

## DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY



### Board of Directors

*Joint Meeting of the  
Water Quality and Water Services Committee and  
Environmental Quality and Sewerage Services  
Committee  
5000 Overlook Avenue, SW, Room 407  
Thursday, June 18, 2015  
10:00 a.m.*

- I. Call to Order** Rachna Butani,  
Chairperson  
Howard Gibbs,  
Acting Chairperson
- 10:00 a.m. II. DC Water ART** George Hawkins
- 10:15 a.m. III. Asset Management Program Update** Len Benson/Liliana Maldonado
- 11:05 a.m. IV. Action Item – Joint Use** Len Benson  
1. [DCFA #456, CH2M Hill Engineers, PC](#)
- 11:10 a.m. V. Other Business/Emerging Issues**
- 11:10 a.m. VI. Executive Session\***
- 11:10 a.m. VII. Adjournment** Rachna Butani,  
Chairperson  
Howard Gibbs,  
Acting Chairperson

\* The DC Water Board of Directors may go into executive session at this meeting pursuant to the District of Columbia Open Meetings Act of 2010, if such action is approved by a majority vote of the Board members who constitute a quorum to discuss: matters prohibited from public disclosure pursuant to a court order or law under D.C. Official Code § 2-575(b)(1); contract negotiations under D.C. Official Code § 2-575(b)(1); legal, confidential or privileged matters under D.C. Official Code § 2-575(b)(4); collective bargaining negotiations under D.C. Official Code § 2-575(b)(5); facility security under D.C. Official Code § 2-575(b)(8); disciplinary matters under D.C. Official Code § 2-575(b)(9); personnel matters under D.C. Official Code § 2-575(b)(10); proprietary matters under D.C. Official Code § 2-575(b)(11); decision in an adjudication action under D.C. Official Code § 2-575(b)(13); civil or criminal matters where disclosure to the public may harm the investigation under D.C. Official Code § 2-575(b)(14), and other matters provided in the Act.



District of Columbia Water and Sewer Authority  
George S. Hawkins, General Manager

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# DC Water

## Advancing Research and Technology





## Drivers and Guiding Principles for New Revenue

- Increased costs lead to increased pressure on ratepayers
- Search for alternative sources of revenue
- **Goal: Reduce Rates**
- Legal based on current enabling legislation
- Must recover costs, but accept and minimize risk
- Associated issues: taxation and insurance
- **First program: DC Water ART**





## Business Opportunities

Testing Options	Opportunity	Notes
Regulatory reporting <ul style="list-style-type: none"> <li>• BOD/CBOD/TSS</li> <li>• Nitrogen/Phosphorous</li> <li>• Metals (pre-treatment)</li> </ul>	High volume, low margin	Utilities self perform analyses, many private sector service providers, established market. <u>Not an opportunity for DC Water</u>
Process Control <ul style="list-style-type: none"> <li>• Sludge volume index</li> <li>• pH</li> <li>• Dissolved oxygen</li> </ul>	Medium volume, Low margin	Most process control parameters are monitored through automated sensors, low volume, low margin <u>Not an opportunity at this time</u>
<b>Advanced Optimization</b> <ul style="list-style-type: none"> <li>• Kinetics</li> <li>• Stoichiometric</li> <li>• Characterization</li> <li>• Inhibition and Toxicity</li> </ul>	<b>Low volume, high margin</b>	<b>Absence of full-suite provider in marketplace. <u>DC Water is well positioned</u> to serve this segment</b>



## State-of-the-Art Research

- Established industry reputation
  - In-house equipment and expertise
  - Opportunity to provide boutique, specialized tests as a service
- Services requested by outside parties
  - Lay foundation to pursue other revenue opportunities in general





## Methods and Policies

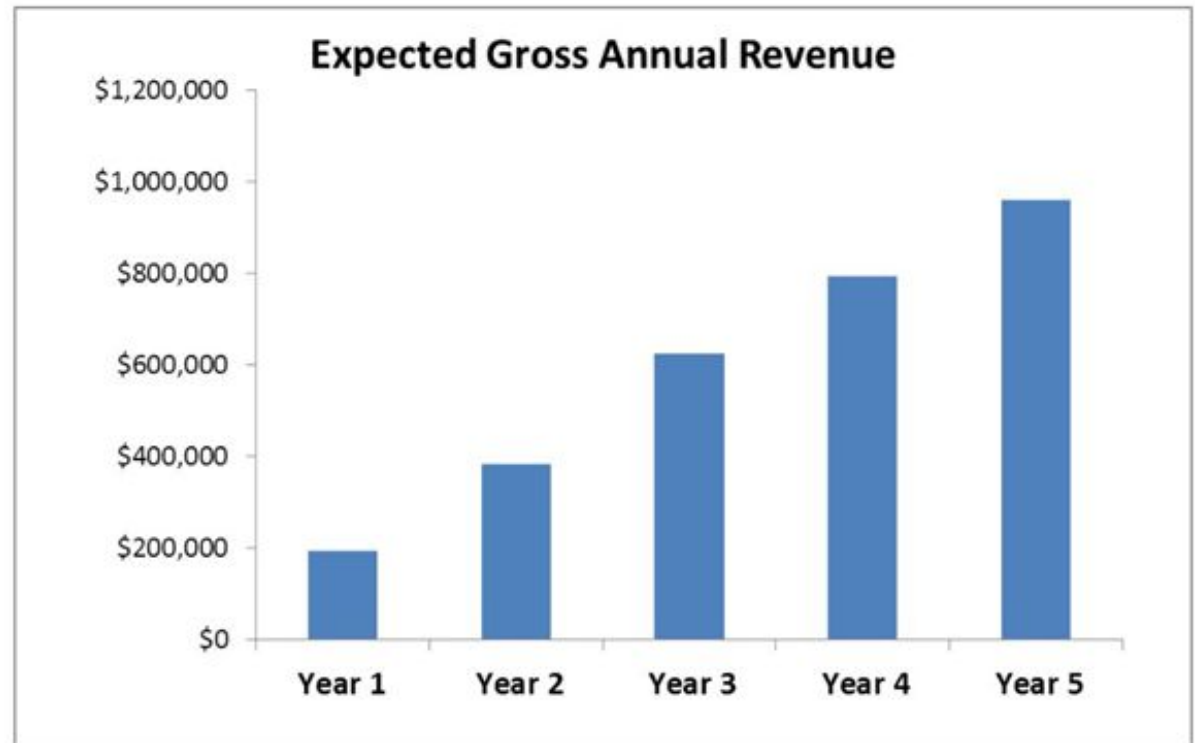
- Provide high-quality, cutting-edge lab or pilot tests
- Target market: process design or optimization of WWTPs worldwide
- Tests performed using industry standards or internal protocols
- Billing via merchandise system
- Test results and process model interpretations only
- No design recommendations





## Market Analysis

- Need assessment
- Complement rather than compete with established business in most cases
- Target: capture 6% of US WWTP design and optimization market over next five years





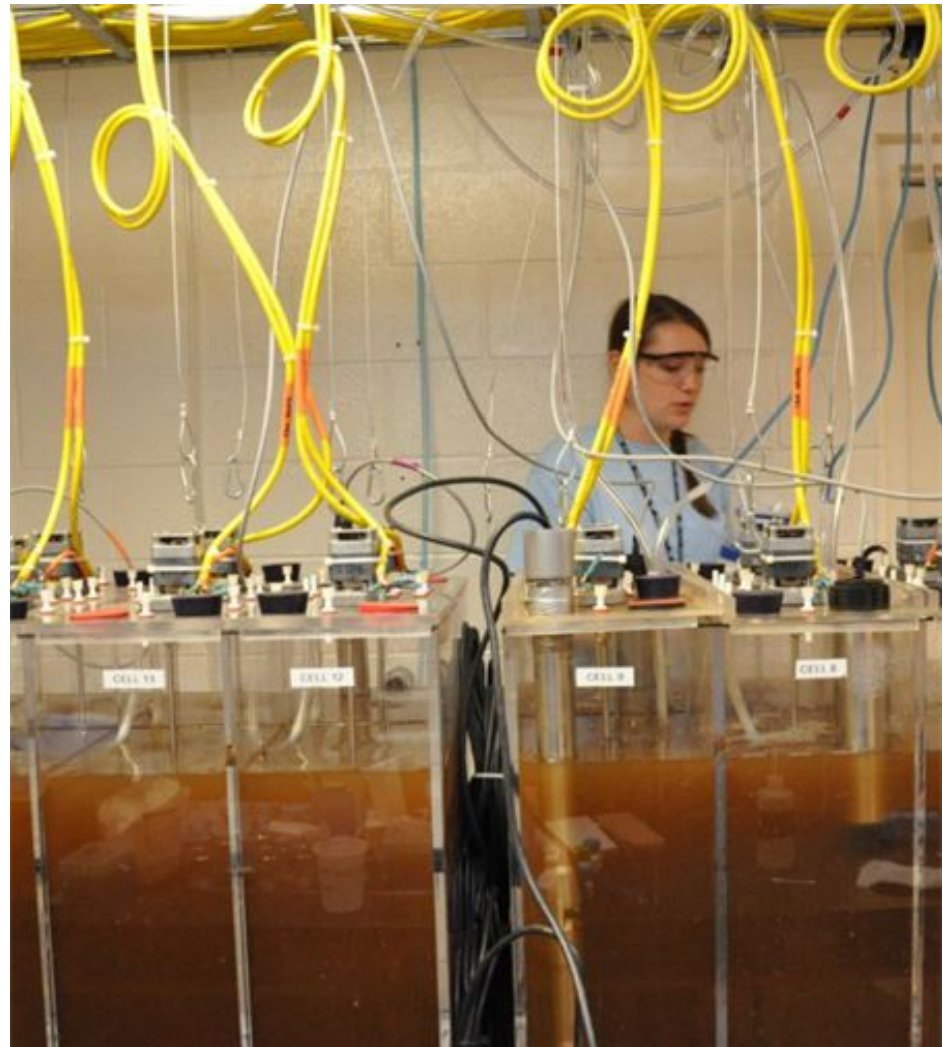
## Supporting Documents

1. Business Plan
2. Legal Sufficiency
3. Taxability Analysis
4. Insurance Analysis
5. Contract Template
6. Marketing Materials
7. Invoicing
8. Accounting
9. Conflict of Interest Policy





- Research
  - Chris deBarbadillo
  - Sudhir Murthy
  - Ahmed Al-Omari
  - Bipin Pathak
  - Haydee DeClippeleir
- Support
  - CPO
  - Innovation
  - External Affairs
  - Customer Service
  - Controller





# ASSET MANAGEMENT PROGRAM



Phase 1 Review and Phase 2 Plan  
*Joint Meeting EQ&SS/WQ&WS*

*June 18, 2015*

# Questions

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- Why is the Supplemental Agreement \$10.2 million when Phase 1 was only \$5.4 million?
- Why does the AM Program cost so much and why do this now?
- Was it always envisioned to be a multi-phase program?
- What is the overall plan for the AM Program? What are the milestones?
- What were the tangible deliverables, outcomes and benefits for Phase 1 of the AM program?
- What are the key deliverables, outcomes and benefits for Phase 2 of the AM Program?

# Why is the Supplemental Agreement \$10.2 million when Phase 1 was only \$5.4 million?

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- Always envisioned as a 5-year program budgeted at \$20 million dollars
- By design, broken into phases
- Phase 1 - Creating the framework for World-class Asset Management at DC Water
- 3 Phases are now anticipated
  - Phase 2 – Focus resources on Asset Lifecycle and High Risks (“Final Design”)
  - Phase 3 – Optimally Manage Asset Risks at the Lowest Lifecycle Cost (“Construction and Commissioning”)



*Reference Attachments 1, 2, 3 and 4*

# Why does the AM Program cost so much?

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- Transforming DC Water culture and practices
- Involving 23 individual departments and 1,260 employees
- Assessing risk for \$5 billion of infrastructure assets
- Optimizing day-to-day work practices and business processes
- Informing and enhancing DC Water's CIP planning implementation and capital budgeting process

## Why does DC Water need to do this now?

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- Enables *Blue Horizon 2020* Strategic Goal #8
- Optimize investments to mitigate future rate increases
- Improves asset reliability and performance
- Manages lifecycle cost
- Applies uniform Authority-wide approach to capital investment decisions

# Was it always envisioned to be a multi-phase program?

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- Yes. Approved FY 2012-2021 CIP budget and subsequent CIP budgets show Asset Management as a 5-year program
- The RFQ referenced a 3-phase program
- Consultant's proposal was based on a 3-phase program over a 5-year
- Fact sheets reference the phases

# What the is overall plan for the AM Program? What are the key milestones?

- Phase 1: Creating the framework for World-Class Asset Management at DC Water
- Phase 2: Builds the tools and applies the processes
- Phase 3: Fully integrated Enterprise way of managing assets

PHASE 1: 2014 – 2015	PHASE 2: 2015 – 2017	PHASE 3: 2017 – 2018
Managing Our Tasks	Managing Our Risks	Managing Our Investments
CREATE FRAMEWORK FOR WORLD CLASS ASSET MANAGEMENT	FOCUS RESOURCES ON ASSET LIFECYCLE AND HIGH RISK	OPTIMALLY MANAGE ASSET RISK AT LOWEST LIFECYCLE COST



*Reference Attachment 4*



# What the is overall plan for the AM Program? What are the key milestones?

## Typical Capital Project



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## Typical Capital Project



## DC Water's Asset Management Project

### PHASE 1



Created the framework for World-Class Asset Management at DC Water ("Conceptual Design")

Defined Asset Management for DC Water  
Developed Risk Framework  
Developed and tested tools and methodologies  
Created staff awareness and understanding

# What the is overall plan for the AM Program? What are the key milestones?

## Typical Capital Project

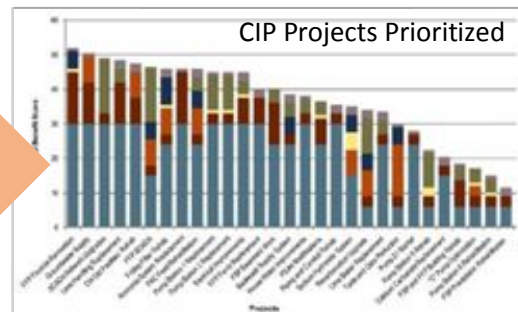


## DC Water's Asset Management Project

### PHASE 1



### PHASE 2



Focus resources on Asset Lifecycle and High Risks ("Final Design")

Developing and implementing the tools and methodologies throughout the Authority

- Applying AM practices across all assets
- Focusing asset risk and managing the full lifecycle cost



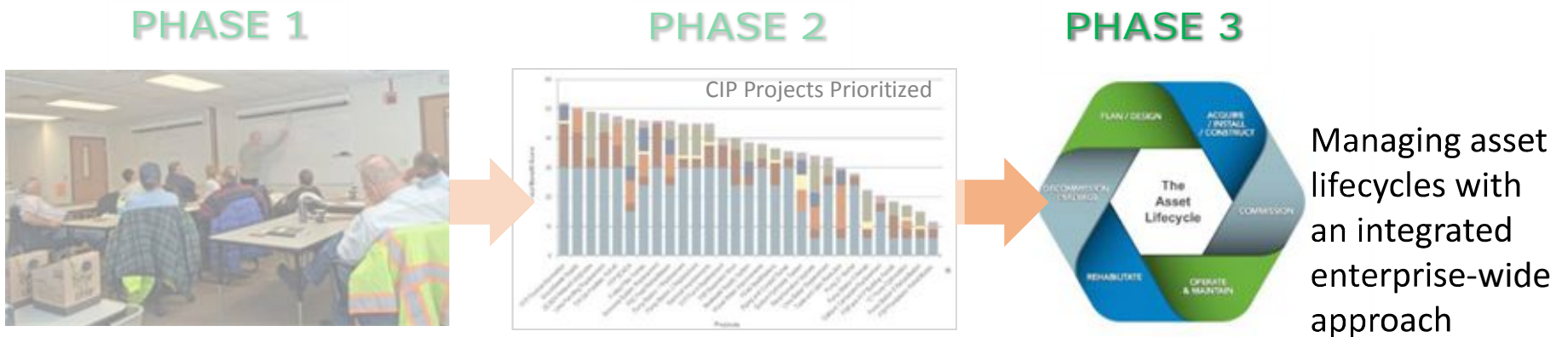
Reference Attachments 9, 10 and 11

# What the is overall plan for the AM Program? What are the key milestones?

## Typical Capital Project



## DC Water's Asset Management Project



Reference Attachments 9, 10 and 11

Full Implementation of AM  
by DC Water staff  
and program managers 11

# What were the tangible deliverables, outcomes and benefits for Phase 1 of the AM program?

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## ***Outcomes***

Developed Risk Framework



To uniformly determined criticality of assets and identify assets of highest risk at sewer pump stations

Optimized Preventive Maintenance activities



Documented savings of 5,392 maintenance hours per year

# What were the tangible deliverables, outcomes and benefits for Phase 1 of the AM program?

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## ***Outcomes***

Continued to add and update assets and asset data in Maximo



Continued to refine work order management practices



## ***Benefits***

Analyze cause of equipment failure and automatically generate work orders

1,000+ assets being more efficiently managed through automatically generated preventive maintenance work orders

# Phase 1 - Key Deliverables that support Phases 2 and 3

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- Asset Management Policy
- Level of Service categories and targets
- Risk Management Framework
- Enhanced Business Processes
- Revised Preventive Maintenance (PM) job plans based on optimization process

# What are the key deliverables, outcomes and benefits for Phase 2 of the AM Program?

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## ***Key Deliverables***

- List of critical and high risk assets
- Risk mitigation identification and selection process
- Business case evaluation criteria and process
- Criteria and process for prioritizing CIP projects uniformly across the Authority
- Key performance indicators (KPIs) and performance measures for Enterprise and Functional levels

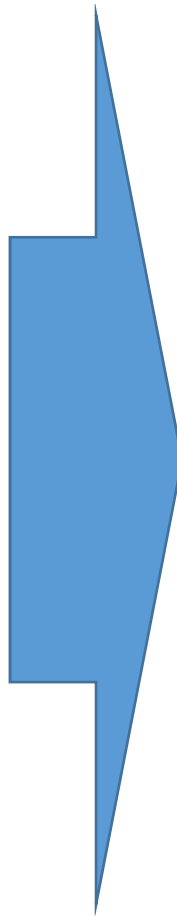


# What are the key deliverables, outcomes and benefits for Phase 2 of the AM Program?

## ***Outcomes***

Assess the risk of infrastructure failure across the Authority

Identify critical assets using standardized risk framework



## ***Benefits***

- Focus human and financial resources
- Increase asset reliability
- Consistently deliver established levels of service to customers
- Improve investment decisions
- Determine the most effective levels of maintenance

# What are the key deliverables, outcomes and benefits for Phase 2 of the AM Program?

## ***Outcomes***

Business case evaluation criteria and process

Prioritize CIP projects across the Authority using a uniform and consistent process

Track performance of assets using KPIs and other performance measures

## ***Benefits***

Decision making based on cost and benefit of project alternatives

Optimized infrastructure investments

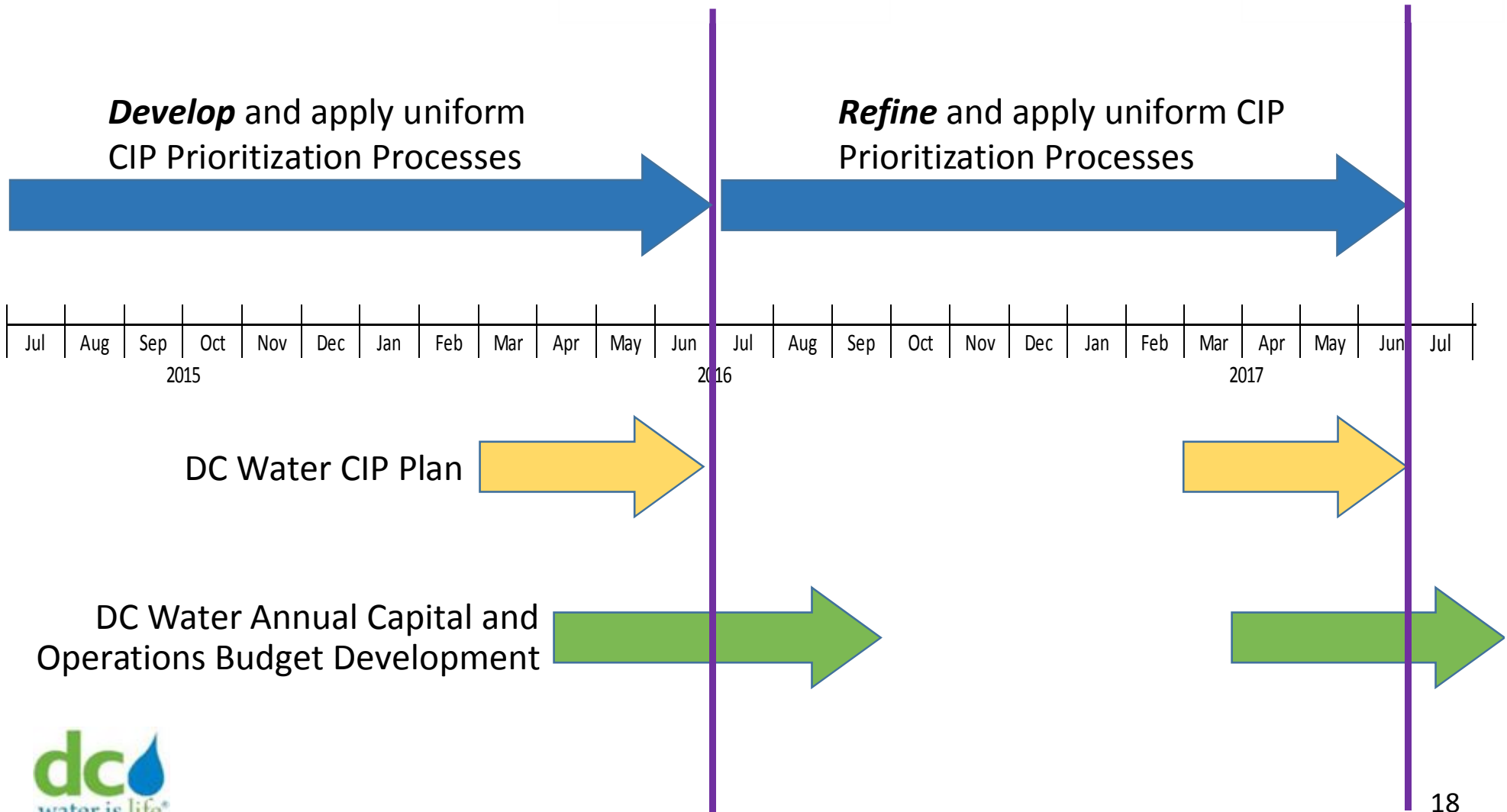
Fact based decision making



# Phase 2's intersection with DC Water's CIP planning and budgeting processes enables funding an Authority-wide, prioritized and uniform CIP

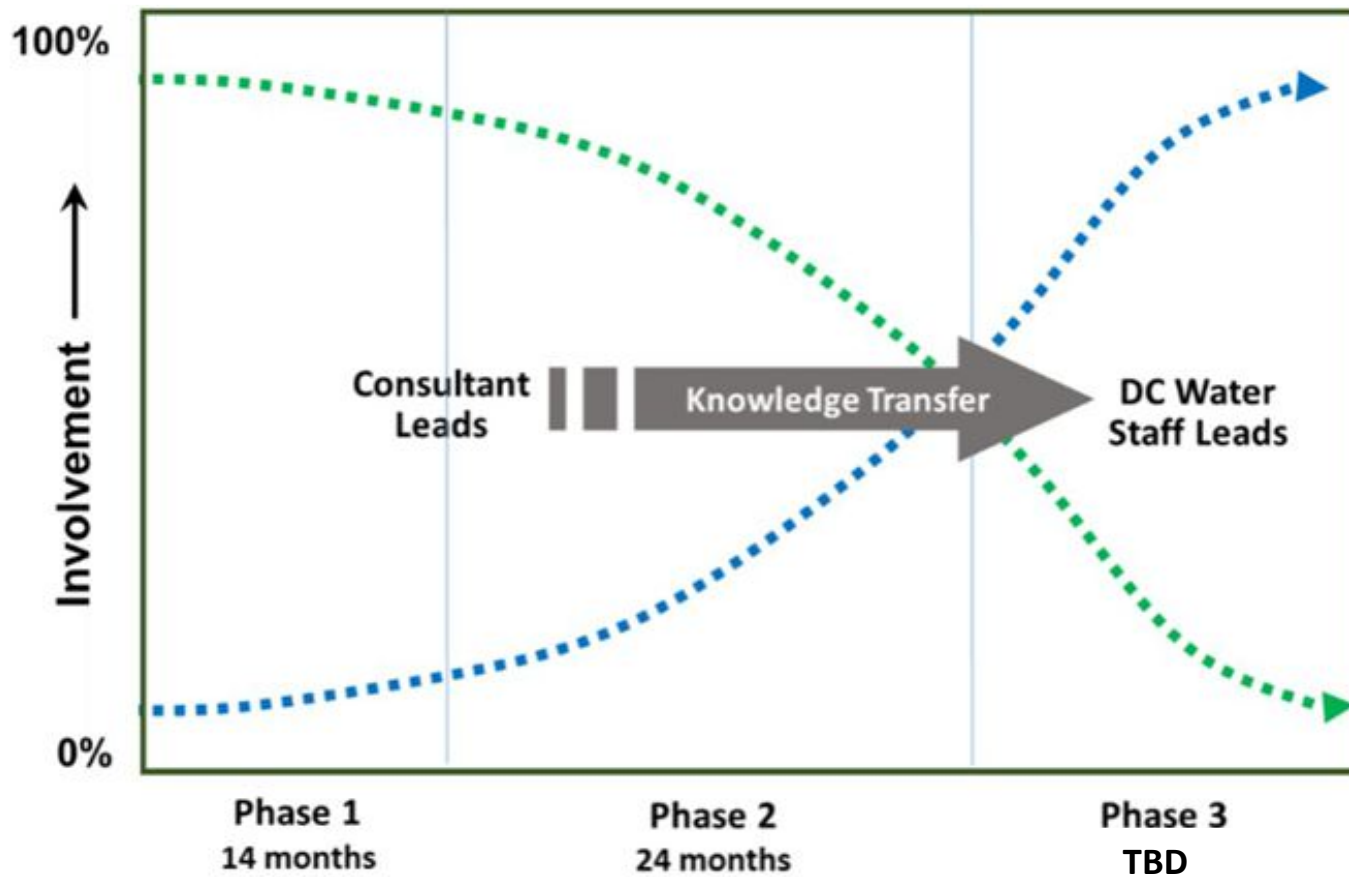
**Interim Milestone**

**Key Milestone**

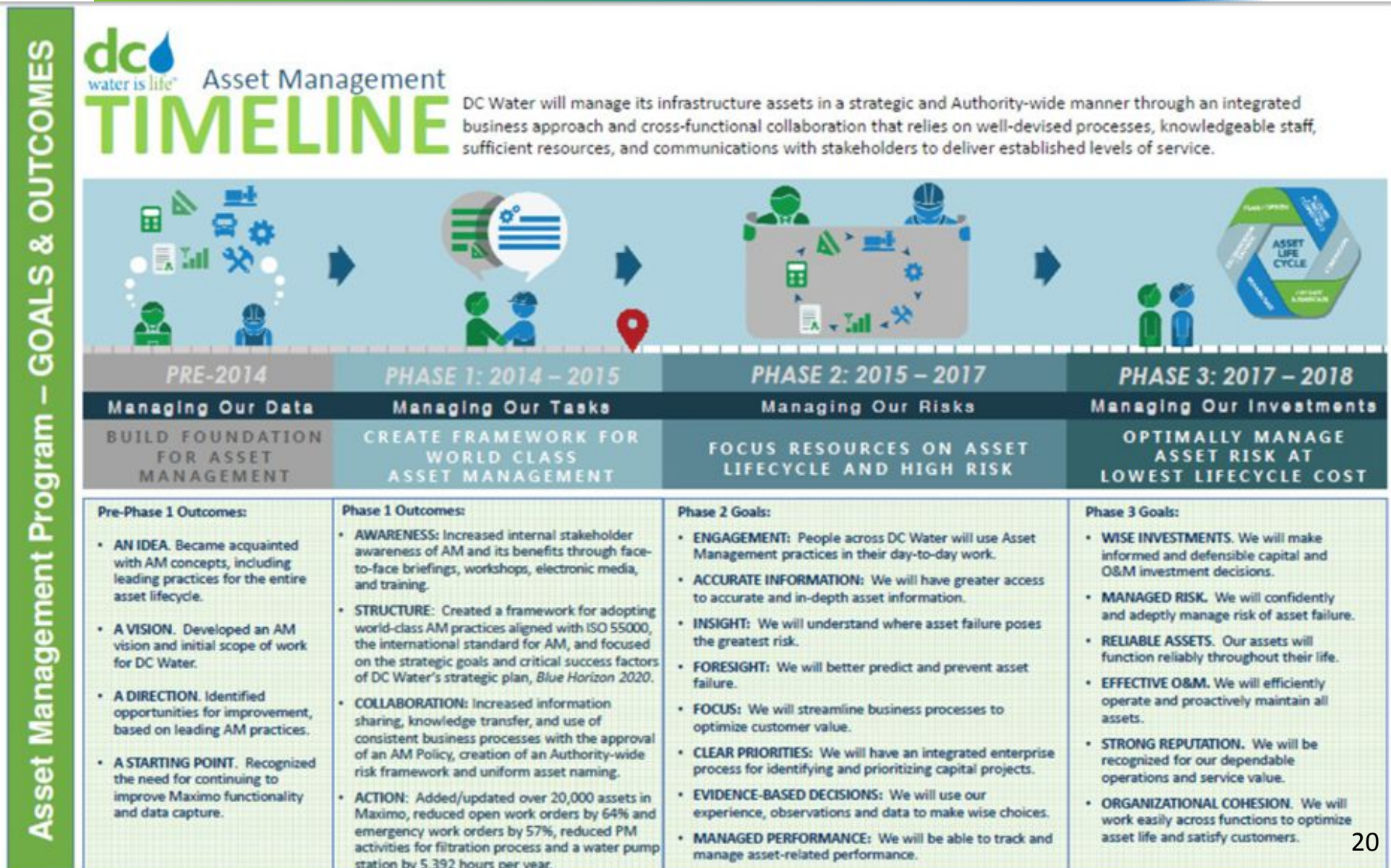


# Phase 3 – Full Implementation of AM by DC Water staff and program managers

## Organizational Transformation – Multi-phase progression



# Questions?



# Thank you...



**DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY  
BOARD OF DIRECTORS CONTRACTOR FACT SHEET**

**ACTION REQUESTED**

**ENGINEERING SERVICES SUPPLEMENTAL AGREEMENT:**

**Asset Management Program  
(Joint Use)**

Approval to execute a Supplemental Agreement for architectural and engineering services contract not-to-exceed \$10,200,000.

**CONTRACTOR/SUB/VENDOR INFORMATION**

<b>PRIME:</b>	<b>SUBS:</b>	<b>PARTICIPATION:</b>
CH2M Engineers, PC 901 New York Ave, NW Suite 4000 East Washington, DC 20001	EMA, Inc. St. Paul, MN	18.0%
	Sheladia Associates, Inc. Rockville, MD	10.3%
	EBA Engineering, Inc. Baltimore, MD	10.0%
	ADC Management Solutions Washington, DC	4.6%
	Peer Consultants, PC Washington, DC	3.1%
	Passaro Engineering Mount Airy, MD	4.0%

**DESCRIPTION AND PURPOSE**

Original Contract Value, Not to Exceed:	\$ 5,400,000.00
Value of this Supplemental Agreement:	\$10,200,000.00
Cumulative SA Value, including this SA:	\$10,200,000.00
Current Contract Value, Not-To-Exceed, including this SA:	\$15,600,000.00
Original Contract Time	439 Days (1 Year, 3 Months)
Time Extension, this SA:	744 Days
Total SA Time Extension:	744 Days (2 Years, 0.5 Months)
Contract Start Date:	04-04-2014
Contract Completion Date:	06-30-2017

**Purpose of the Contract:**

To provide support services for an enterprise-wide asset management program

**Original Contract Scope:**

- Services to be provided include Asset Management Program Development and Guidance, Technology and Data Management, Asset Lifecycle Management, and Investment Plan Delivery. It is anticipated that full program delivery will occur over a 5-year period.

**Current Supplemental Agreement Scope:**

- The Supplemental Agreement constitutes the second phase of the Asset Management Program plan and provides services to validate/modify current asset management framework, systems, and structure. Support services for ongoing asset management initiatives will be provided, as well as implementation of new asset management initiatives across the enterprise including integration of mobile solutions and GIS requirements.

**Future Supplemental Agreement Scope:**

- Future Supplemental Agreements(s) are anticipated, subject to satisfactory review of the consultant's performance.

**PROCUREMENT INFORMATION**

<b>Contract Type:</b>	Cost plus Fixed Fee	<b>Award Based On:</b>	Highest Ranking Score
<b>Commodity:</b>	Engineering Design Services	<b>Contract Number:</b>	DCFA #456-WSA
<b>Contractor Market:</b>	Open Market		

**BUDGET INFORMATION**

<b>Funding:</b>	Capital	<b>Department:</b>	Engineering and Technical Services
<b>Service Area:</b>	Water, Sewer, and Wastewater Treatment	<b>Department Head:</b>	Liliana Maldonado
<b>Project:</b>	LP, LR, and LQ		

**ESTIMATED USER SHARE INFORMATION**

For Wastewater Only

User	Share %	Dollar Amount
District of Columbia	41.22%	\$ 2,250,612.00
Washington Suburban Sanitary Commission	45.84%	\$ 2,502,864.00
Fairfax County	8.38%	\$ 457,548.00
Loudoun County & Potomac Interceptor	4.56%	\$ 248,976.00
<b>Total Estimated Dollar Amount</b>	<b>100.00%</b>	<b>\$ 5,460,000.00</b>

For Water and Sewer Only


User	Share %	Dollar Amount
District of Columbia	100.00%	\$ 4,740,000.00
Washington Suburban Sanitary Commission	0.00%	\$ 0.00
Fairfax County	0.00%	\$ 0.00
Loudoun County & Potomac Interceptor	0.00%	\$ 0.00
<b>Total Estimated Dollar Amount</b>	<b>100.00%</b>	<b>\$ 4,740,000.00</b>

Combined\*

User	Share %	Dollar Amount
District of Columbia	68.54%	\$6,990,612.00
Washington Suburban Sanitary Commission	24.54%	\$2,502,864.00
Fairfax County	4.49%	\$457,548.00
Loudoun County & Potomac Interceptor	2.44%	\$248,976.00
<b>Total Estimated Dollar Amount</b>	<b>100.00%</b>	<b>\$10,200,000.00</b>

\* Under the terms of the IMA, the capital costs associated with each joint use facility are to be split among the users in proportion to the peak flow each user is allocated. It is not possible, at this time, to allocate costs by individual facility. It is anticipated that as projects are developed for work associated with specific facilities and costs are developed, the individual users will be notified and billed accordingly.

  
 Gail Alexander-Reeves  
 Director of Budget  
 Date 1/5/17/2015

  
 Leonard Benson  
 Chief Engineer  
 Date 1/5/15/15

  
 Dan Bae  
 Director of Procurement  
 Date 1/5/15/15

  
 George S. Hawkins  
 General Manager  
 Date 1/5/15/15