Water and Sewer Rate Study

New York City Department of Environmental Protection

Rate Study Overview

Study Objectives

- Primary objective of study is to analyze different rate structures and charges, with particular attention paid to:

  * Financial stability
  * Equity
  * Water conservation
  * Storm water management
  * Other best management practices

- Other important considerations include:

  * Ratepayer sensitivity
  * Economic competitiveness
  * Ease of Implementation
  * Future System needs
  * Affordable housing stock
  * Regulatory/water quality concerns

Key Phases

- PHASE 1
  - Analyzed DEP's current rate structure and capital and operating expenses
  - Surveyed water and wastewater utilities from around the country to benchmark capital/operating budgets and identify universe of alternative rate structures
  - Met with stakeholder groups to facilitate public input and understand key concerns
- PHASE 2
  - Study of potential impacts on revenue, ratepayers under alternative rate structures
    * Fixed rates
    * Stormwater rates
    * New development charges
    * Water conservation rates

Information from the following utilities was collected

Water/Wastewater Utilities

- Atlanta Department of Watershed Management
- Baltimore Bureau of Water & Wastewater
- Boston Water & Sewer Commission
- Buffalo Water Authority
- Chicago Department of Water Management
- Columbus Public Utilities
- Dallas Water Utility
- DC Water and Sewer Authority
- Detroit Water and Sewerage Department (DWSD)
- Glendale Water and Wastewater Utilities
- Greensboro Water
- Houston Water/Wastewater Utility
- Irvine Ranch Water District
- Jacksonville (JEA Water and Wastewater Utility)
- Kansas City Water Services Department
- Miami-Dade County Water and Sewer Department (WASD)
- New Orleans Sewerage & Water Board
- Newark Department of Water & Sewer Utilities
- Niagara Falls Water Board
- Oakland / East Bay Municipal Utility District
- Orlando Utilities Commission
- Philadelphia Water Department
- Phoenix Water Services Department
- Pittsburgh Water and Sewer Authority
- San Antonio Water System
- San Francisco Public Utilities Commission
- Seattle Public Utilities
- St. Louis Water and Wastewater Department
- Washington Sanitary Suburban Commission (WSSC)

Water Utilities

- Cleveland Division of Water
- Denver Water
- Greater Cincinnati Water Works
- Honolulu Board of Water Supply
- Indianapolis Water
- Las Vegas Valley Water District
- Los Angeles Department of Water & Power
- Louisville Water Company
- Metropolitan Water District (MWD) of Southern California
- Milwaukee Water Works
- Portland Water Bureau
- San Diego County Water Authority
- San Diego Water Department
- San Jose Municipal Water System
- Southern Nevada Water Authority
- Suffolk County (NY) Water Authority
- Utica (Mohawk Valley Water Authority)

Wastewater Utilities

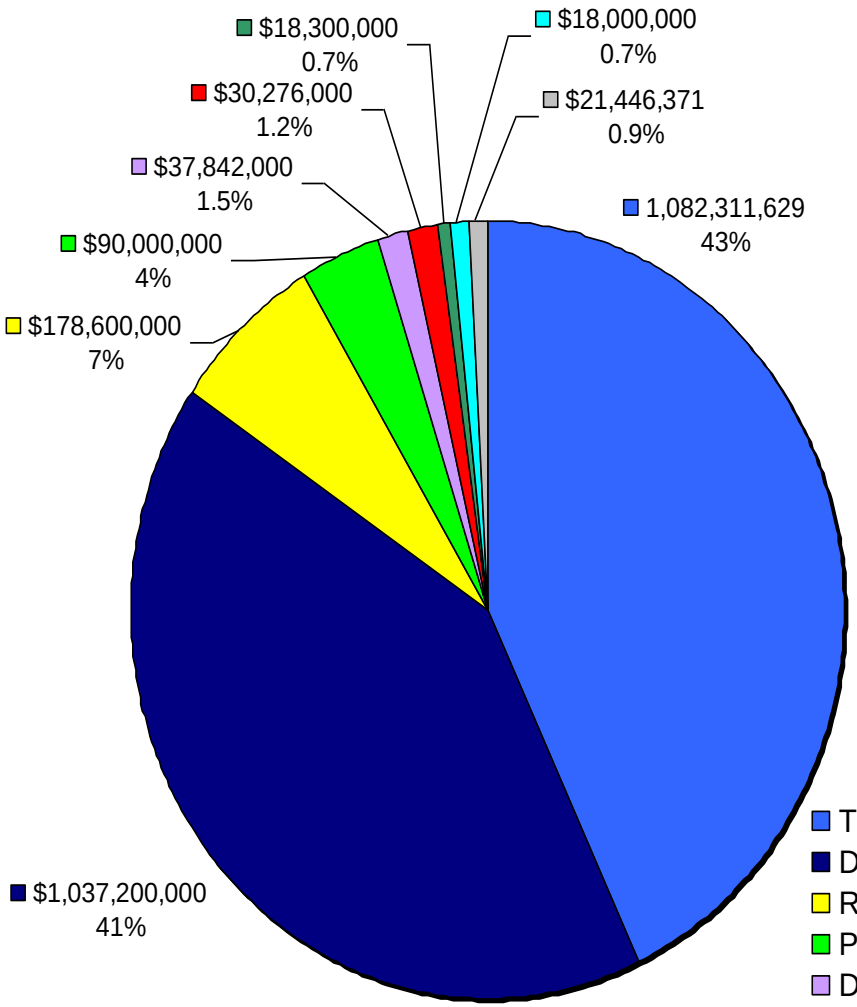
- Chicago Metropolitan Water Reclamation Department
- Cleveland Northeast Regional Sewer District
- Denver Wastewater Management Division
- Honolulu ENV (Department of Environmental Services)
- Las Vegas / Clark County Water Reclamation District
- Los Angeles Bureau of Sanitation
- Louisville / Jefferson County Metropolitan Sewer District
- Milwaukee Metropolitan Sewer District
- San Diego Metropolitan Wastewater Department
-

26 UTITLITIES SHOWN IN RED WERE SURVEYED AND PROVIDED MODERATE TO SIGNIFICANT INFORMATION. For other 29 utilities, available reports were reviewed.

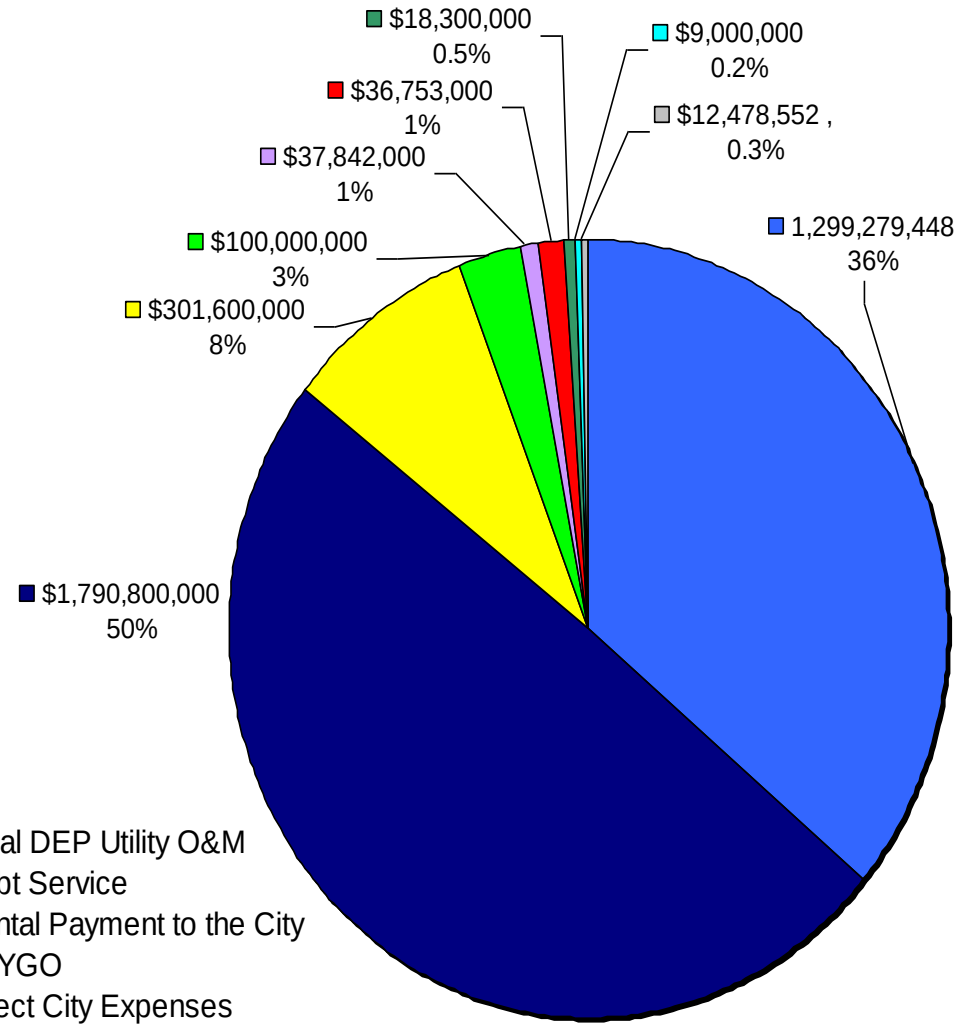
Phase I: Financial Benchmarking

Overview NYCDEP Budget

DEP FY '09 and FY '14 budget breakdowns reflect increasing costs of service



FY09 Budget ($2.51 B)



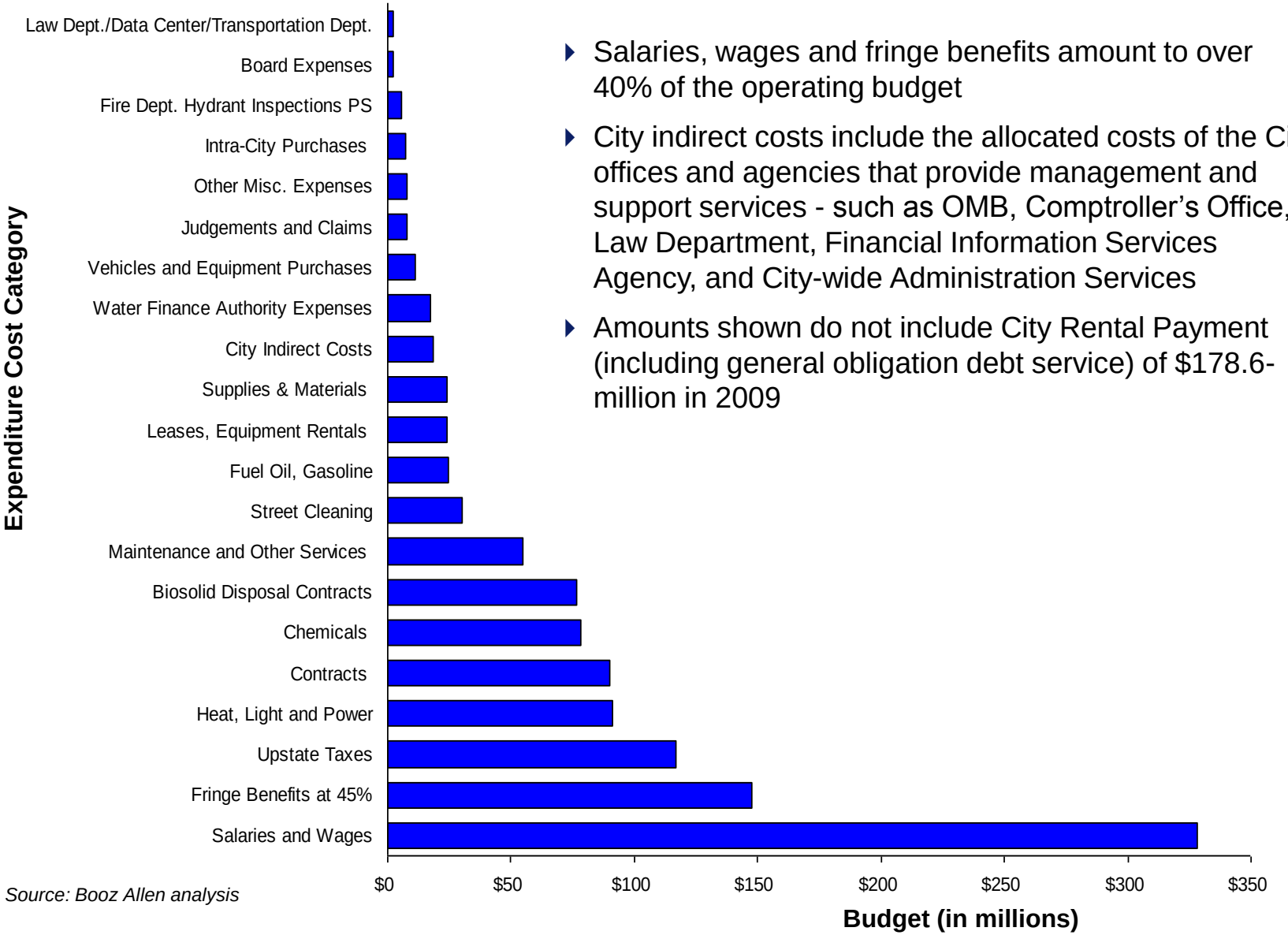
FY14 Budget ($3.61 B)

- Total DEP Utility O&M
- Debt Service
- Rental Payment to the City
- PAYGO
- Direct City Expenses
- Authority Expenses
- Indirect Expenses
- Board Expenses
- Other

Note: Trust account withdrawal of $66M is not reflected in the FY09 budget presented herein.

NYCDEP Operating Budget and Comparison to other Cities

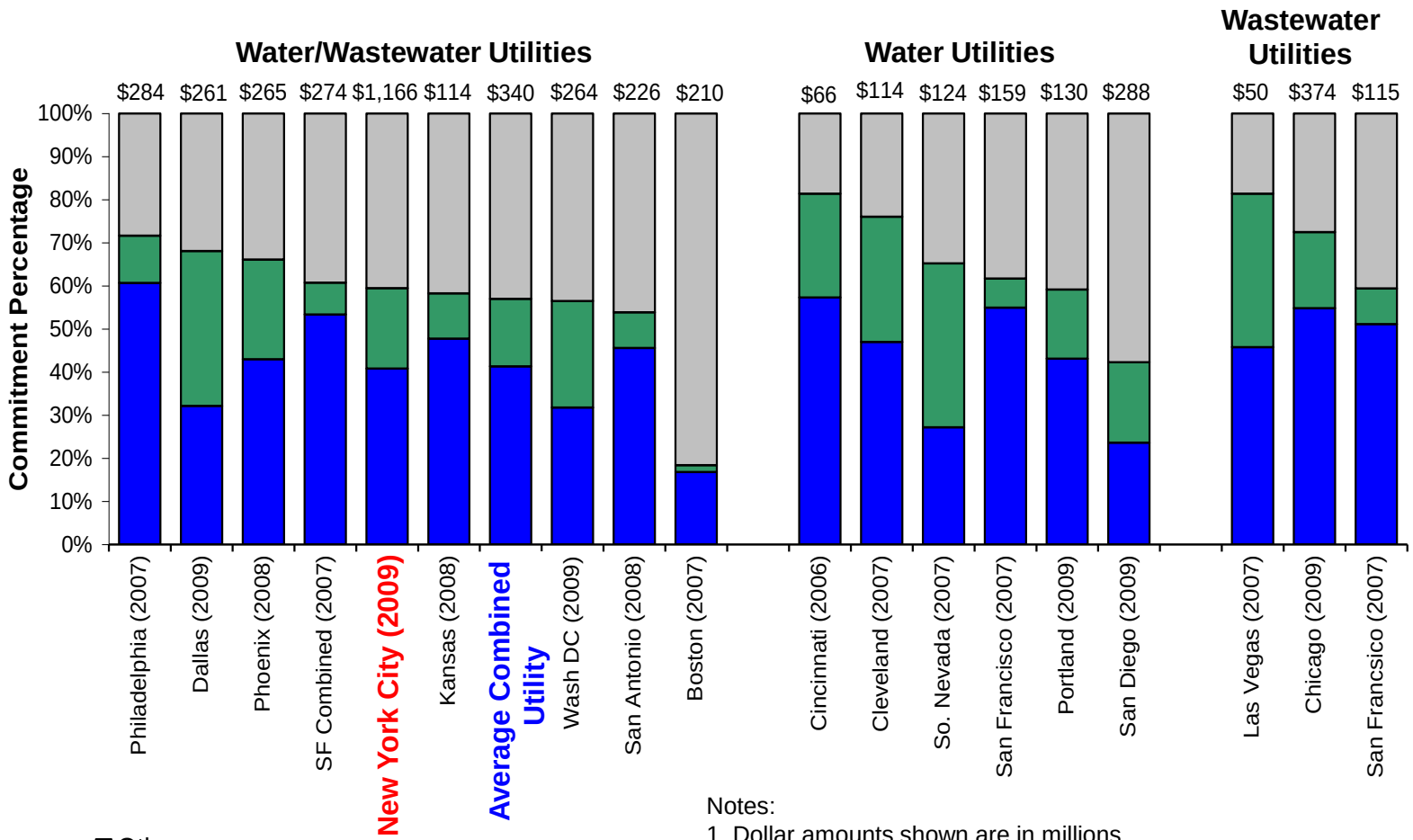
DEP's total operating expenditures in FY09 are $1.16B; Salaries, wages, and fringe benefits make up a significant portion of this amount



- Salaries, wages and fringe benefits amount to over 40% of the operating budget
- City indirect costs include the allocated costs of the City offices and agencies that provide management and support services - such as OMB, Comptroller's Office, Law Department, Financial Information Services Agency, and City-wide Administration Services
- Amounts shown do not include City Rental Payment (including general obligation debt service) of $178.6-million in 2009

Source: Booz Allen analysis

The share of DEP's budget allocated to personal services, supplies and materials is consistent with other large utilities

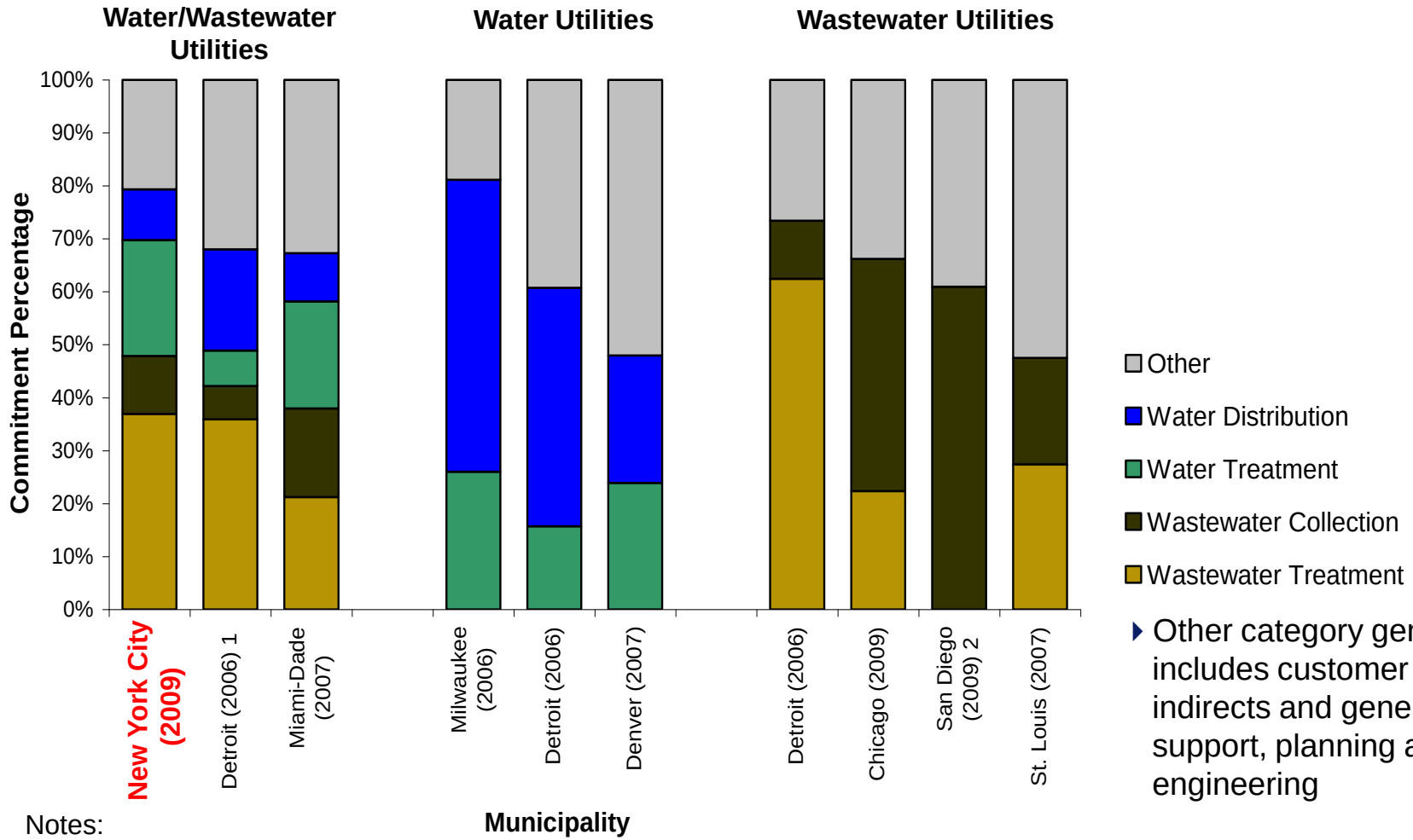


- DEP budget shares are within a 2 to 3% variation of the average combined water/ wastewater utilities.
- Wastewater personal service costs are, on average, 8 to 10% higher than water personal rvice costs.

Notes:
1. Dollar amounts shown are in millions.
2. "Other" category includes property taxes, biosolids, contractor expenses, contractual services, judgments & claims, rentals/leases, equipment, reimbursements, PILOT, and other expenses.
3. A significant portion of Boston's costs for chemical, energy, fuels, etc. is contained in the wholesale treatment costs of MWRA, which are included as "Other"

Source: Booz Allen analysis

DEP expends approximately 80% of its annual operating budget on direct water, wastewater, and stormwater operations

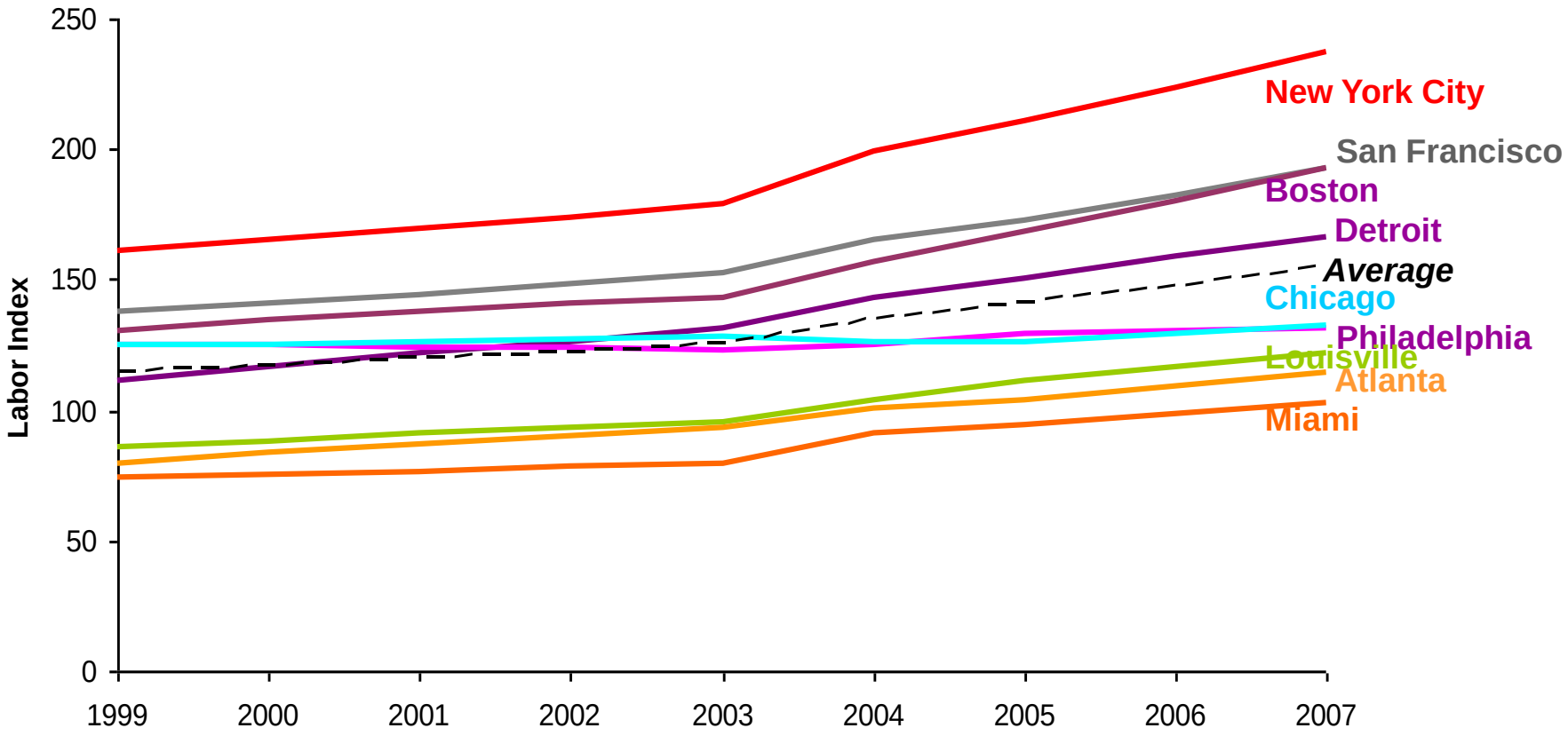


- Other category generally includes customer service, indirects and general support, planning and engineering

Notes:
1. Combination of Detroit Water and Detroit Wastewater.
2. San Diego has no separate treatment allocation for wastewater
3. Detroit's CSO control basins are included in wastewater collection. Chicago's flood and pollution control is included in wastewater collection.

Source: Booz Allen analysis

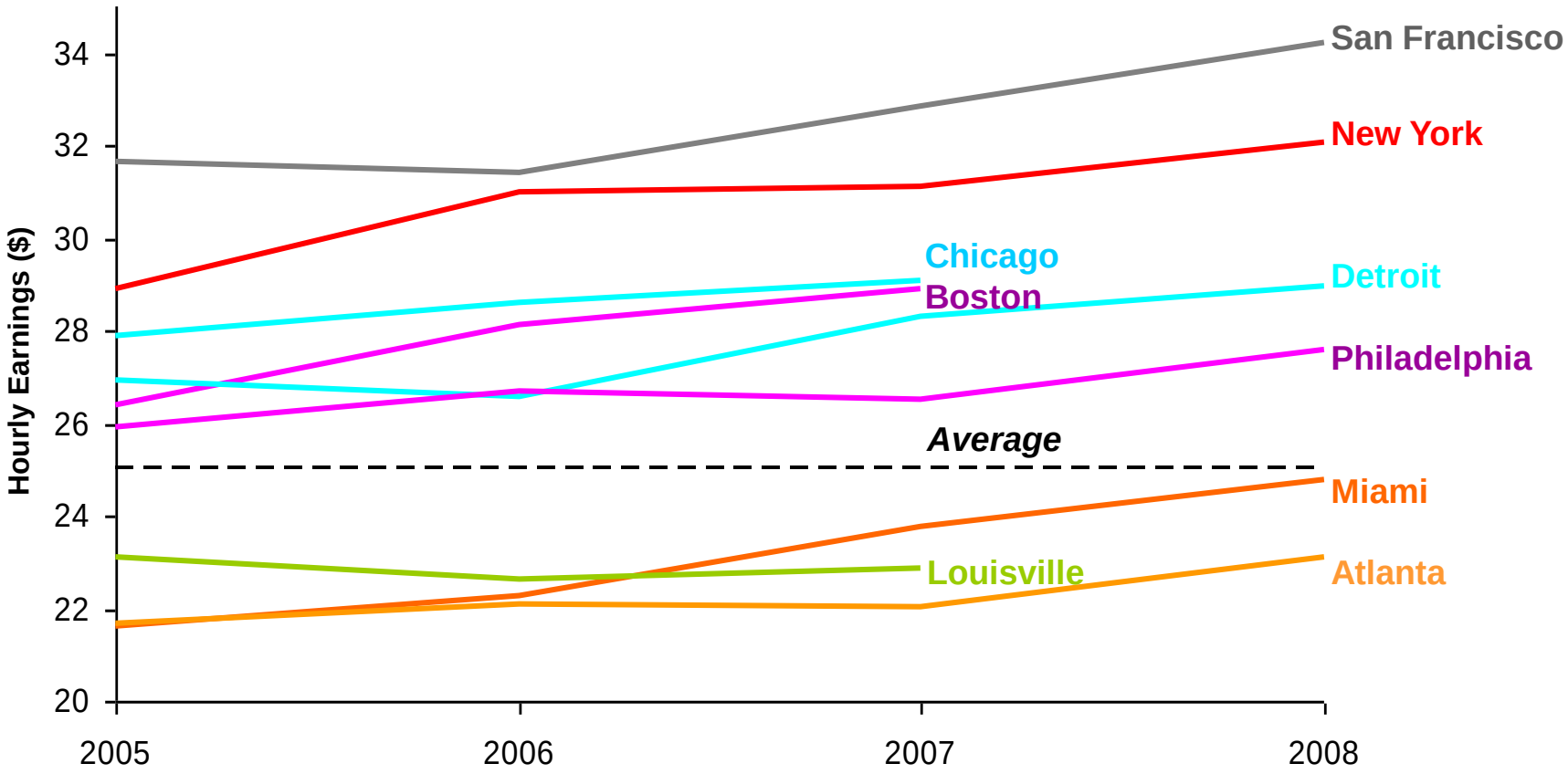
Labor construction costs, one variable for evaluating future costs, are relatively high in New York City



- On average, since 1999 nationwide inflation (based on RS Means Historical Cost Index) has been running at 4.7% per year.
- Regionally, labor costs are 64.5% higher and material costs are 5.3% higher in NY compared to the RS Means 30-city average.

Source: RS Means, Booz Allen analyses

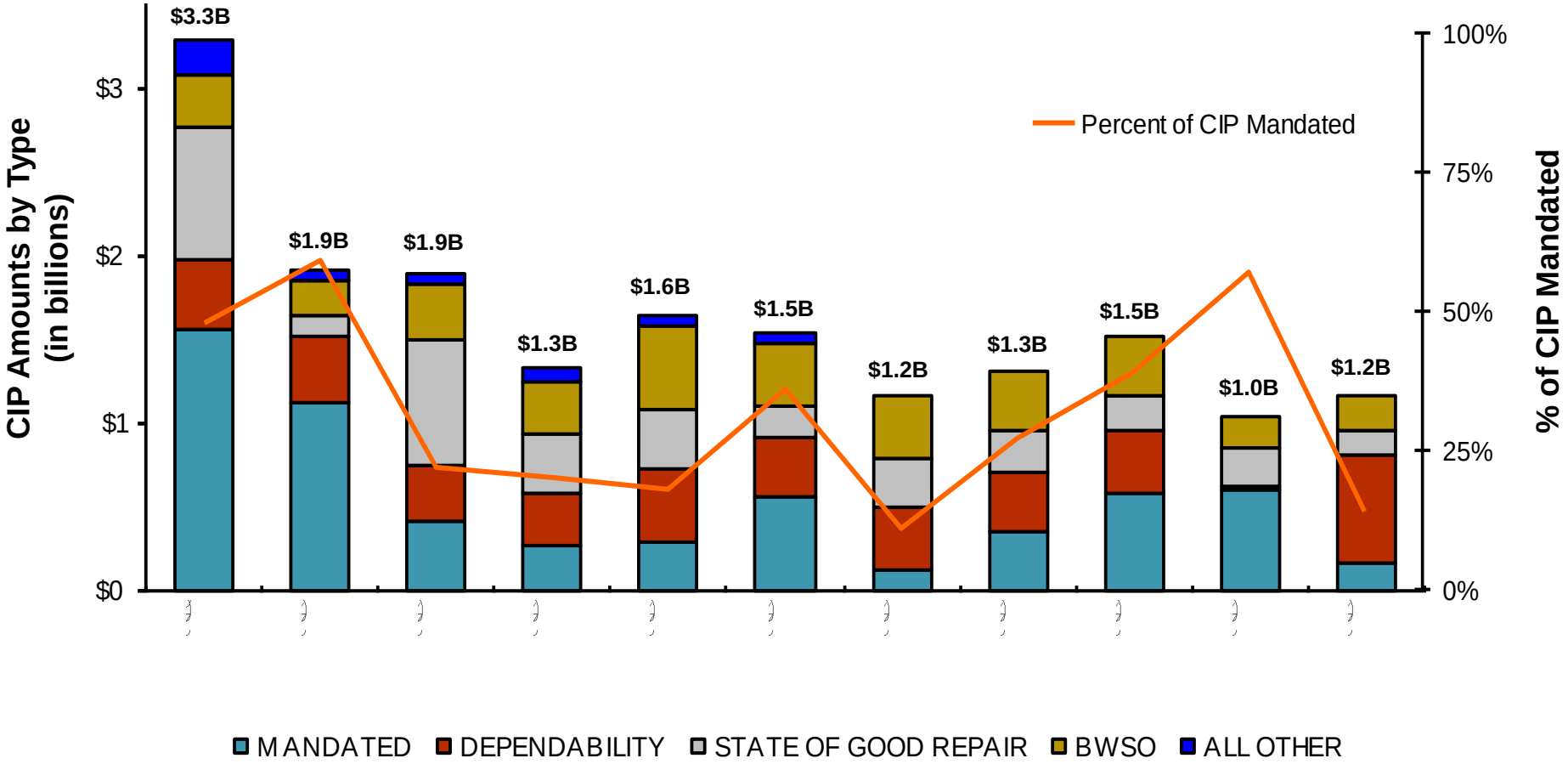
Labor costs for government workers are also higher in New York than in most other areas



Source: U.S. Department of Labor, Booz Allen analyses

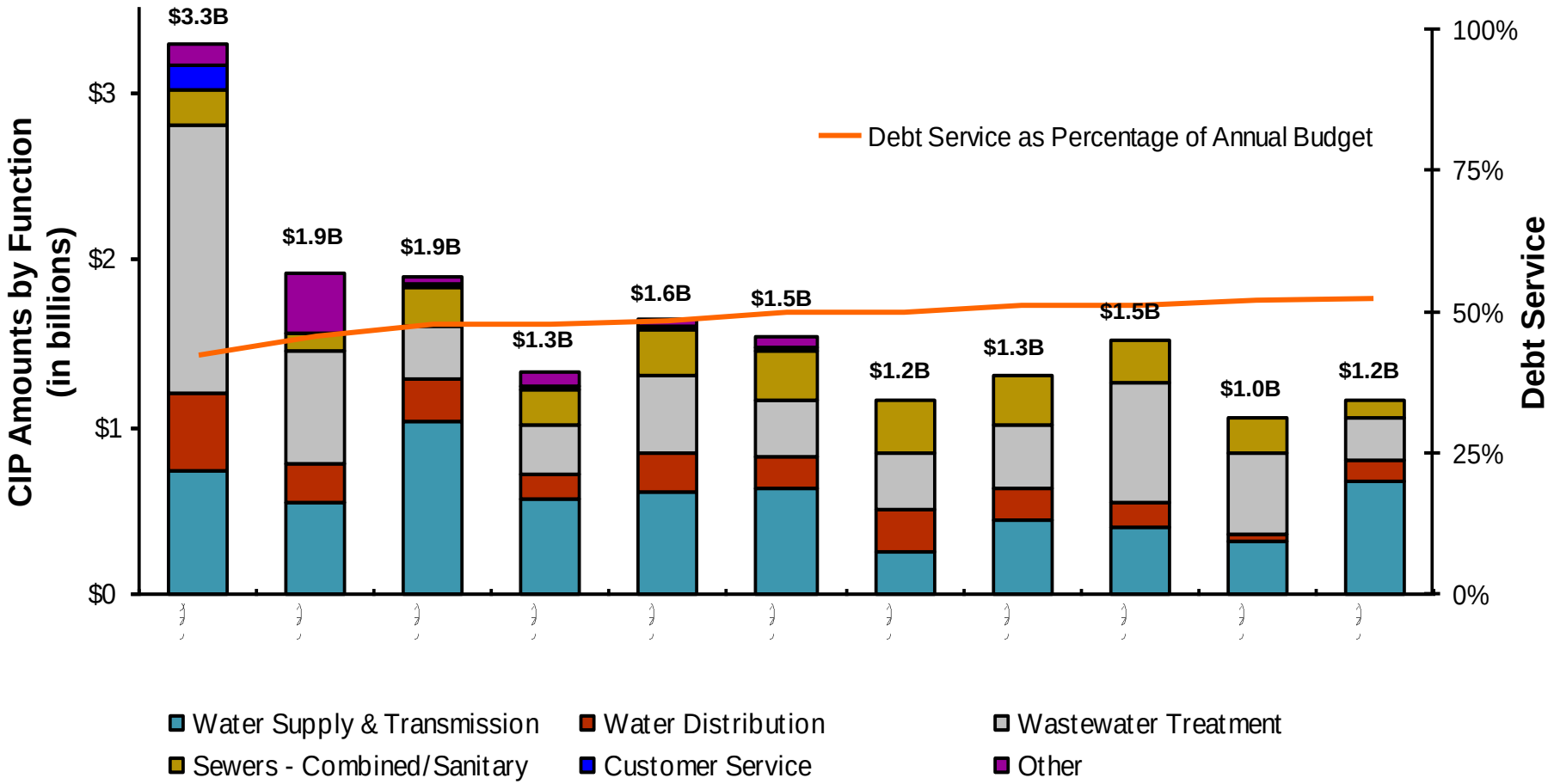
NYCDEP Capital Budget and Comparison to other Cities

DEP projects its capital budget requirements annually; budget decreases from $3.3B in 2009 to $1.2B by 2019; however, later years may increase due to yet undetermined mandates



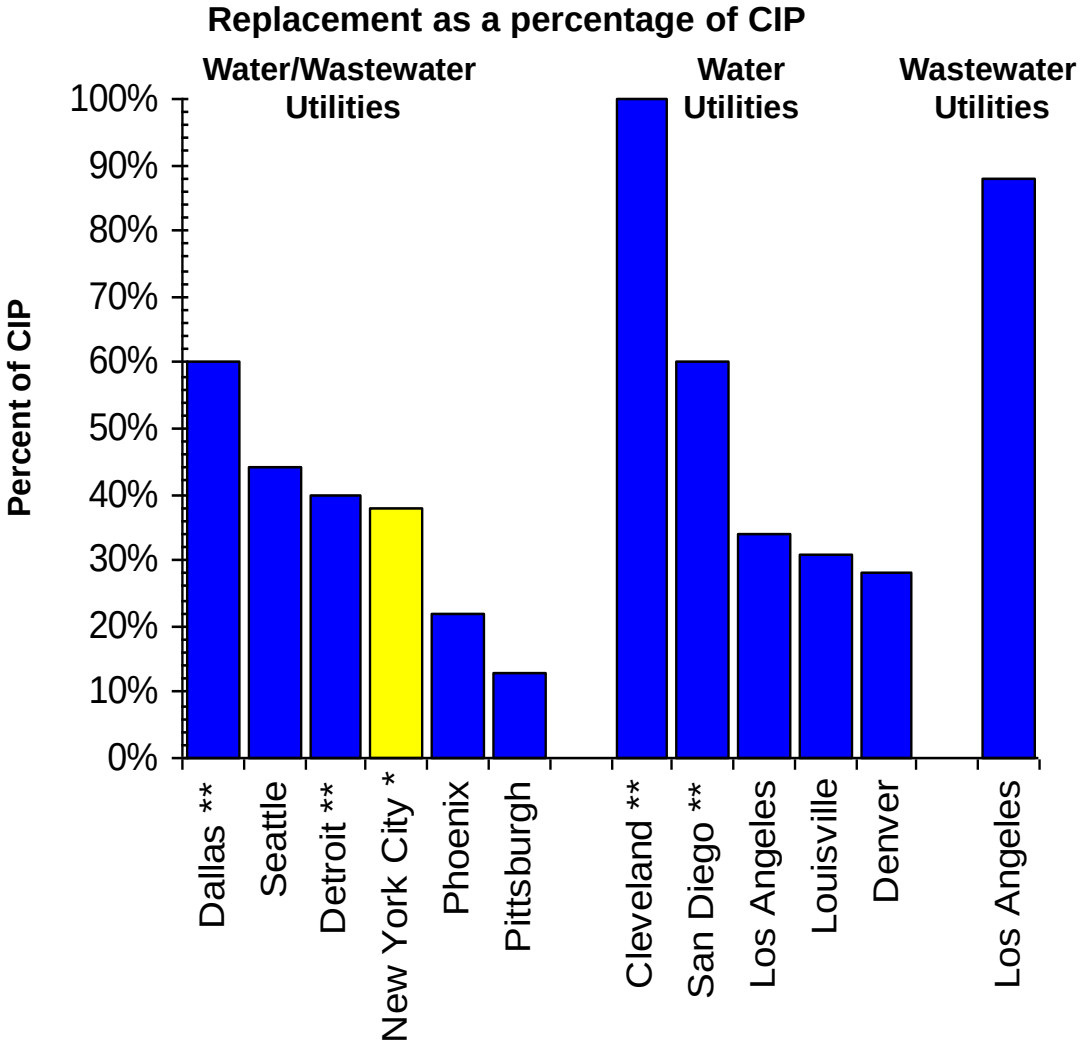
Notes:
1. FY09-FY19 amounts and categories are from DEP Capital Improvement Plan as approved in November 2008.
2. Future Annual CIP revisions may cause changes to what is presented above.

Analyzing annual capital budget by function may allow improved understanding of cost drivers



Notes:
1. FY09-FY19 amounts are from DEP Capital Improvement Plan as approved in November 2008.
2. Future Annual CIP revisions may cause changes to what is presented above.

Capital replacement costs as a percentage of total CIP are also consistent with other utilities

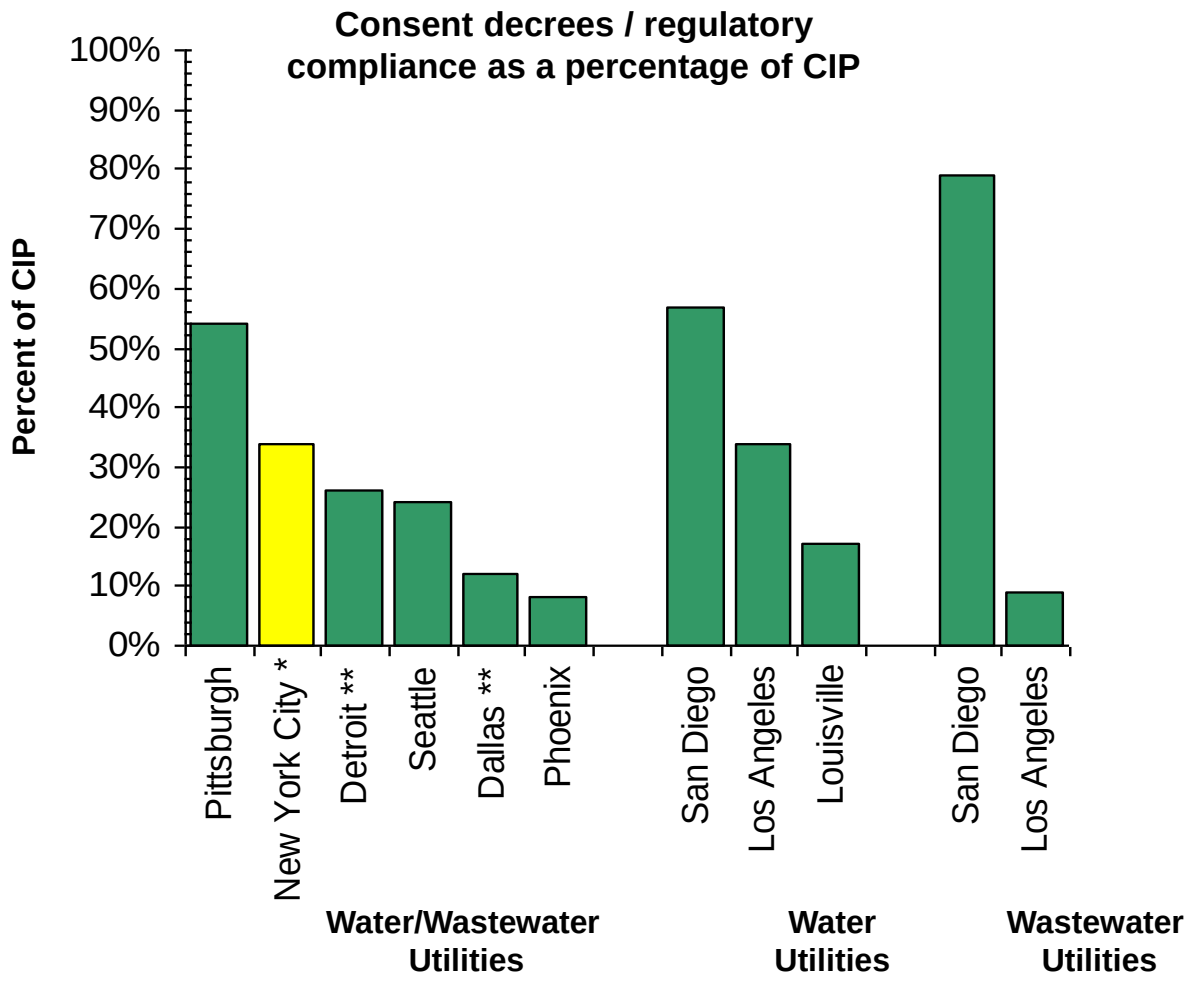


- CIP percentages shown are of 5-year, 10-year, or 11-year plans depending on the utility

Notes:
* Value for NYC based on budget for State of Good Repair (SOGR) and portion of BWSO projects identified in current CIP. Other cities shown are for their current CIP.
** Estimated percentage provided by utility

Source: Booz Allen analysis

Capital commitments associated with mandates are somewhat high compared to other combined water/wastewater utilities, but close to average



- CIP percentages shown are of 5-year, 10-year, or 11-year plans depending on the utility

Notes:
* Value for NYC based on budget for Mandated projects identified in current CIP. Other cities shown are for their current CIP.
** Estimated percentage provided by utility

Source: Booz Allen analysis

NYCDEP Rate Structure, Revenues, and Comparison to other Cities

New York City's Rate Structure

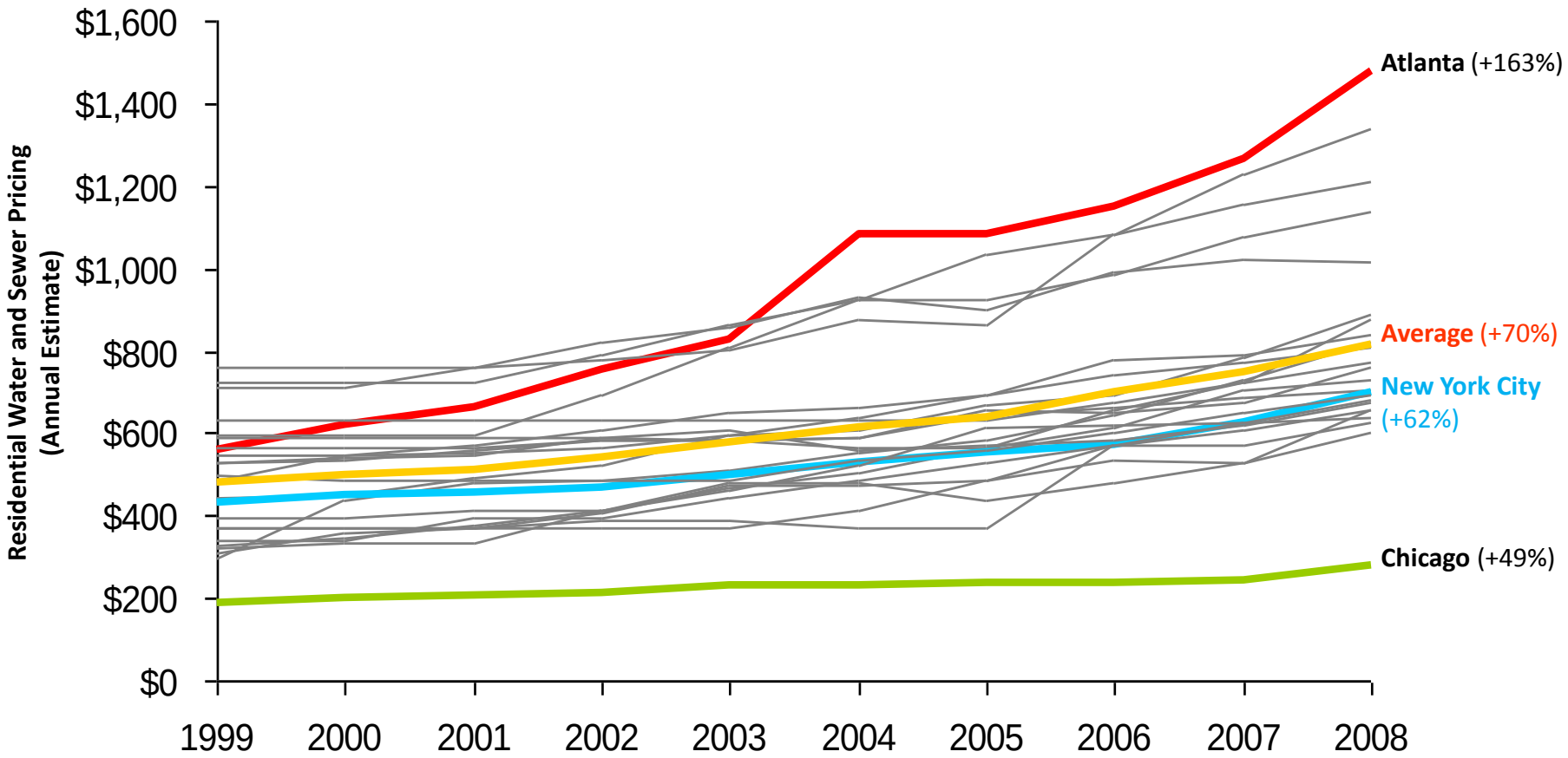
- **Rates are set to cover the system's expenses** each year, which include cost of treatment, transmission and distribution, and state of good repair.
  - **Debt Service** on revenue bonds issued to finance City's water/wastewater capital program
  - **Operations & Maintenance** expenses
  - **Rental payment** to City pursuant to Lease

- Most NYC properties are charged a **uniform water rate** of $2.61 per 100 cubic feet of consumption ($0.003 per gallon).
  - Wastewater charges are levied at 159% of water charges ($4.14 per 100 cubic feet; $0.004 per gallon). This charge also accounts for stormwater services.

- About **6% of all properties** (mostly multi-family residential), which account for 30% of revenue, are **billed on the basis of a series of fixed "frontage" charges** including: the width of the property's street frontage; the number of families; building fixtures and other measures.
  - In recognition of importance of affordable housing, DEP has extended frontage for ~ 40k since beginning of metering program in 1992, and is **working with Water Board to extend again**
  - Some buildings are also part of **Multifamily Conservation Program**, and are billed at a flat rate if they comply with specific conservation measures

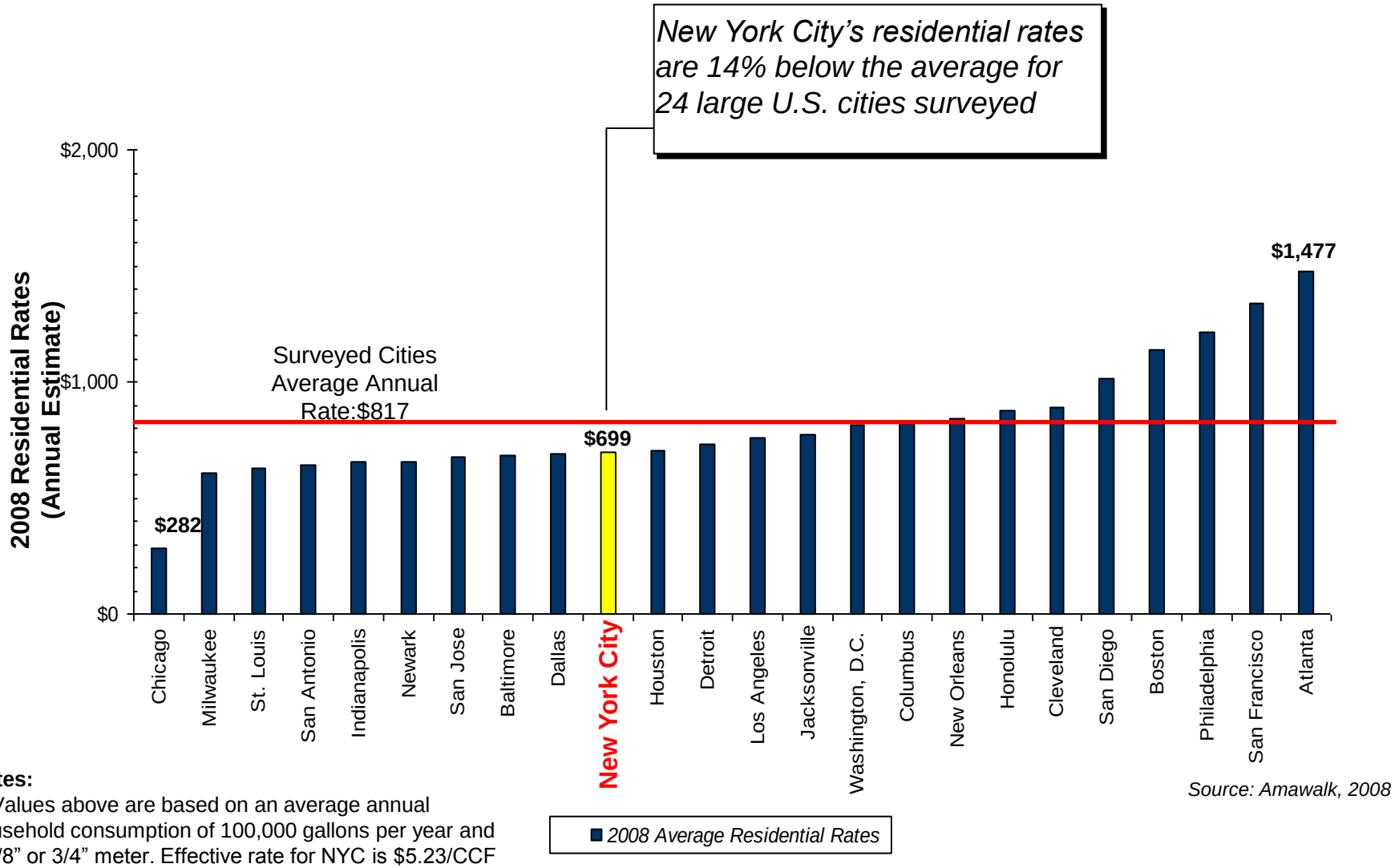
- Per State Law, **some non-profits are also granted partial exemption from water/sewer charges**, though they must still be metered

Though still below the national average, DEP's rates have increased steadily over the past decade



Footnotes:
1) Percentages reflect overall change between 1999 and 2008.
2) Amounts are taken from annual survey performed on behalf of the NYC Municipal Water Finance Authority

Residential water/wastewater charges in New York City are relatively low compared to other large U.S. cities surveyed

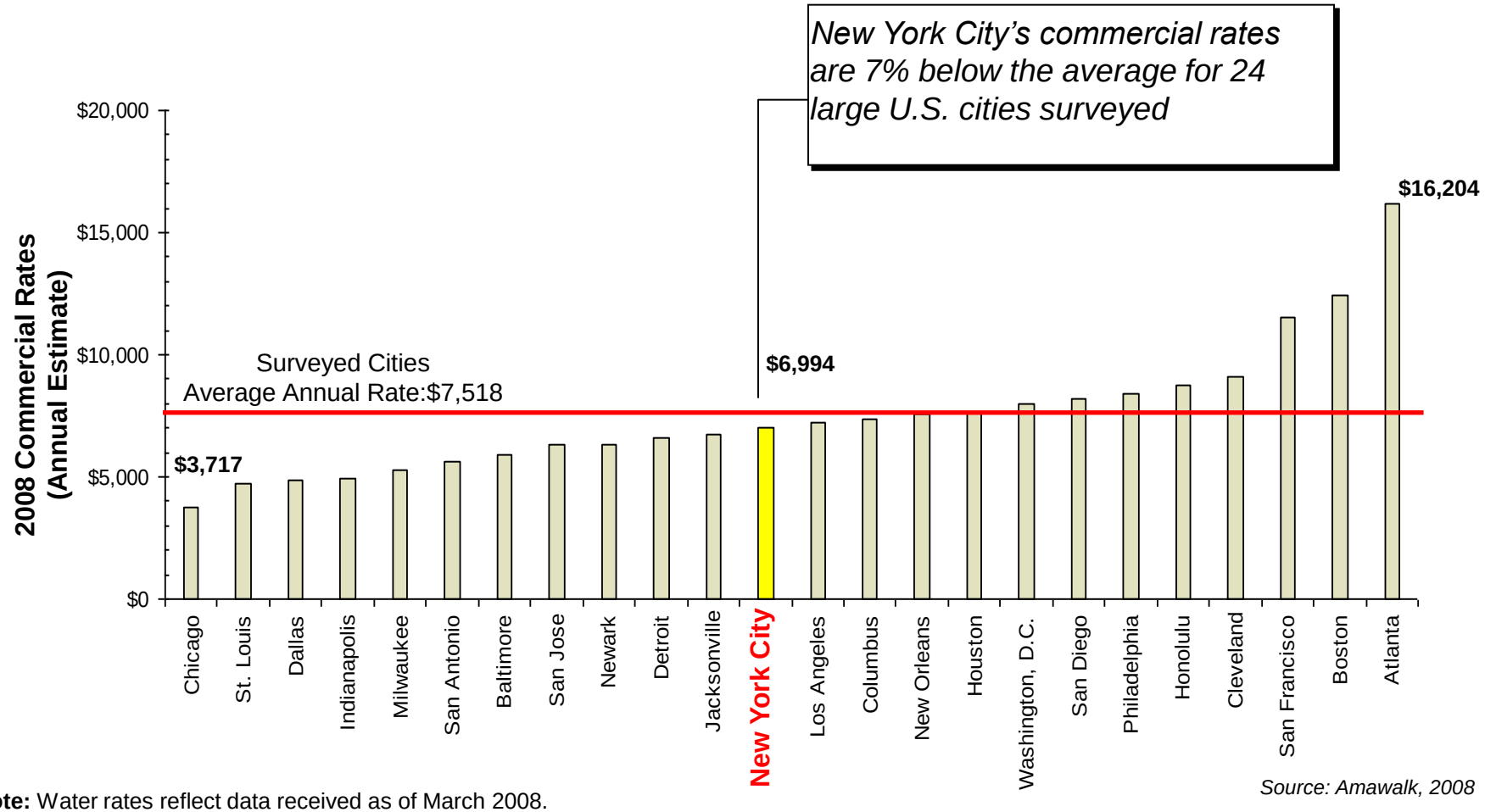


Source: Amawalk, 2008

Notes:

1. Values above are based on an average annual household consumption of 100,000 gallons per year and a 5/8" or 3/4" meter. Effective rate for NYC is $5.23/CCF
2. Water rates reflect data received as of March 2008. NYC Water Board increased rates by 14.5% effective July 1, 2008

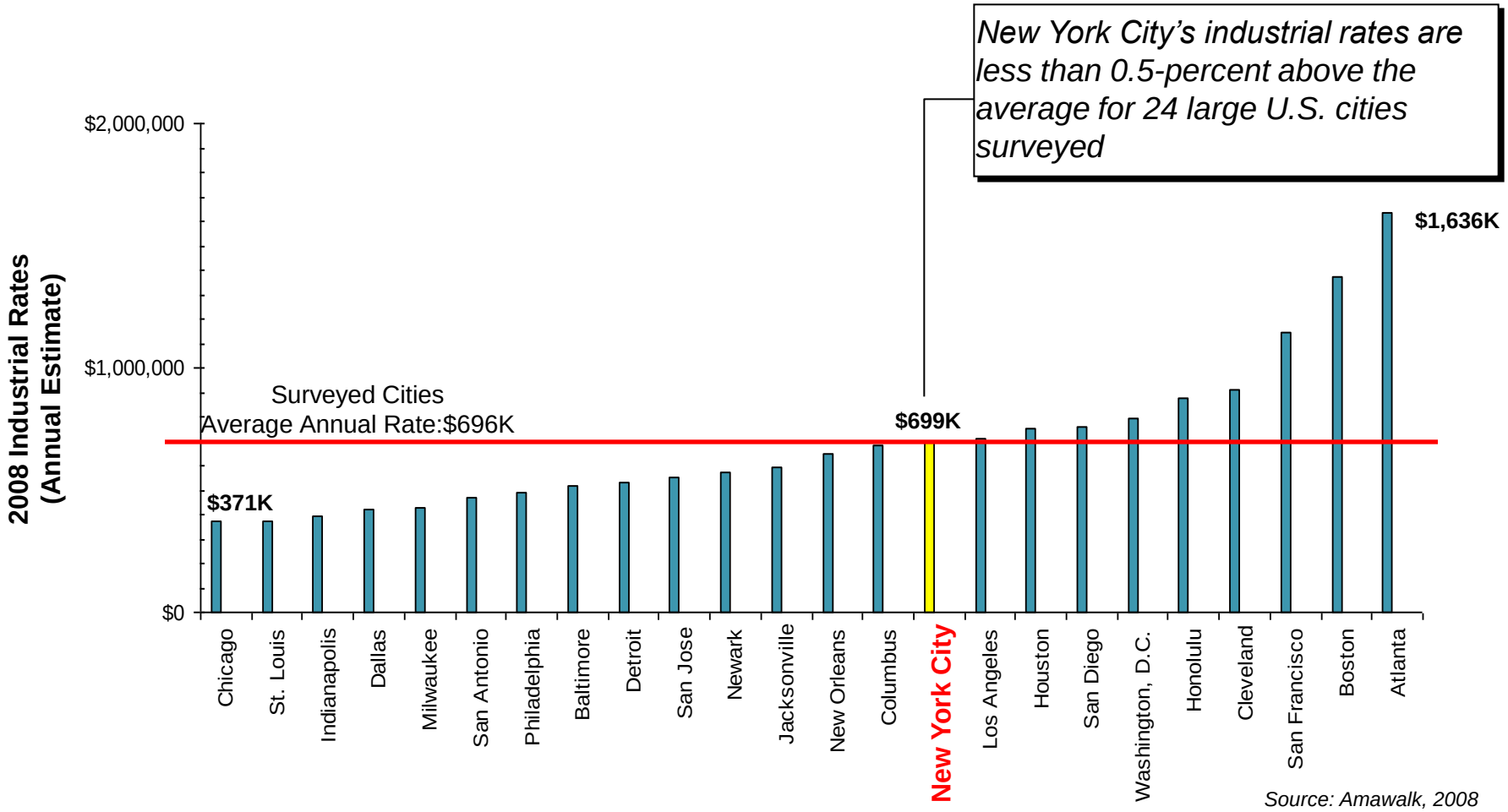
Commercial water/wastewater charges in New York City are about average compared to other large U.S. cities surveyed



Source: Amawalk, 2008

Note: Water rates reflect data received as of March 2008. NYC Water Board increased rates by 14.5% effective July 1, 2008. Values above are based on an average annual commercial facility consumption of 1 million gallons per year and the average of 1" and 2" meters.

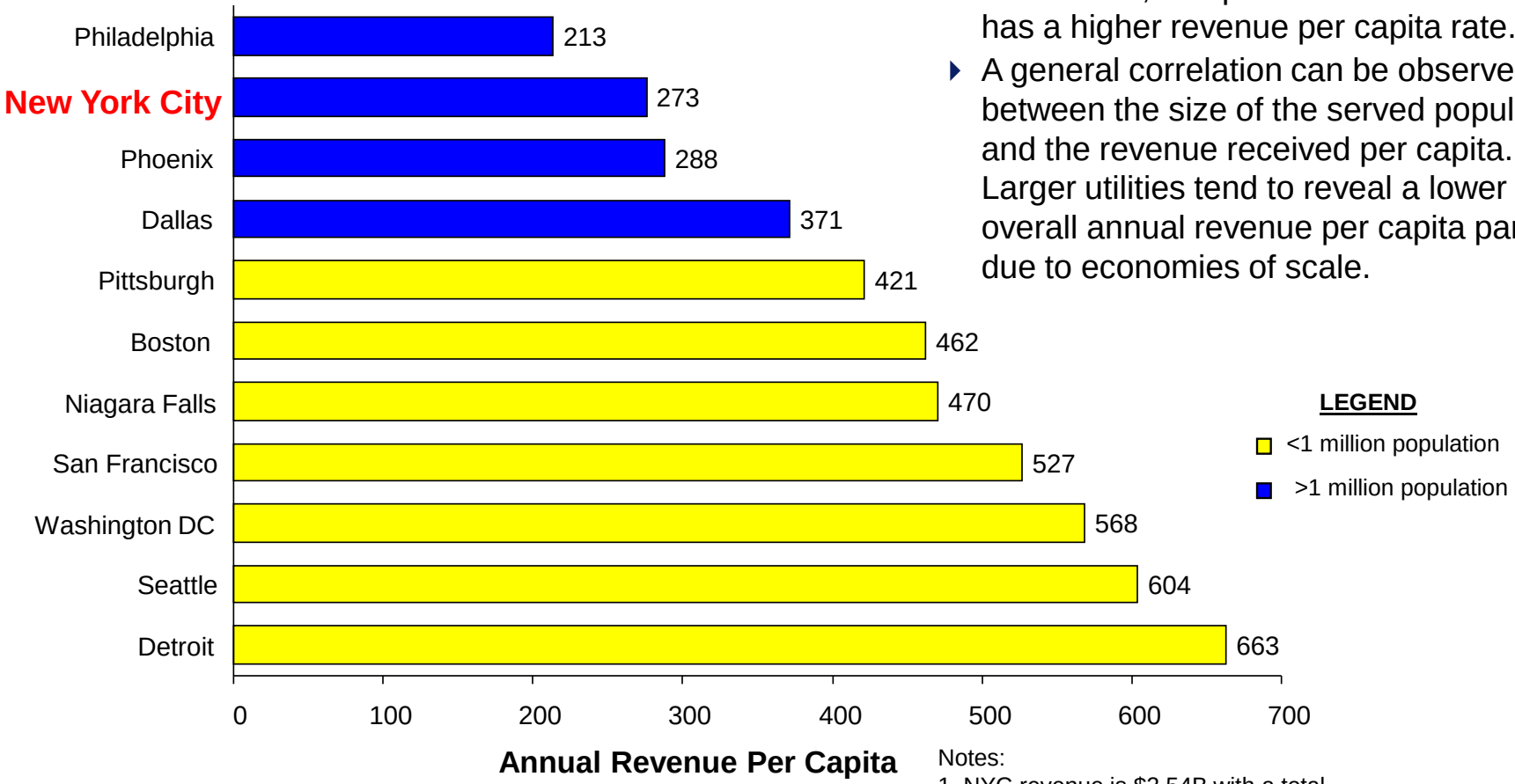
Industrial water/wastewater charges in New York City are relatively equal to the average of other large U.S. cities



Note: Water rates reflect data received as of March 2008. NYC Water Board increased rates by 14.5% effective July 1, 2008. Values above are based on an average annual industrial facility consumption of 100 million gallons per year and the average cost of a 6" and 8" meter.

DEP has a lower revenue per capita compared to other combined water/wastewater utilities

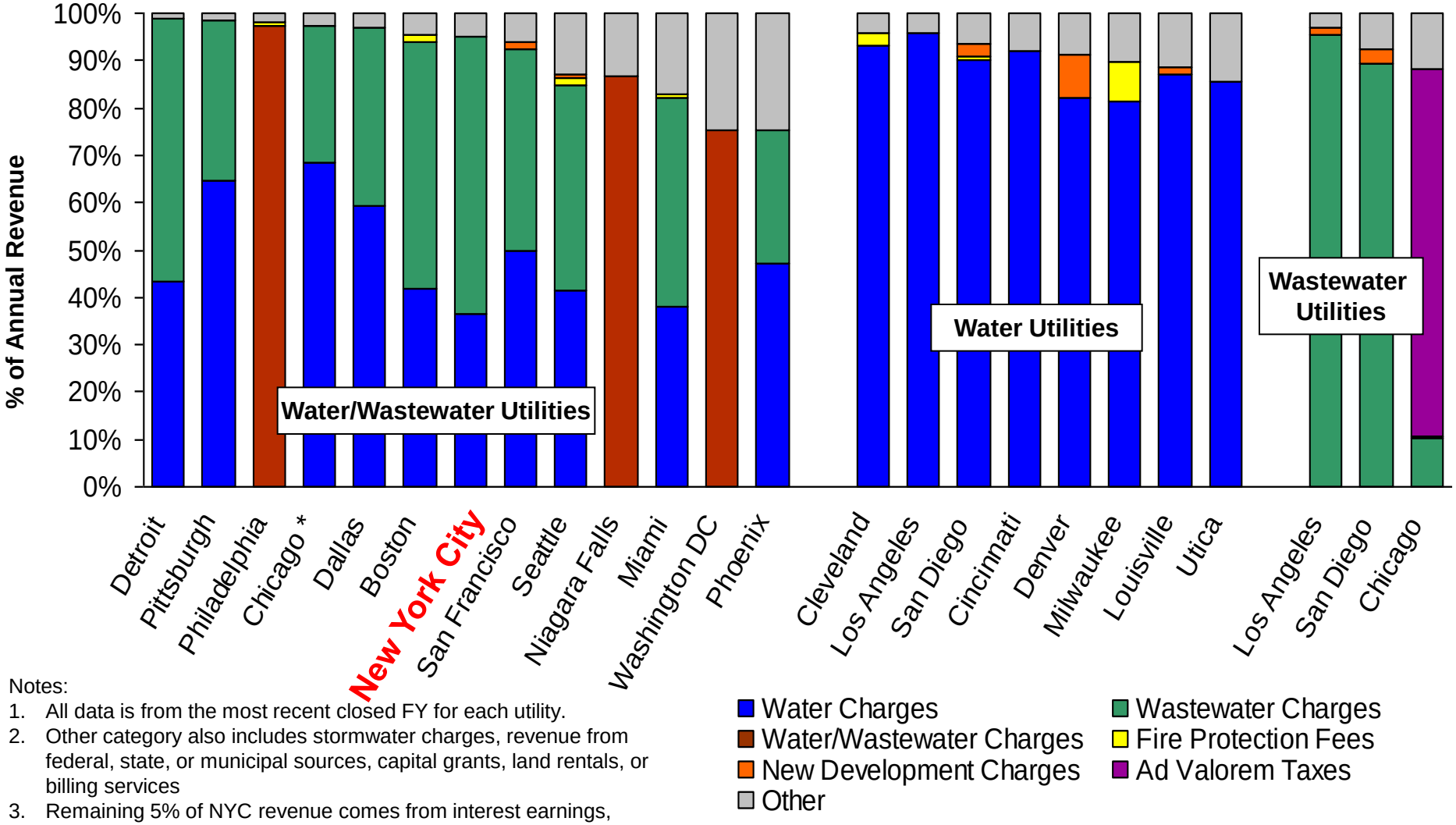
- Only Dallas has a lower standard residential water/wastewater charge, 1.1% lower, compared to NYC but still has a higher revenue per capita rate.
- A general correlation can be observed between the size of the served population and the revenue received per capita. Larger utilities tend to reveal a lower overall annual revenue per capita partially due to economies of scale.



Notes:
1. NYC revenue is $2.54B with a total population of 9.3M.
2. Values shown are from the most recently closed FY for each utility

Source: Booz Allen analysis

Survey of other large cities reveals a wide diversity of revenue sources for water and wastewater utilities



Notes:

1. All data is from the most recent closed FY for each utility.
2. Other category also includes stormwater charges, revenue from federal, state, or municipal sources, capital grants, land rentals, or billing services
3. Remaining 5% of NYC revenue comes from interest earnings, wholesale customers, and miscellaneous fees
4. Chicago Water provides both water treatment and distribution as well as wastewater collection services.

Source: Booz Allen analysis

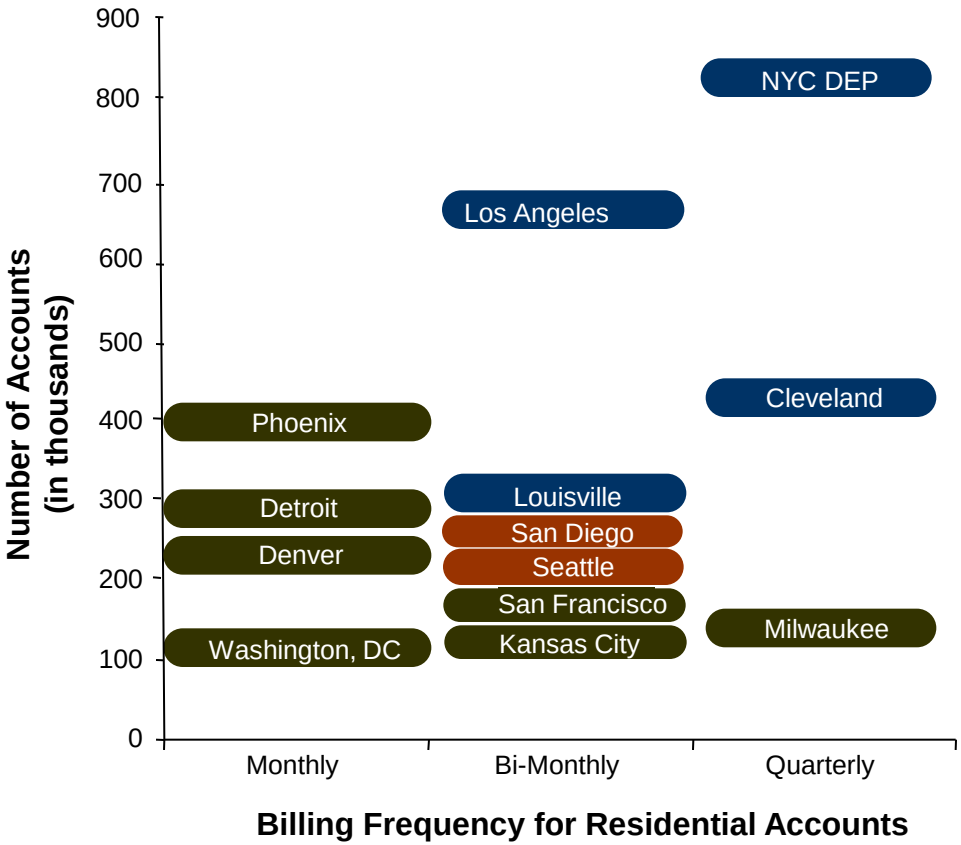
DEP is highly reliant on revenues from user charges however water and wastewater charges

Municipality	Revenue from W/WW/SW Charges
Detroit (W/WW)	98.9%
Pittsburgh (W/WW)	98.6%
Philadelphia (W/WW)	97.5%
Chicago Water (W/WW)	97.4%
Dallas (W/WW)	96.9%
New York City (W/WW)	94.9%
Boston (W/WW)	94.1%
San Francisco (W/WW)	92.5%
Niagara Falls (W/WW)	86.6%
Seattle (W/WW)	84.9%
Miami (W/WW)	82.2%
Phoenix (W/WW)	75.1%
DCWASA (W/WW/SW)	75.1%
Los Angeles DWP (W)	95.7%
Cleveland (W)	93.0%
Cincinnati (W)	92.0%
San Diego (W)	90.3%
Louisville (W)	87.2%
Utica (W)	85.6%
Denver Water (W)	82.3%
Milwaukee Water Works (W)	81.4%
Los Angeles Water Works (WW)	95.6%
San Diego (WW)	89.5%
Las Vegas/ Clark County (WW)	66.3%
Chicago MWRD (WW/SW)	10.2%

- Most utilities recover greater than 85-percent of their revenues from user charges
- Other key revenue sources outside of rates, by other utilities, include sales to wholesale customers, new development charges, and fire protection fees
- Low rate recovery for Chicago MWRD is due to reliance on revenues from the general fund (taxes), nearly 78%

Source: Booz Allen analysis

Most major utilities, utilizing AMR, bill customers on a monthly or a more frequent basis



- Automatic meter reading (AMR) allows more frequent billing to be performed
- DEP is currently initiating its AMR program
- AMR allows more flexibility for rate structures (e.g. drought pricing, etc.)

Using AMR
Just beginning to use AMR
Not Using AMR

Source: Booz Allen analysis

Affordable Housing programs correlate with utilities that have high revenues per capita (e.g. SF, DC, Seattle and Detroit)

CITY	Administration		Type of Affordable Housing			Funds/ Discounts	Criteria/ Process	Participants
	Utility	Non-Utility	Low Income	Elderly	Other			
Cleveland		X	X	X		0.5% of utility funds		2,000
Dallas					X (ST)			
Detroit		X	X				Annual income<150% of FPV for family of 4	800 since 2003
Los Angeles	X		X			31% discount on first 9hcf of sewage/month; funded through low income surcharge on other customers, approx. $7.5M/yr	Annual income < $43.2k for family of 4	50,000
Miami		X	X			$500k for 2008/09	Annual income <$26.7k	
Philadelphia		X	X	X		25% discount; also applies to charities, churches, non profit hospitals, schools and universities		
San Francisco (1)	X		X (SFH)				Annual income <175% of FPV	6,643
San Francisco (2)		X	X (NP/MFH)				Selected by Mayor's Office of Housing	54
San Francisco (3)		X			X (BH)		Voluntary	30
Seattle (1)			X	X	X (D/B)		70% of state median income	
Seattle (2)			X				Annual income <20% of FPV	
Washington (1)		X	X			Funded through contributions		200/yr
Washington (2)	X		X			Discount of 400cf/month; max of $84/yr; funded directly from revenues, approx. $1M/yr		Max. 5,500/yr

LEGEND
X – applies
BH – boarding houses
D/B – disabled/blind
FPV – Federal poverty level
NP/MFH – non-profit multi-family housing
SFH – single family household
ST – short-term

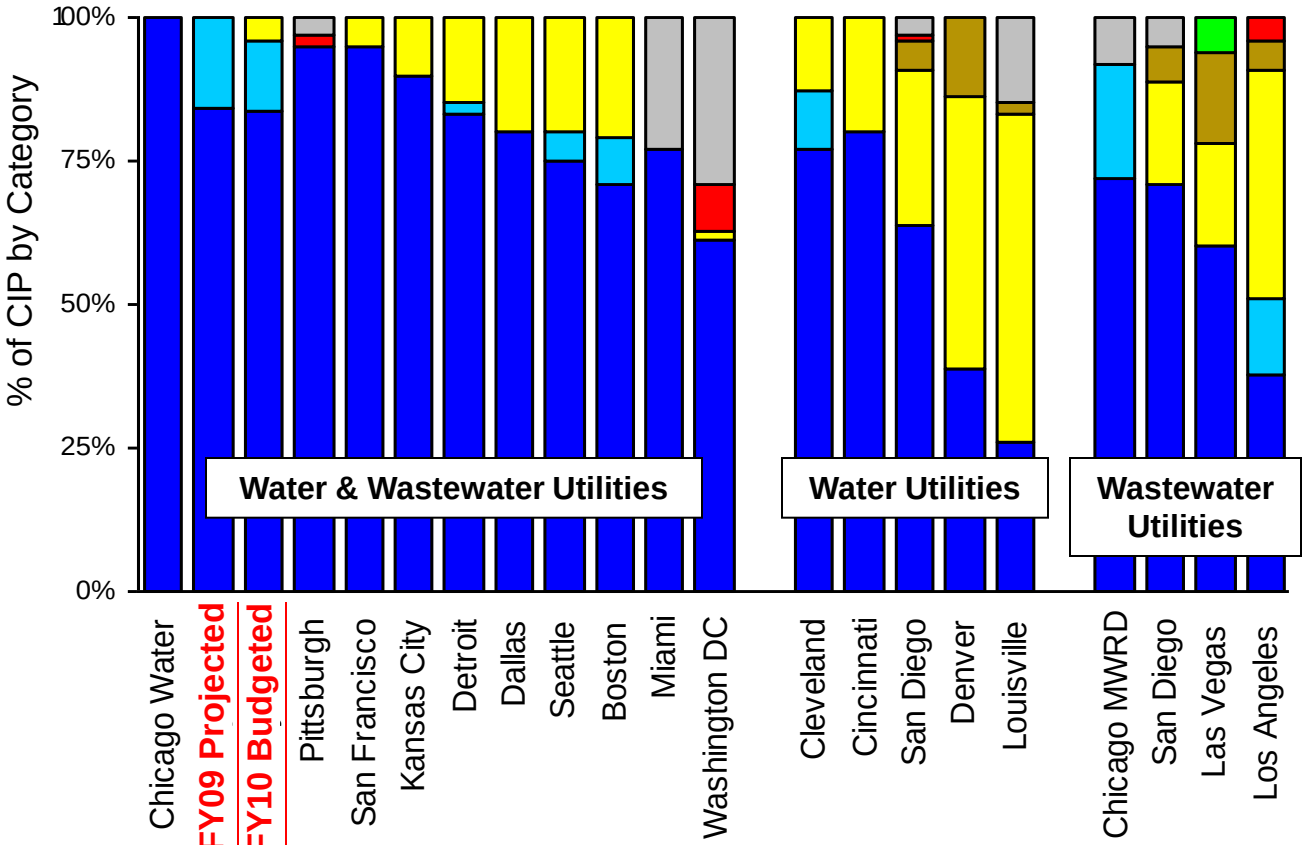
Source: Booz Allen analysis

Survey of affordability programs reveals some common practices used within the water industry

- In recent years, the use of low income and other affordability programs by water utilities have increased significantly. Programs may offer direct discounts to customers or solicit voluntary contributions for assistance.
- As evident from the Phase 1 survey, affordable housing programs are typically not administered by the utility organization, rather through another government or outside social services agency.
- The NYC Water Board is prohibited from offering free service except for limited categories of exemptions (e.g., non-profit charitable or religious institutions).
- The Board currently offers one assistance program referred to as the Multi-family Conservation Program (MCP). Under MCP, owners of housing consisting of six or more dwelling units are offered a fixed charge per dwelling unit in lieu of metered billing. Owners are required to cooperate on conservation efforts and invest in low-flow plumbing and fixtures.

NYCDEP Financing Mechanisms and Comparison to other Cities

New York City relies heavily on proceeds of debt to finance capital improvements



Notes:
1. Data for cities other than New York are based on average of approved CIPs.
2. Chicago Water (includes wastewater collection service) derives the majority of its revenues from user charges; Chicago MWRD derives the majority of its revenues from ad valorem taxes.
3. 'Other' funding category includes municipal contributions that could be paid from the proceeds of debt or cash (29% for Washington DC, 8% for Miami).

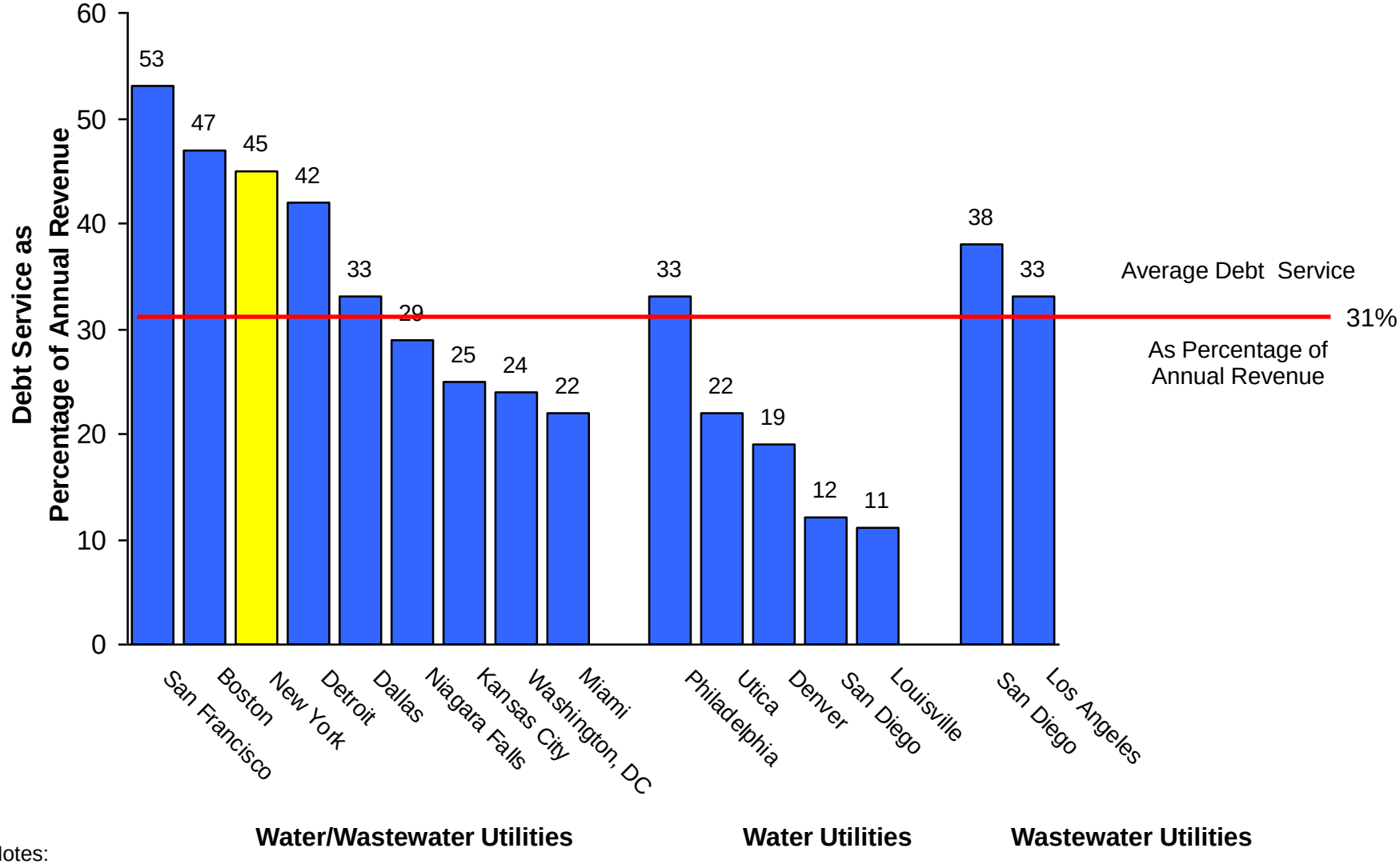
New York City Sources of Financing

Although PAYGO was originally budgeted for FY08 and FY09, no deposits were made.

For FY10, New York City has budgeted:

84% Proceeds of debt based on bond issuance
12% Proceeds of debt based on SRF loans
4% PAYGO

As a result, NYC's debt service as a percentage of revenue is also higher than average



Notes:
1. Values shown are based on current budgets
2. Value for NYC includes general obligation debt service

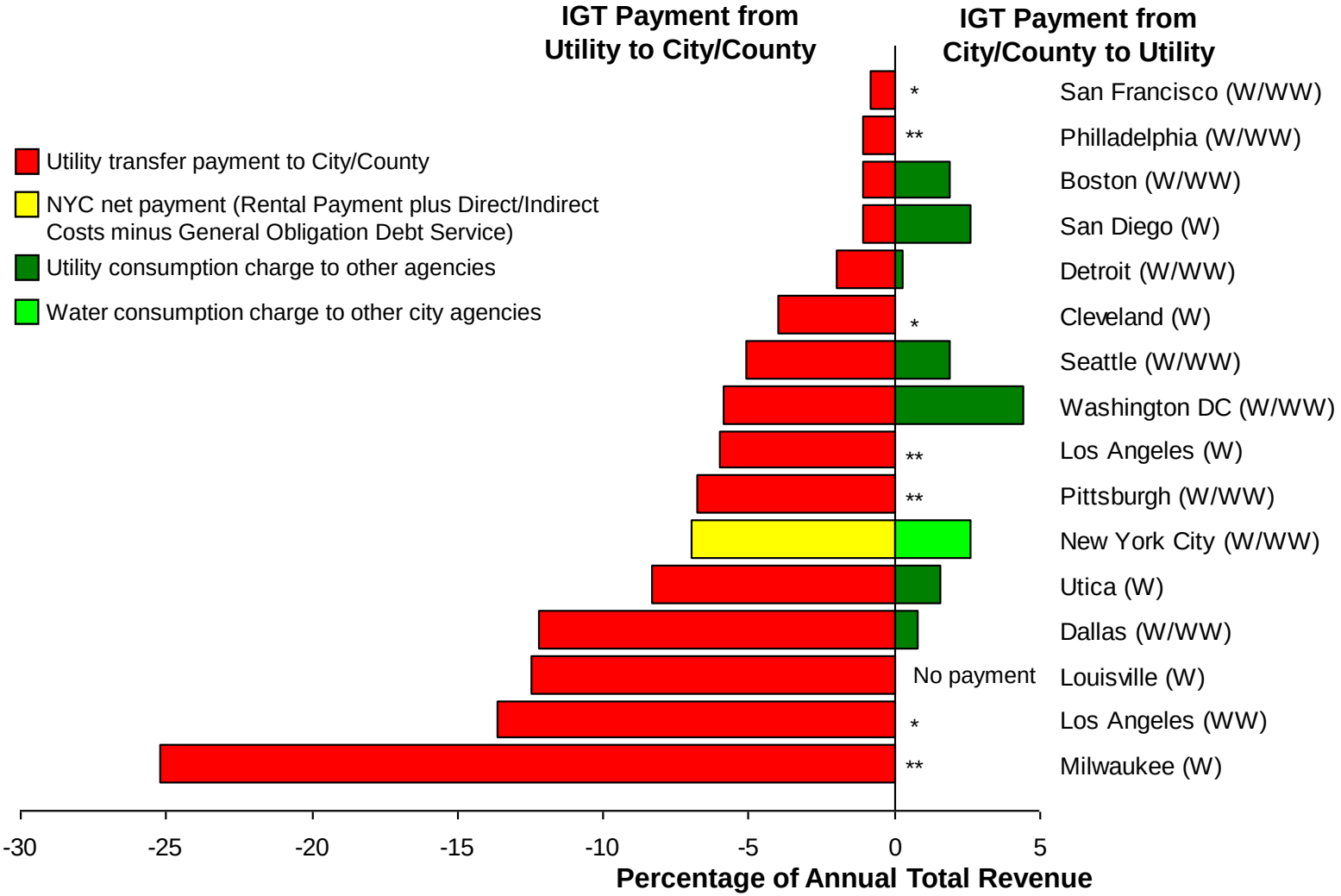
Source: Booz Allen analysis

List of alternative financing options include sources of revenue other than debt

Financing Techniques		
Alternative	**Description**	**Considerations**
PAYGO	Uses annual revenue or other available cash to pay directly for capital improvements	• Reduces the amount to be raised through debt, thus reducing debt service in the future • Enhances liquidity – amount can be reduced to provide cash for other uses in the event of a shortfall • If dollars are raised through customer payments, current customers are paying for long-term assets
Proceeds of Bonds	Bonds are sold with principal and interest to be paid through revenues of the system	• Authority's high credit ratings enable it to borrow funds at very competitive rates • Long-term repayment of the bonds enables both current and future users of the system to pay their share
State Revolving Fund (SRF) Debt	Bonds are sold with principal and interest to be paid through revenues of the system	• Subsidized interest rate on SRF debt results in lower interest costs compared to Authority bonds • NYC is already at the limit of what the SRF can offer
New Development Charges or Impact Fees	Charges to property developers to cover the cost of their impact on the system or their cost of buying-in to the system	• Provides source of construction cash for PAYGO and/or debt service • Typically adds a modest amount to development cost • Current economic downturn
Tax Revenue	Use of property tax, sales tax or other tax revenue to subsidize water and sewer rates	• Used by Atlanta (1 cent sales tax) and Chicago (property taxes) but it is generally not used • Raises equity questions – the dollars charged for taxes may have no relationship to water/sewer use

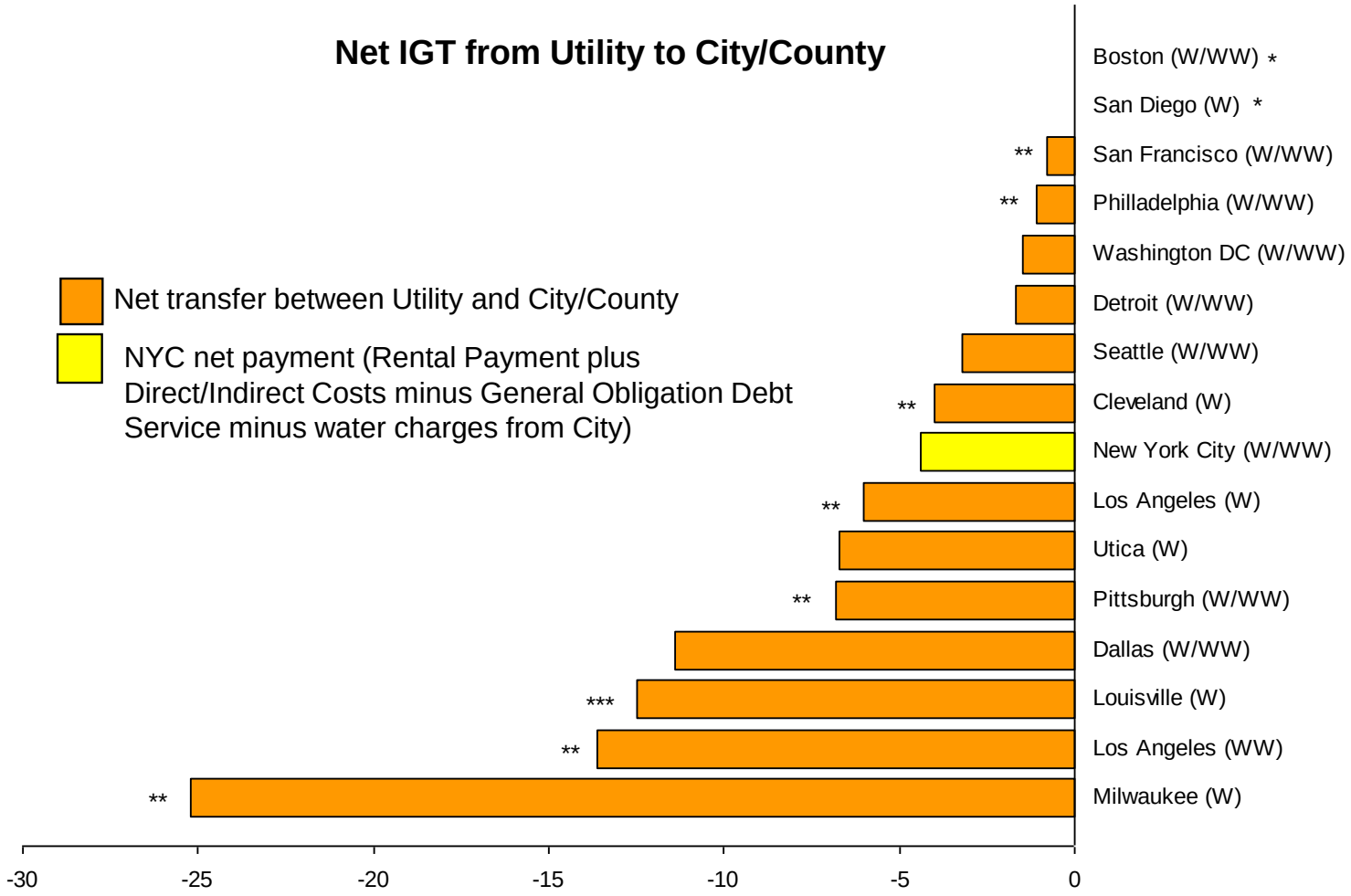
DEP Intergovernmental Transfers (IGTs) and Comparison to other Cities

NYC intergovernmental fund transfers are average (5-10% of revenue), when compared with other cities



Notes:
* Unknown value. Utility acknowledged the city pays for services but no dollar amount was specified.
** Data not available

When city services are deducted, DEP payments are even lower relative to the average



Footnotes:
* Payments from Boston & San Diego to Utility exceed Utilities' payments to their respective cities.
** Value does not include deduction for utility's consumption charge to the City/County, as survey respondent did not provide this information or value was unknown.
*** Louisville is not charged for water consumption by the Utility.

In fact, DEP receives more services in return than most other utilities surveyed

City	Governance Structure	Trash Pickup	Police and Fire Dept Services	Legal	Administration	Finance	Delinquent Bill Collection (in rem)	Human Resources	Vehicle Repair/Maint.	Procurement	Budgeting	Insurance	Facility/Street Rentals	Facility Maintenance	Liquidity Support	Street Pavings	Street Sweeping	Stormwater Services	Other	Value of Payments (millions)	% of Revenues
Dallas	Enterprise funded by City of Dallas	x	x	x	x	x	x	x	x	x		x	x	x					x	$57.000	12.2%
Pittsburgh	Public authority	x	x	x	x	x													x	$9.650	6.8%
New York City	System leased from City; independent Water Board & Authority	R P	R P	•	•	•		•		•	•	R P (1)			R P (2)		•		R P	$178.900	7.0%
DCWASA	Independent Water Authority	x	x	x	x													x		$19.300	5.9%
Seattle	Department of city's public utilities group	x	x	x	x				x						x				x	$19.000	5.1%
Niagara Falls	System owned by independent water board; independent authority	x	x				x		x										x	$0.700	2.8%
Boston	Independent commission	x	x				x						x			x				$3.010	1.1%
San Francisco	Department of public utilities commission	x	x																	$3.500	0.8%
Milwaukee	Component of city department	x	x	x	x	x		x	x	x		x	x	x		x			x	$17.500	25.2%
Louisville	Municipally-owned corporation	x	x																x	$18.300	12.5%
Buffalo	System owned by independent water board; independent authority	x	x	x	x	x		x		x	x								x	$4.700	11.5%
Utica	System owned by independent water board; independent authority	x	x				x													$1.560	8.3%
Cleveland	City agency	x	x	x	x	x														$10.500	4.0%
San Diego	Department of city's public utilities group	x	x	x	x	x					x								x	$5.000	1.1%
Los Angeles	City bureau	x	x	x	x	x		x			x								x	$74.000	13.6%

LEGEND

X = Service provided

• = Direct / indirect cost

RP = Rental Payment

Breakdown of New York City transfer amounts:

- **Rental Payment** $178.6 M
- **Direct/Indirect Costs** $56.2 M
- **Less General Obligation Debt Service** $55.9 M

Notes

1 New York City underwrites the portion of tort claims exceeding 5% of prior year revenues. This helps the Board avoid the need to purchase catastrophic insurance coverage, helping to minimize costs and rates. It also minimizes the risk of a rate increase to cover unexpected tort costs not covered by insurance.

2 New York City also provides liquidity for construction payments – it first pays contractors and vendors and is then reimbursed from capital funds.

Methodologies vary for computing transfer payments made by water utilities to cover the costs of municipal services

Alternative	Description	Considerations
City-Determined PILOT (Payment In Lieu of Taxes)	▸ Specific payment determined by municipality in consideration of tax waiver; may or may not be based on cost study (e.g., Washington D.C., Buffalo, Dallas) ▸ Dallas - PILOT formula (assets in city times tax rate) and Street Rental (4% of operational revenue); indirects are provided based on cost studies performed every 1-2 years	▸ May be set by the City without cost basis (e.g., Washington D.C.) ▸ May be based on a formula (e.g., Utica) ▸ Non formula-based results may result in increases that are less predictable
Percentage of Utility Revenues	▸ A percentage of operating revenue is paid to the City (e.g., Los Angeles)	▸ Easy to understand ▸ Incremental revenue increases lead to increased payments
Dividend to the City	▸ A percentage of net income is paid to the City (e.g., Louisville) ▸ Could also be based on asset value ▸ Louisville - Payment of dividend computed as 60% of net income available for distribution. Net income available for distribution is computed as net income less bond principal payments made during the year.	▸ Requires clear definition of method of calculation ▸ Dividend is not as commonly used as other techniques
Reimbursement of Municipal Costs for Services Provided	▸ Based on actual and/or estimated costs of providing services (e.g., Boston) ▸ Milwaukee - Milwaukee Water Works itemizes each of the costs of city services. In 2007, this amounted to $17.5 million, excluding the cost of administration and fringe benefits, which are also paid by the City.	▸ Methodology that most likely reflects the actual direct costs of the city in supporting the utility ▸ Not necessarily as simple as other methods - implies the need to keep records to show cost of service ▸ Provides no compensation for risks undertaken by the city in supporting the utility

Phase II: Evaluation of Alternative Rate Structures

Introduction

Alternative Rate Structures Evaluated

- Based on survey responses, DEP identified four alternative rate structures, all of which meet the following criteria:
  - Commonly and successfully employed by other municipalities
  - Potential for increased revenue generation or stability, customer equity, resource conservation
- The four alternative rate structures DEP identified are:

1. **Fixed charges**
2. **Separate Stormwater Charges**
3. **New Development Charges**
4. **Water Conservation Charges**

Rate Study Objectives

- In light of rising capital costs, increasing rates and anticipated future needs, the primary objective of DEP's study is to analyze different rate structures and charges, with particular attention paid to their effect on:
  - Financial stability
  - Equity
  - Water conservation
  - Storm water management
  - Other best management practices
- Other important considerations include:
  - Ratepayer sensitivity
  - Economic competitiveness
  - Ease of Implementation (Internally/Publicly)
  - Future System needs
  - Affordable housing stock
  - Regulatory/water quality concerns

Ratepayer and Revenue Impacts Evaluated by 17 Customer Classes

Land use Classification	No. of BBLs	FY2009 Stormwater Rate Alternatives Analysis - Charges Per BBL										
				Alternative 1			Alternative 2			Alternative 3		
		Current Water/Sewer Bill ($)	Reduction in Sewer Charges ($)	Stormwater Amount ($)	New Water/ Sewer Bill ($)	% Change vs. Current	Stormwater Amount ($)	New Water/ Sewer Bill ($)	% Change vs. Current	Stormwater Amount ($)	New Water/ Sewer Bill ($)	% Change vs. Current
1. Tax Class 1 - One Family Dwellings												
2. Tax Class 1 - Other (Two-Three Family some w/stores)												
3. Multi-Family Buildings												
4. Mixed Residential & Commercial Buildings												
5. Residential Institutions												
6. Hotels												
7. Hospitals And Health												
8. Public Facilities & Institutions												
9. Educational Structures												
10. Parking Facilities												
11. Industrial & Manufacturing Buildings												
12. Stores												
13. Office Buildings												
14. Open Space & Outdoor Recreation												
15. Transportation & Utility												
16. Vacant Land												
17. Miscellaneous												

Alternative Rate Structures: Considerations

Legal

- Legal considerations include:
  - *"… the Board will not furnish or supply or cause to be furnished of supplied any product, use or service of the System, free of charge (or at a nominal charge) to any person, firm or corporation, public or private…" (Financing Agreement)*
  - *"The city, and any state agency shall be subject to the same fees, rates, rents or other charges under the same conditions as other users of such water system or sewerage system, or both, as the case may be." (NYS Public Authorities Law)*

Administrative

- Assess the how implementation dovetails with new billing system and AMR rollout
- Additional data needs
- Customer education
- Phase in/rollout: Philadelphia studied stormwater rate for several years and then did a phase in over 3 years.

Fixed Charges

Fixed Charges: Commonly Used by Water and Electric Utilities
NYC Customers Currently See Fixed Charges on Electric Bills

- Sample bill for DC WASA residential customer

Fixed charges make up 5% of this bill.

Service Address
5000 OVERLOOK AVENUE, SW
WASHINGTON, DC 20032

Account Number 0011111-2

Customer Service	(202) 354-3600
Servicio Al Cliente	(202) 354-3600
Emergencies	(202) 612-3400

Bill Summary Information

Billing Summary

Billing Date	12/04/07
Previous Balance	$21.87
Payments as of 12/03/07 - Thank you	$21.87 CR
Late Fees From Prior Balance	$0.00
Balance Forward	$0.00
Total Current Charges/Adjustments	$38.00
Total Amount Due - Please Pay by 12/31/07	$38.00

Meter Read Information

Meter Number	Prior Read Date	Current Read Date	Number Of Days	Prior Read	Current Read	Usage (CCF)	Usage (Gallons)	Read Type
12346678	10/30/07	11/29/07	30	105	111	6	4,488	ACT

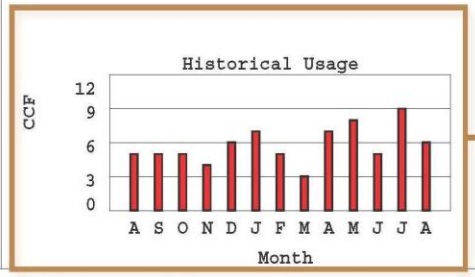
Usage in Gallons

CURRENT WATER AND SEWER CHARGES - RESIDENTIAL	
Metering Fee	$2.00
Water Services 6 CCF x $2.14	$12.84
Sewer Services 6 CCF x $3.23	$19.38
OTHER CHARGES AND CREDITS	
DC Government Right of Way Fee 6 CCF x $ .47	$2.82
DC Government - Stormwater Fee	$0.58
SPLASH Contribution	$0.37
TOTAL CURRENT CHARGES	$38.00
TOTAL CURRENT CHARGES AND ADJUSTMENTS	$38.00

IMPORTANT MESSAGES

How can you save money? Good question. Why not sign up for one of our automatic payment options? For more information, please see the back of the bill or visit our website at www.dcwasa.com.

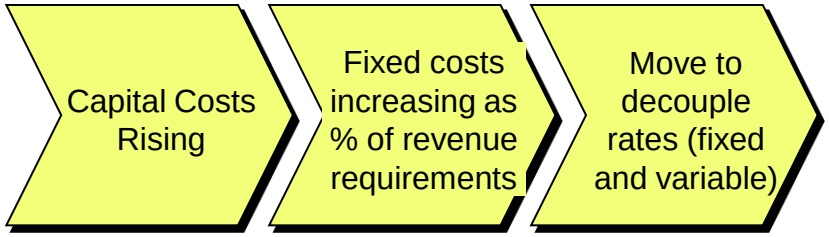
Important Bill Messages

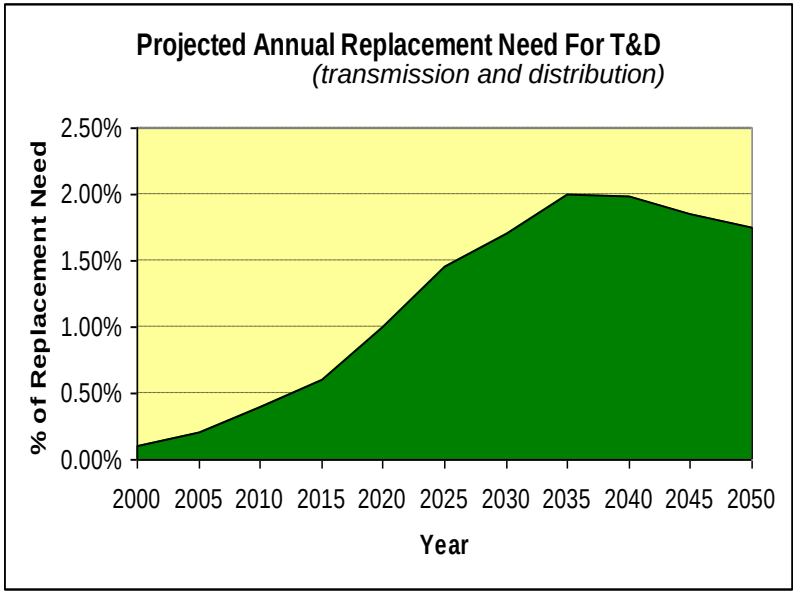


Usage Graph

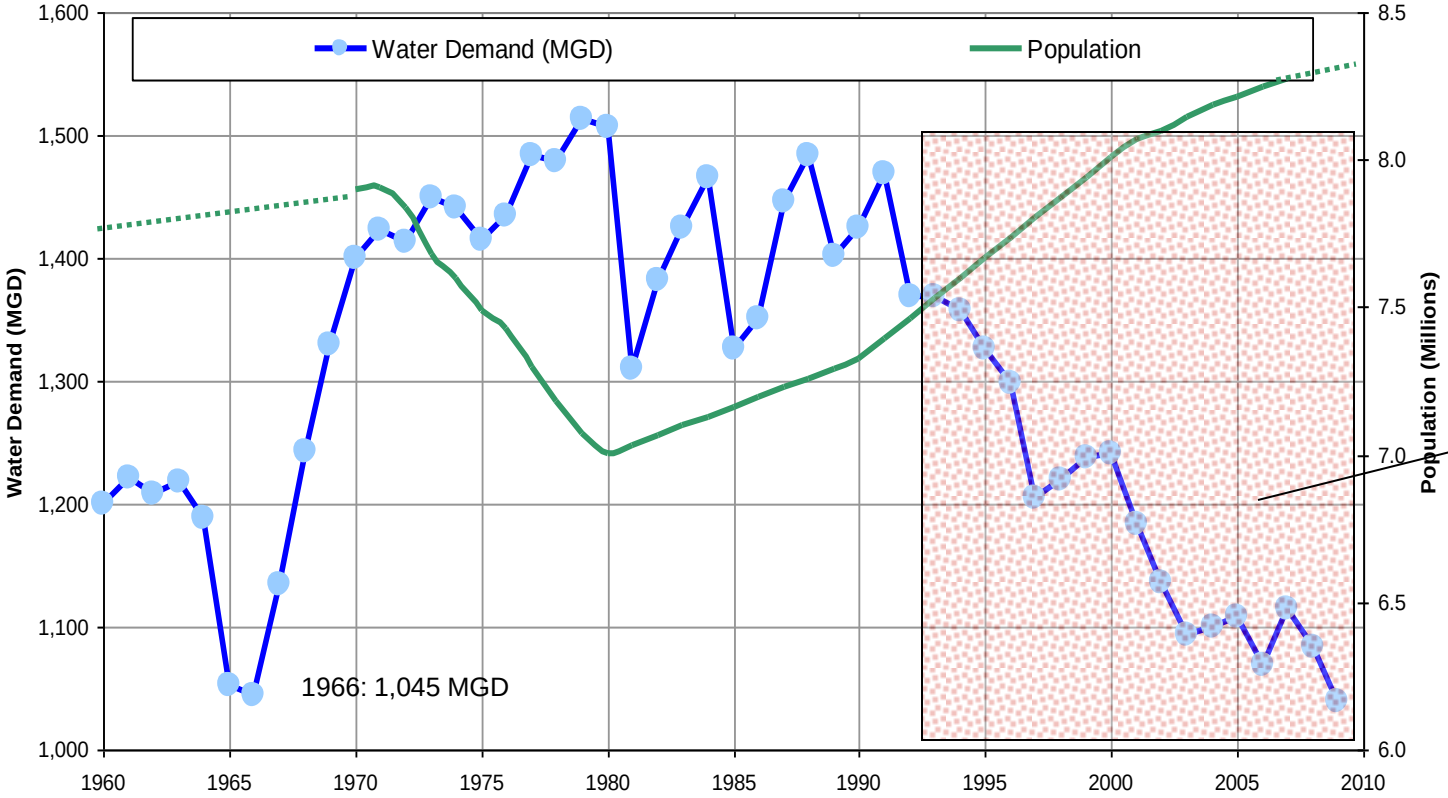
Why Explore a Fixed Charge for NYC?

- Most large water utilities surveyed utilized some form of fixed charge as part of their rate structure.
- Provides a **more predictable revenue stream** than consumption-based charge under **decreased consumption**
  - fixed costs as a share of a customer's total bill increases.
- Utility **fixed costs, particularly capital costs, are rising** independent of customer use
- Banks and mortgage companies may be more able to **escrow** fixed payments.





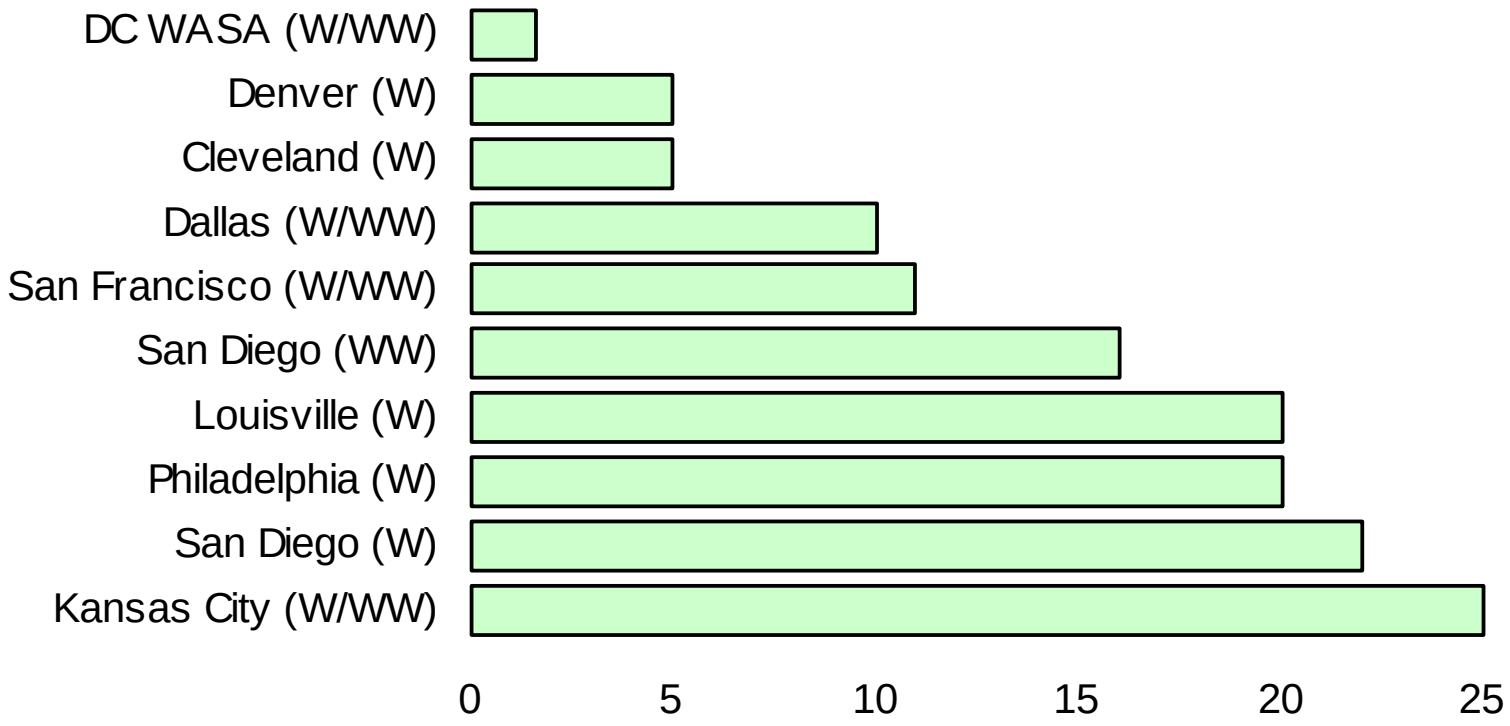
WHY CONSIDER A FIXED CHARGE? NYC simultaneously instituted consumption-based billing and major conservation programs, resulting in loss of revenues



Average Daily Consumption (MGD)	
2005:	1,108
2006:	1,069
2007:	1,114
2008:	1,083
FY09:	**1,039**

Consumption-based billing implemented simultaneously with decline in consumption

Other Utilities Recover 2 to 25% of Costs via Fixed Charges Most Often Reflecting Billing, Meter Reading or Capital Costs



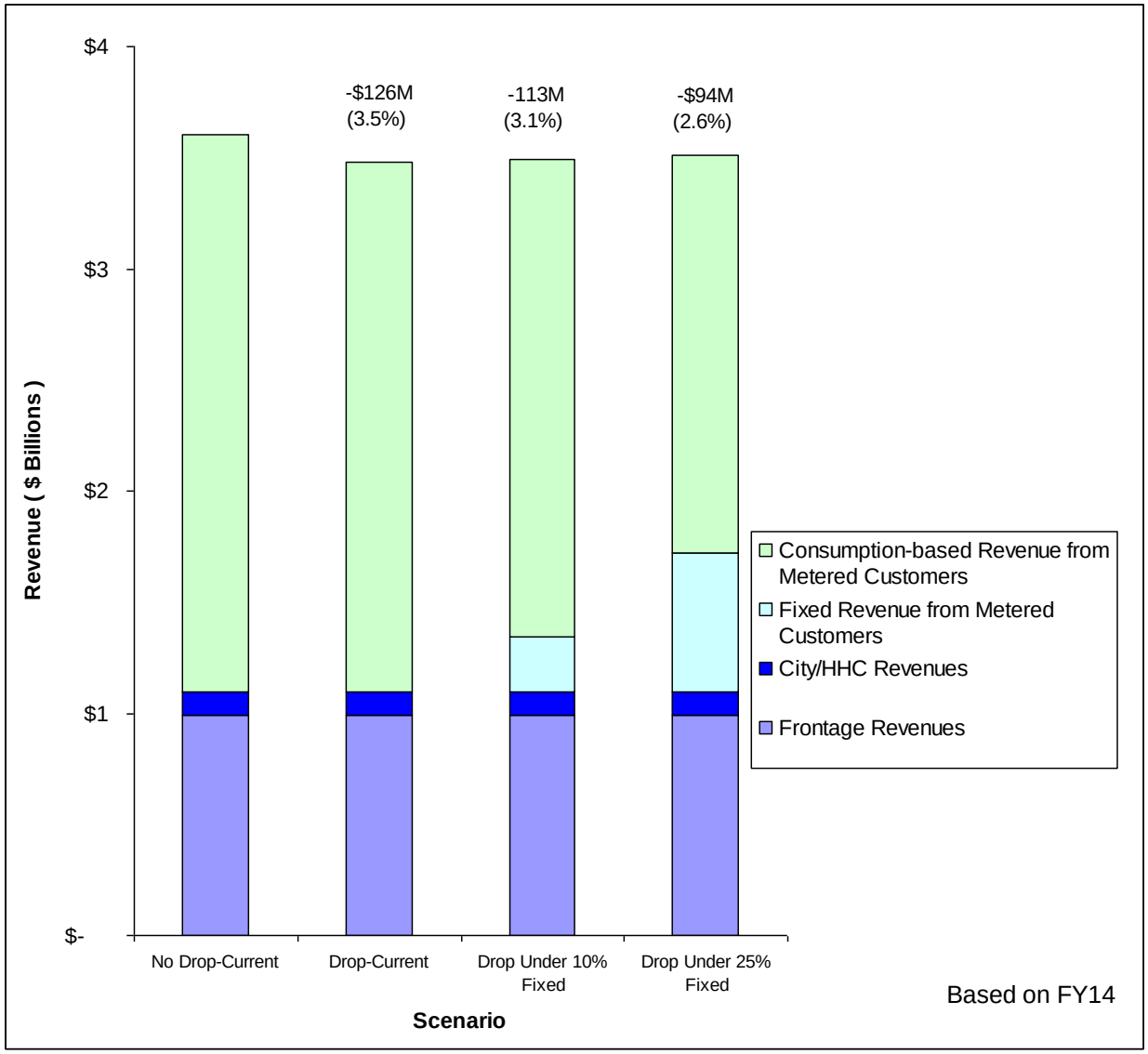
A California study shows that as long as fixed charge is no greater than 30%, conservation is still encouraged.

Fixed Cost Components of NYC Water and Wastewater Budget FY09

Component	Percent	Cumulative Percent
Customer Service-Meter reading, billing and collections, meter maintenance and repair	2.2%	2.2%
Upstate Taxes	4.3%	6.5%
Indirect Costs paid to the City	0.7%	7.2%
Debt Service	41%	48.2%

Many personnel related costs can also be considered fixed.

Assuming a 5% drop in consumption, a 25% fixed charge would help improve long term revenue stability



Other Considerations

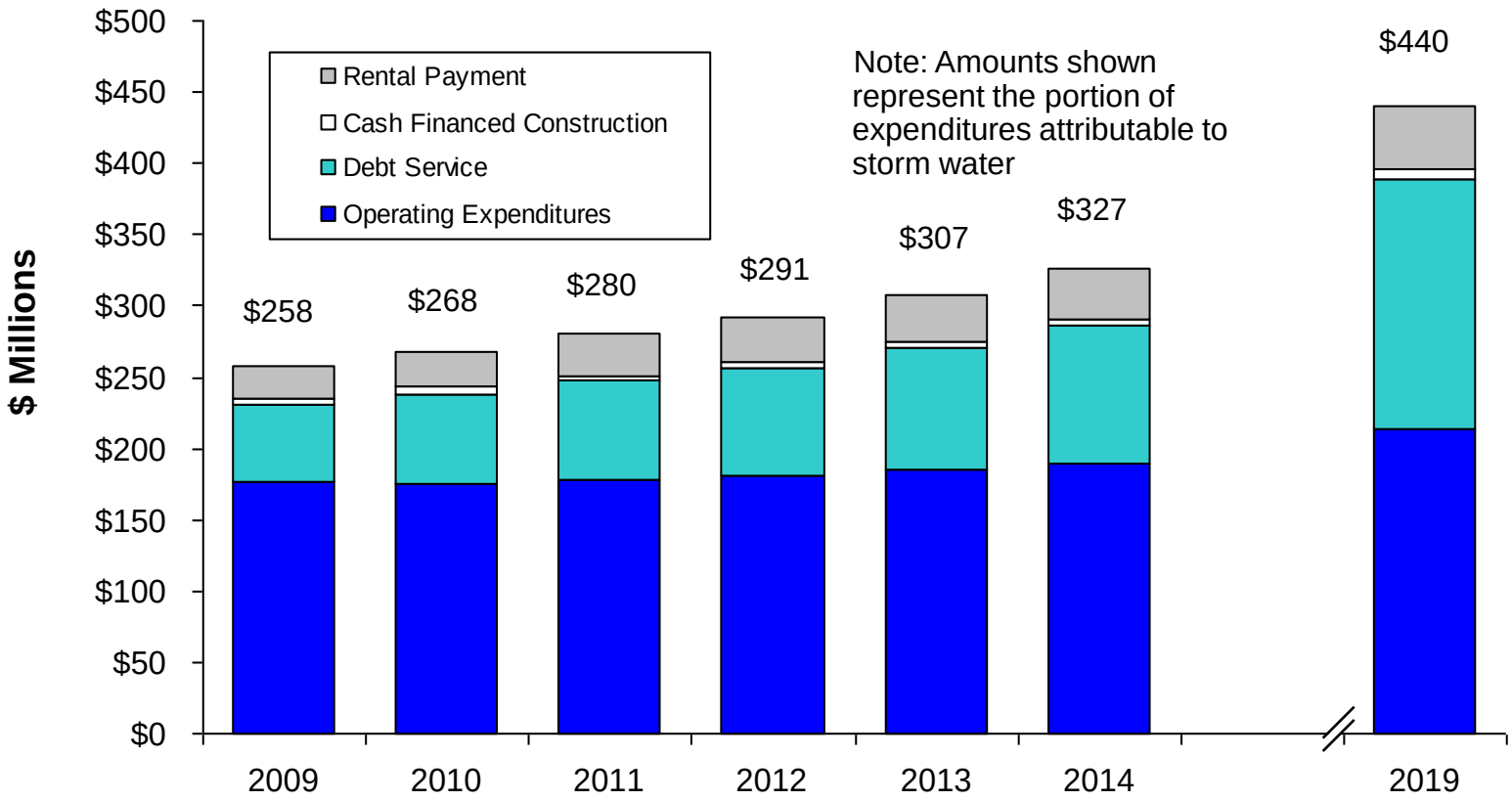
- Few legal considerations: Common practice accepted in the industry.
- Administrative Needs:
  - Pursuing possibility under current billing system. May need to await new billing system. Also need to consider timing with respect to AMR rollout.
  - Further develop formula for customer allocation based on housing units or meter size.
  - May require downsizing meter sizes.

Stormwater Charges

Why Explore Stormwater Charges for NYC?

- Used by **over 500 utilities**
  - Philadelphia, Washington DC, San Diego, San Antonio, San Jose, Milwaukee, Detroit, St. Louis, Columbus, Seattle and Wilmington, DE
- Stormwater management has **evolved significantly in recent years.** No longer just conveyance.
- **Stormwater expenditures are projected to continue increasing to meet more stringent regulatory standards.**
- The effects of **more intense precipitation events and flooding** and increased demand on the system.
- Although critical to NYCDEP's mission, **certain sewer work is deferred** when necessary to meet the agency's numerous regulatory mandates. Development pressures from rezonings and population growth adds further strains.
- Most NYC charges are based on the volume of potable water consumed. **Little or no correlation exists between consumption and stormwater generated by a property.** As stormwater costs rise, equity issues may become more significant.
- Creates public awareness around stormwater issues and can **encourage best management practices.**

Allocating Expenditures to Stormwater: FY09 to FY19 (9.5% budget scenario)



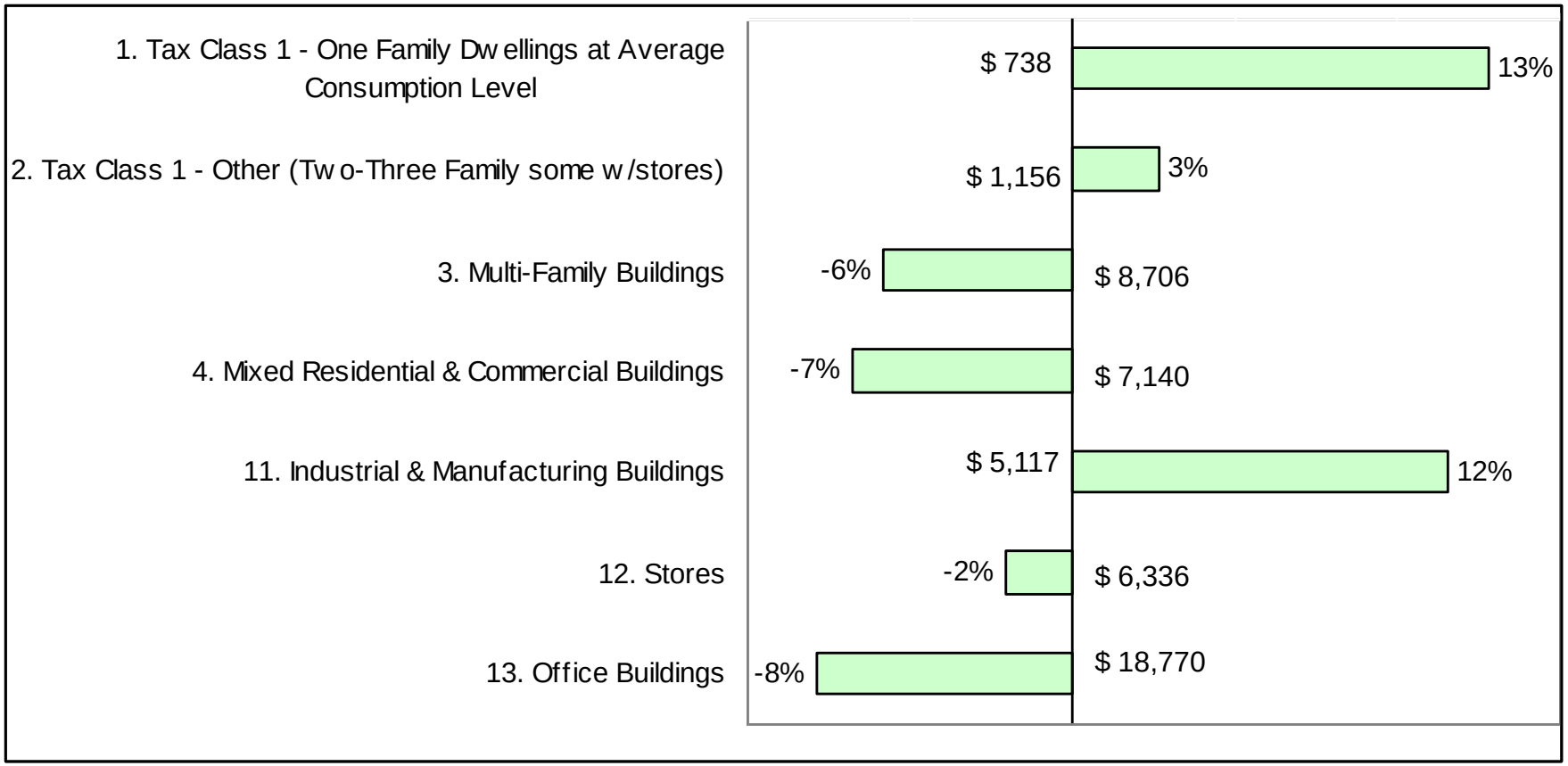
- Initially, two-thirds of stormwater revenue requirements are due to operating expenses
- Between 2009 and 2019, stormwater-related debt service increases by 220% and stormwater share of rental payment increases by 95%, while operating expenditures allocated to stormwater increase by only 21% over the same time frame
- Stormwater costs as % of overall budget do not increase. Remain in the 10% range because water and wastewater (sanitary) costs are also rising.

Customer Allocations: Rate Structure Alternatives

- The majority of stormwater utilities (65%) use impervious area as a basis for determining fees.
- Charge based on square foot of impervious area class and property area:
  - Class A: 90-100%
    - e.g. Parking lots, industrial, mixed use residential, office
  - Class B: 80-89%
    - e.g.multi-family, 2-3 family,
  - Class C: 60-79%
    - e.g. Single family, hospitals, institutional
  - Class D: <60%
    - e.g. vacant land, open space

Initial analysis of a stormwater rate in NYC suggests multi-family and commercial buildings may fare better than single family homes and industrial properties under certain stormwater scenarios

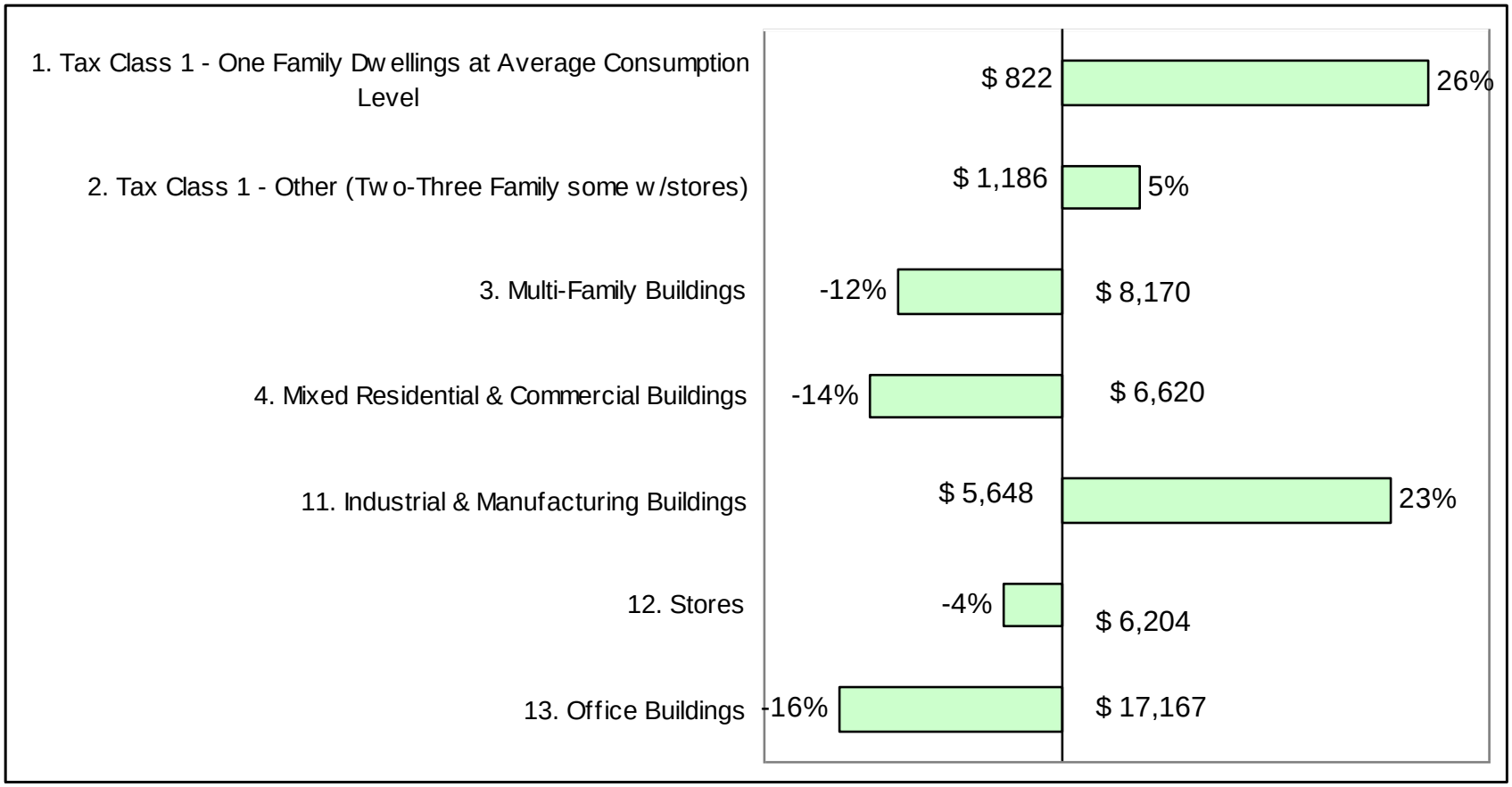
FY09 9.5% budget allocation scenario



An additional $27 million (FY09) in new revenue from currently unbilled lots (e.g. parking lots, vacant land, and other).

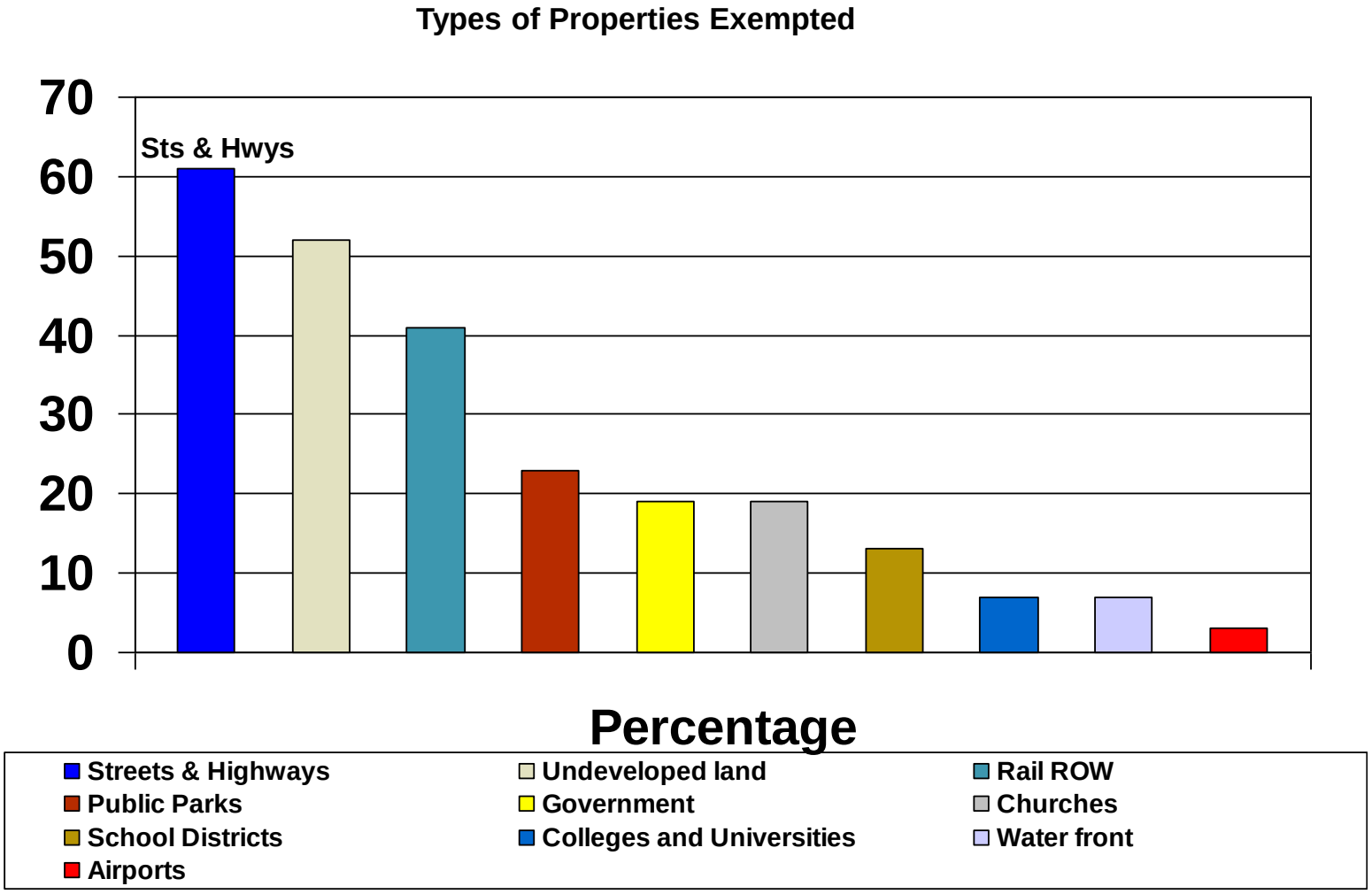
Initial analysis of a stormwater rate in NYC suggests multi-family and commercial buildings may fare better than single family homes and industrial properties under certain stormwater scenarios

FY09 19% budget allocation scenario



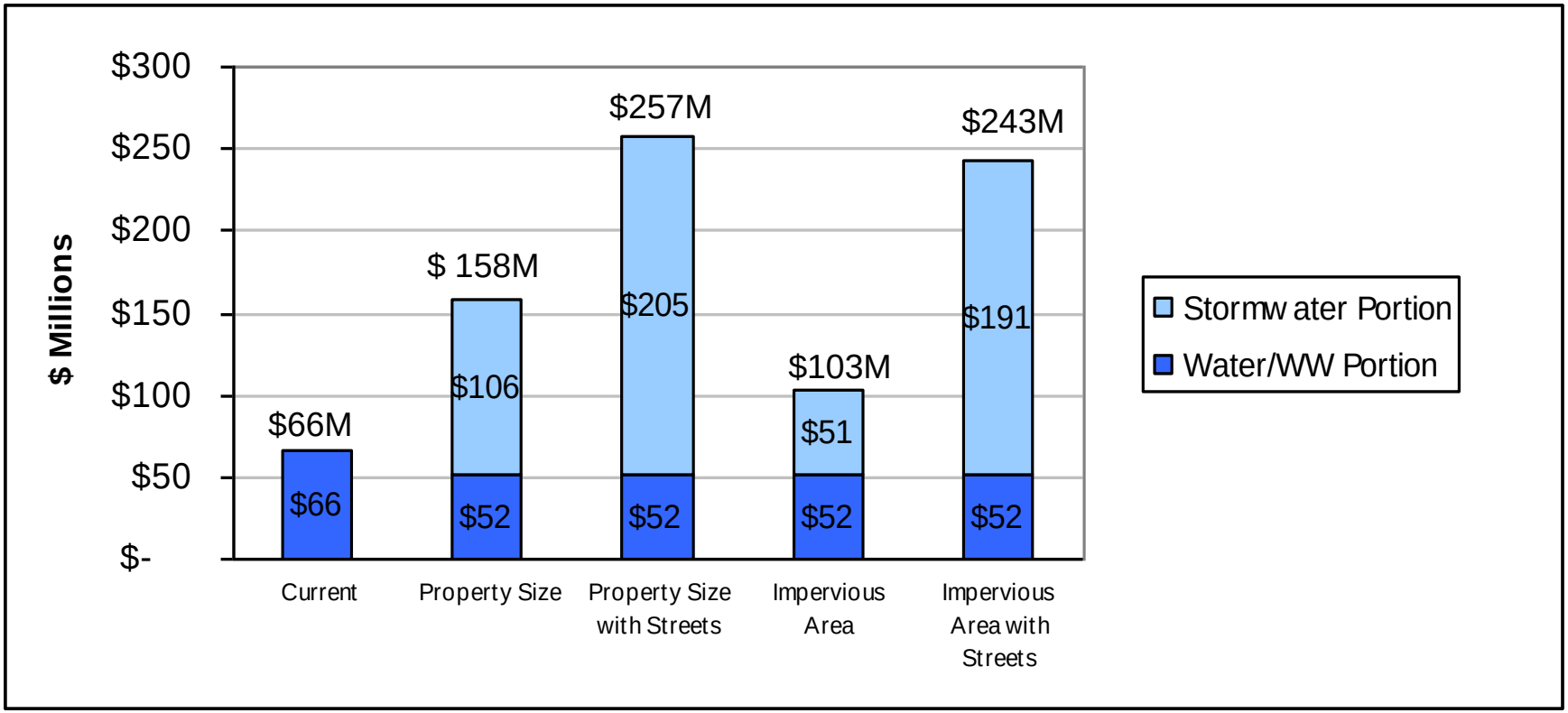
An additional $54 million (FY09) in new revenue from currently unbilled lots (e.g. parking lots, vacant land, and other).

Cities apply stormwater charges in different ways; over 60% of utilities exempt streets & highways from stormwater fees



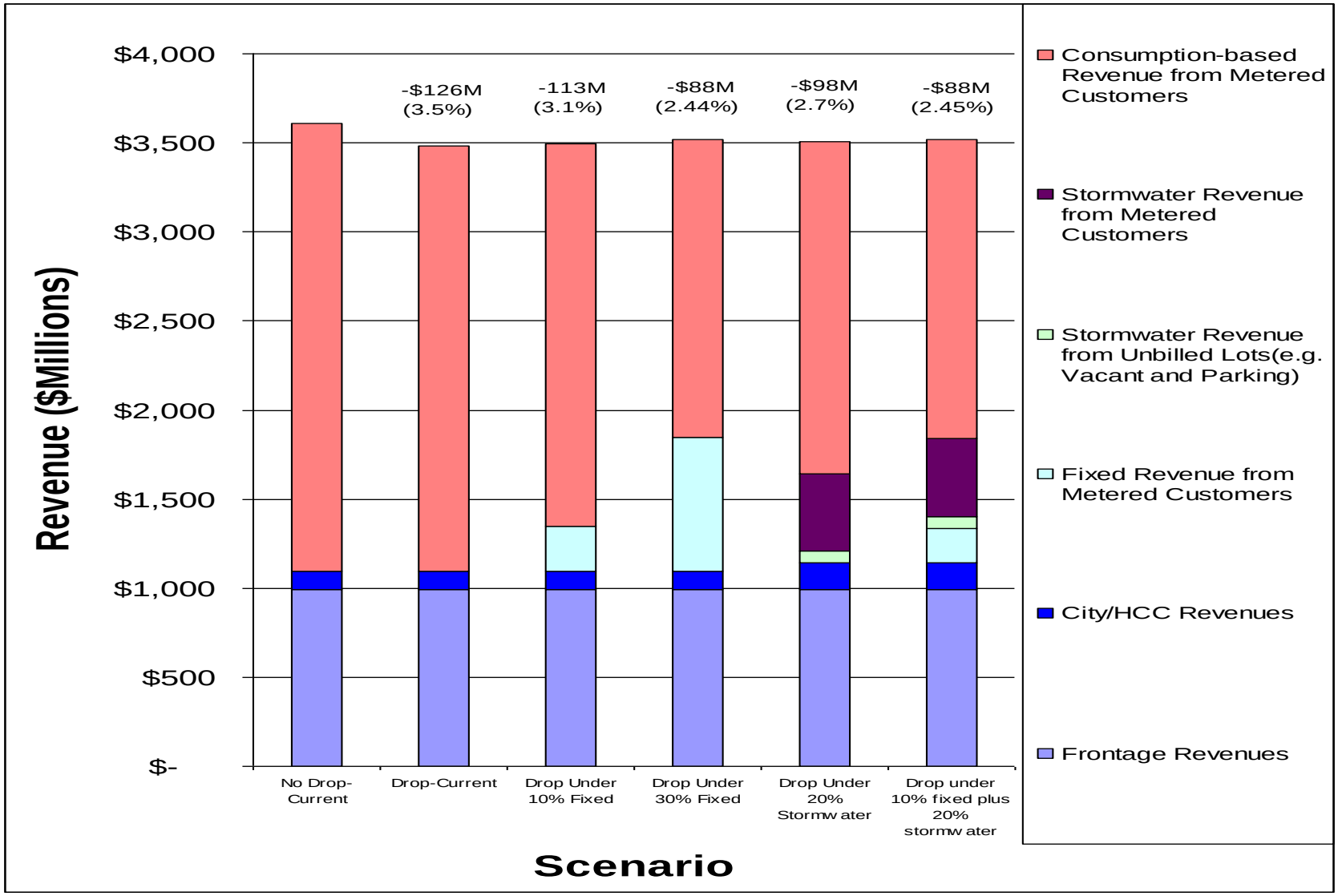
Source: Black and Veatch, 2007

Potential NYC Government Charges with Stormwater Rate



- With roads and sidewalks, NYC government properties represent 41% of the City's impervious area as compared to 12% without.
- Exempting roadways may require NYS legislation.

Assuming a 5% drop in consumption, stormwater charges, like fixed charges, would help stabilize revenues



There are revenue and equity benefits, but also administrative challenges associated with stormwater rates

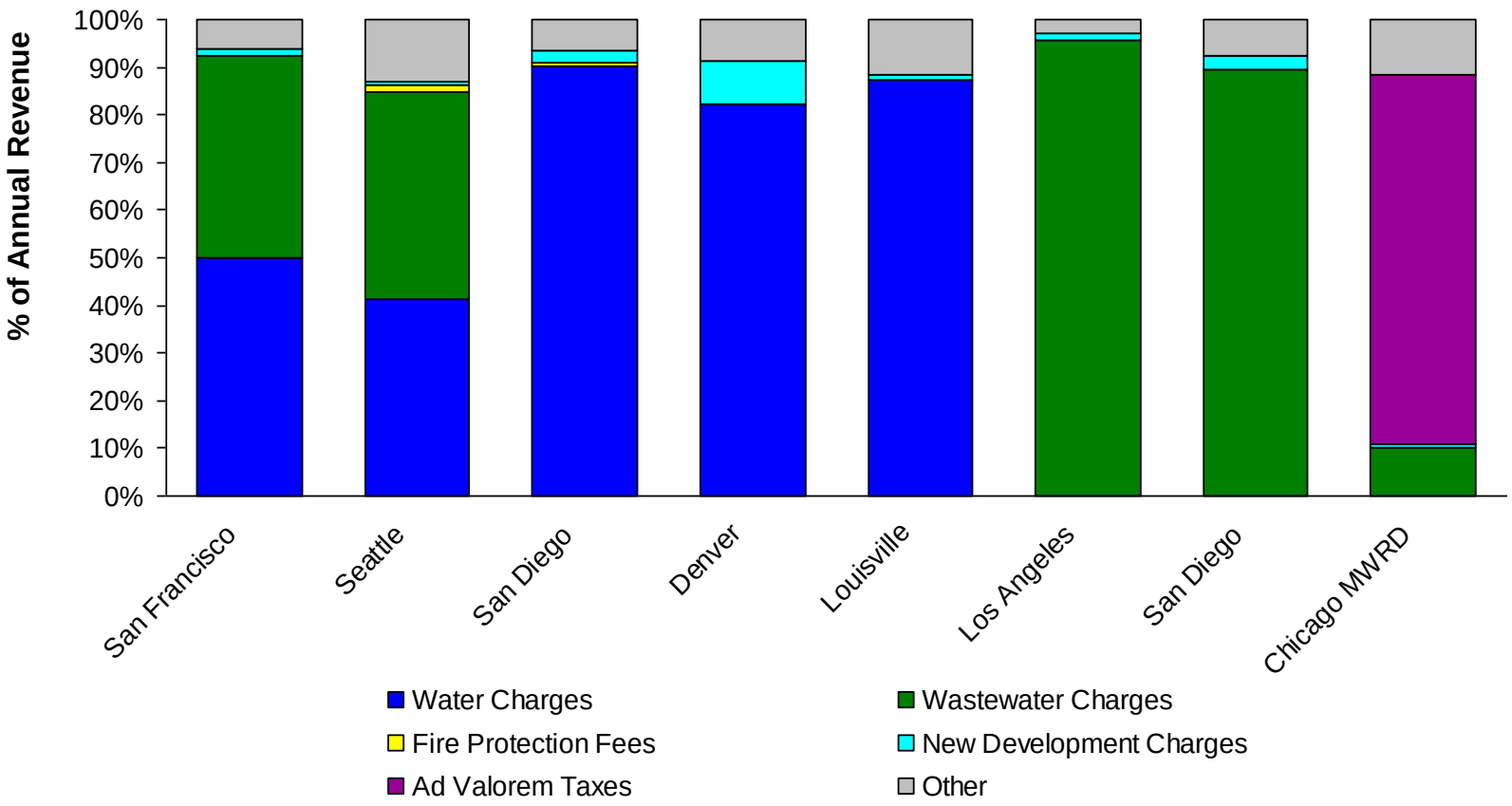
- **Revenue benefits:**
  - Unbilled lots such as parking lots, vacant land and other uses could generate up to $33-67 million in new revenues (FY14 without roadways). Good reasons to pursue these as initial phase independently of other stormwater charges.
  - Could provide a stable fixed charge.
- Other good reasons to institute charge including **equity, customer awareness, and encouraging BMPs**.
  - Would be winners and losers. Shifts in charges away from higher density uses (e.g. multi-family and office) to lower density uses (single family and industrial).
  - A credit program would still be required to encourage BMPs because the charge would likely be based on average impervious area and would not send specific price signals to implement BMPs
- **Administrative Challenges:**
  - Requires re-allocation of capital/ operating costs/budgets to track stormwater-related expenditures
  - To implement a stormwater charge, the new billing system must be in place
  - State legislation may be needed to exempt roadways and sidewalks.

New Development Charges

Why Explore New Development Charges for NYC?

- New development charges are used in the water utility industry to help recover a portion of the amount of infrastructure investment made to support growth. DEP does not currently apply such charges.
- Many large U.S. cities surveyed assessed new development charges (e.g. San Francisco, Hudson County). Most widely used in growth areas such as Phoenix.
- Could be a sizable revenue source for New York City (as much as $50M per year, or 2% of revenues)
- Equitable – new development buys into system; rezoning pays for system upgrades.
- However, revenue from new development charges would fluctuate with trends in the housing market

New Development Charges in Surveyed Utilities



- 0.6%-3.1% of annual revenues, except Denver where it represents 9.1%
- Although percent is small, could represent substantial dollars
- For the typical single family home, water charges ranged from less than $500 to over $8,000, wastewater charges ranged from less than $1,000 to over $6,000.

Types of New Development Charges

- **System Buy-in**
  - New development pays for investments made by existing customers that allow for new development to occur. Applicable to urban environments with excess capacity.
  - As per San Francisco PUC's website:

    "The …charge ensures that users who create new or additional demand on the existing …system..pay a charge in an amount that fairly compensates existing customers for their investment in the current system."

- **Next Increment of Investment**
  - New development pays for future investments needed to accommodate new development.
  - Most applicable to suburban developments with additional capacity needs.
  - Future CIP for NYC dedicated to meeting state and federal mandates and SOGR and replacements. Capacity driven expenditures relate to conveyance infrastructure rather than water supply or wastewater treatment infrastructure.
  - Could be relevant for NYC rezoning initiatives that lack conveyance infrastructure.

System Buy In Analysis: Calculating previous investments

- Based on offsetting investments made by existing customers in the current water and wastewater system since 1987:
  - DS (principal + interest) on Authority bonds
  - GO Debt Service paid by Authority since 1987
  - PAYGO used for capital

How can NDCs be calculated?

$$\frac{\text{Value of Existing Investment from historical DS and PAYGO}}{\text{Citywide capacity}}$$

	Historical Capital Expenditure %	Historical DS+Paygo (billions$)	Cost/ gallon*
Water	16%	$2.3	$1.78
Water Mains	23%	$3.2	$2.49
Sewer	18%	$2.6	$1.98
Water Pollution Control	43%	$6.1	$4.70
Total		$14.1	$10.94

*Based on 1290 gpd system

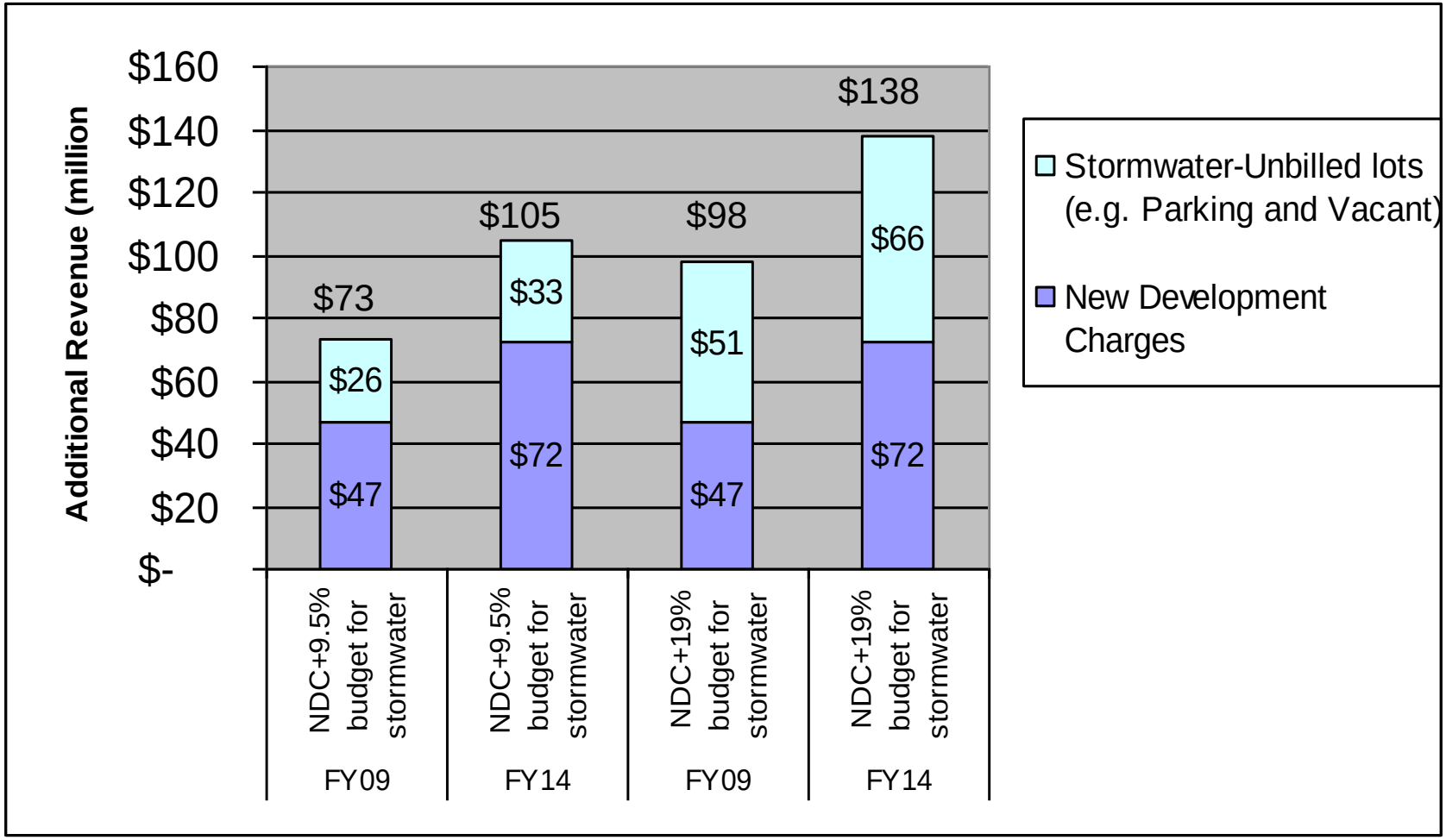
New development charges could represent a significant, though volatile, source of revenue

Development Type	Cost/gal	Consumption* (gpd/HU)	Cost/unit
Single Family	$11	255	$2,800
2-3 Family	$11	191	$2,100
Multi-Family	$11	140	$1,540

* Based on consumption in post-1996 buildings

- Proposed new development charge was based on calculating offsetting investments made by existing customers in the current water and wastewater system since 1987, including WFA debt service, general obligation debt service and PAYGO capital
- Represents a new revenue source of between $41M and $50M per year, or up to 2% of revenues based on PLANYC projections.
- Potentially a volatile source of revenue, as it would be tied to fluctuations in the real estate construction market

Potential Additional Revenue Sources



Note: Fixed and Water Conservation Rates could be structured to provide additional revenues. However, consumption-based and other revenue sources (e.g. frontage, gov't) would need to increase (i.e. rate hikes would be required).

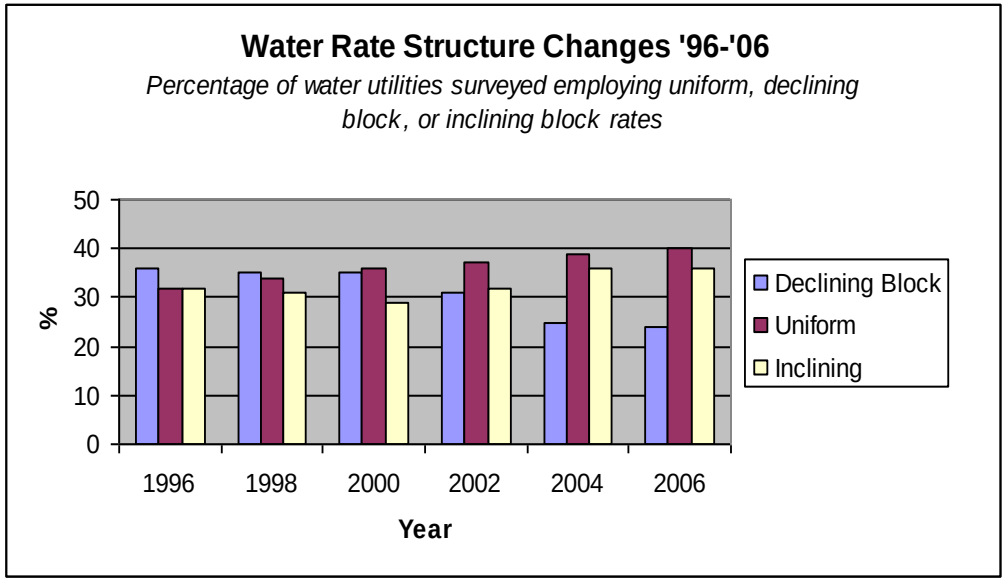
Other Considerations

- Established fee used in majority of states
- Could represent a significant new revenue stream
- Need to consider economic climate and potential for deterring investment.
- Administrative issues
  - Need to develop procedures with Buildings Department for assessing and processing payments
  - No CIS issues anticipated
- Legal precedence in other states and municipalities; more research is needed
  - Exemptions may need to be considered for affordable housing, government, and non-profits

Water Conservation Charges

Why Explore Conservation Charges for NYC?

- Over the last 10 years, **increasing reliance on inclining block rates**, especially in the **west and southwest states** facing water shortages.
- Although, fortunately, NYC has a plentiful water supply, these types of charges could be beneficial for repair periods under the **Dependability Program** and during **drought conditions** which may become more frequent under future climate change scenarios.
- Water conservation charges send price signals to customers that clean water is a limited and valuable commodity that should be used wisely.
- May be potential for highest tier rate or excess use rate to be used for revenue enhancement.
- Rates result in greater equity: customers who use less water are rewarded with a lower cost per unit consumption.
- Although water conservation rates are used in many cities that do not have submetering for multifamily apartments, lack of submetering can reduce the effectiveness of price signals associated with inclining block rate structures.



Source: 2006 AWWA/RFC Survey (approximately 400 utilities participated in this survey)

Types of Volume-Based Charges
(all except declining block are conservation charges)

- Declining Block Rates – The more that is used, the lower the unit rate. Fewer utilities are using this rate structure.

- Uniform Volume Charges – All usage is priced at the same unit rate. NYC applies this rate.

- Inclining Block Rates (aka Tiered Rates) – Higher levels of usage are charged more on a per unit basis. Typically, inclining block rates are applied to only residential customers. This type of rate structure is most prevalent in the southern and western portions of the country where water supplies are restricted.

- Excess Use Charges – Rates where usage above some defined allowance for each individual customer is charged at a higher rate.

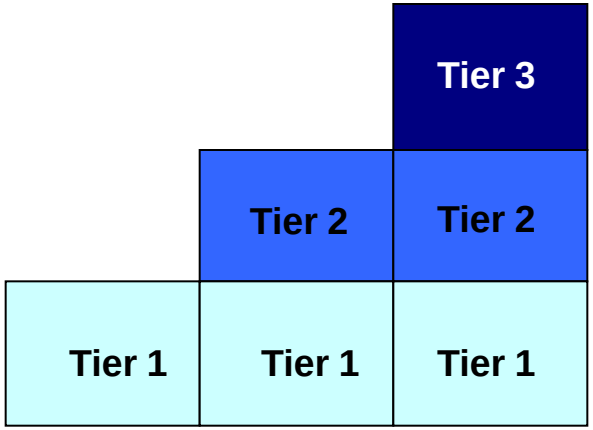
Utilities Applying Conservation Rate Structures

CITY	Water Rates				Wastewater Rates	
	Inclining	Uniform	Declining		Inclining	Uniform
Atlanta	X				X	
Baltimore			X			X
Boston	X				X	
Chicago		X				X
Cleveland		X				X
Columbus		X (R.)	X (C/I.)			X
Dallas	X					X
Detroit			X			X
Honolulu	X (R.)	X (C/I.)				X
Houston	X (R.)	X (C/I.)				X
Indianapolis			X			X
Jacksonville			X			X
Los Angeles	X					X
Milwaukee			X			X
New Orleans			X			X
New York		X				X
Newark			X			X
Philadelphia			X			X
San Antonio	X					X
San Diego	X (R.)	X (C/I.)				X
San Francisco	X (R)	X			X (R.)	X (C/I.)
San Jose	X					X
St. Louis			X			X
Washington, DC		X				X

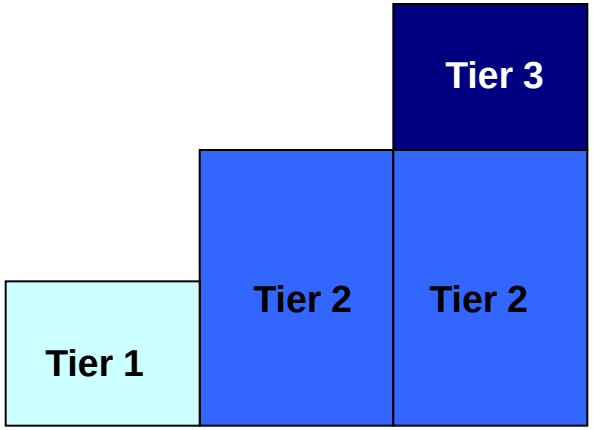
LEGEND
X – applies; R – residential; C – commercial; I - industrial

- Inclining block rates used primarily in water-constrained cities, rather than northeast.
- For water, more than 1/3 of the 24 largest city utilities use an inclining block structure for at least one customer class
- For wastewater, the majority of utilities surveyed have adopted uniform structures (due to USEPA guidance from the 1970s)
- Inclining block for water only often due to separate utility or more consumptive use in other locales (e.g. water not equal to wastewater)

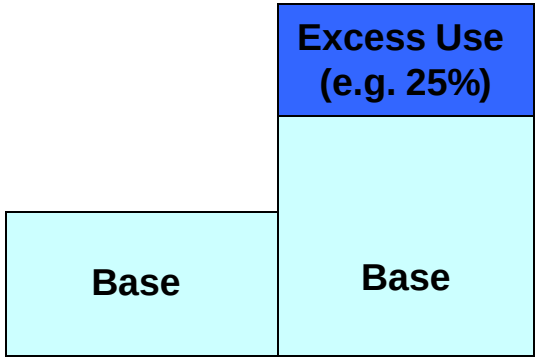
Water Conservation Rate Alternatives Evaluated



Option 1 Tiered Rate Residential



Option 2 Tiered Rate Residential



Option 3 Excess Use Rate Non-Residential

Excess use formulation can be based on:
Approach 1: prior use (can reward customers who do not conserve)
Approach 2: usage across similar customers
Approach 3: winter average, with additional summer usage billed as excess.

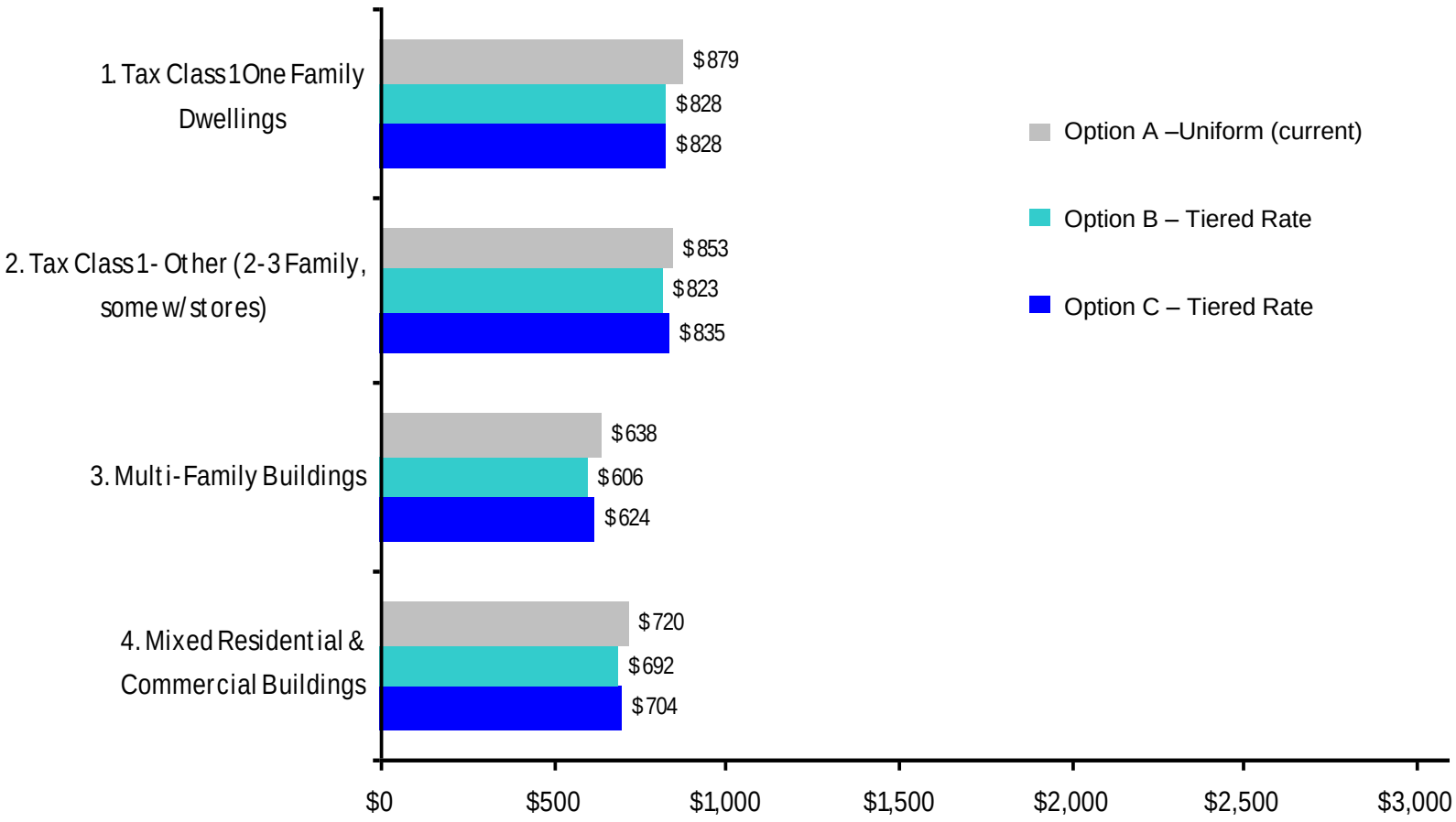
Revenues from Tiered Rates for Residential Customers

RESIDENTIAL	Water Unit Rate ($/hcf)	Residential Billed Metered Customer Total Revenue	% of Revenue
Option B (Residential)			
Tier 1	$2.14	$818,514,312	69%
Tier 2	$2.38	$184,139,682	16%
Tier 3	$3.38	$185,136,168	16%
Option C (Residential)			
Tier 1	$2.14	$369,477,711	31%
Tier 2	$2.30	$660,108,928	56%
Tier 3	$2.90	$158,844,642	13%

NON-RESIDENTIAL	**Water Unit Rate ($/hcf)**	**Non-Residential Billed Metered Customer Total Revenue**	**% of Revenue**
Option D (Non-Residential)			
Base Use	$2.21	$450,246,788	84%
Excess Use	$3.00	$87,361,317	16%
Subtotal		$537,608,105	100%

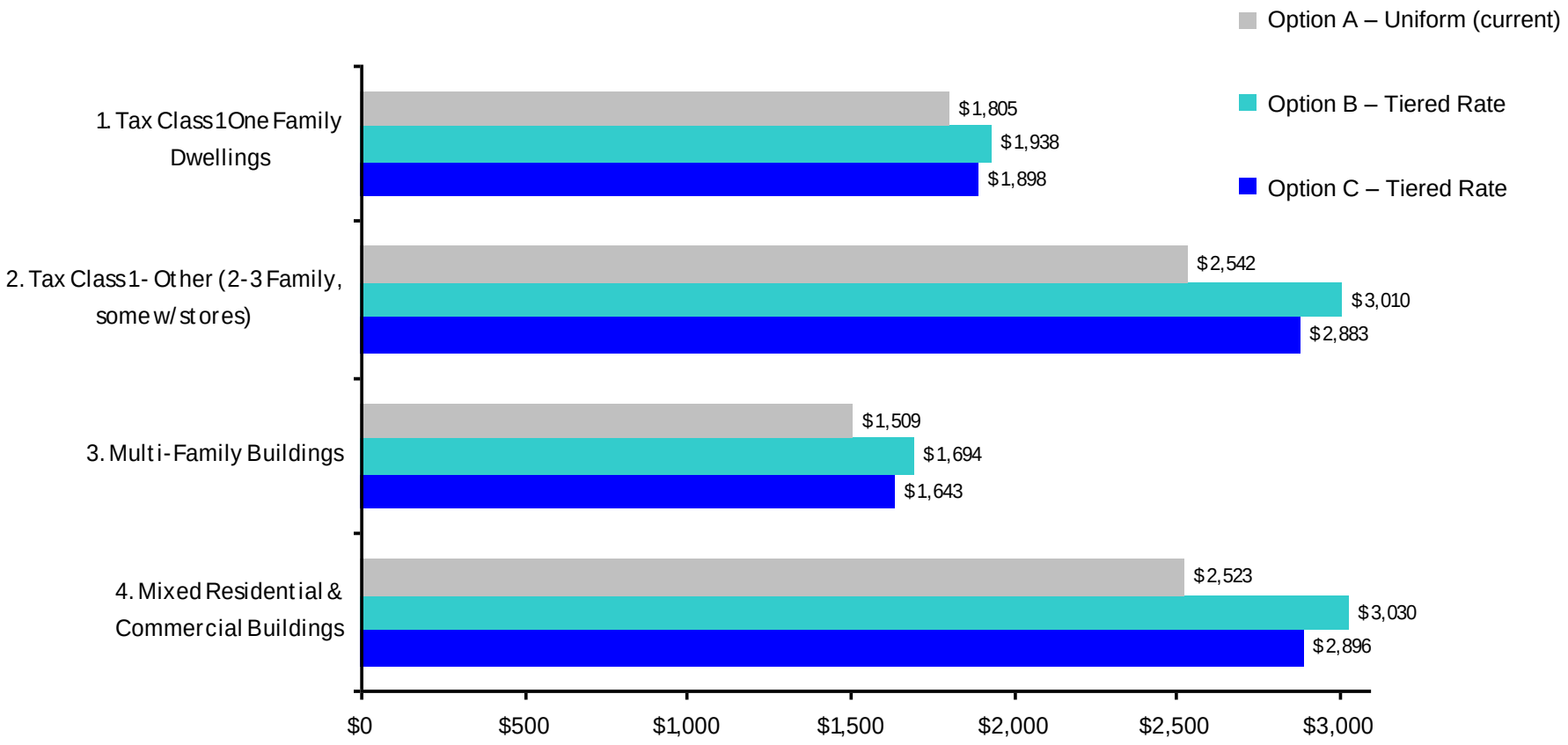
- Over time, top tier or excess use may diminish significantly as customers install conservation measures. Volatility can be mitigated by:
  - ensuring that top tier or excess use charges represent a relatively small percent of revenue (in these examples, 13%-16%)
  - creating a water conservation reserve fund from excess revenue when top tier/excess usage exceeds predictions and drawn down when top tier usage is less than predicted.
- May want to set aside top tier or excess use as revenue enhancement

Residential Customer Bill Impacts (FY14), 50th Percentile



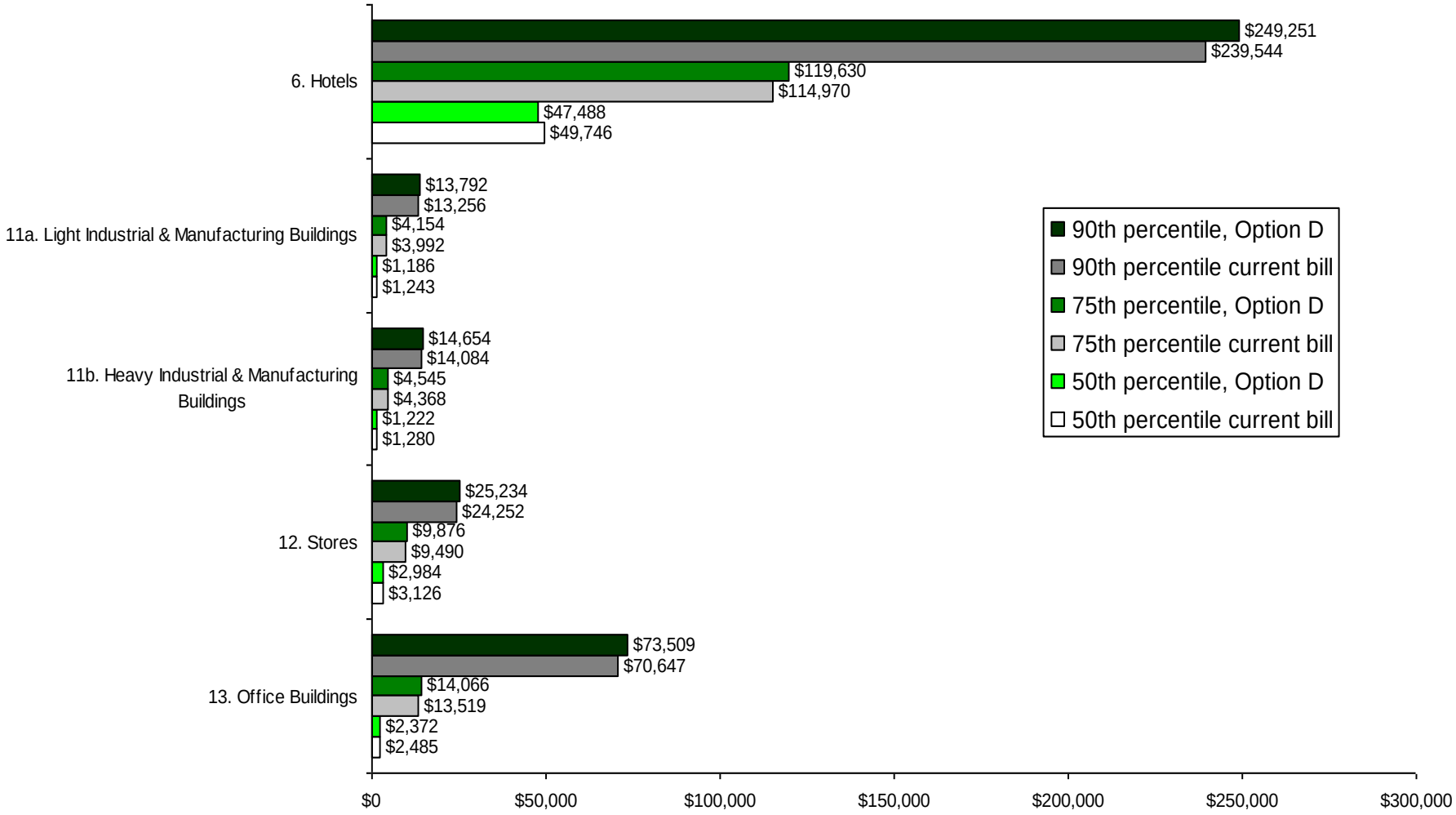
Those who conserve are rewarded.

Residential Customer Bill Impacts (FY14), 90th Percentile



Those who do not conserve are penalized.

Non-Residential Customer Bill Impacts (FY14), 50, 75th & 90th Percentiles



Water conservation charges (tiered and excess use) present several administrative challenges

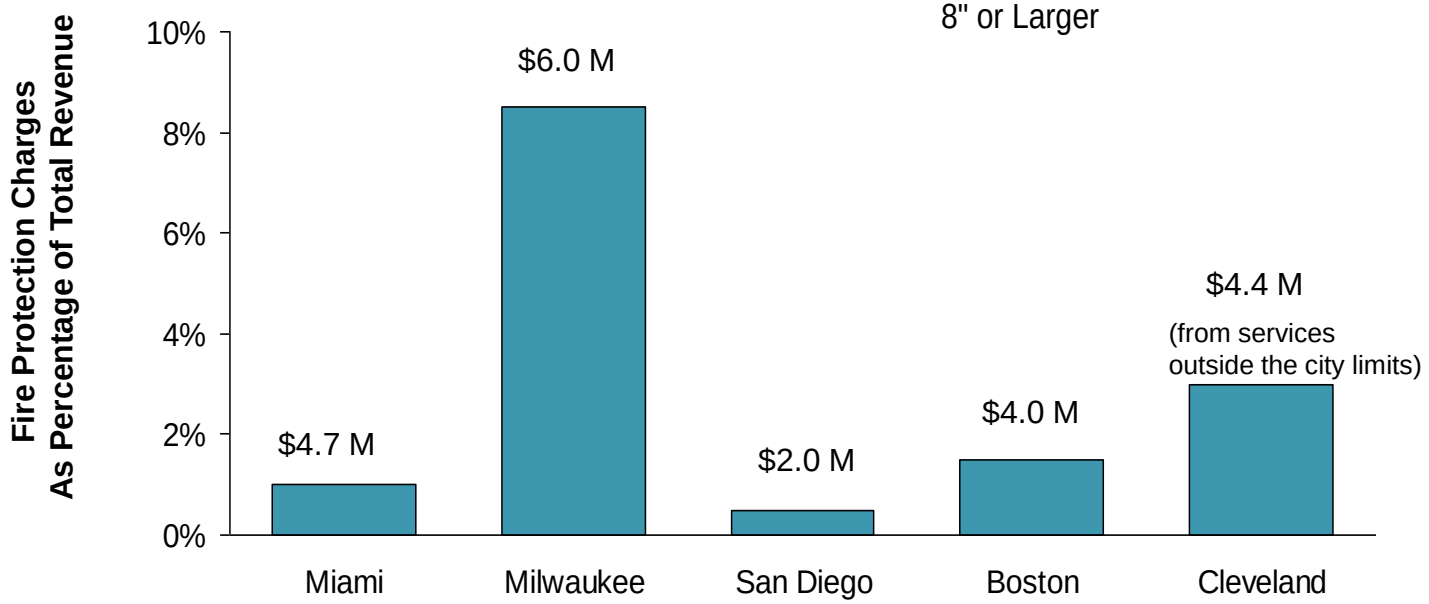
- Implement new AMR and billing system
- Transition to monthly billing
- Perform further analyses of tiers and excess use shift points to support policy decisions
- Establish mechanisms to avoid revenue instability. (eg. reserve fund)
- Develop customer outreach program

Fire Charges

Fire protection charges are used by other cities to recover some of the costs associated with fire protection services

- DEP does not currently separate its charges for providing public fire protection service to its customers.
- Cities that impose these charges generate modest amounts of annual revenue.
- Widespread availability of fire hydrants yields lower insurance costs for property owners.
- Some cities impose separate fire protection fees; others recover the costs through basic water rates. Example: Rate schedule for the Boston Water and Sewer Commission for internal sprinklers and standpipes:

Size of Connection	Daily Charge
4" or Smaller	$0.91
6"	$2.07
8" or Larger	$3.68



Considerations for application to NYC

- DEP provides fire protection services to the general public through water supply, transmission, storage & distribution facilities that are designed to quickly deliver a high volume of water through fire hydrants.
- Similarly, DEP provides fire protection services directly to private customers through connections to: building standpipes, private water mains that connect to privately-owned hydrants and other facilities.
- The widespread availability of fire hydrants and standpipe connections provides the benefit of lower insurance costs for property owners.
- DEP incurs costs in providing such services; e.g., sizing water mains large enough to provide sufficient water to fight fires; pumping water in limited parts of the City; installing, maintaining and replacing fire hydrants; and hydrant inspections/testing (with the assistance of the Fire Department).
- Potential next steps in considering such charges:

  Verify the inventory of private fire protection connections as well as those for public facilities.

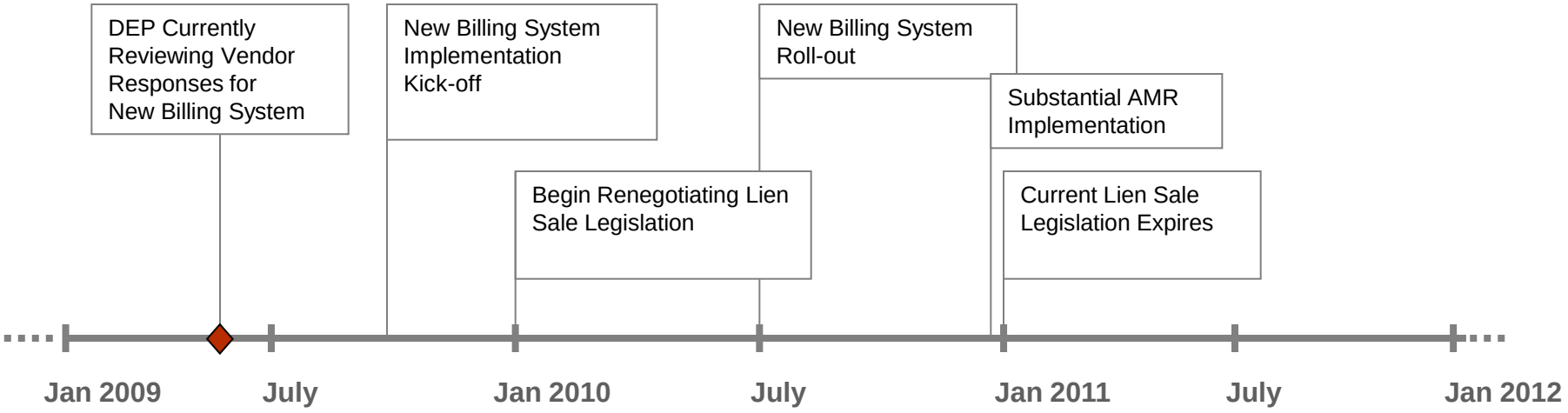
  Prepare a cost of service analysis to calculate the annual cost of providing fire protection service.

  Assess the potential impacts on customers who would be billed for fire protection service as well as the effects of the additional revenue that would be generated.

Next Steps – Short Term and Long Term

Rate Structure Design Timeframe

Micro-level rate design/development: data collection, formula analysis, legal research, procedures, due diligence, billing system changes, customer outreach



Detailed Implementation Considerations
Fixed Charges

Implementation Considerations			
People	**Processes**	**Technologies/ Infrastructure**	**Legal/Regulatory Research and Changes**
•Additional staff time required for implementation (planning, customer outreach, analyses, audit and control, policies/procedures, billing system conversion, reporting, and legal/regulatory).	•Further evaluate to determine formula with least impact on customers, particularly lower-volume customers. •For industrial/commercial customers, fixed charges could be based on meter size, therefore DEP would need reliable meter size data to use. 400k of 700k meters are planned to be replaced in the next few years. May need to downsize oversized meters. •For residential customers, fixed charges could be based on the number of housing units on record for the customer. •Determine charges for mixed use (residential/non-residential) customers. •Evaluate potential escrow possibilities with banking industry. •Develop customer outreach materials to explain bill breakdown. •Rate adoption process including advertisement, public hearings, and Board adoption proceedings.	•Can potentially implement with existing system, similar to sprinkler charge or minimum charge.	•None identified

Detailed Implementation Considerations
Stormwater Charges Unbilled Lots

Implementation Considerations			
People	**Processes**	**Technologies/ Infrastructure**	**Legal/Regulatory Research and Changes**
•Additional staff required for implementation (planning, enforcement, appeals, credit program, customer outreach, analyses, audit and control, policies/procedures, billing conversion, reporting, and legal/regulatory).	•Pilot DCA licensed standalone parking facilities? •Determine basis for charge for both vacant land and parking lot: property size? Imperviousness? •Evaluate vacant land to exclude wetland and possibly other undevelopable parcels. •Further evaluate stormwater/wastewater budget allocations, especially if want to go beyond 10% stormwater budget based on LTCP (may not want to pursue for unbilled lots). •Perform due diligence to determine correct classification as parking lots or vacant land. Distribute letters notifying affected customers of the pending charges and their customer data on record. •Evaluate and develop stormwater credit program (may not want to pursue for unbilled lots). •Develop administrative procedures for enforcement and appeals. •Develop customer outreach program including credit program guidance materials. •Evaluate potential escrow possibilities with banking industry. •Rate adoption process including advertisement, public hearings, and Board adoption proceedings.	•A separate billing system may be considered. •Aerial flyover to collect new imperviousness data, to be completed by end of 2009. •Limited site surveying to determine land uses of specific properties. •Identify properties with private outfalls or other direct discharge to waterways. •Verify use of RPAD data for property size. •Periodically update RPAD property size data.	•Determine the Board's options for exempting streets and sidewalks within the limits of current legislation (may not want to pursue for unbilled lots). •Determine whether other amendments are needed for exempt properties and properties with private outfalls or other direct discharge to waterways. •Determine legal options for ensuring collections (e.g., shutoffs).

Detailed Implementation Considerations
Stormwater Charges All Users

Implementation Considerations			
People	**Processes**	**Technologies/ Infrastructure**	**Legal/Regulatory Research and Changes**
•Additional staff required for implementation (planning, enforcement, appeals, credit program, customer outreach, analyses, audit and control, policies/procedures, billing conversion, reporting, and legal/regulatory).	•Further evaluate stormwater/wastewater budget allocations, especially if want to go beyond 10% stormwater budget based on LTCP. •Develop ongoing budgeting procedures for allocating stormwater versus wastewater costs. •Distribute letters notifying affected customers of the pending rate structures and their customer data on record. •Evaluate and develop stormwater credit program. •Develop administrative procedures for enforcement and appeals •Develop customer outreach program including credit program guidance materials. •Evaluate potential escrow possibilities with banking industry. •Rate adoption process including advertisement, public hearings, and Board adoption proceedings.	•Current billing system is not recommended for new stormwater structure. •A separate billing system may be considered, or the planned new billing system may be used. •Aerial flyover to collect new imperviousness data, to be completed by mid-2010. •Limited site surveying to determine land uses of specific properties. •Identify properties with private outfalls or other direct discharge to waterways. •Verify use of RPAD data for property size. •Periodically update RPAD property size data.	•Determine the Board's options for exempting streets and sidewalks within the limits of current legislation. •Determine whether other amendments are needed for exempt properties and properties with private outfalls or other direct discharge to waterways. •Determine legal options for ensuring collections (e.g., shutoffs).

Detailed Implementation Considerations
Conservation Charges

Implementation Considerations			
People	**Processes**	**Technologies/ Infrastructure**	**Legal/Regulatory Research and Changes**
•Additional staff time required for implementation (planning, customer outreach, analyses, audit and control, policies/procedures, billing conversion, reporting, and legal/regulatory)	•Consider use of conservation rate to support Dependability program, or drought operations. Also consider allocating proceeds from top-tier/excess use charges as revenue enhancement. •After AMR implemented, compile consumption data by customer and perform detailed customer bill analysis. Also begin to monitor trends over time at the customer level. •Based on these data, further evaluate tier and excess use breakpoints with respect to policy decisions, administration, customer equity, and financial stability. •Monthly billing will be required. •For residential customers, conservation rates could be based on land use classification and number of housing units. If it is determined to pursue conservation rates for these customers, letters should be distributed notifying affected customers of the pending rate structure and their customer data on record. •For commercial/industrial customers, conservation rates could be based on customer-specific characteristics. After it is determined to pursue conservation rates for commercial/industrial customers, letters should be distributed notifying affected customers of the pending rate structure and their customer data on record. •Establish mechanisms to avoid revenue instability (e.g., reserve fund). •Develop customer outreach program. •May need to implement for several years to gain understanding of price elasticity. •Rate adoption process including advertisement, public hearings, and Board adoption proceedings.	•Implementations of planned AMR and new billing system are required; existing exemption structure can potentially be tweaked to accommodate conservation rates, but this is not recommended. •Account-level parameters need to be added to customer bills (e.g. # of housing units, square feet).	•Determine whether we can charge people differently for same amount of water used (e.g., single family vs. multifamily). This will affect how tier points are established.

Stakeholder Feedback

Alternative Rate Structures- Stakeholder Feedback

Affordable & Market-rate Housing

- Predictability in the water rates is important. Rent stabilization calculations require predictability. Predictability is also important for financial backers of housing developments.
- Conservation-oriented rates may only have a limited affect on customer behavior in multi-family dwellings. For instance, tenants of multi-family housing typically do not receive a water bill and are not sub-metered.
- Study should research affordable housing programs of other utilities.
- Expressed interest in incentives for conservation investments.
- Rent stabilization calculations do not adequately reflect water bills
- Concerned that going to meter rates from frontage would result in higher bills.
- Study should take sufficient time to ensure proper implementation.

Environmental Organizations

- Generally interested in evaluation of a separate stormwater charge.
- Concern was expressed that high fixed charges could dampen the effect on conservation.