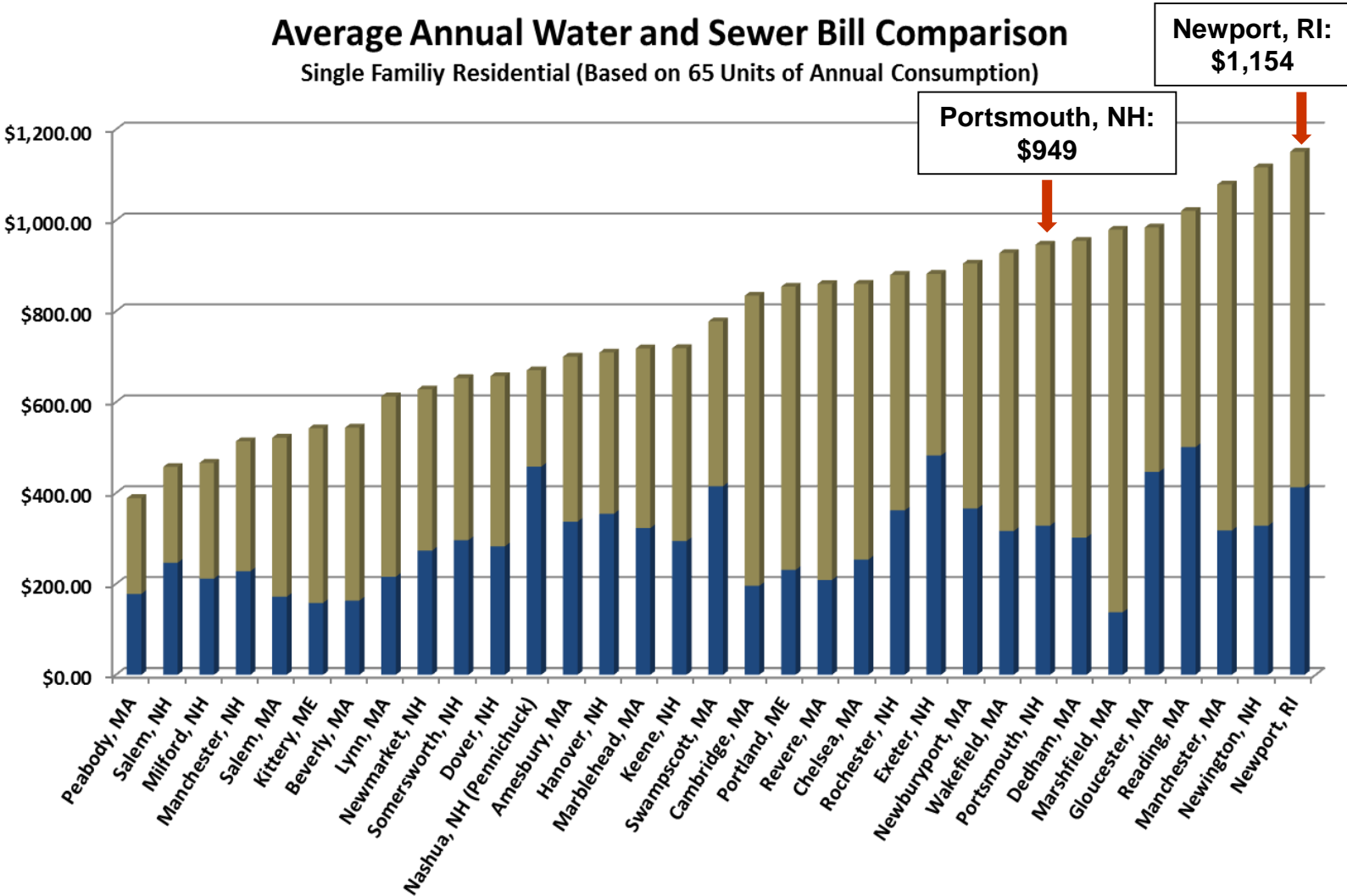


\* Newington only has Commercial Customers

# Bill Comparison - Combined

## Average Annual Water and Sewer Bill Comparison

Single Family Residential (Based on 65 Units of Annual Consumption)







# **Rate Model Alternatives**

# Policy Issues

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- **Issue #1 – Additional Tiers**
- **Issue #2 – Base Charges (monthly meter charges)**
- **Issue #3 – Irrigation Meter Availability**
- **Issue #4 – Irrigation Tier**
- **Issue #5 – Multi-Family Condo Billing**
- **Issue #6 – Fire Protection Charge**

# Issue #1 – Additional Tiers

Should additional tiers be added to the current water and sewer rate structure?

	Water Rate Structure		Sewer Rate Structure
<b>Tier 1: 0 – 10 Units</b>	\$4.15 per Unit		\$9.54 per Unit
<b>Tier 2: Over 10 Units</b>	\$5.00 per Unit		\$10.49 per Unit
<b>Irrigation: All Usage</b>	\$5.00 per Unit		n/a

# Issue #1 – Additional Tiers

## Should additional tiers be added to the current water and sewer rate structure?

### Basis for Recommendation:

- ▶ Of the largest customer class (SFR), 84% of water consumption and 90% of sewer usage falls within current Tier 1 (10 units/month)
- ▶ Adding a new tier at a lower rate would provide assistance to the smallest users of the system

### Recommended Action:

**Include a tier to aide the small users of the system**

# Issue #1 Results – Additional Tiers

	Water Rate Structure			Sewer Rate Structure	
	Current 2-Tiered Rates	3-Tiered Rates		Current 2-Tiered Rates	3-Tiered Rates
<b>Tier 1: 0 – 2 Units</b>	\$4.15 per Unit	<b>\$3.47 per Unit</b>		\$9.54 per Unit	<b>\$6.77 per Unit</b>
<b>Tier 2: 2 – 10 Units</b>		<b>\$4.23 per Unit</b>			<b>\$9.90 per Unit</b>
<b>Tier 3: Over 10 Units</b>	\$5.00 per Unit	<b>\$5.08 per Unit</b>		\$10.49 per Unit	<b>\$10.84 per Unit</b>
<b>Irrigation: All Usage</b>	\$5.00 per Unit	<b>\$5.08 per Unit</b>		n/a	n/a

# Issue #1 Impacts – Additional Tiers

Sample Total Water Bill Impact (Including Monthly Meter Charge)						
Customer Class	Meter Size	Monthly Usage (Units)	Current FY 13	Issue #1 FY 13	% Increase	\$ Increase
Single Family Residential	5/8"	2	\$13.25	\$11.89	-10.3%	(\$1.36)
Single Family Residential	5/8"	5	\$25.70	\$24.59	-4.3%	(\$1.11)
Single Family Residential	1"	25	\$124.77	\$125.30	0.4%	\$0.53
Non-Single Family Residential	3/4"	30	\$146.45	\$147.39	0.6%	\$0.94
Non-Single Family Residential	3"	400	\$2,027.76	\$2,058.76	1.5%	\$31.00
Irrigation Account	3/4"	6	\$34.95	\$35.44	1.4%	\$0.49

Sample Sewer Bill Impact						
Customer Class	Meter Size	Monthly Usage (Units)	Current FY 13	Issue #1 FY 13	% Increase	\$ Increase
Single Family Residential	5/8"	2	\$19.08	\$13.54	-29.0%	(\$5.54)
Single Family Residential	5/8"	5	\$47.70	\$43.25	-9.3%	(\$4.45)
Single Family Residential	1"	25	\$252.75	\$255.40	1.0%	\$2.65
Non-Single Family Residential	3/4"	30	\$305.20	\$309.61	1.4%	\$4.41
Non-Single Family Residential	3"	400	\$4,186.50	\$4,321.45	3.2%	\$134.95

# Issue #2 Results – Base Charges (Monthly Meter Charge)

## Are Current Base Charges Appropriate?

	Water Rate Structure		Sewer Rate Structure
Meter Size	Current Monthly Meter Charge (8.5% of Revenues)		Current Monthly Meter Charge (0% of Revenues)
5/8" and 3/4"	\$4.95		\$ -
1"	\$8.27		\$ -
1 1/2"	\$14.25		\$ -
2"	\$22.91		\$ -
3"	\$36.26		\$ -
4"	\$68.74		\$ -
6"	\$120.27		\$ -
8"	\$168.01		\$ -
10"	\$252.02		\$ -

# Issue #2 – Base Charges (Monthly Meter Charge)

## Are Current Base Charges Appropriate?

### Basis for Recommendation:

- ▶ Rate modeling results calculate base charges at 21% - water, 24% - sewer
- ▶ Industry standard sets base charges for water and sewer structures at approx. 20 – 30%
- ▶ Increases in base charges increases revenue stability of Fund

### Recommended Action:

**Increase percentage of revenue collected from base charges over time**



# Issue #2 Results – Base Charges (Monthly Meter Charge)

	Water Rate Structure			Sewer Rate Structure	
Meter Size	Current Monthly Meter Charge (8.5% of Revenues)	Monthly Meter Charge (15% of Revenues)		Current Monthly Meter Charge (0% of Revenues)	Monthly Meter Charge (10% of Revenues)
5/8" and 3/4"	\$4.95	<b>\$8.54</b>		\$ -	<b>\$10.87</b>
1"	\$8.27	<b>\$14.27</b>		\$ -	<b>\$18.17</b>
1 1/2"	\$14.25	<b>\$24.60</b>		\$ -	<b>\$31.31</b>
2"	\$22.91	<b>\$39.54</b>		\$ -	<b>\$50.33</b>
3"	\$36.26	<b>\$62.59</b>		\$ -	<b>\$79.66</b>
4"	\$68.74	<b>\$118.65</b>		\$ -	<b>\$151.01</b>
6"	\$120.27	<b>\$207.59</b>		\$ -	<b>\$264.22</b>
8"	\$168.01	<b>\$289.99</b>		\$ -	<b>\$369.10</b>
10"	\$252.02	<b>\$434.99</b>		\$ -	<b>\$553.65</b>

# Issue #2 Impacts – Base Charges (Monthly Meter Charge)

## Sample Water Bill Impact (Including Monthly Meter Charge)

Customer Class	Meter Size	Monthly Usage (Units)	Current FY 13	Issue #2 FY 13	% Increase	\$ Increase
Single Family Residential	5/8"	2	\$13.25	\$16.84	27.1%	\$3.59
Single Family Residential	5/8"	5	\$25.70	\$29.29	14.0%	\$3.59
Single Family Residential	1"	25	\$124.77	\$130.77	4.8%	\$6.00
Non-Single Family Residential	3/4"	30	\$146.45	\$150.04	2.5%	\$3.59
Non-Single Family Residential	3"	400	\$2,027.76	\$2,054.09	1.3%	\$26.33
Irrigation Account	3/4"	6	\$34.95	\$38.54	10.3%	\$3.59

## Sample Sewer Bill Impact (Including Monthly Meter Charge)

Customer Class	Meter Size	Monthly Usage (Units)	Current FY 13	Issue #2 FY 13	% Increase	\$ Increase
Single Family Residential	5/8"	2	\$19.08	\$29.95	57.0%	\$10.87
Single Family Residential	5/8"	5	\$47.70	\$58.57	22.8%	\$10.87
Single Family Residential	1"	25	\$252.75	\$270.92	7.2%	\$18.17
Non-Single Family Residential	3/4"	30	\$305.20	\$316.07	3.6%	\$10.87
Non-Single Family Residential	3"	400	\$4,186.50	\$4,266.16	1.9%	\$79.66

# Issue #3 – Irrigation Meter Availability

## Should Irrigation meters be expanded to Multi-Family and Commercial Customers?

### Consideration:

- ▶ Currently there are 241 Irrigation Accounts
- ▶ Is this consistent with City's sustainable practice goals?
- ▶ Increased irrigation meter availability would result in a loss of approximately 8.7% of billed sewer usage. Lost billable usage would result in increased fees to make up the lost revenues

# Issue #4 – Irrigation Tier

If Irrigation meter use is expanded should Irrigation be charged at an additional peak tier in the water rate structure?

	Water Rate Structure
<b>Irrigation: All Usage</b>	\$5.00 per Unit

# Policy Discussion – Irrigation Tier

## Should Irrigation be charged an additional peak tier in the water rate structure?

### Basis for Recommendation:

- ▶ Customers with irrigation meters did not pay for the capacity they are using (do not pay the water capacity use surcharge fee)
- ▶ Irrigation use is non-essential use of water and non-irrigation customer should not subsidize cost of providing this capacity

### Recommendation Action:

**Irrigation water should be charged at a higher tier rate**

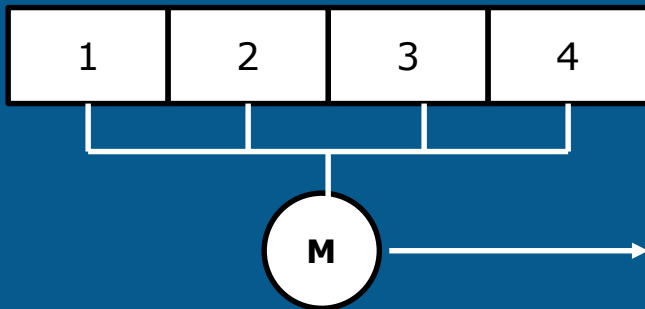
# Issue #4 Results & Impacts – Irrigation Tier

	Water Rate Structure	
<b>Irrigation: All Usage</b>	\$5.00 per Unit	<b>\$5.56 per Unit</b>

Sample Water Bill Impact						
Customer Class	Meter Size	Monthly Usage (Units)	Current FY 13	Issue #4 FY 13	% Increase	\$ Increase
Irrigation Account	3/4"	6	\$34.95	\$38.31	9.6%	\$3.36

# Issue #5 – Multi-Family Condo Billing

Should Multi-Family condo accounts be provided with a usage allowance per tier, based on the number of dwelling units?



Condo Account with 1 Master Meter and 4 Residential Dwellings			
	Monthly Water Bill	Monthly Sewer Bill	Monthly Combined Bill
1" Meter Charge	\$8.27	\$ -	\$8.27
Usage	20 Units	20 Units	20 Units
1 <sup>st</sup> Tier Charge	\$41.50	\$95.40	\$136.90
2 <sup>nd</sup> Tier Charge	\$50.00	\$104.90	\$154.90
<b>Total Bill</b>	<b>\$99.77</b>	<b>\$200.30</b>	<b>\$300.07</b>
<b>Cost/Res. Dwelling</b>	<b>\$24.95</b>	<b>\$50.08</b>	<b>\$75.02</b>

# Issue #5 – Multi-Family Condo Billing

## Should Multi-Family condo accounts be provided with a usage allowance per tier based on the number of dwelling units?

### Basis for Recommendation:

- ▶ Implementing average use per dwelling unit would greatly increase administrative costs
- ▶ Implementation would shift usage to lower tiers charge, in turn decreasing overall revenues resulting in necessary higher rates
- ▶ True equity would require individual meters which is currently allowed

### Recommended Action:

**No implementation recommended – No action required**



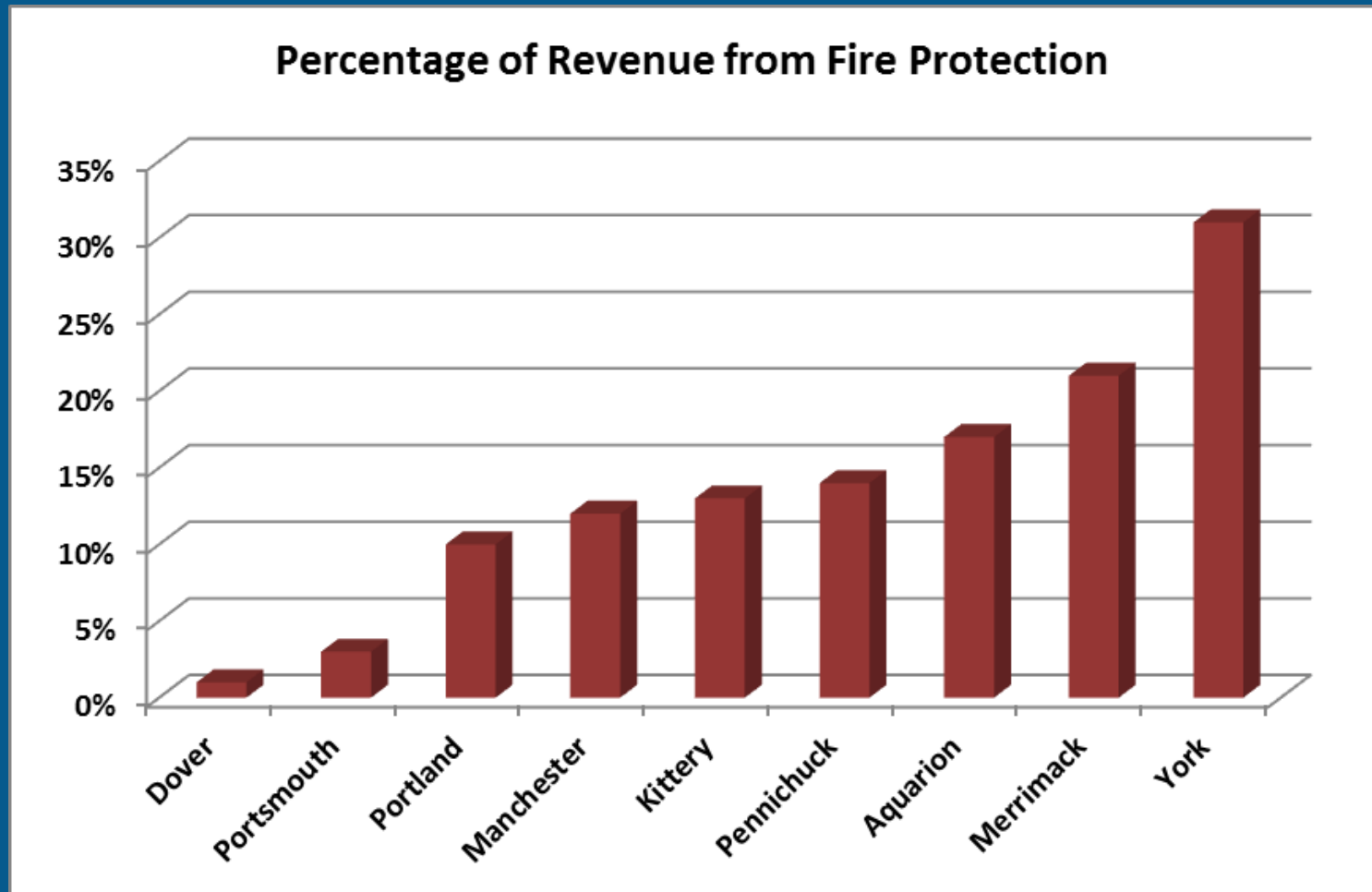
# Issue #6 – Fire Protection Charges

## Should Fire Protection Charges be increased?

<b>Public Fire Protection</b>	<b>Current</b>
Annual Hydrant Fee	\$100
<b>Private Fire Protection</b>	<b>Current</b>
Monthly Charge per Line Size	
1"	\$2.55
1 ½"	\$3.82
2"	\$5.09
2 ½"	\$7.64
3"	\$12.22
4"	\$19.35
5"	\$31.57
6"	\$38.69
8"	\$71.28
10"	\$107.93
12"	\$162.88

# Issue #6 – Fire Protection Charges

## Fire Protection Allocation % Comparison



# Issue #6 – Fire Protection Charges

## Should Fire Protection Charges be increased?

### Basis for Recommendation:

- ▶ Rate modeling analysis calculates 10% of water costs are due to fire protection
- ▶ Current fire protection charges only generate 3% of water revenues
- ▶ As a result fire protection charges are currently set at a level well below the cost of providing fire protection services

### Recommended Action:

**Incrementally increase Hydrant Fees and Fire Line Charges to recommended levels over five years starting in FY15**

# Issue #6 Results & Impacts – Fire Protection Charges

Public Fire Protection	Current	Recommended FY 15
Annual Hydrant Fee	\$100	<b>\$200</b>
Private Fire Protection	Current	Recommended FY 15
Monthly Charge per Line Size		
1"	\$2.55	<b>\$2.55</b>
1 ½"	\$3.82	<b>\$3.82</b>
2"	\$5.09	<b>\$5.09</b>
2 ½"	\$7.64	<b>\$7.64</b>
3"	\$12.22	<b>\$12.22</b>
4"	\$19.35	<b>\$19.41</b>
5"	\$31.57	<b>\$32.32</b>
6"	\$38.69	<b>\$42.37</b>
8"	\$71.28	<b>\$81.35</b>
10"	\$107.93	<b>\$130.09</b>
12"	\$162.88	<b>\$200.96</b>

Annual Collected Revenues	Current	Recommended FY 15
Public Fire Protection	\$104,000	\$208,000
Private Fire Protection	\$187,787	\$211,957
Total Fire Services	<b>\$291,787</b>	<b>\$419,957</b>

# Issue #7 – Minimum Unallocated Retained Earnings Balance

## What minimum unallocated retained earnings balance should be maintained in the water and sewer funds?

### Basis for Recommendation:

- ▶ Unallocated retained earnings should be maintained to include:
  - ▶ A working capital reserve equal to 30 days of operating expenses
  - ▶ A capital stabilization reserve based on asset replacement analysis

### Recommended Action:

**Maintain 30% of Annual Budget**

# Policy Issues Summary

ISSUE	TOPIC	RECOMMENDED ACTION
■ Issue #1	Additional Tiers	Include a tier to aide the small users of the system
■ Issue #2	Base Charges (Monthly Meter Charge)	Increase percentage of revenue collected from base charges
■ Issue #3	Irrigation Meter Availability	
■ Issue #4	Irrigation Tiers	Dependent upon Issue #3
■ Issue #5	Multi-Family Condo Billing	No implementation recommended – No action required
■ Issue #6	Fire Protection Charges	Incrementally increase Hydrant Fees and Fire Line Charges to recommended levels over next five years

# Next Steps



- **Finalize Rate Model**
- **Develop Proposed FY 14 Water and Sewer Rate**
- **Present Proposed Budget and Water Sewer Rate at March 13, 2013**
- **Modify rate model to incorporate policy changes approved by City Council for preparation of FY 15 budget**



# Questions and Comments