

ORLEANS WATER QUALITY ADVISORY PANEL
PROGRAM STATUS UPDATE AND MEETING MINUTES

for the meeting of:

Wednesday, February 17, 2016
9:00 AM – 12:00 PM

Orleans Town Hall, Nauset Room
19 School Road, Orleans, Massachusetts 02653

This meeting was the fourth of six planned meetings to be held by the OWQAP in FY 2016. The purpose of the meetings is for the OWQAP to review and advise on the activities of the Town and its consultants related to implementation of the Consensus Plan for wastewater and water quality management as developed by the Panel in FY 2015.

WELCOME AND INTRODUCTION OF PANEL

The agenda and all meeting documents and presentations for the Town of Orleans Water Quality Advisory Panel are located here:

<http://www.town.orleans.ma.us/water-quality-advisory-panel>

Alan McClennan, chairman of the Orleans Board of Selectmen, called the meeting to order at 9:00 AM. Attachment A is a list of the panel members and liaisons present at the meeting.

The next meeting of the Orleans Water Quality Advisory Panel will be on Wednesday, March 16, from 9:00 AM to 12:00 Noon.

APPROVAL OF MEETING MINUTES OF JANUARY 20, 2016

The minutes from the January 20th meeting were approved without changes.

PRESENTATIONS AND DISCUSSIONS

1. Downtown Planning Study Summary and Next Steps

Betsy Shreve-Gibb, AECOM's consultant, presented the results of the Orleans town center planning study now underway. As part of this study, AECOM conducted two well-attended workshops to review their current progress and to get feedback from the public on their preliminary analysis.

At the first workshop, held in mid-December, AECOM reviewed the studies that had previously been done and presented a vision for the Orleans town center. At the second

workshop, held in February, AECOM followed up on the initial presentation and presented several possible scenarios for the future growth in the town center.

The study envisions a vibrant Orleans town center with more affordable housing, reversing the pattern of young families leaving town because they can't afford to live here. The direction is to prioritize year-round residents, to target increased growth, to create a higher density of residential properties and to encourage smaller increases in commercial square footage.

AECOM presented several buildout scenarios showing potential residential units and commercial square footage under the current zoning and under revised zoning, with and without wastewater limitations. One scenario closely mirrors the current proposal being put forward by Todd Thayer which emphasizes residential units over commercial expansion. All the scenarios were designed to understand how much Orleans might grow while still qualifying for zero percent loans from the state revolving fund.

There was considerable debate about how we move forward with the results from the downtown planning study. The scenarios presented here are very much in line with the overall vision of a vibrant town center with more affordable housing which was approved by Orleans voters in 1999, 2001, and 2006. Some scenarios will require zoning changes, which need to be proposed by the planning board and then approved by the town. The engineering teams will also consider the various scenarios and the associated wastewater flows as the town moves forward in its continuing effort to address our wastewater challenges.

2. Tri-Town Septage Plant Transition Status Update

As previously reported, the three towns have voted not to fund interim improvements to Tri-Town and, as a result, the inter-municipal agreement and operating permit will expire on December 31, 2016. Because of uncertainties with staffing and the reliability of the equipment, the towns and the Tri-Town board of managers have voted to cease receipt of septage on June 1, 2016. Note that this is somewhat earlier than the previous target of the end of October. The June 1, 2016 date may also need to be revised should the current plant employees terminate employment before that date.

Decommissioning Tri-Town will take about three months and the existing employees have accepted a 3-month salary retention offer to continue to operate the plant through the shut down and decommissioning. The design of demolition will be procured and contracted after the May 2016 town meeting.

3. Collection, Treatment and Disposal Systems Update

Work continues with site evaluation and selection for the collection, treatment and disposal systems for the Meetinghouse Pond watershed area and for a potential new plant at Overland Way, the site of the existing Tri-Town facility. During the past several months, the emphasis has been on evaluating possible locations for treated effluent disposal by groundwater infiltration from both facilities.

The site at 223 Beach Road appears promising as a proposed location for disposal of treated effluent by groundwater infiltration from the Meetinghouse Pond watershed area. AECOM's team has completed most of the site evaluation with monitoring wells, test pits, baseline analysis and models and estimates for groundwater flow. Estimates indicate this site could receive up to 200,000 gallons per day, well in excess of what's needed to support the Meetinghouse Pond watershed area wastewater project.

Because the state has still not given Orleans approval to evaluate the cloverleaf at Route 6, Exit 12, AECOM is evaluating two parcels at the edge of the current Tri-Town facility on Overland Road. Current estimates are that this site could absorb up to 150,000 gallons per day, flowing towards Little Namskaket salt marsh. While there has been considerable discussion about the potential environmental impact of any effluent on Namskaket marsh, there's been relatively little about Little Namskaket marsh. Any additional analysis of this site should also assess any environmental impact on Little Namskaket.

Jeff Eagles also pointed out that the septage market is very price sensitive and that the marketplace is changing as the new sewage treatment facility comes online for Chatham and Harwich, as the Yarmouth-Dennis plant expands and as off-Cape haulers compete in the current marketplace. Jeff will forward his analysis to AECOM and they will incorporate it into their analysis of the overall septage market.

In analyzing the septage market, AECOM needs to provide an assessment of (1) the future septage volume available to Orleans given the changes in the market, (2) the future sustainable septage tipping fees considering the competition from the Yarmouth-Dennis septage treatment plant, off-Cape haulers and potential for local haulers establishing transfer facilities to ship septage off Cape, (3) the right-sized capacity for Orleans to operate a sustainable septage business over the next 20+ years, and (4) the projected sustainable net revenue from a septage facility investment.

4. Public-Private Partnership Options

Orleans Real Estate Developer, Todd Thayer has recently presented plans for Marketplace Development to be located on 15 acres bound by Main Street, Old Colony Way and Route 6A. Mr. Thayer is investigating options for building a private wastewater treatment facility for the site to treat about 120,000 gallons of wastewater per day. The discussion of the Marketplace Development has stimulated a discussion of options for designing, building, financing and operating wastewater treatment facilities for the downtown district.

So-called Design-Build-Operate (DBO) arrangements assign responsibility for the facility design, construction and operation to a single contractor who is also responsible for the performance and regulatory compliance of plant operations. This alternative offers potential schedule time savings and operating cost savings. This business structure requires enactment of special legislation by the State Legislature allowing the project to proceed; other Massachusetts communities have built wastewater treatment facilities using this business structure.

Also discussed were public-private partnerships as a means of financing and operating wastewater treatment facilities. As the term implies, the up-front capital investment would be contributed by Orleans and a private investor with Orleans retaining ownership and the private investor sharing in the treatment capacity based on the capital contributed.

An important consideration in evaluating both the DBO and public-private partnership structure is their eligibility for grants, debt forgiveness and state revolving fund 2% and 0% loans.

These project delivery structures are the subject of ongoing discussion by the Board of Selectmen and with the town's engineering consultants.

5. Financial Plan Update

AECOM is continuing development of a financial model designed to include all water quality improvement project cost elements and evaluate options for fair, value-based cost allocation and recovery. The model will include the capability to evaluate public-private partnership business structures and DBO. AECOM is in the process of defining and refining cost and revenue components, user categories and financing options.

Included in the AECOM handouts on the financial plan was a slide showing water quality improvement project costs, later referred to as the "cost sheet", identifying projected costs for each individual element of the overall program including downtown wastewater and Meetinghouse Pond watershed wastewater facilities, non-traditional technology (e.g. shellfish aquaculture) demonstration and full scale projects. All of the costs are estimates.

The cost sheet shown on page 6 provides the projected capital cost of \$87.7 million, the amount planned to be invested, of all the water quality improvements. The capital cost is shown in the first column of numbers on the left side of the "cost sheet". In addition, the "cost sheet" presents an estimate of the total cost of the water quality projects over a 20 year time horizon, \$233 million, in the last column on the right hand side of the "cost sheet". The 20 year total cost is the sum of all the capital, operating, regulatory and maintenance costs over the next 20 years.

The underlying purpose of the financial model, in addition to understanding all of the project costs, is to develop a plan for allocating and recovering those costs that considers both fairness and affordability.

6. Pleasant Bay Water Quality Analysis - 2015 Cadmus Report

Carole Ridley (Pleasant Bay Alliance) summarized a presentation by the Cadmus Group in a public meeting on February 9, 2016.

Cadmus concluded that the 2000 to 2014 data shows consistent no overall trend in the water sample analyses result across all of Pleasant Bay. The opening of a second Pleasant Bay

inlet opposite Minister's Point in 2007 provided improved flushing throughout most of the Pleasant Bay system which resulted in lower nitrogen concentrations in many areas. Although as the new inlet developed, some of the flushing benefits diminished somewhat.

Discussion followed concerning the need (1) to understand sediment nitrogen load trends, trends in related water analysis parameters such as water temperature and dissolved oxygen, (2) to provide an evaluation of the breakout in the Orleans segment of the Pleasant Bay barrier beach to inform and guide the Town of Orleans in its water quality improvement efforts, and (3) to look at differences between changes in open water areas versus restricted embayments such as drowned kettle ponds (e.g. Meetinghouse Pond).

Observation of water parameters is important in detecting changes in natural water systems and will become more important to monitor effectiveness as water quality improvement projects get underway.

7. Monitoring and Modeling Plan Update

A workshop to discuss environmental monitoring and modeling plans on February 9th was cancelled due to a snow storm. The workshop will be rescheduled.

Environmental monitoring, collection and analysis of water, sediment and other samples from our natural water systems, is necessary to monitor the health of the systems and water quality in addition to providing data needed for modeling the impact of nitrogen reduction projects.

The workshop will review current environmental monitoring programs to identify information gaps and to revise the monitoring as needed to provide data for rerunning the Massachusetts Estuaries Project (MEP) models and for monitoring the effectiveness of non-traditional demonstration projects such as shellfish reefs and permeable reactive barriers.

Reruns of the MEP models with current data are needed to make up-to-date evaluations of nitrogen levels due to changes in the systems since 2000 such as the development of a second inlet to Pleasant Bay and the restrictions to flow caused by changes in Nauset Inlet.

8. Non-Traditional Demonstration Project Task Progress

Demonstration project sites for aquaculture/shellfish propagation, permeable reactive barriers and floating constructed wetlands have been narrowed down to a few specific locations for each.

The highest ranked shellfish sites are Quanset Pond and Little Pleasant Bay (near existing shellfish grants). A meeting is planned for March 9th to discuss project sites.

Floating constructed wetland and permeable reactive barrier (PRB) sites were discussed with Lonnie's Pond and Quonset Pond the top ranked for a floating constructed wetland demonstration project and sites at locations suitable for intercepting nitrogen from the

abandoned septage beds near the transfer station and, in addition, a site on Gibson Road being top ranked for a PRB demonstration project.

9. Cost Estimates

AECOM provided revised capital, operating and present worth cost estimates. These estimates are based on more detailed engineering information than the FY 2016 estimates, but continue to be revised as cost information is collected from vendors, more detailed designs and alternatives evaluations. Updated estimates will be provided for information to the Panel as they are developed. It is noted that, at this stage, the estimates, particularly the present worth estimates¹ are useful for alternatives comparison only and are not intended to be used as projected program costs for financial analyses.

10. Other Meetings Scheduled

OWQAP Aquaculture Workgroup in Skaket Room on Wednesday, March 9th at 10:00 a.m.

OWQAP Meeting in Nauset Room on Wednesday, March 16th from 9:00 a.m. to noon.

11. Other Items and Public Comment

No other issues were raised and there were no further comments from the attendees.

ADJOURNMENT

The meeting was adjourned at 11:45 AM.

¹ A Present Worth (PW) cost estimate includes costs for capital facilities that are expended or financed at the particular time of construction over the design life (e.g. 20 or 30 years) of the facility, added to accumulated, yearly operating costs, including operations, maintenance, monitoring and other costs, that are expended on an annual basis over the full 20 or 30 years of operation of the system. All future capital and operating costs are combined and converted, with an assumed interest rate, to current day values. A present worth estimate is useful for comparing the 20-year value of alternative programs.

Attachment A

Orleans Water Quality Advisory Panel Member Attendees

OWQAP Meeting of February 17, 2016

Alan McClennen	Selectman
Sims McGrath	Selectman
David Dunford	Selectman
Doug Fromm	Orleans CAN
Judith Bruce	Former CWMP Committee
Jim McCauley	Orleans Pond Coalition
Gordon Smith	Orleans Taxpayers Association
Ed Daly (Alternate)	Former Peer Review Committee
Jeff Eagles	Orleans Water Alliance
Genia Pati (Alternate)	Orleans Water Alliance
Ted Foot (Alternate)	Orleans CAN
Jim Robertson (Alternate)	Orleans Pond Coalition

Liaisons

Virginia Iannini	Brewster Conservation Committee
John Kelly	Tri-Town Board of Managers
Brian Dudley	MA DEP
Patty Daly	Cape Cod Commission
Suzanne Phillips	Orleans Shellfish & Waterways
Joshua Larson	Orleans Finance Committee
Steve Phillips	Orleans Conservation Committee
Elizabeth Migliore	Orleans Conservation Trust
Judy Scanlon	Orleans Water Quality Task Force
Jane Crowley (Alternate)	Town of Eastham
Carolyn Kennedy	Orleans Water Quality Task Force

