



***Metro Nashville***  
**DISTRICT ENERGY SYSTEM**

*DES Customer Meeting*

*Spring FY18*

*May 24, 2018*



# *Agenda*

1. Welcome!
2. Historical Customer Expenses
3. Historical Customer Consumption
4. Historical System Costs
5. Natural Gas Pricing
6. DES FY17 and FY18 Budgets
7. Chilled Water Leak
8. DES Projects
9. Questions and Answers
10. Adjourn



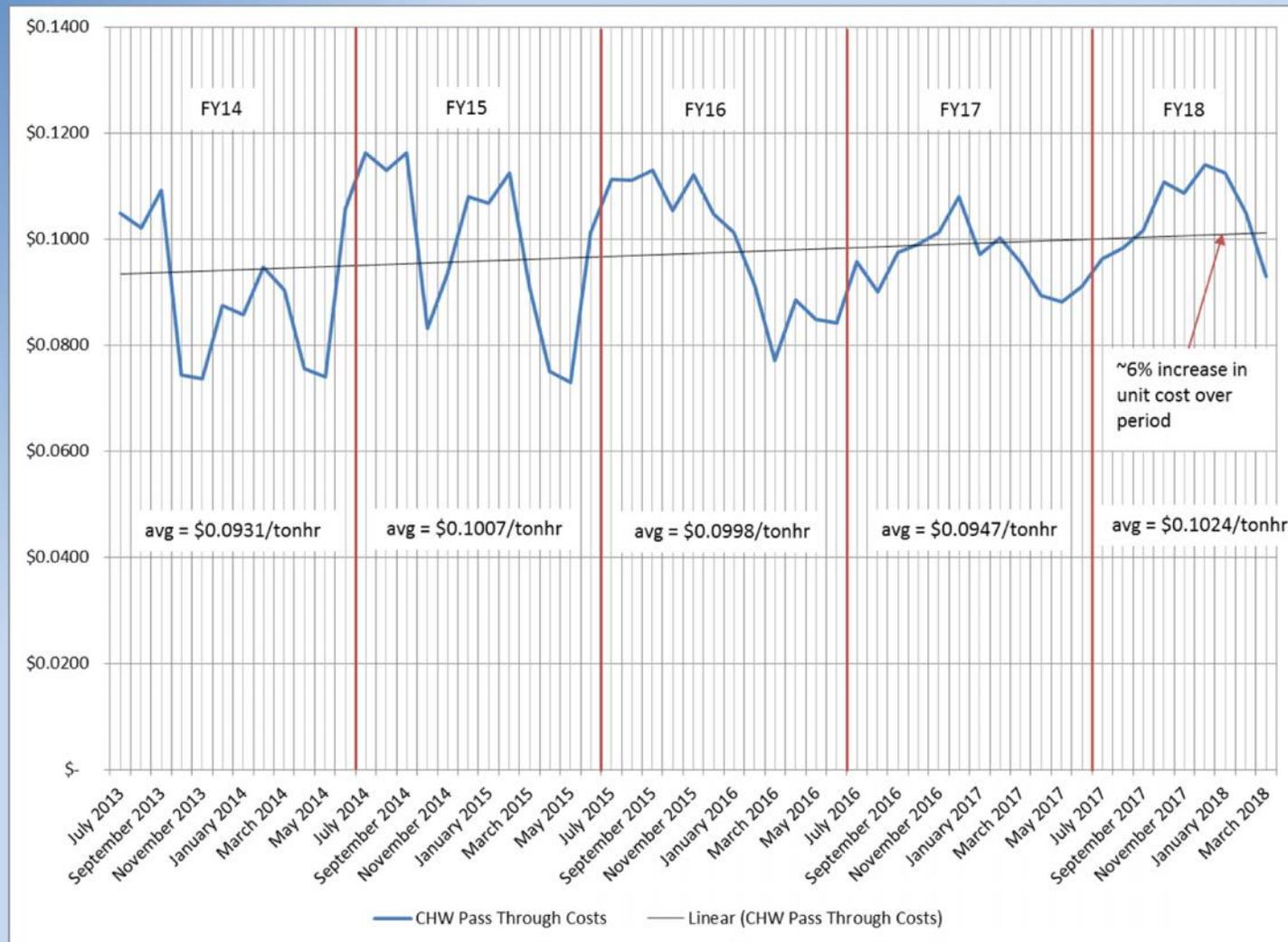
# 1. Welcome DES Customers!



## *2. Historical Customer Expenses*

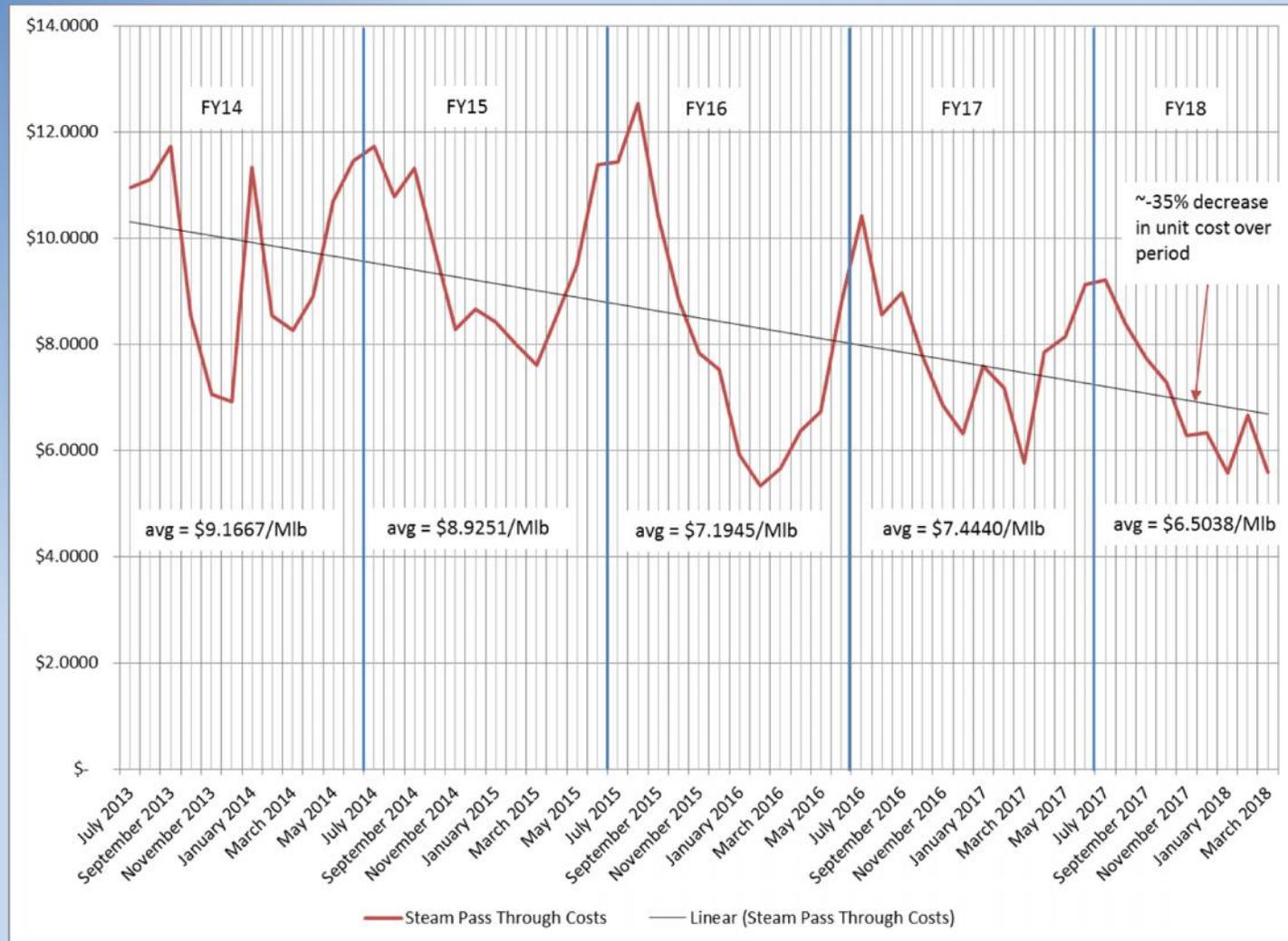
- ❖ Figure 2A. Historical Chilled Water Unit Costs Pass-Throughs
- ❖ Figure 2B. Historical Steam Unit Costs of Pass-Throughs
- ❖ Table 2. Rolling Twelve Month Expenses

Figure 2A. Historical CHW Unit Costs of Pass-Throughs (\$/tonhr)



Includes water, sewer, electricity, chemicals, EDS electricity and FEA

Figure 2B. Historical Steam Unit Costs of Pass-Throughs (\$/Mlb)



Includes water, sewer, electricity, chemicals, EDS electricity, FEA, gas consultant, natural gas and propane

## Table 2. Rolling Twelve Month Expenses

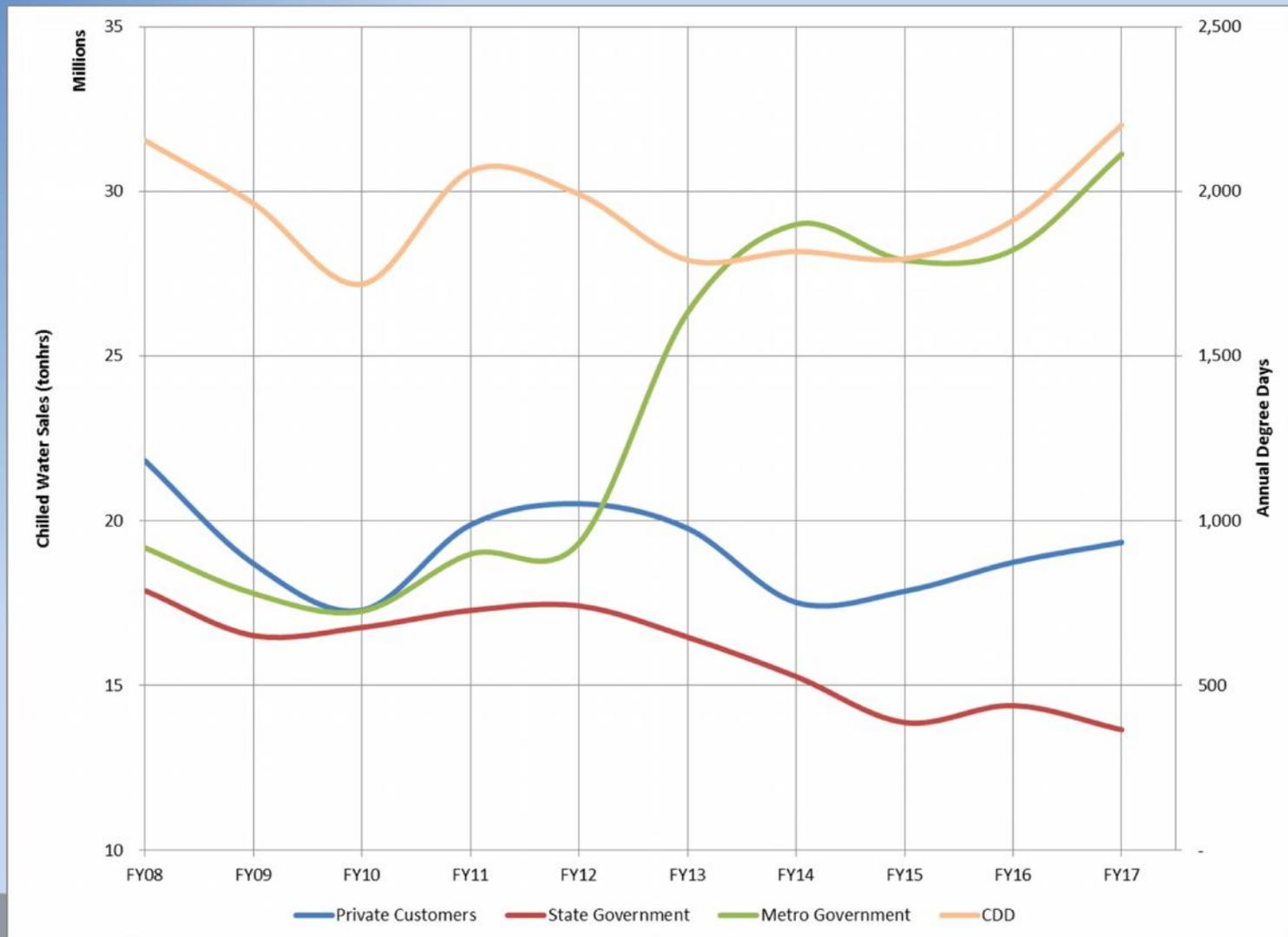
		Steam - Rolling 12 Month			Chilled Water - Rolling 12 Month		
		Apr 2016 - Mar 2016	Apr 2017 - Mar 2018	% Diff.	Apr 2016 - Mar 2016	Apr 2017 - Mar 2018	% Diff.
<b>Private</b>	Cost	\$ 1,368,292	\$ 1,441,097	5.32%	\$ 3,497,865	\$ 3,661,661	4.68%
	Usage (lbs or tonhrs)	87,049,942	97,795,089	12.34%	18,864,276	18,329,225	-2.84%
<b>State</b>	Cost	\$ 1,644,555	\$ 1,753,367	6.62%	\$ 3,253,996	\$ 3,323,812	2.15%
	Usage (lbs or tonhrs)	86,341,696	108,058,112	25.15%	13,889,963	13,455,673	-3.13%
<b>Metro</b>	Cost	\$ 2,131,758	\$ 1,913,849	-10.22%	\$ 5,546,503	\$ 5,052,810	-8.90%
	Usage (lbs or tonhrs)	153,057,990	151,010,797	-1.34%	30,995,548	27,076,450	-12.64%
<b>Aggregate</b>	Cost	\$ 5,144,605	\$ 5,108,313	-0.71%	\$ 12,298,364	\$ 12,038,284	-2.11%
	Usage (lbs or tonhrs)	326,449,628	356,863,998	9.32%	63,749,787	58,861,348	-7.67%
	Unit Cost	\$ 15.76	\$ 14.31	-9.2%	\$ 0.193	\$ 0.205	6.01%

MFA not included in values shown

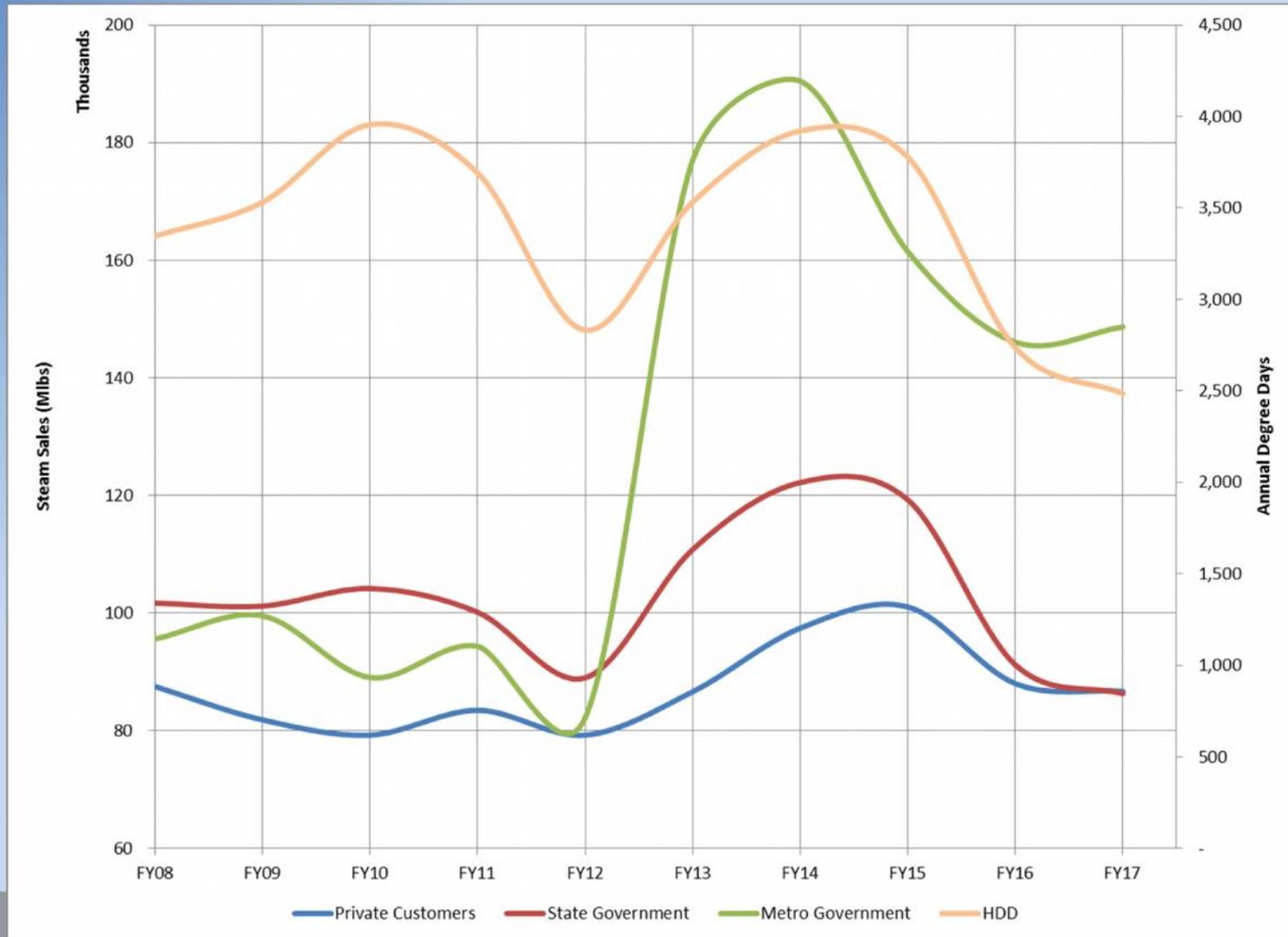
## *3. Historical Customer Consumption*

- ❖ Figure 3A. Historical CHW Consumptions
- ❖ Figure 3B. Historical Steam Consumptions

*Figure 3A. Historical CHW Consumptions*



*Figure 3B. Historical Steam Consumptions*

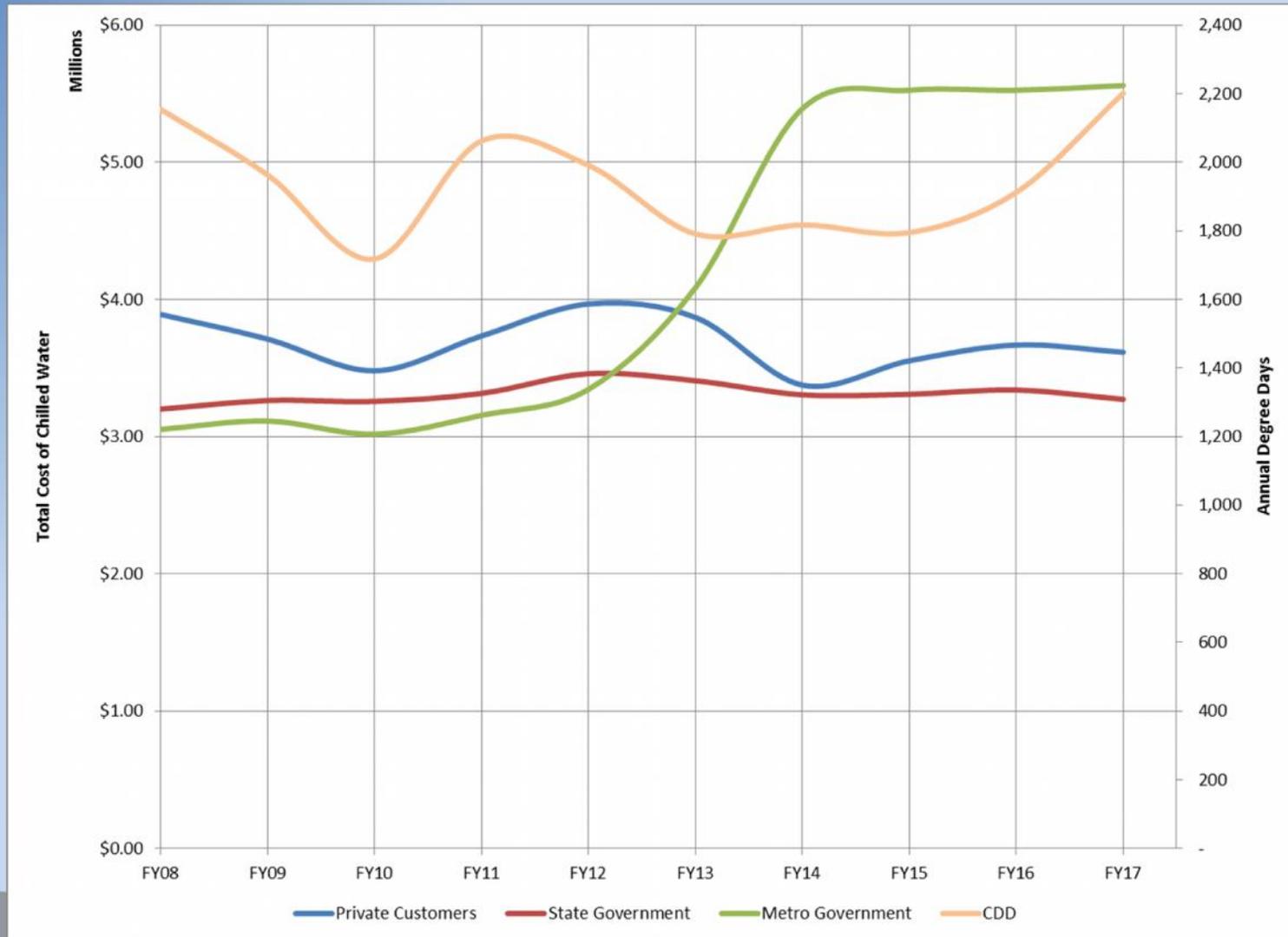




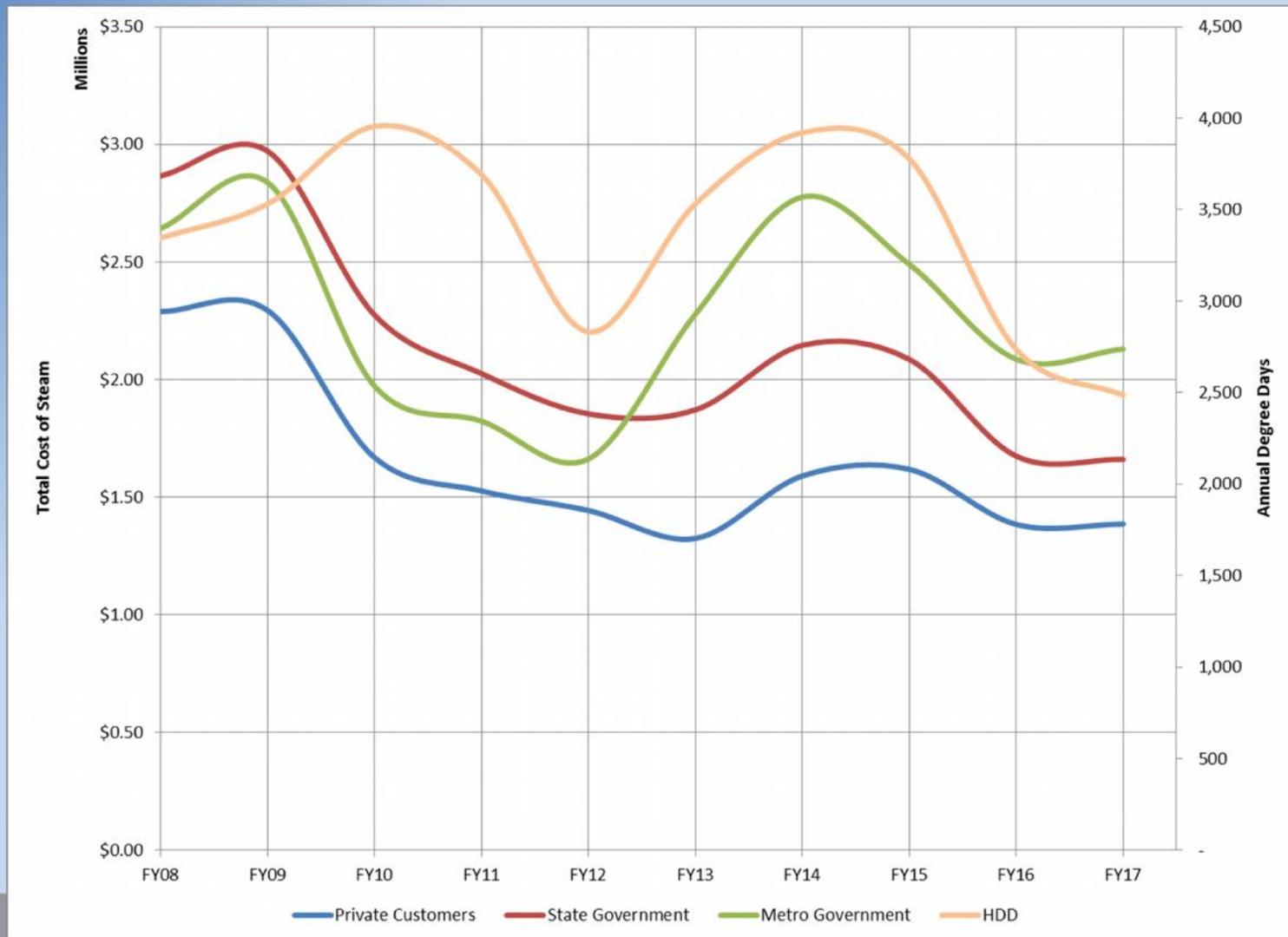
## *4. Historical System Costs*

- ❖ Figure 4A. Historical CHW Total Costs
- ❖ Figure 4B. Historical Steam Total Costs

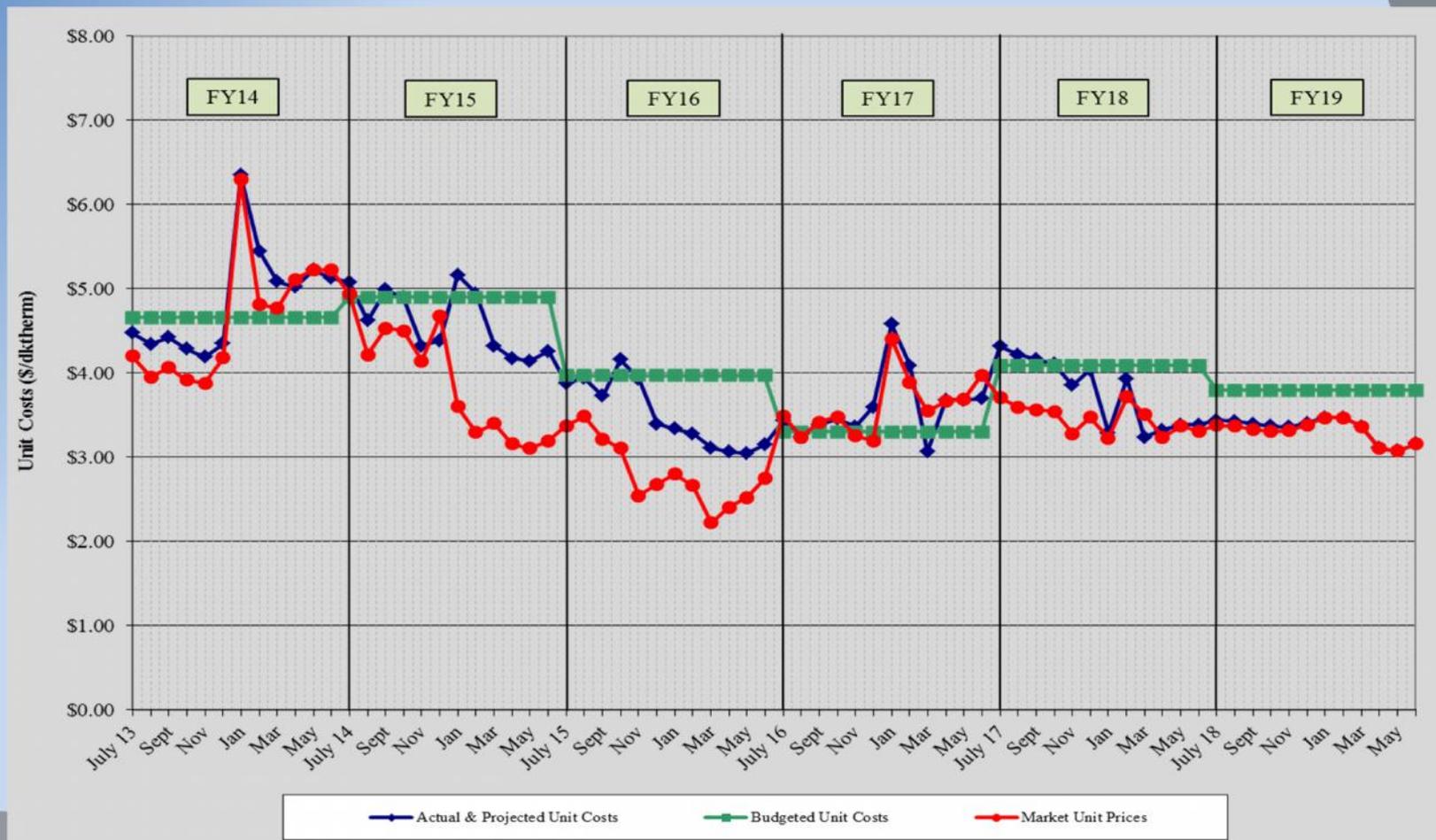
Figure 4A. Historical CHW Total Costs



*Figure 4B. Historical Steam Total Costs*



# 5. Natural Gas Pricing



## Table 5: FY18 Gas Spending & Budget Comparison

	Actual FY18 To date (Mar 31)	Budget FY18	Percent Difference
Steam Sendout (Mlbs)	344,628	334,606	3.0%
Fuel Use (Dth) (includes propane)	470,876	487,856	-3.5%
Plant Eff (Dth/Mlb)	1.366	1.458	-6.3%
Total Gas Cost (includes propane)	\$1,642,677	\$1,903,614	-13.7%
Unit Cost of Fuel (\$/Dth)	\$3.489	\$3.902	-10.6%

Excludes consultant fees and FEA and budget contingency; Includes transportation and propane costs

## *6. DES FY18 and FY19 Budgets*

- ❖ Table 6A. DES FY18 Costs to Date
- ❖ Table 6B. DES FY19 Budget

*Table 6A. DES FY18 Costs to Date*

Item	FY17 Actual	FY18 Budget	FY18 Actual to date	Percent of FY18 Budget
FOC's	\$ 4,559,300	\$ 4,695,900	\$ 3,498,100	74.49%
Pass Throughs				
Non-Energy	\$ 1,375,000	\$ 1,114,300	\$ 765,400	68.69%
Water/Sewer	\$ 607,200	\$ 649,300	\$ 484,600	74.63%
Natural Gas Base	\$ 1,912,500	\$ 2,565,500	\$ 1,791,600	69.83%
Natural Gas Contingency	\$ -	\$ 787,200	\$ -	0.00%
Electricity	\$ 5,400,400	\$ 6,002,100	\$ 3,796,400	63.25%
ORF Deposit	\$ -	\$ -	\$ -	
Debt Service	\$ 5,525,000	\$ 5,473,800	\$ 4,602,500	84.08%
<b>Total Expenses</b>	<b>\$ 19,379,400</b>	<b>\$ 21,288,100</b>	<b>\$ 14,938,600</b>	<b>70.17%</b>
<b>Total Revenues</b>	<b>\$ 17,626,400</b>	<b>\$ 19,597,800</b>	<b>\$ 12,817,600</b>	<b>65.40%</b>
<b>Metro Funding Amount</b>	<b>\$ 1,753,000</b>	<b>\$ 1,690,300</b>	<b>\$ 1,690,300</b>	<b>100.00%</b>

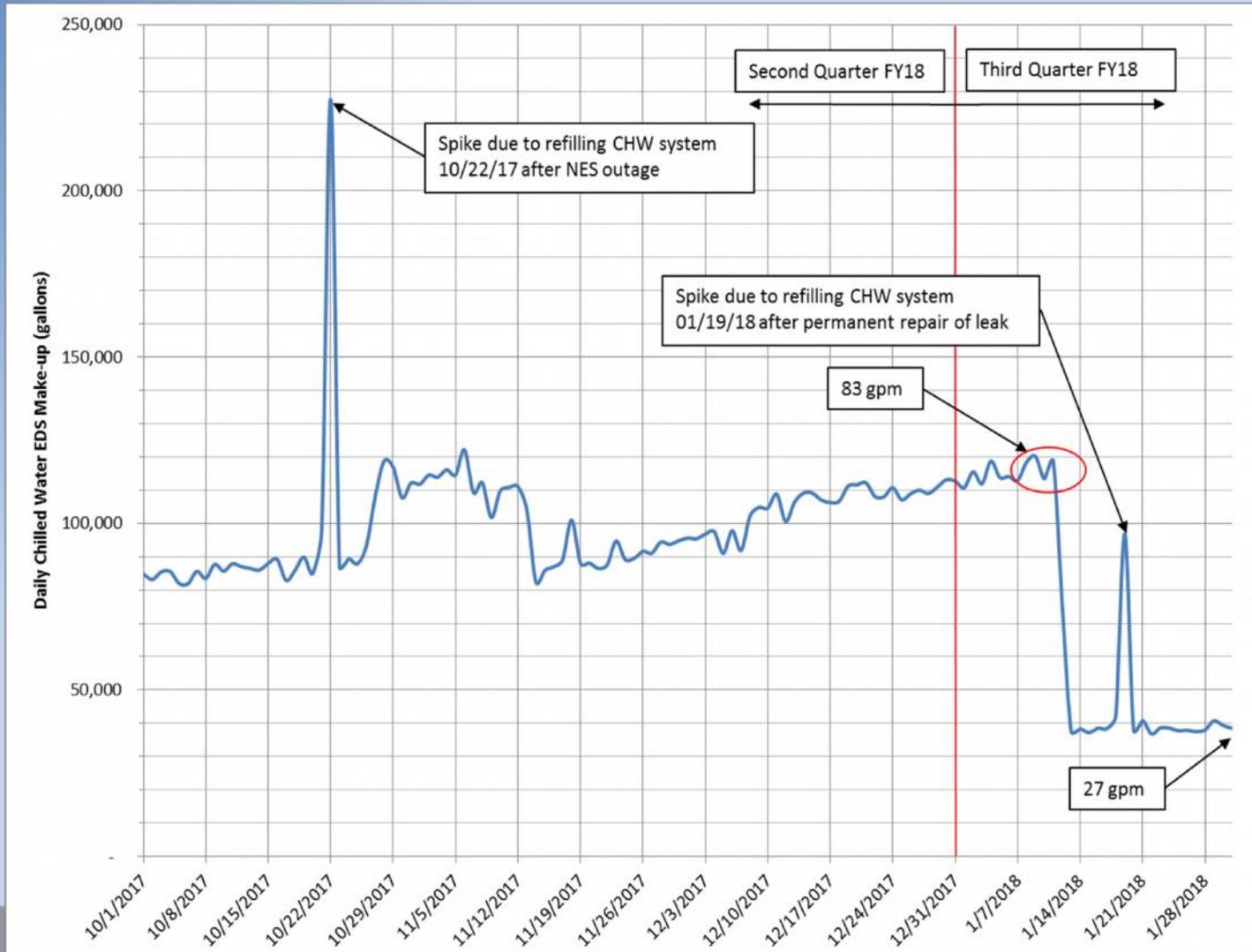
*Table 6B. DES FY19 Budget*

Item	FY18 Budget	FY19 Budget	Percent Change From FY17 Budget
FOC's	\$ 4,695,900	\$ 4,804,000	2.30%
Pass Throughs			
Non-Energy	\$ 1,114,341	\$ 1,142,300	2.51%
Water/Sewer	\$ 649,300	\$ 751,900	15.80%
Natural Gas Base	\$ 2,565,500	\$ 2,173,319	-15.29%
Natural Gas Contingency	\$ 787,159	\$ 816,381	3.71%
Electricity	\$ 6,002,100	\$ 5,685,900	-5.27%
ORF Deposit	\$ -	\$ -	n.a.
Debt Service	\$ 5,473,800	\$ 5,420,200	-0.98%
<b>Total Expenses</b>	<b>\$ 21,288,100</b>	<b>\$ 20,794,000</b>	<b>-2.32%</b>
<b>Total Revenues</b>	<b>\$ 19,597,800</b>	<b>\$ 19,103,700</b>	<b>-2.52%</b>
<b>Metro Funding Amount</b>	<b>\$ 1,690,300</b>	<b>\$ 1,690,300</b>	<b>0.00%</b>

## 7. *Chilled Water Leak*

- ❖ Leak #1 Found and Repaired at 3<sup>rd</sup> Ave and Charlotte!
- ❖ Another leak suspected near 5<sup>th</sup> Ave and Union St. at JKP
- ❖ Over two years of exploratory excavation
- ❖ \$282,556.10 spent to date

# Daily Average EDS Make-up Flow Rate



## 8. *DES Projects*

### Active Capital Projects

- DES 124: CJC Redevelopment – Bldg under construction; AA Birch Tunnel repairs needed – postponed until building roof is constructed
- DES 124.4: CJC Reconnection – Reconnection complete; awaiting instrument installation by contractor – service expected July 2018
- DES 130: Manhole B3 Repair – DES reimbursed for repairs; project closed
- DES 133: 5<sup>th</sup> and Broadway Development – Draft contract issued to OM for review
- DES 133.1: Site blasting complete; DES seismographs have been removed; repairs needed due to blasting
- DES 133.2: Stand-by Equip (rental chillers and boiler) at Bridgestone Arena removed in February
- DES 133.3: Tunnel Reinforcement – Reinforcement of sections of tunnel; completed in December; additional repairs now needed

# *Capital Projects Review*

## Active Capital Projects - continued

- DES 135: CHW Leak at 5<sup>th</sup> Ave and Union – Discovered chilled water near 3<sup>rd</sup> & Charlotte in an AT&T vault; leak repaired; still looking for leak near JK Polk Bldg
- DES 143: Manholes N1, N2 and S6 Insulation and Repair – on hold
- DES 144: Manhole 6 Repair – Piping structural steel cleaning, painting and replacement; in design
- DES 145: Manholes 9, 11 and K Repairs – Work completed by Broadway Tunnel contractor to save mobilization costs
- DES 146: Ryman Steam Meter Replacement – Increase in steam demand at Ryman requires replacement of meter with higher capacity; bid and awarded; construction underway
- DES 148: Site I Development – Blasting to begin May 2018 and end Sept 2018; blasting mitigation
- DES 149: 1<sup>st</sup> and Molloy Hot Spot; repairs started; will be complete 4<sup>th</sup> Qtr FY18
- DES 150: Federal Courthouse and 7<sup>th</sup> Ave Tunnel – Potential for damage to DES tunnel due to blasting



# *Capital Projects Review*

## Capital Projects in Close-out/Closed

- DES 130: MH-B3 Repair
- DES 138: Manhole D Repairs
- DES 141: EGF Cameras
- DES 145: Manholes 9, 11 and K Repairs

## *Capital Expenditures*

	<b>Spent to End of FY17</b>	<b>FY18 Spending</b>	<b>Balance to Date (04/20/18)</b>
R&I Projects	\$3,155,808	\$120,614	\$135,063
49109-2010 Bond	\$2,491,290	\$106,001	\$25,889
49107-DES Infrastructure Fund	\$7,387,802	\$822,721	\$278,911
<b>Total</b>	<b>\$13,034,900</b>	<b>\$1,049,336</b>	<b>\$439,863</b>

# FY19 Capital Budget Request

## FY 2019 Capital Projects

Item	Description	Justification	Estimated Cost	Comments
1	EDS Repair & Replacement Projects	Safety & reliability	\$495,000	Infrastructure upgrades, safety grating, ladder cages, guardrails, etc. needed
2	General Tunnel Repairs and Improvements	Safety & reliability	\$935,000	Insulation replacement, structural repairs, corrosion prevention, etc.
3	Service Connections and Renovations	Safety & reliability	\$1,147,300	Service restoration, expansion, repairs and metering modifications
4	Service Connection Renovation for 5th+Broadway	Safety & reliability	\$440,000	Service restoration to 5th + Broadway connection
5	Water Treatment Improvements	System Improvement	\$275,000	Improves system water chemistry and chilled water system performance
	<b>TOTAL</b>		<b>\$3,292,300</b>	

## *10. Questions and Answers*

*Please complete and submit survey*

## *11. Adjourn*