



Town of

Orleans
Massachusetts

Orleans Water Quality Advisory Panel

Water Quality and Wastewater Planning

Program Status Update

February 15, 2017

Agenda

- ❖ **Approval of Meeting Minutes of January 18, 2017**
- ❖ **Public Comment**
- ❖ **Non-Traditional Technology Demonstration Project Update**
 - Shellfish/Aquaculture Projects
 - PRB Projects
 - On-Site Horizontal PRBs
- ❖ **Effluent Disposal Investigations Update**
- ❖ **Evaluation of Design/Build/Operate Delivery Options**
- BREAK**
- ❖ **Freshwater Ponds Planning Update**
- ❖ **Tri-Town Septage Treatment Facility Demolition**
- ❖ **Program Costs and Cost Allocation**
- ❖ **Other Items and Public Comment**





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Non-Traditional Technology Demonstration Projects Update

Non-Traditional Technologies Shellfish/Aquaculture

❖ Lonnie's Pond Project

- Received SMAST Report
- Preparing Year 1 Report Following Receipt of SMAST Monitoring Report
- Need Board Approval of Next Phase of Project

❖ Kent's Point Oyster Bed Propagation

- Received Remote Set Materials
- Preparing for Spring Implementation

❖ Enhanced Aquaculture in Pleasant Bay and Town Cove

- Submitted Draft Enhanced Aquaculture TM
- Finalizing Program with Input from Growers and Working Group

❖ Town Cove Project

- Waiting for Completion of Quahog Population Survey from SMAST
- Working with Growers to Complete




Non-Traditional Technologies (cont.) Permeable Reactive and Nitrogen Reducing Barriers

Permeable Reactive Barriers

- ❖ Eldredge Park
 - Wells installed and Sampling Underway
 - Submitted Draft Implementation TM
- ❖ Landfill
 - Addressing Comments on Investigation Plan
 - Phase 1 Sampling and Analysis and TM Underway
 - Preparing Phase 2 Design and Implementation Plan for FY2018
 - Working with DPW to Test & Connect 4-6 Remaining Potable Wells

Nitrogen Reducing Barriers

- ❖ Identified Seven Sites with BOH
- ❖ Prepared Draft Letter for Submittal to Property Owners
- ❖ Based on Responses Evaluate and Identify Four Sites for Implementation
- ❖ Working with County On-Site Test Center for Design and Monitoring Plans



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Effluent Disposal Site Investigations Update

Effluent Disposal

❖ Site 1/1A

- MHC Response - “no adverse effect” on the Old King’s Highway Regional Historic District
- Scheduling Field Investigations

❖ Downtown Area

- Waiting for Response From Nauset Regional School District

❖ Route 6, Exit 12

- MA DOT willing to Proceed with testing
- Submitted Permit Application
- Conducting Coordination Meetings with MassDOT

❖ USGS

- Coordinating Particle Tracking Model Update with Reduced Flows
- Confirming Acceptable Nitrogen Loads to Little Namskaket

The slide features a blue and green gradient background. In the top left corner is the seal of the Town of Orleans, Massachusetts. In the top right corner, the text "Town of Orleans Massachusetts" is displayed. The main title "Evaluation of Design/Build/Operate Delivery Options" is centered in white text.

Town of Orleans
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Evaluation of Design/Build/Operate Delivery Options

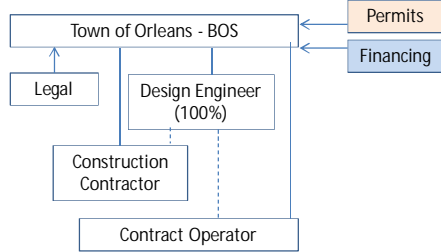
Procurement Options (cont.) Overview of Major Options

- ❖ Design-Bid-Build with Contract Operations
- ❖ Design-Build with Separate Contract Operations
- ❖ Design-Build-Operate Combined

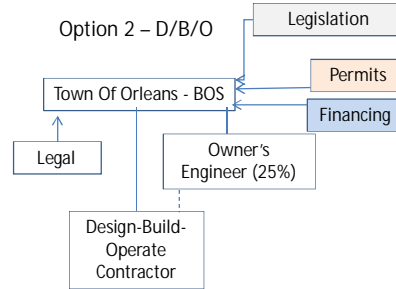


Wastewater Management Structures

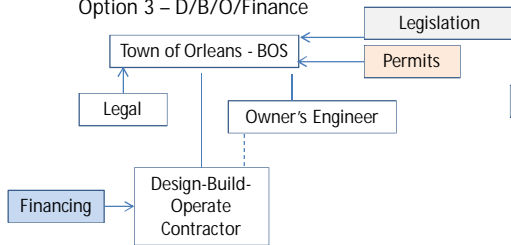
Option 1 – Conventional D-B-B with Contract Operations



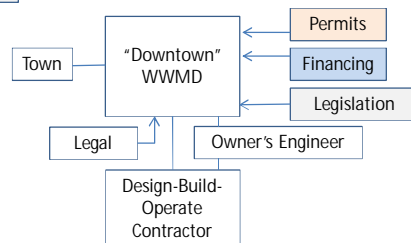
Option 2 – D/B/O



Option 3 – D/B/O/Finance



Option 4 – Wastewater Management District



Procurement Options (cont.) Comparative Schedule – Conventional D-B-B vs. D/B/O

See 11"x17" Handout



Procurement Options (cont.) Steps and Timetable to Get Legislation

❖ Draft Article for FY18 May Town Meeting

- Meet with Town Counsel - February
- Decide if Outside Counsel Should Draft Special Legislation - February
- Conduct Workshop with Board of Selectman and Town Counsel on Key Issues - Early March
- Draft Special Legislation - March

❖ Sample Special Legislation

- Gardner, MA
- Holyoke, MA
- Provincetown, MA
- Taunton, MA



Procurement Options (cont.) What Does Special Legislation Need to Contain?

❖ Simple as Possible to Provide Flexibility

❖ Identify

- Facilities and Activities Broadly (e.g. wastewater infrastructure design, construction and O&M)
- Length of Contract (Base Period and Option Period)
- RFQ/RFP Process will be Used
- Labor Requirements
- Future Additions/Modifications May Occur via State Procurement Laws

❖ Note

- Evaluation Criteria Will be Used to Select DB/DBO Contractor
- Provide Rationale if Low Price Bid is Not Accepted
- Facilities will be Eligible Clean Water Trust Loans

❖ Require Selection of Independent Firm as Owner's Engineer



Procurement Options (cont.) Preliminary Risk Analysis

Risk	Design-Bid-Build w/Contract Operations	Design-Build w/Contract Operations	Design-Build- Operate
Capital Cost Savings			
Operations & Maintenance Cost Savings			
Peripheral Costs (Legal, Owner's Engineer)			
Inflation and Cost Escalation			
Size of Bidder Pool (Competitive Bids)			
Eligibility for SRF Financing			
Contracting Multi-Phased Implementation			
Incentivizing Innovation			
Contract Termination & Default Provisions			
Delivery (Design and Construction) Schedules			
Need for Administrative Services (e.g. Billing, Monitoring, NT Projects)			
Asset Management Provisions			



Procurement Options (cont.) Additional Issues and Considerations

- ❖ **D/B/O Procurement Cost Reimbursement via SRF (e.g. legal)**
- ❖ **Dealing with Emerging Technologies in a D/B/O Contract Framework (e.g. On-Site PRBs)**
- ❖ **Management of Non-Traditional Projects: Town or D/B/O Contractor**
- ❖ **Regulatory Compliance Management : T & NT Programs**
- ❖ **On-going Monitoring & Modeling Requirements**
- ❖ **Risk Associated with NT Project Permittability & Compliance**



Procurement Options (cont.) Next Steps in D/B/O Delivery Option Evaluation

- ❖ **Continue with FY17 Tasks and Work Products**
- ❖ **Draft Article & Define Legislative Route for Special Legislation**
- ❖ **Further Refine D/B/O Potential Cost and Time Savings**
- ❖ **Develop D/B/O Risk Assessment & Risk Mitigation Options**
- ❖ **BOS Workshop / Meetings**
- ❖ **Consider Recommendations on Delivery Options from Consulting Team**
- ❖ **Draft FY18 Warrant Article to Reflect BOS Decision on Delivery Option**





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Break



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Freshwater Ponds Planning Update

Freshwater Ponds Planning Update

- ❖ Work Group has had several meetings
- ❖ Presentations and plans for integrating Town stormwater management information into the ponds management plans
- ❖ Developed screening criteria to prioritize ponds for detailed evaluation and management plans
- ❖ Prioritized two ponds: Uncle Harvey's Pond and Crystal Lake
- ❖ Developing scopes of work and budgets for FY2018 Warrant Article for these two ponds
- ❖ Developing scope and budget to prepare freshwater ponds Quality Assurance Project Plan (QAPP)



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Tri-Town Septage Treatment Facility Demolition

Tri-Town Septage Treatment Facility Demolition

❖ **Tri-Town District IMA and Permit expired on December 31, 2016**

❖ **Septage Receipts Ceased on June 1, 2016**

❖ **Schedule**

- Decommissioning – June 2016 thru August 2016
- Contract Documents – June 2016 thru November 2016
- Bidding – December 2016 thru February 2017
- Town Meeting Appropriations (Brewster, Eastham & Orleans) – May 2017
- Demolition – September 2017 thru April 2018



Tri-Town Septage Treatment Facility Demolition (cont.)

❖ **Bid Opening – February 15, 2017 at 9:00 am**

- Bids Received: 4
- Range: \$1,803,060 to \$2,247,000
- Apparent Low Bidder: S & R Corporation, Lowell, MA

	Tri-Town Septage Treatment Facility	Compost Shelter	Total
Estimated	\$2,300,000	\$450,000	\$2,750,000
Actual	\$1,650,560	\$152,500	\$1,803,060





Program Costs and Cost Allocation

Program Costs and Cost Allocation

Elements of the Program	Major Cost Components	Users
Collection, Treatment and Effluent Disposal	Capital and Annual O&M	Sewered Areas
Non-Traditional Technologies	Capital and Annual O&M	On-Site Systems in Nitrogen Sensitive Watersheds
Retain Existing On-Site Systems	Owners Responsible for Future System O&M and Upgrades	On-Site Systems in Non-Nitrogen Sensitive Watersheds



Program Costs and Cost Allocation (cont.) Two WWTFs verses One WWTF

Elements of the Program	2 WWTFs	1 WWTF	Difference
Estimated Capital Costs	\$71,719,000	\$69,347,400	\$2,371,600
Estimated Annual O and M Costs	\$1,091,400	\$972,200	\$119,200
Estimated Annual Replacement Costs	\$221,100	\$210,800	\$10,300
Estimated Annual Monitoring Costs	<u>\$78,000</u>	<u>\$61,000</u>	<u>\$17,000</u>
	\$1,390,500	\$1,244,000	\$146,500
Estimated Present Worth Savings Over 20 years at 3% Interest Rate			\$4,551,600

Other issues:

- Proximity to proposed Downtown system facilitates single facility
- Siting new WWTF in East Orleans problematic



Program Costs and Cost Allocation (cont.) Financial Plan

- ❖ Incorporated Implementation Phasing Plan for Program
- ❖ Incorporated Water Use and Property Assessment Data
- ❖ Reviewed and Adjusted Project Costs
- ❖ Developed Detailed Model with Functionality
- ❖ Scenarios Used Federal, State, or Regional Funding Options
- ❖ Produced Best “Reasonably Optimistic” Scenario Assumptions
- ❖ Meeting with Downtown Businesses and Condo Owners to discuss special assessment for private investment



Program Costs and Cost Allocation (cont.) Financial Plan Scenarios

Component Description	A	B	C	D	E	F	G	H	I
100% Capital Cost on Tax Rate	X	X	X	X	X	X	X	X	X
100% O/M/R/R on User Charge	X	X	X	X	X	X	X	X	X
4% Conventional Financing	X	X							
20-Year Borrowing	X	X	X	X	X				
90% Grant/Loan Forgiveness		X							
2% SRF Financing			X						
0% SRF Financing				X	X	X	X	X	X
25% Grant/Loan Forgiveness					X	X	X	X	X
30 Year Borrowing						X	X	X	X
D/B/O Savings							X	X	
Local Options Tax @ 5%							X	X	X
Septage Revenue							X	X	X
One WWTF								X	X
Downtown WWTF Capital Special Assessment @ 75%								X	X

OWQAP Meeting

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Program Costs and Cost Allocation (cont.)

Assumptions	Customer Rate Scenarios			
	Case C	Case G	Case H	Case I
	Capital - 100% Tax O&M&R&M - 100% User Fees Financing - 20-year 2% SRF	Capital - 100% Tax O&M&R&M - 100% User Fees Financing - 30-year 0% SRF • 25% Grant • 21% D/B and 7% D/B/O Savings • 5% Local Tax Option • Septage Revenue • 25% to 15% Contingency Reduction for Capital/Replacement Costs	Capital - 65% Tax Capital (NT) - 100% Tax O&M&R&M - 100% User Fees Financing - 30-year 0% SRF • 25% Grant • 21% D/B and 7% D/B/O Savings • 5% Local Tax Option • Septage Revenue • 25% to 15% Contingency Reduction for Capital/Replacement Costs • One WWTF • 75% Downtown Area WWTF Special Assessment	Capital - 65% Tax Capital (NT) - 100% Tax O&M&R&M - 100% User Fees Financing - 30-year 0% SRF • 25% Grant • No D/B or D/B/O Savings • 5% Local Tax Option • Septage Revenue • 25% to 15% Contingency Reduction for Capital/Replacement Costs • One WWTF • 75% Downtown Area WWTF Special Assessment
Total Annual Charge Not Including Downtown Area Special Assessment Financing Impact 25% of WWTF, 100% of Collection and Effluent Disposal and 100% of Non-Traditional Projects on Tax Rate				
Downtown Area - Commercial	\$1,723	\$1,105	\$932	\$1,019
Downtown Area - Residential	\$1,723	\$1,105	\$932	\$1,019
Meetinghouse Pond Area	\$1,848	\$1,038	\$932	\$1,019
Non-Traditional Technology Area	\$1,987	\$1,216	\$1,155	\$1,198
Septic System Only	\$948	\$343	\$282	\$326
Total Annual Charge Including Downtown Area Special Assessment Financing Impact 25% of WWTF, 100% of Collection and Effluent Disposal and 100% of Non-Traditional Projects on Tax Rate				
Downtown Area Special Assessment	\$0	\$0	\$8,820	\$11,164
Downtown Area - Commercial	\$1,723	\$1,105	\$1,226	\$1,391
Downtown Area - Residential	\$1,723	\$1,105	\$1,226	\$1,391
Meetinghouse Pond Area	\$1,848	\$1,038	\$1,226	\$1,391
Non-Traditional Technology Area	\$1,987	\$1,216	\$1,155	\$1,198
Septic System Only	\$948	\$343	\$282	\$326

Charges shown are based on an averaging method for each area.
Each property/unit in each area is charged the same amount.

OWQAP Meeting

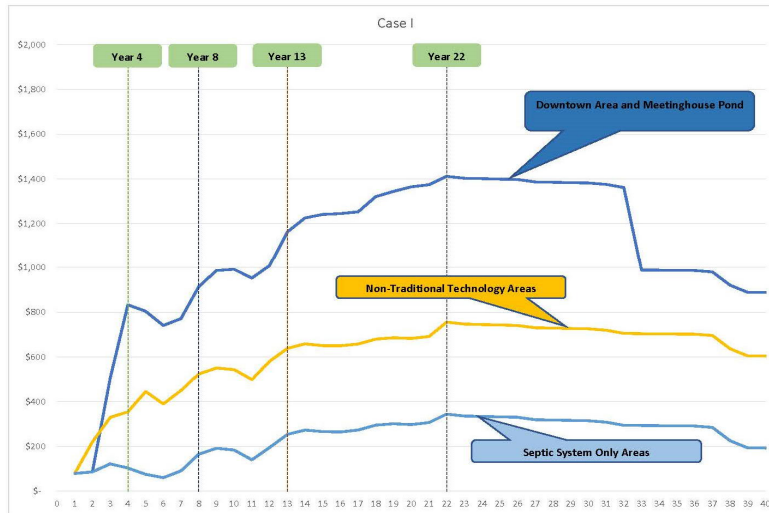
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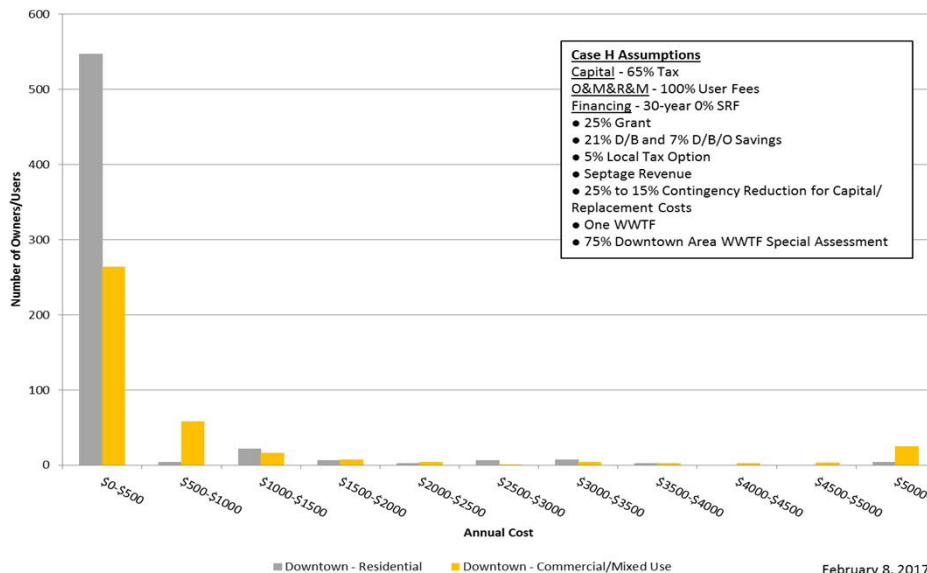


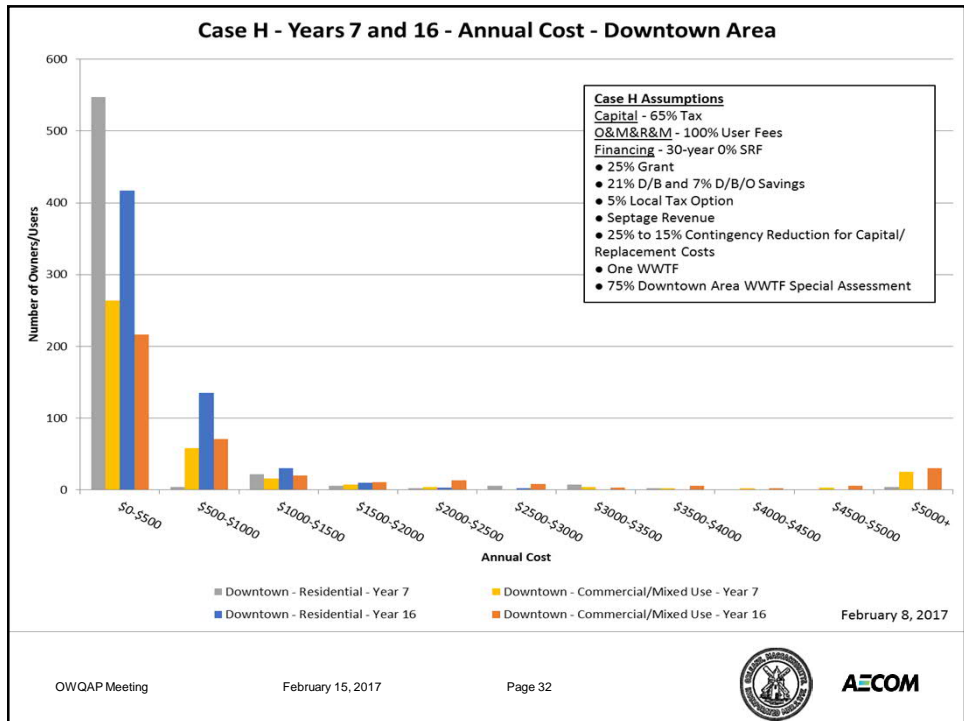
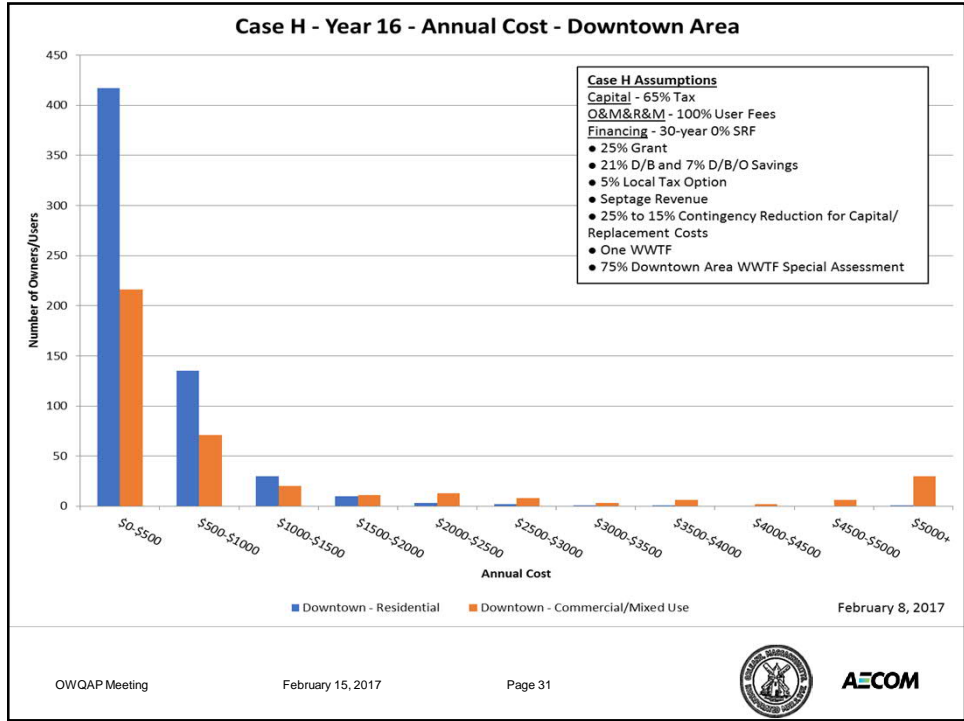
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Program Costs and Cost Allocation (cont.)



Case H - Year 7 - Annual Cost - Downtown Area





Program Costs and Cost Allocation (cont.) Sample Assessment for Downtown Area

Sample Assessments for Downtown Area							2015	2014-2015	Assessment: \$ 5,000,000		Assessment: \$ 10,000,000	
Key	GISNum	Address	Classification	Phasing	Land Use Classification	Assessed Value	Avg. Daily WW Usage	Per-Property Amount		Per-Property Amount		
								Total	Yearly	Total	Yearly	
2512	2207	2 ACADEMY PLACE	Downtown	2	Non-Residential/Mixed Use	\$934,600	866.76	\$ 31,128	\$ 1,038	\$ 62,256	\$ 2,075	
10155	2180	4 ACADEMY PLACE	Downtown	2	Residential	\$668,500	263.58	\$ 9,466	\$ 316	\$ 18,932	\$ 631	
5923	2279	5 ACADEMY PLACE	Downtown	2	Non-Residential/Mixed Use	\$19,700	407.04	\$ 14,618	\$ 487	\$ 29,236	\$ 975	
N/A	N/A	0 ANTHONY DRIVE	Downtown	4	Residential	N/A	868.73	\$ 31,917	\$ 1,064	\$ 63,834	\$ 2,128	
10966	2497	3 ANTHONY DRIVE	Downtown	4	Residential	\$293,100	48.92	\$ 1,757	\$ 59	\$ 3,514	\$ 117	
10967	2497	5 ANTHONY DRIVE	Downtown	4	Residential	\$326,600	78.16	\$ 2,807	\$ 94	\$ 5,614	\$ 187	



Other Items and Public Comment

❖ OWQAP Meeting

- March 8, 2017, 9:00 am to Noon

❖ Public Information Activities

- Shellfish Working Group - February 28, 2017 at 2:00 pm and March 13, 2017 at 2:00 pm
- SMAST / Commercial Harvesters - March 13, 2017 at 1:00 pm
- PRB / NRB Working Group – March 14, 2017
- Downtown Collection System Working Group – TBD
- Freshwater Ponds Working Group – TBD
- BOS – Design-Build-Operate Workshop – March 22, 2017

❖ Status Reports and FAQ on Various Projects





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Thank You