



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

*DES Advisory Board Meeting*  
*Third Quarter FY18*  
*May 17, 2018*

# *Agenda*

1. Call to Order
2. Review & Approval of Previous Meeting Minutes
3. Customer Sales
4. Review of DES Contractor Performance
5. Natural Gas Purchasing Update
6. FY18 Costs to Date
7. DES Options Review Update
8. Capital Projects Review & Status
9. Other Board Member Items
10. Adjourn

1. Call to Order
2. Review & Approval of Previous Meeting Minutes

## 3. *Customer Sales*

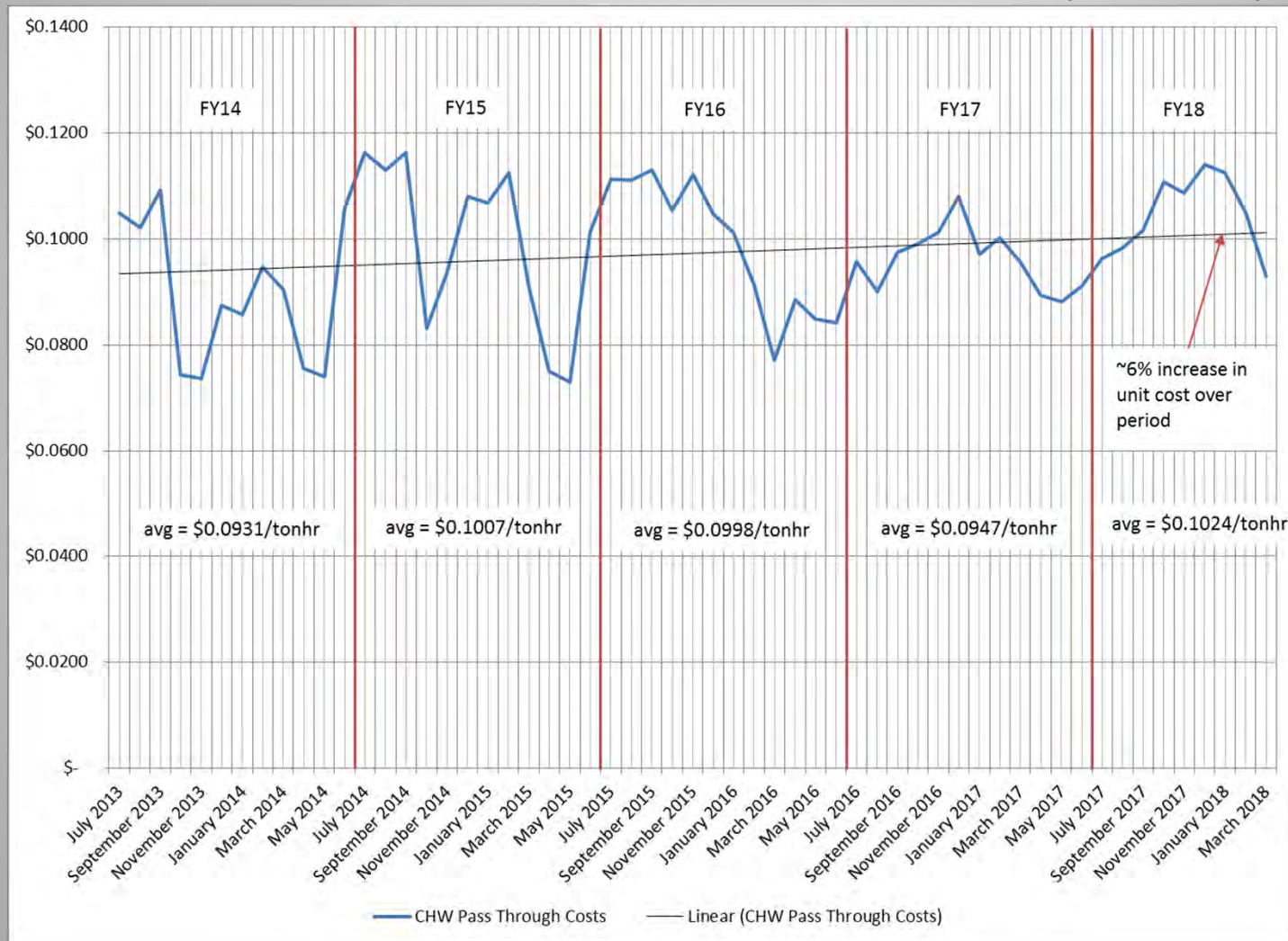
- ❖ Table 3: Customer Cost Comparison
- ❖ Figure 3A: Historical Unit Cost of Chilled Water
- ❖ Figure 3B: Historical Unit Cost of Steam

## Summary Table 3: Customer Cost Comparison for the Previous 12 Months

		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%

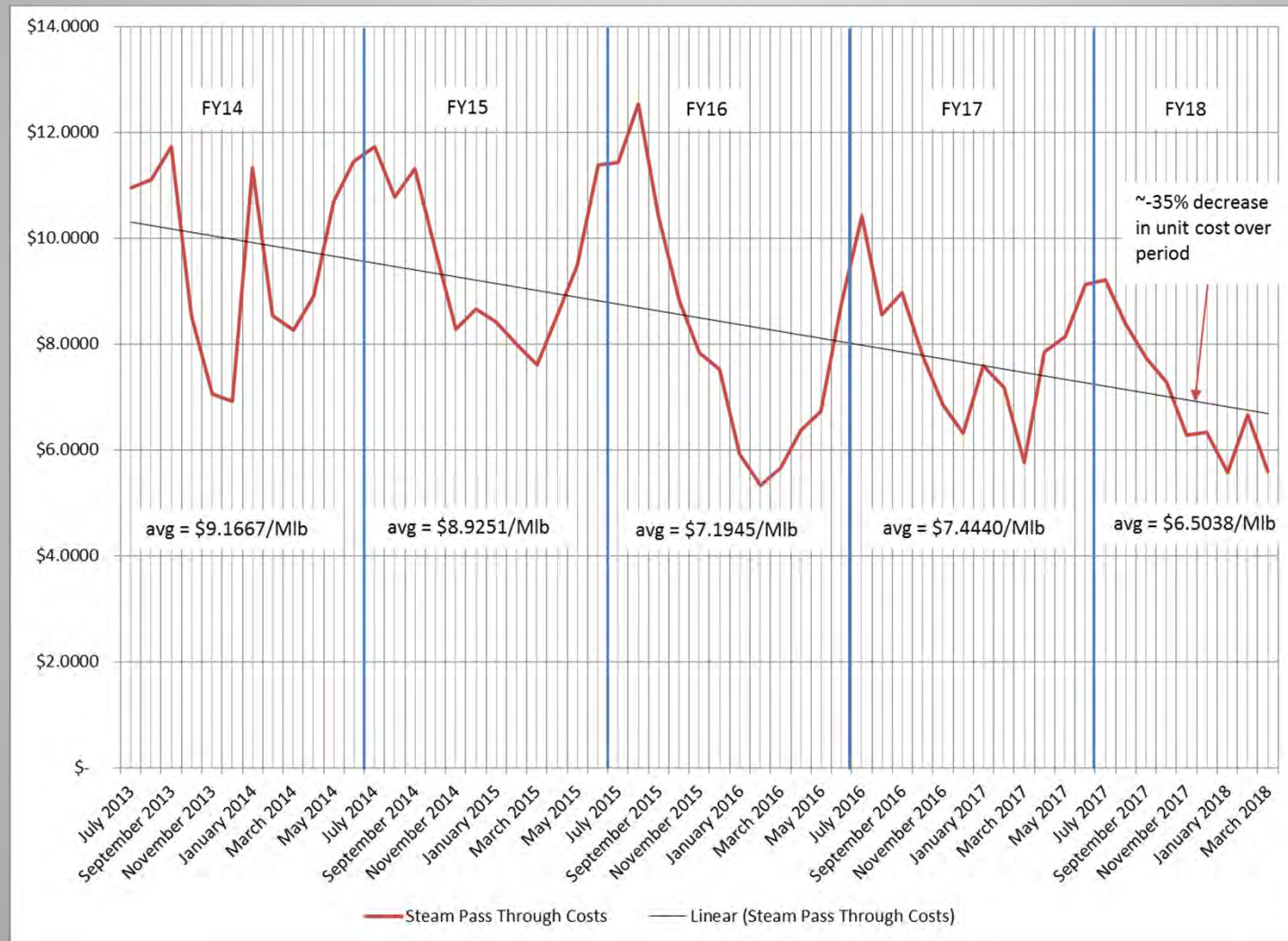
MFA not included in values shown

Figure 3A: Historical Unit Cost of Chilled Water (\$/tonhr)



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




Figure 3B: Historical Unit Cost of Steam (\$/Mlb)



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

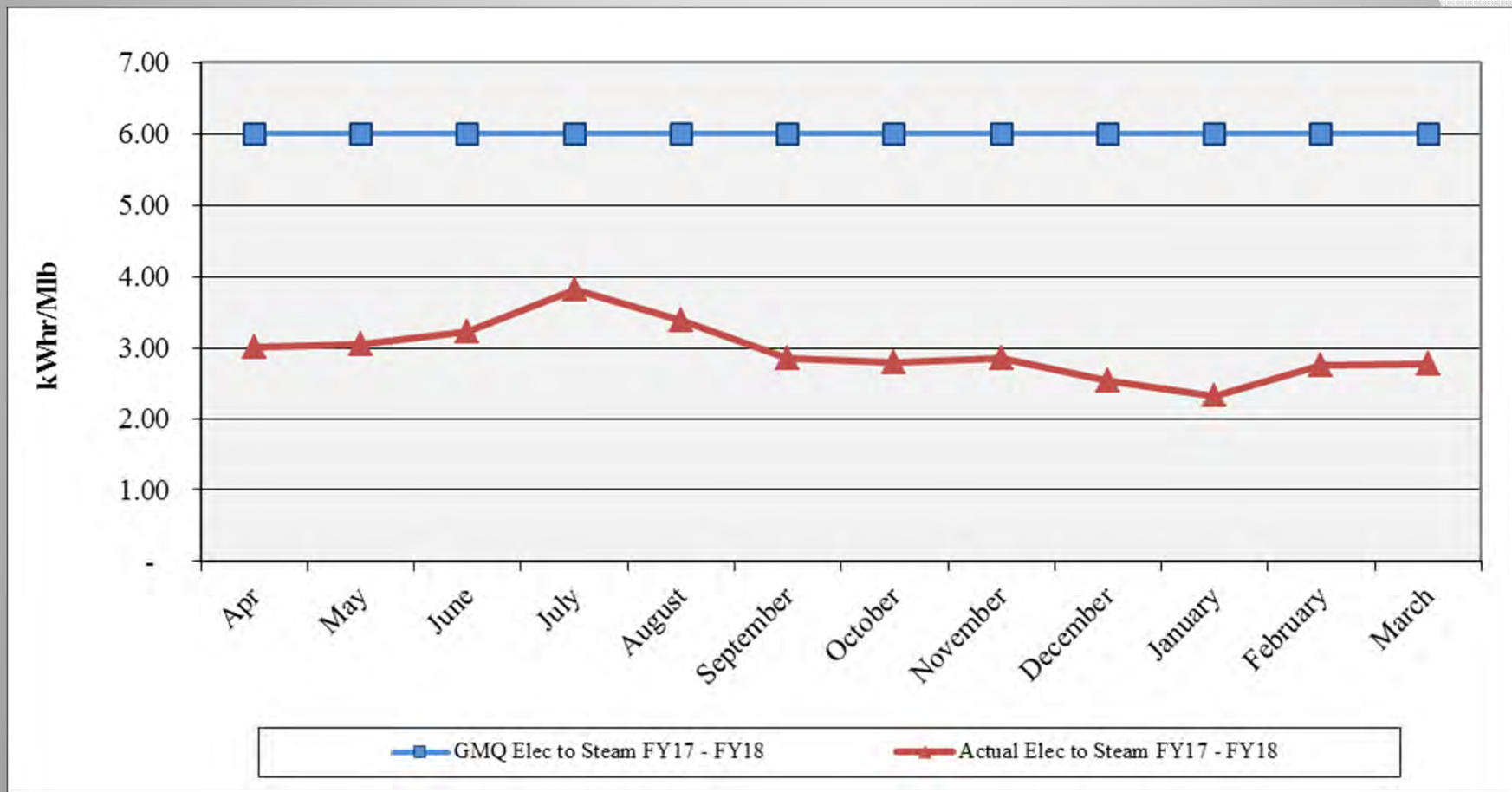
## *4. Review of DES Contractor Performance*

Contractor (CNE) is in compliance with their contractual obligations for FY18 to date.

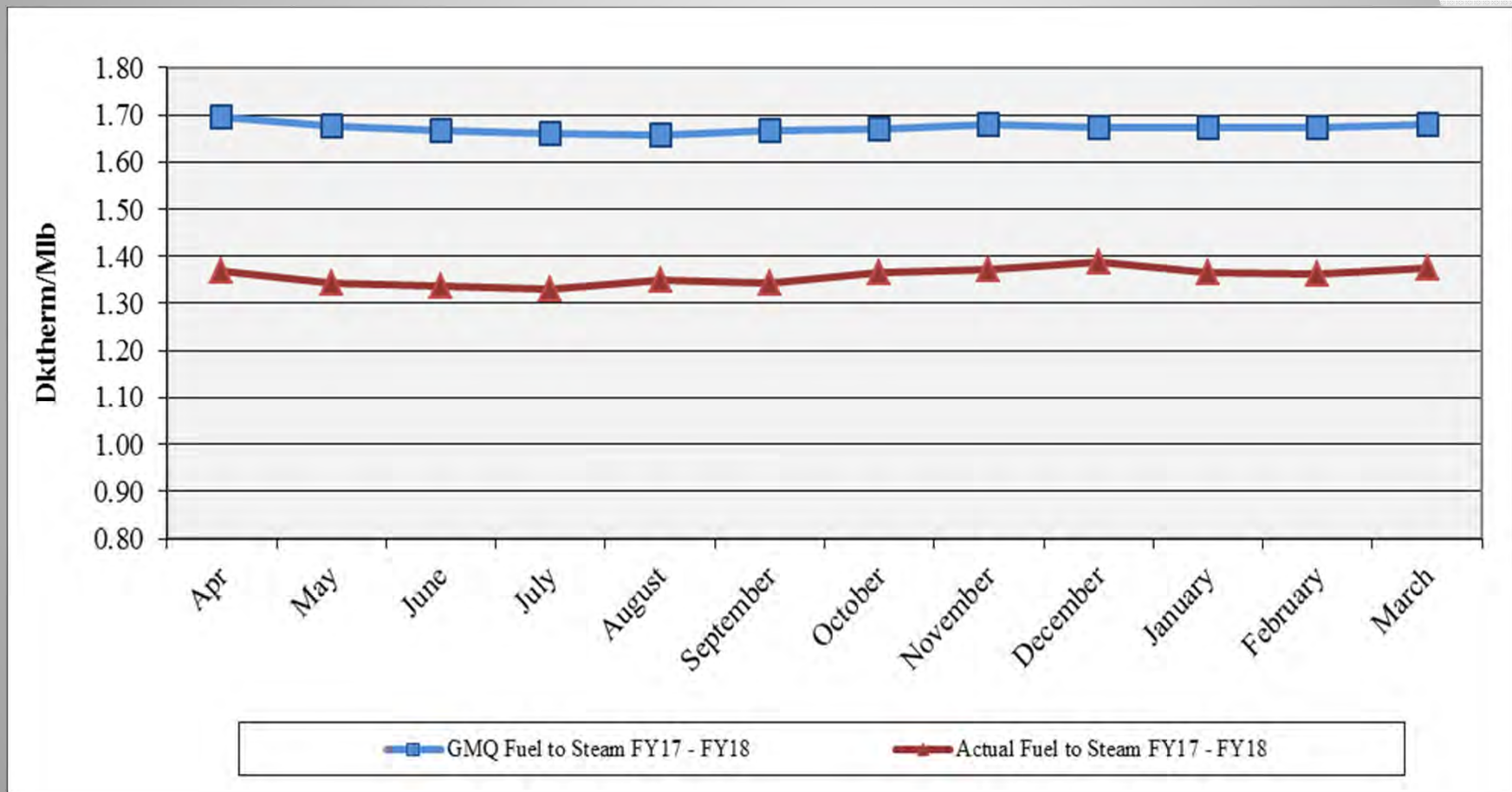
-  Excellent Performance – No Improvement Necessary
-  Satisfactory Performance – Some Improvement Could Be Made
-  Poor Performance – Much Improvement Necessary



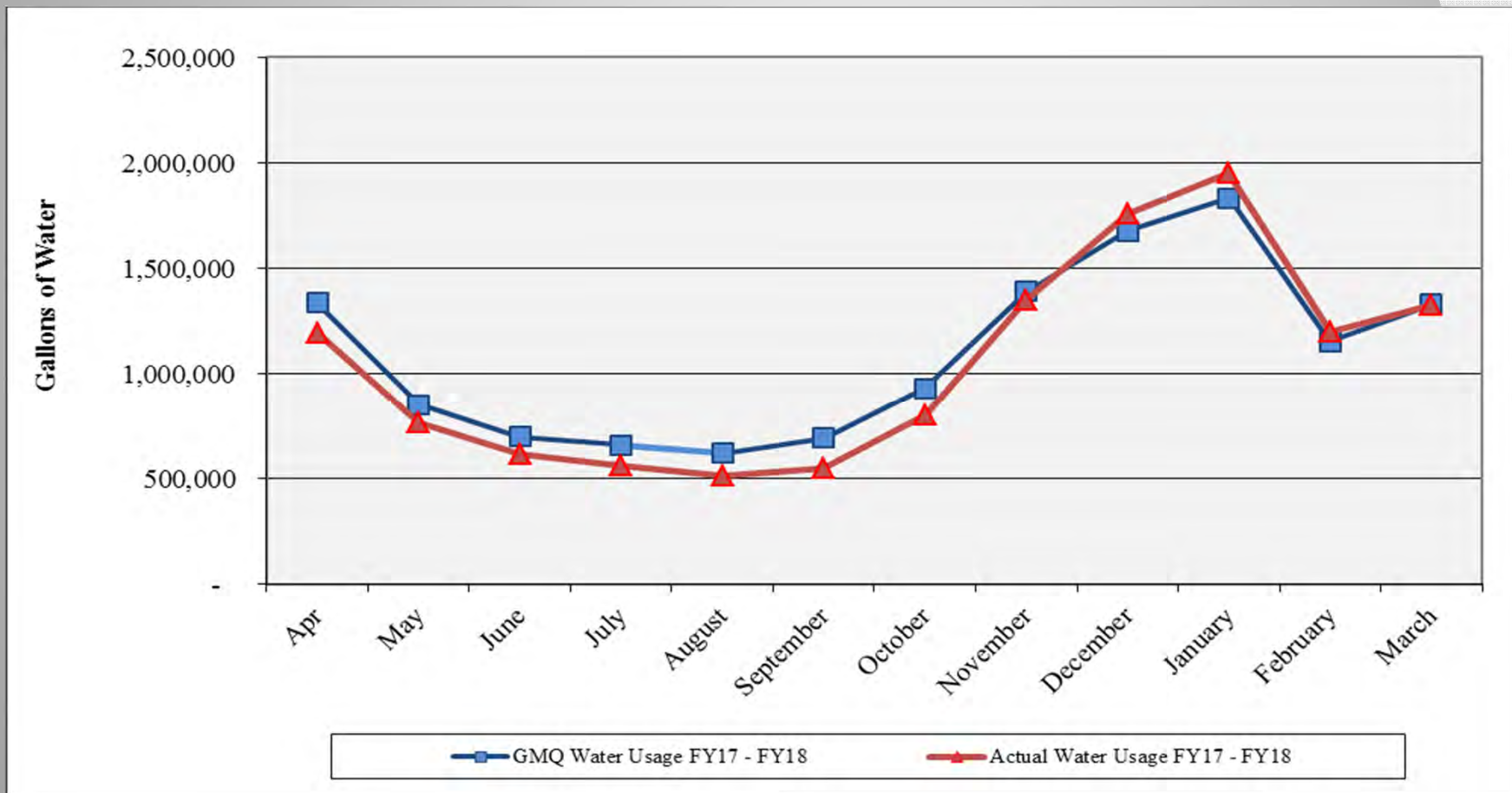
# Performance Measurement FY18: Steam Electric Conversion ●



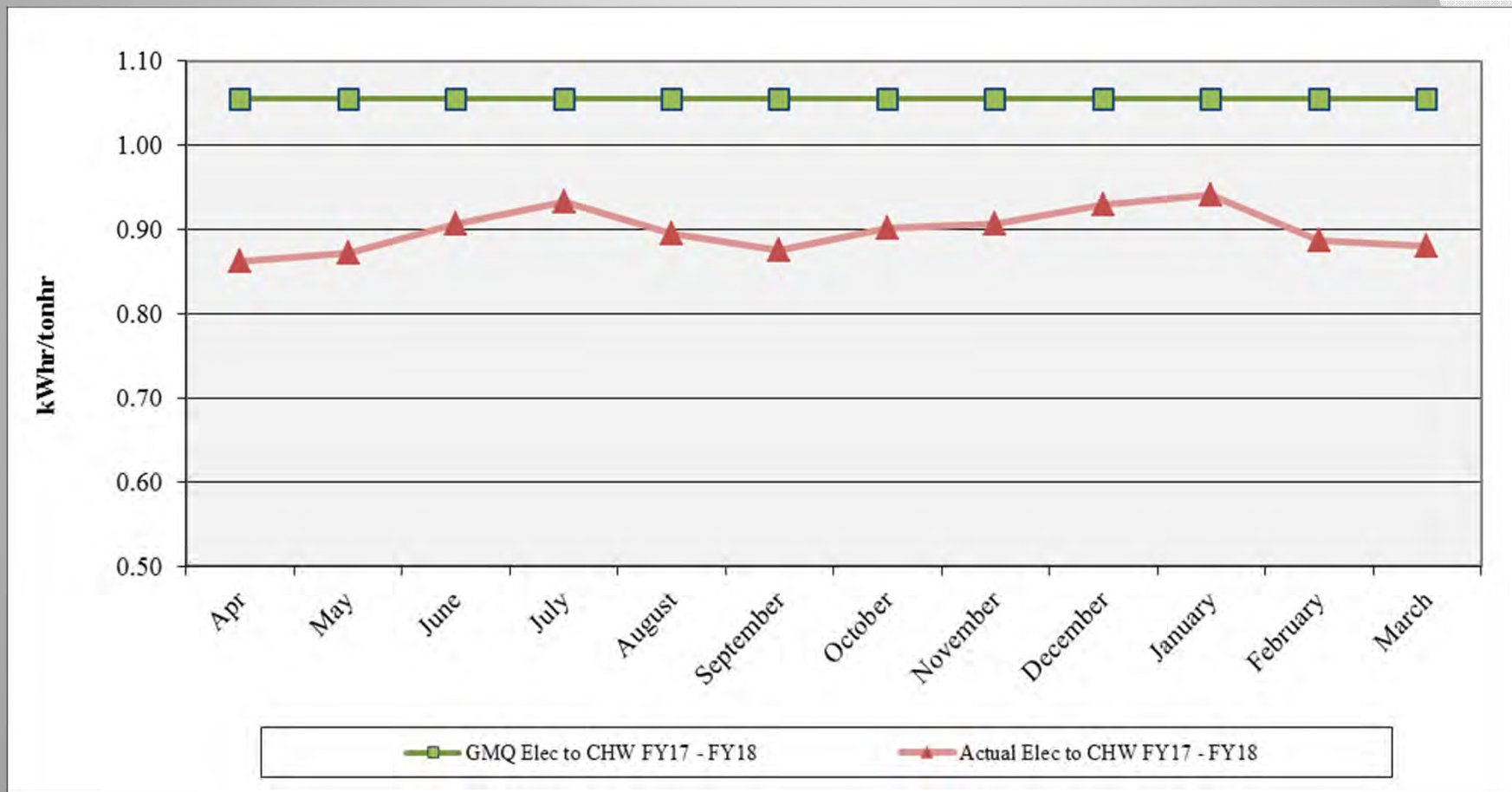
# Performance Measurement FY18: Steam Plant Efficiency



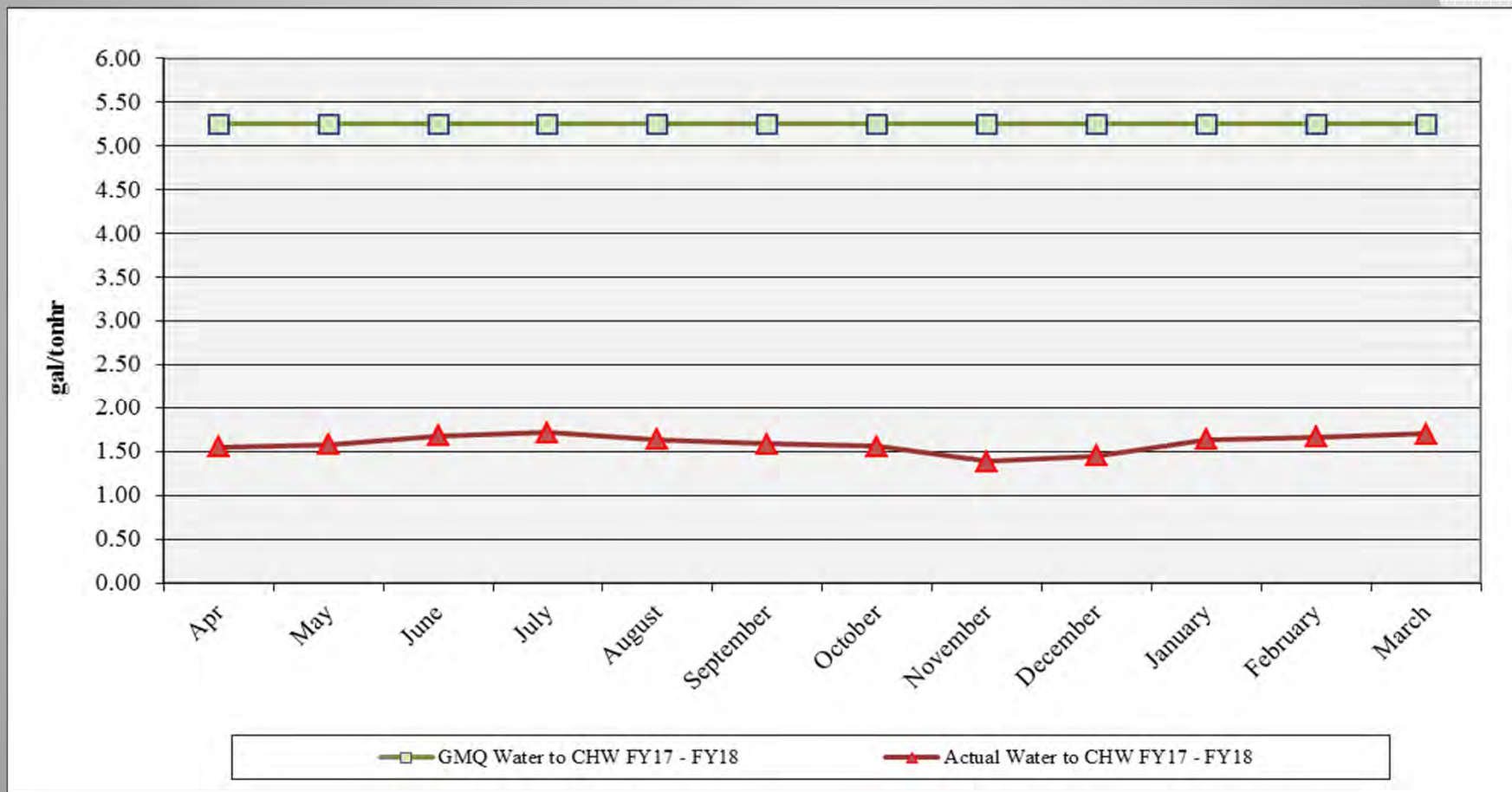
# Performance Measurement FY18: Steam Water Conversion ●



# Performance Measurement FY18: CHW Electric Conversion



# Performance Measurement FY18: CHW Water Conversion ●



# *Water Treatment*

- ❖ Steam and Condensate ●
  - ❖ Corrosion
  - ❖ Iron
  - ❖ Hardness
  - ❖ Chlorine/Sulfite
- ❖ Condensing Water ●
  - ❖ Conductivity
  - ❖ Biologicals
- ❖ Chilled Water ●
  - ❖ Hardness
  - ❖ Corrosion
  - ❖ EGF and Customer Biologicals Good
  - ❖ Deposits – CNE Added Dispersant Q1FY18



## *EGF Walkthrough*

- ✓ Equipment Maintenance ●
- ✓ Operations ●
- ✓ Electrical ●
- ✓ Housekeeping ●
- ✓ Building Structure ●
- ✓ Building Exterior and Grounds ●

## *EDS Walkthrough*

- ✓ Vault/Tunnel Housekeeping ●
- ✓ Maintenance Items ●
  - ✓ Insulation Repair/Replacement ●
  - ✓ Water Infiltration ●
  - ✓ Corrosion of Structural Metal Components ●
- ✓ Safety Items ●



## *5. Natural Gas Purchasing*

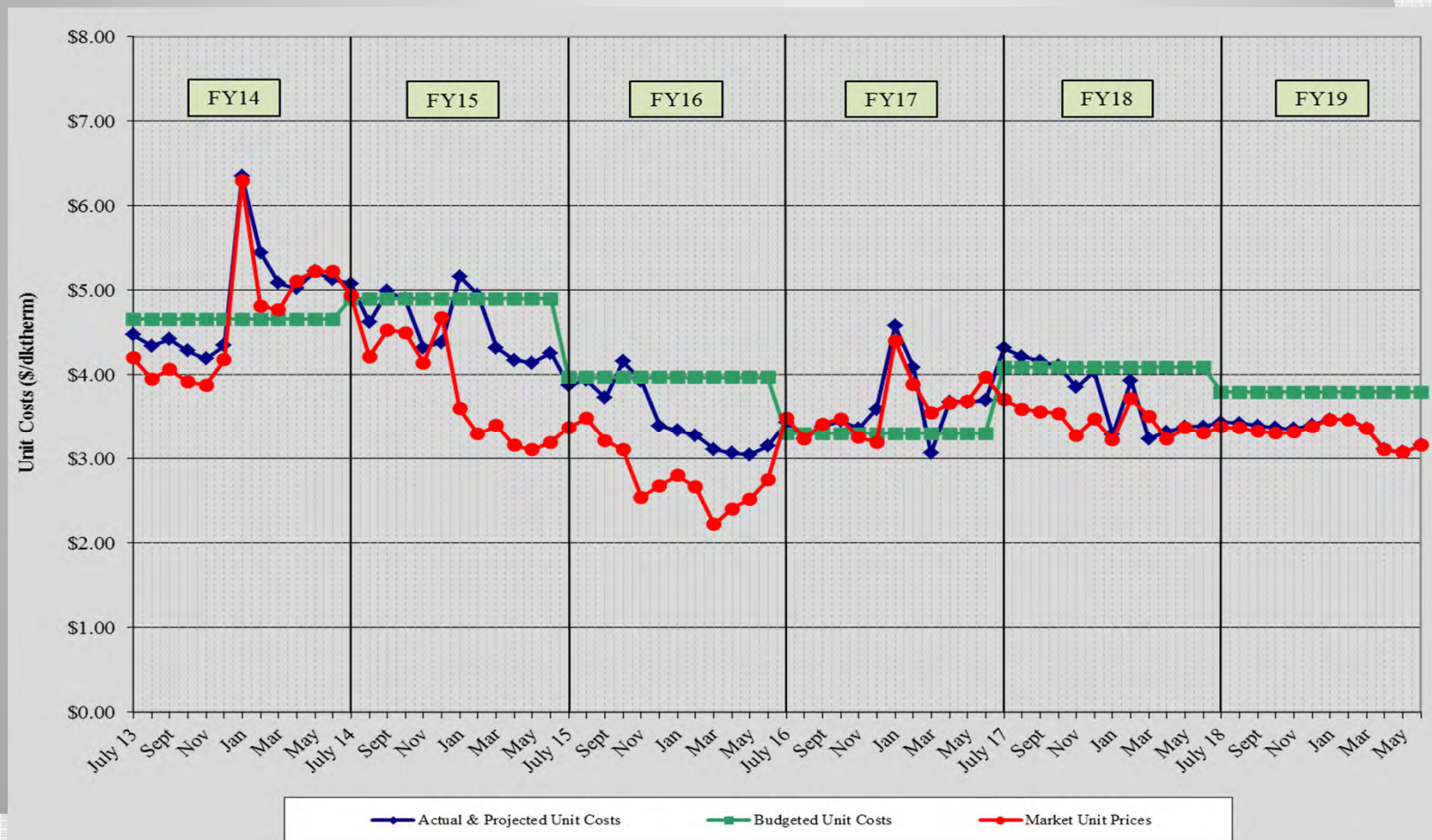
- ❖ Natural Gas Purchasing Review
  - ❖ Table 5: FY18 Gas Spending & Budget Comparison
  - ❖ Figure 5: Actual and Projected Gas Cost Comparison

## 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

# Figure 5. Actual and Projected Gas Cost Comparison History



## 6. 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>

## *7. DES Options Review*

### DES-139

- FVB retained by Metro to review the options for the DES moving into the future.
- Draft Report Under Review by Metro

## 8. Capital Expenditure Update

	<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-Customer Connection 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>

Total does not include the remaining balance for fund 49116 for the DES CHP Project

# *Capital Projects Review*

## 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 133.3)
- 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 139: DES Options Review – Draft report under review
- 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; Developing Emergency Plan
- 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; Developing Emergency Plan



# *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

## *10. Other Board Member Items*

## *11. Adjourn*

- *Advisory Board Meeting Schedule*
- FY18 – 4<sup>th</sup> Quarter Meeting – August 16, 2018
- FY19 – 1<sup>st</sup> Quarter Meeting – November 15, 2018
- FY19 – 2<sup>nd</sup> Quarter Meeting – February 21, 2019
- FY19 – 3<sup>rd</sup> Quarter Meeting – May 16, 2019